

AMATEUR RADIO



Published in the interests of Amateur Radio
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JANUARY, 1936

Amateur Radio

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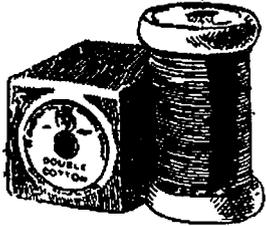
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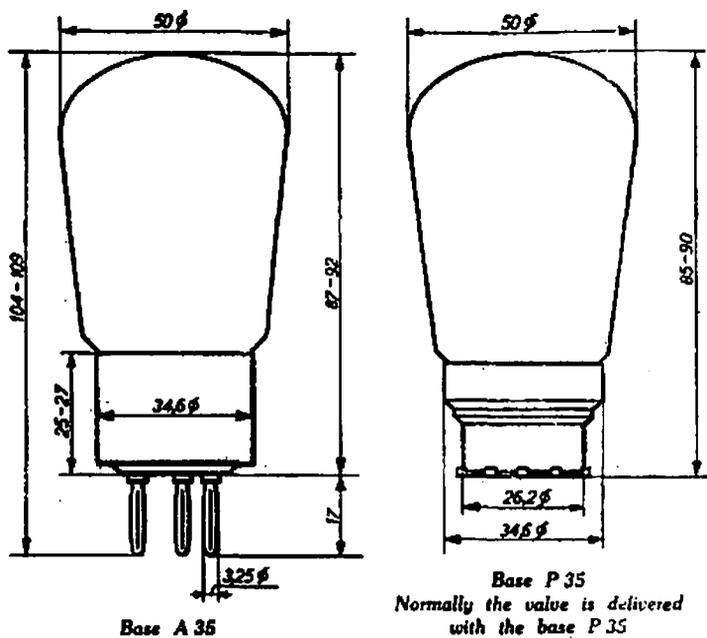
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ANODE-GRID CAPACITY		3 appr.)
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(1) when $V_a = 300$
and $I_a = 20$ mA

(2) With base P35
(micro-microfarads)



PHILIPS

WORLD'S LARGEST RADIO MANUFACTURERS

Now that we are recovering from the aftermath of Christmas our minds are turned to the all-important subject of Phone/CW Restriction on our bands. All W.I.A. members will be expressing their opinions within the next week or so, and after each Division has forwarded the result of its Divisional poll we will then eagerly await the result from Federal Headquarters. We might add "with trepidation" to the word "eagerly", for the consequences of this poll are very far-reaching, and concern not only our own members and our own society immediately, but also must have some reaction in other membership societies of the IARU, when this very controversial subject is brought up for discussion.

What a hateful word "Restriction" is, and what an equally hateful meaning it has! Speaking in a general sense, the best possible complexion that one can put on any restriction is that it is a loss method of achieving an object, and the worst possible is that no restriction ever made could possibly bear on everyone's shoulders, an equal burden. Now, becoming more specific, a restriction of our bands, if they were a few thousand kilocycles wide and we had plenty of space to play with, would be an admirable solution of the difficulty. We could lop off 500 kilocycles or so and never miss it (at least, not very much). But to discuss devoting, for the exclusive use of Phone, definite areas of our totally inadequate bands is an example of rigorous extravagance that would take some beating.

To our minds a restriction such as is suggested is not only totally unnecessary to remedy the position; has not only proved a dismal failure wherever it has been tried, but will be a self-admission on our part, if we agree to it, that we have not the organising ability nor the commonsense to utilise our present bands to the best advantage. We must not lose sight of the fact that we have only about 800 odd active members in the whole of Australia, and thus drastic measures that may seem necessary on the other side of the world are quite unnecessary here.

We agree that some form of CONTROL is needed, but if the average CW man, who cries out for Phone abolishment on his DX bands, surveys the position dispassionately, he will agree that it is not Phone that he is so perturbed about, but: 1.—BAD PHONE, in all its many forms. 2.—CANNED MUSIC. 3.—HIGH POWER Phone men working over the back fence, and 4.—In a lesser degree Interstate Phone QSO's during DX hours. With the Phone man who is genuinely trying to work DX, when that station is using good Phone, and is complying with the regulations, the CW man has no reasonable complaint. If he loses a DX contact through the interference of the Phone it is purely the luck of the game. His only argument that can carry any weight on this score is that even the best Phone occupies a wide channel compared to his CW signal. On the other hand, however, the Phone man can say, and rightly so, that he has as much right to seek that coveted WAC as the CW man.

But let us examine the enumerated items tabulated above. Here surely is the crux of the position, and it is perfectly obvious that a satisfactory control of them will lead to a clearing up of the whole position, with a minimum of inconvenience to all.

1. **BAD PHONE.**—There is absolutely no excuse for this, one of the worst features of the whole situation. Australian CW men hold pride of place in the world with the highest percentage of CC stations, and we are always endeavouring to make the standard still higher. On the other hand though, some men seem to think that they can couple a microphone into a circuit anywhere, and provided modulation of some form is achieved, well—that is good enough. A rigorous control of Phone quality is essential by our own vigilance officers. Our Phone men on the 200 metre band have set an enviable standard, our CW standard is very high also, so there should be no reason for the existence of the rubbish that passes under the name of Phone. Again, this is becoming increasingly important now that Dual-wave sets are becoming so popular with the BCL listeners, and even if some men don't care what they do to or what trouble they cause their fellow-amateurs, surely they will take some heed when they know that they are sullyng the good name of Amateur Radio in the eyes of the BCL's.

2. **CANNED MUSIC.**—For sheer unadulterated selfishness there is nothing approaching this nuisance on our short wave bands. Nothing should be too severe for the station who plays record after record for long periods, often without even announcing. Not only is that man contravening the Spirit of Amateur Radio, but also he is breaking the regulations into the bargain. A station caught in the act should be dealt with very severely, and there should be no leniency for a first offence.

3. **High Power Phone QSO's,** often of hours duration, between stations a couple of miles apart, is another type of selfishness that makes every decent Ham's blood boil. Not only is such a QSO an example of selfishness, but it is also a serious reflection on the radio ability of the stations taking part. They have used the wrong band for their contact. If a man desires to carry out local tests on Phone or merely make a local QSO, he has at his disposal a band—five metres—that is perfect in every way. The gear required is ridiculously simple and cheap, antennae are small; in fact, there is not a single argument that can be brought forward why local Phone contacts should not be conducted on 5 and 2½ metres. The average nuisance for whose Phones we are compelled to suggest control will say there is no one on "5" with whom to work, but that argument will merely add "laziness" to the word "nuisance" we have already called him. If he cares to listen on "5" he would find the answer to his argument.

4.—**Interstate Phone QSO** is a matter that might well be left in the hands of the rank and file after an appeal to their sense of fair play. If a man lived up to the ideals of Amateur Radio he would not carry on Interstate Phone QSO during DX hours on a DX band.

Many suggested modifications of the original sweeping restriction have been put forward, such as "banning Phone altogether from 40 metres" or "making it permissible during certain hours", but all are little better than the original plan. We feel confident that no sensible minded amateur will consider the suggested restriction in either its original or modified form. As we said before, it is not only totally inadequate, but is totally unnecessary for the type of trouble experienced. However, if the suggested scheme does nothing more than bring a very controversial subject to a head out of which may come a successful scheme of Phone control, then it has achieved a great deal.

By far the best means of attack is an analysis of the trouble with a clear, unbiassed mind, realising that the genuine Phone man has as much right to a place in the sun as the genuine CW man.

Why should we not make use of the Vigilance Officers already appointed by Federal Headquarters in a Federally controlled scheme whereby breaches of the regulations could be dealt with through a form of self-government, rather than through any type of Restriction?

If the ideal of Amateur Radio were followed in the spirit of everyone, no form of restriction or control would be necessary, and a suggestion we make earnestly to all divisions of the WIA is that they issue to every member a copy, suitably printed, of the "Amateur Code", that every member frame it, hang it on his shack wall beside his station license, and make a New Year resolution to abide by it in all his radio activities. That would be the panacea for all the ills we suffer.

Field Strength Measuring Equipment for the Amateur

The purpose of field strength measurements is to obtain an accurate picture or pattern of the actual values of the field surrounding an antenna. This picture should show the field adjacent to the antenna, which, of course, is the true pattern of the antenna, as well as the field at distances of from two to twenty miles away, which reveals the effects of buildings, hills, power lines, bodies of water, etc.

The equipment used has usually been a receiver of the superheterodyne type, operated with a small loop. A standard source of signal was required for calibration of the receiver and this together with the associated power supplies, made the outfit rather cumbersome. These outfits were capable of taking readings hundreds of miles from powerful stations, the distance usually being limited by the static or noise level, which obscured the signal or affected the accuracy of the reading. Considerable time and effort was required for each reading taken, and the progress was naturally slow.

Field strength measurements originally were taken at broadcast and lower frequencies. At first they consisted of a few measurements taken at random, usually, locations that seem favourable. Later, more consideration was given to the locations, and attempts to pick average locations were made. Next, the practice was to take readings at points about the compass, each located at the same distance from the antenna. This last procedure, while giving a reasonable picture of the field at distances, did not reveal the causes of distortion of the pattern. Finally, the practice was changed to that of taking readings at uniformly spaced distances, located along a straight line or radial, starting near the station and extending out as far as the equipment permitted or time allowed. These radials are run at about every 45 degrees at least until the antenna is encircled. This last procedure clearly indicates the effects of screening and the pattern obtained gives a true picture of the field, both close to the

antenna and at greater distances.

The amateur employs higher frequencies, which often skip at short distances. His power is limited to one kilowatt input. His antenna may radiate at angles well above the horizontal. His problem is therefore different from that of the broadcast station. He cannot afford to build a sensitive receiver for this purpose alone, and very few find it economical to purchase a standard signal generator. The antenna is located often in a confined space, surrounded by obstructions that may cause distortion in the field pattern. In general he must confine his measurements to distances less than a mile. He, therefore, requires an outfit of fair sensitivity, light weight, and above all, it must be self calibrating.

The self calibrating feature requires the set to be based on some sort of voltmeter. The sensitivity requirement together with the fact that the power available from the radio field is very low, limits this voltmeter to one of the vacuum tube type. The light weight requirement can be met by use of a small 'B' battery and flash light cells for the "A" battery. The antenna used would naturally be a loop for frequencies from 1.5 megacycles to 28 megacycles, and a doublet for higher frequencies. Since the measurements would start at a point only a few wave lengths from the antenna, the voltmeter should be capable of measuring voltages up to several volts. The "slide back" type of vacuum tube voltmeter described in this folder meets these requirements. The "slide back" vacuum tube voltmeter is used in conjunction with a loop for most amateur frequencies and with a doublet for the frequencies of 56 m.c. or higher. The determination of the loop constants or the "step up" ratio of the loop, is taken care of in a novel but convenient manner. This will be treated later.

Construction of Loops and Doublets.

In order to eliminate the "antenna" effect that is usually experienced when

loops are employed, the loop is "centre tapped" or divided into two symmetrical halves. This balance is carried out even in the calibrating resistors included with the voltmeter. The voltmeter itself is "balanced."

Fig. 1 shows the construction of a loop. It is made of hardwood, preferably maple, the supports forming the diagonals of the loop. Maple dowling can be obtained most any place. The centre block is drilled to fit the ends of the dowling. The two side pieces and the bottom piece are fastened by screws or bolts, the top section being free to slide. The small coil spring placed in the centre of the

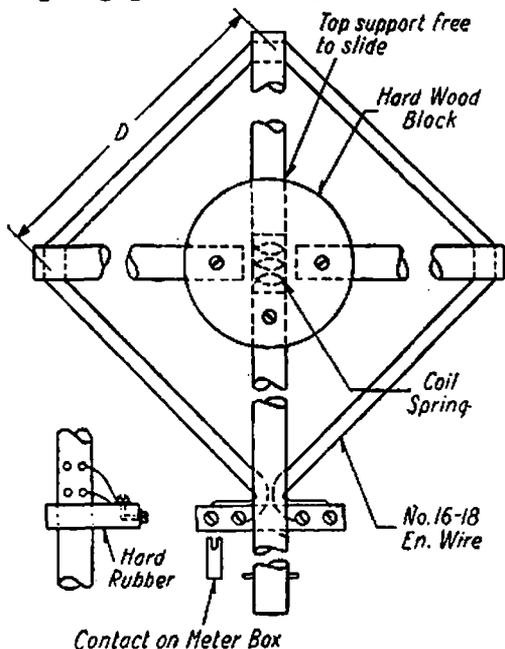


Fig. 1.—Construction of Loop for Use with Field Strength Measurement Set.

block will keep the wires under tension and prevent their vibration when readings are being taken. The terminal block is mounted on the bottom section which also serves to fasten the loop to the case containing the voltmeter. This is effected by a bayonet type of mounting.

Suggested dimensions of loops.

200 to 100 metres	4 turns	1 metre square
150 to 50 metres	2 turns	1 metre square
100 to 15 metres	1 turn	1 metre square
100 to 8 metres	2 turns	$\frac{1}{2}$ metre square

With a tuning capacity of 50 to 100 m.m.f these loops will have almost a 50 per. cent. overlap. This allows the amateur to choose the loop that gives him the best results for the particular frequency to be measured.

At frequencies above 28 megacycles, it is customary to use a half-wave Hertz or doublet antenna. This does not adapt itself for use as readily as

the loop. Fig. 2 shows the construction of such a doublet. The doublet is partially tuned by its telescoping ends and partly by the tuning condenser in the box. It is supported in a horizontal position above the box or

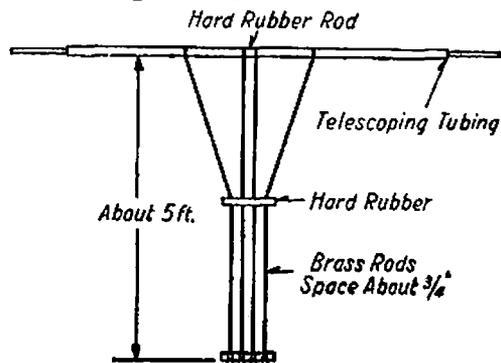


Fig. 2.—Loop for Use on Frequencies Greater Than 28 m.c.

in a vertical position to the rear of the box. The brass rods that comprise the transmission line and grounds, serve as supports and if arranged so as to form a square, will be quite rigid. These doublets are rather cumbersome and it is recommended that small loops be used except on the higher frequencies. Their dimensions are best determined by the individual using the set. Their mounting is rather difficult and is left to the amateur. If used on only one frequency, they can be calculated and made to operate quite satisfactorily. It is possible to construct them without two ground rods, but this will not allow the complete use of the method of determining their constants. However, it will allow the amateur to obtain satisfactory results even though they are not absolutely precise.

The Vacuum Tube Voltmeter

Fig. 3 shows a circuit which may be employed.

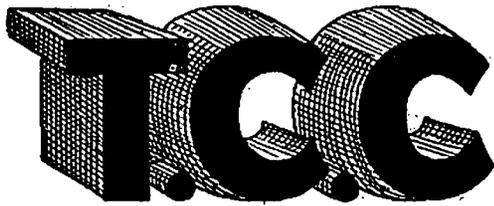
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The vacuum tube voltmeter part of the set employs two 864 type tubes, selected so that their characteristics are as nearly identical as possible. The grid circuit is push-pull so as to preserve the balanced effect necessary in eliminating the antenna effect of the loop. The plates are in parallel and

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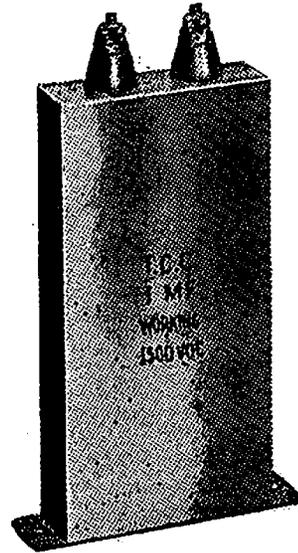
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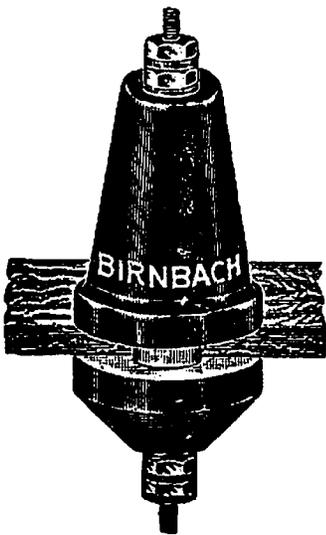
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both are in series with a high resistance microammeter. This constitutes the indicating part of the set. Paralleling the tubes helps the impedance match.

The voltmeter is used with a variable grid bias so as to give fixed plate current, the bias voltage being read. This places a very light drain on the plate battery and keeps the power drawn from the loop at a minimum. The range of the set is from one volt per metre down to about twenty millivolts. Figs. 4 and 5 are curves giving

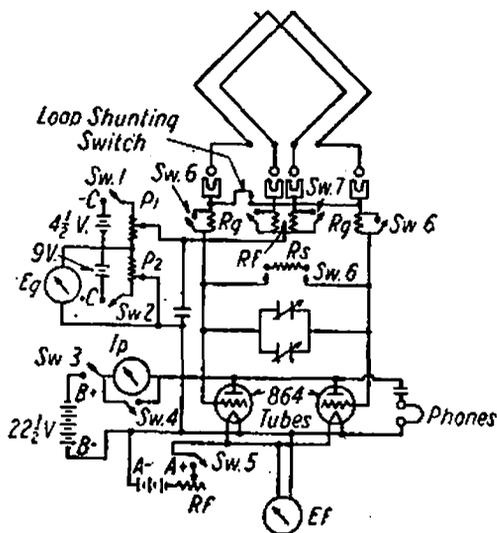


Fig. 3.—Circuit of Field Strength Set.

corrected values of the voltage across the loop with reference to grid bias. Their use is given under "Operation of the Set."

The box with associated batteries, etc., rests on a tripod. The tripod may be home made or of the wooden camera type. The box with the attached loop may be rotated, thus eliminating all flexible connections and always keeping the observer in the same position with reference to the loop while readings are being taken.

Fig. 6 shows a suggested layout. The panel should be made of Micarta or some similar material, about 12 inches square. The instruments, potentiometers, rheostat and battery or instrument switches, should be grouped on the front half of the panel. The tubes, loop-shorting switch, and the switches controlling the calibrating resistances, should be grouped on the back half of the panel. This keeps the R.F. part of the set separate from the measuring part. It is suggested that the tuning condenser be mounted below the panel, directly under the calibrating switches and terminal block. Its shaft may be extended to

a dial located on the front of the box containing the set. The batteries being small, they may be contained in the bottom of the box, directly under the instruments and potentiometers. All leads in the R.F. part of the set should be as short as possible. The two series resistors (Rg) and the shunt resistors (Rs) are mounted on one switch and the series resistors (Rf) are mounted on the other switch. These switches are of the anti-capacity type. All the battery and instrument switches are of the rotating telephone key type. The loop shorting switch is the same type used with the instruments. All the series resistors (Rg) and (Rf) are of the same value, 0.8 ohms. They are made of small resistance wire and are about 1/2 inch long. The shunt resistor (Rs) is of the grid leak type and has a value of 100,000 ohms. These values must be determined within 1 per cent or closer if possible.

The box containing the set may be made of wood or of aluminum. The loop may be conveniently mounted at the rear of the box in a bayonet type of mounting.

Operation of the Set.

Select the proper range loop. Insert loop. See that all battery switches are open and the microammeter shorted. Light the filaments and bring them to their proper temperature as indicated by a filament voltmeter. Close switch controlling the bias batteries. Close the loop-shorting switch. Adjust (P2) so bias voltmeter indicates zero voltage. Set (P1) so bias from this section of battery is maximum. Now close plate battery switch and remove short from microammeter. No plate current will be flowing. Adjust (P1) until plate current is TEN microamps. Remove short from loop and carefully tune in signal. Care should be taken that loop is not tuned when short is removed as excessive plate current may damage the instrument. As signal is tuned in, adjust (P2) so plate current is kept at TEN microamps. When loop is tuned to resonance, swing the set about until the maximum position has been reached, taking care of the increasing plate current with (P2). The set is now ready for operation. Note the bias voltage as indicated by the bias voltmeter. Call this reading (V). Now place series resistors adjacent to the centre of the loop in the circuit by means of

the anti-capacity switch (R). Reduce the bias voltage by means of (P2) until the plate current is again ten microamps, and note the bias voltage. Call this reading (Vf). Increase bias voltage, remove the series resistors and then insert series resistors adjacent to grids of tubes. Adjust bias voltage until plate current reads ten microamps and note reading. Call this reading (Vg). Increase bias, remove series resistors, insert shunt resistor by means of its switch and again adjust bias so plate current is ten microamps. Note bias voltage and call this reading (Vs).

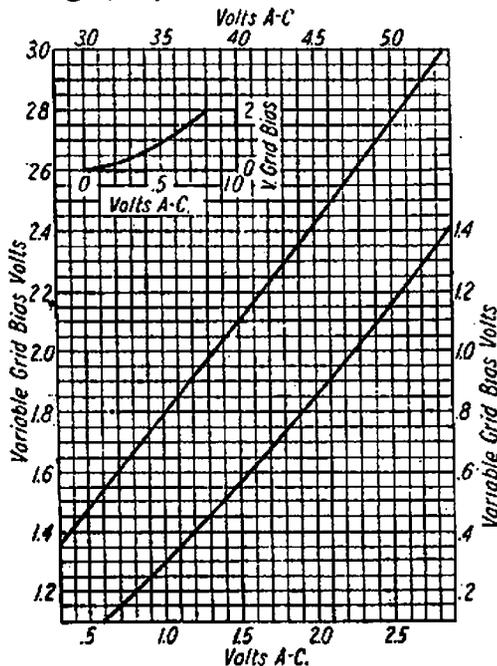


Fig. 4.—Conversion Chart for the Lower Values of Grid Bias.

These four readings should be noted together with the location data. These comprise all the information needed and can be worked out later at the amateur's convenience. When the amateur becomes familiar with his equipment, these readings can be taken in a minute or less and the transmitter need not be left on over long periods of time. By allowing about ten minutes between each transmission there will be ample time to move from one predetermined location to another and set the equipment up in readiness for the next transmission.

After a series of locations have been covered, the amateur should compile the data taken into the final form. Each reading taken is referred to the proper chart Figs. 4 and 5 and the correct value of voltage taken. After this is done, these values are substituted in the formula below and the gain or step-up of the loop, determined

for that location. If it is desired for convenience these conversion charts may be drawn to a larger scale on cross section paper.

$$\text{Gain} = p = \frac{1}{2} \sqrt{\left(\frac{V' - V_s}{V'}\right) \frac{1}{RS} \left[\sqrt{\frac{V' - V_f}{V'}} + \sqrt{\frac{V' - V_g}{V'}} \right]}$$

V' = Corrected Voltage without series or shunt resistor.

V'_s = Corrected Voltage with shunt resistor across loop.

V'_f = Corrected Voltage with series resistors in filament ends of loop.

V'_g = Corrected Voltage with series resistors in grid ends of loop.

R = Value of series resistors = $2 \times .8 \text{ ohms} = 1.6 \text{ ohms}$

S = Value of Shunt Resistor = 100,000 ohms

p = Step-up or gain of loop.

Since $p = \frac{V}{E}$ where V = corrected voltage across loop without series or shunt resistors

E = field strength in Micro-volts per meter.

therefore

$$E = \frac{V}{p}$$

the actual field strength of the signal at the location is given.

The formula may seem rather complicated, but if the results are tabu-

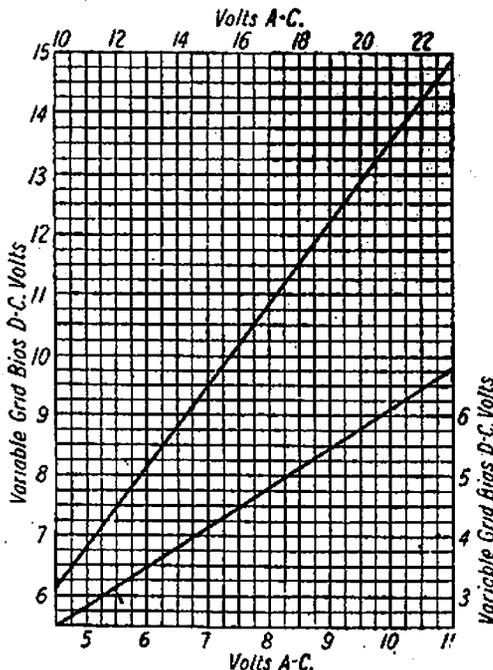


Fig. 5.—Conversion Chart for the Higher Values of Grid Bias.

lated as indicated on the next page, the calculations become quite simple.

The tabulations can be extended to include each step in the calculations.

Fig. 8 shows a typical field pattern obtained when this set was used for

measurements about a two-antenna bi-directional array.

General Suggestions.

The amateur should proceed with all operations carefully until he is acquainted with the set, and then he can speed up his measurements.

Always make sure all battery switches are open and the microammeter shorted before dismantling the set.

Choose locations for readings reasonably free from obstructions such as power lines, fences, etc. The proximity at which such obstructions interfere depends upon the frequency of the signal being measured.

Usually there seems to be a definite relation between the values of V , V_s , V_f and V_g and any sudden change in this relation is generally caused by some interfering obstruction which reflects on the efficiency of the loop.

For the amateur who is interested in a technical discussion of this set, an excellent article has been published in the February, 1934, issue of the Proceedings of the Institute of Radio Engineers.

Instruments Recommended.

Rating	Type MX Style No.	Type NX Style No.
Microammeters		
0-20	820159	820233
Filament Voltmetre		
0-20	821584	821620
Variable Bias Voltmetre		
0-15	821592	821623
Tubes Used	2	864 type
Plate Voltage	22½ volts	
Initial Bias	0-4½ volts	
Variable Grid Bias	0-13½ volts	

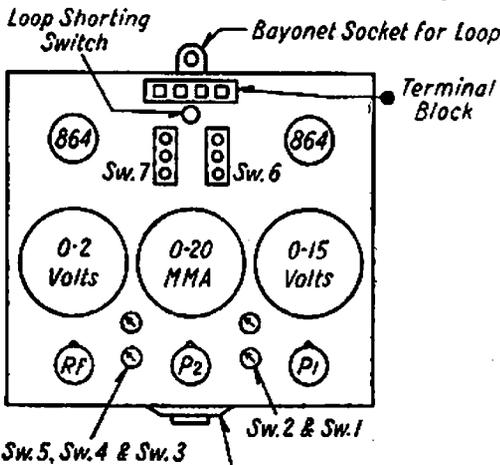


Fig. 6.—Panel Layout.

Harmonics of reasonable magnitude may be measured at points close to the transmitter.

For the amateur who is interested only in the field pattern and not in the actual values of field strength, it is

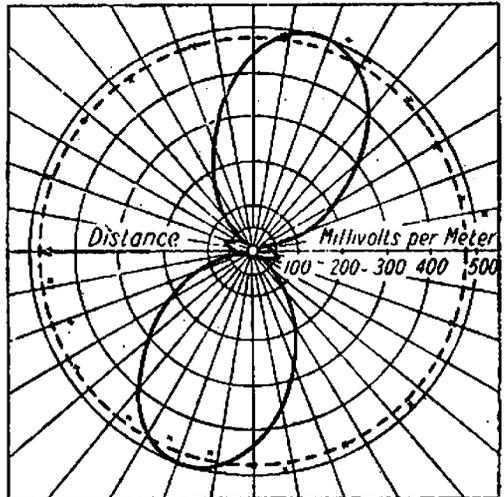


Fig. 8.—Field Plot Made from Measurements with the Set Described. X Marks Show Where Readings Were Taken.

Location	V	V_f	V_g	V_s	$V'V_f$	$V'V_g$	$V'V_s$	$\frac{V'V_f}{V_f}$	$\frac{V'V_g}{V_g}$	$\frac{V'V_s}{V_s}$

Fig. 7.—Suggested Form of Tabulating Readings.

suggested that he take only the (V) reading. This reading will give him a very good idea of the comparative values of the field. He might even construct his set without the calibrating resistors and the associated switches.

Notes and News from U.S.A.

A NEW RADIO TRANSMISSION PHENOMENON!

Dr. J. H. Dellinger, Chief, Radio Section, National Bureau of Standards, has noticed a new periodic variation in radio transmission of the most remarkable character, a "drop-out" of all radio signals on high frequencies for several minutes which apparently occurs regularly at intervals of about 54 days (twice the period of rotation of the sun).

This complete fading out of signals was noted over the illuminated half of the globe (not the night side) on the dates of March 20, May 12, July 6 and August 30, and is predicted by Dr.

Dellinger as likely to occur again between October 21 and October 25. It is believed to depend on some emanation from the sun, calling for study and correlation of data on other manifestations. The complete fade-out and return of signals usually requires 15 minutes or more.

On May 12, the receiving station near Paris reported all high-frequency reception disrupted suddenly at 1157 GMT, signals returning slowly to normal at about 1215 GMT. R.C.A.C. and A.T. and T. receiving stations in this country confirmed observation of the phenomena, and watched for its repetition August 28-30. It turned on schedule August 30, 2320-2335 GMT. Other fade-outs of record occurred on March 20 at 0150-0205 GMT, and on July 6 at 1409-1425 GMT.

The first reported instance in A.R.-R.L's files, received from F. D. Jenkins, W4SB, of Atlanta, Georgia, under date of November 28, 1934. Mr. Jenkins reported that on this date at 1110 a.m. CST signals at the Eastern Air Lines Aeronautical Station, WEEA, dropped completely out (while receiving a message from WEEG) on 4745 and 4122 kcs. The fade out was observed over the entire airways communication system; During the dead period W4SB tuned over both 80 and 40 metre amateur bands, but not a single signal was logged! Broadcast band frequencies, however, were "normal," WLW and locals being received in Atlanta. At 1140 a.m. CST h.f. reception again became normal.

Observations and Reports Requested of A.R.R. Members.

Although it cannot be foretold in what part of the world it will appear, it is expected to affect "daylight" high frequency communication in unmistakable fashion whenever it occurs. "All amateurs are requested to observe carefully, making observations as continuous as practicable and reporting the exact period of any drop-out noticed as well as the time signals return, and any other phenomena. A postal card report or a letter with further evidence on this subject will be greatly appreciated and such information will enable us to assist Dr. Dellinger and the Bureau of Standards in identifying this effect. If possible, examination of logs for data on occurrences at the previous dates and times given, should also be made."

Cairo Survey Activities.

In addition to the work of individual observers, several major "area" or coordinated surveys, covering full 24-hour periods will be made under the supervision of club leaders or others. The honor of being first to actually start organized survey activities in such a group goes to S. C. M. Gordon, WIHRC of Providence, R.I.

The R.I. group has observers lined up for a continuous 24-hour survey to be made at six-day intervals over the next 13 weeks. A group of eight amateurs handles the 24-hour watch in three-hour shifts, working Sunday one week, Saturday, Friday, Thursday, etc., on successive weeks. Information from Brad. Martin, W3QV, indicates that a group for the Philadelphia vicinity will shortly be working on the survey likewise. W9KJY and W9HPG have been visiting clubs and endeavoring to line up a group in the Chicago area. It is believed that the Federation of Radio Clubs will arrange a group area control in the south-western and Pacific areas. Bill Miller, W7AAN, in Spokane, Washington, is a real worker, and a once-per-week survey is already being instituted there, which he will correlate as to dates with similar plans for Seattle and Portland.

In analysing all the logs thus far received we find many gaps to be filled. More observers are needed. Most particularly, observers to cover the 4-4 1/2 m.c. region are wanted. Of all the reports received but a small fraction of the observers have covered this important territory. Since many O.R.S. and O.P.S. are users of the 80 metre band, it is entirely appropriate that we focus attention on this deficiency in this bulletin, and ask if some of you fellows will not help us out. Both 6-8 m.c. and 4-4 1/2 m.c. observations are needed in greater volume. Blanks and information are freely available from Headquarters. A postal card will bring you the necessary survey information and materials.

Flash! New A.R.R.L.-Cairo Committee Pin Available.

The League's Cairo Committee (W8CMP, W1KH, W8HC) announce the availability of a new A.R.R.L. button for workers in the cause of amateur radio in the Cairo Preparatory Surveys (4-4.5 and 6-8 m.c.)

(Continued on page 28)

The Type 53 as an Harmonic Oscillator

By R. ANDERSON, VK3WY.

During the past couple of years the tendency has been to endeavour to cut down the number of stages necessary in a crystal controlled transmitter that is to work on the higher frequency bands. In other words, the tendency is to simplify the gear and increase the efficiency of the transmitter as a whole.

In order to cut down the number of stages necessary when working on 14 m.c. or 28 m.c. it is necessary to (a) use a crystal with a higher fundamental frequency than the usually used, 3.5 m.c. crystal; (b) quadruple frequency in the frequency multiplying stage instead of doubling; or (c) multiply frequency in the crystal oscillator stage.

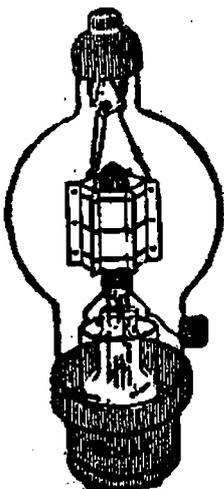
Several methods of quadrupling frequency in the single stage has been commonly used, notably the use of regeneration or the use of the Tritet principle in the frequency multiplying stage. The chief drawback with the ordinary tubes used, however, is lack of output to drive the following power amplifier stage.

One of the first methods tried for multiplying frequency in the C.O. stage was by inserting a second harmonic tank circuit in series with the normal fundamental tank circuit and driving the following stage from the

second harmonic tank. Again lack of output was the main trouble, and personal experience of the method was that it was inclined to be very unstable.

Shortly after this the Tritet circuit was developed, and this has become very popular. Although it is a big improvement over previous methods tried, it has a disadvantage, in that it is sometimes rather hard on the crystal, particularly when the usual receiving type of penthode tube is used, the internal screening effect in these tubes not being too good. On this account the power output from a Tritet is usually limited to about 3 watts on the second harmonic, the fourth harmonic output being only a small fraction of this, usually not more than about 0.5 watts. These figures may be better when a tube such as the type 802 is used.

A new type oscillator has lately been developed which will give far more output than a Tritet at equivalent voltages, and at the same time puts less strain on the crystal. There is thus not only less chance of puncturing the crystal, but the crystal frequency will also be more constant owing to the reduced temperature change of the crystal. This oscillator



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uses a type 53 tube. The circuit is shown in Figure I.

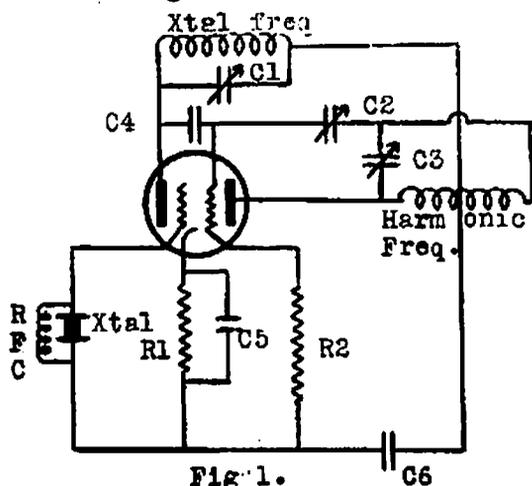


Fig. 1.

C1 .0001 mfd	C5 .01 mfd
C2 15 mmfd	C6 .01 mfd
C3 .0001 mfd	R1 400 ohms
C4 .00005 mfd	R2 50.000 ohms

The type 53 tube really consists of two high mu. triodes in the one envelope, one cathode being common to both the triodes. The first triode is used as the crystal oscillator, which is capacitively coupled to the second triode, which is used as a highly biased frequency multiplier. The first triode, i.e., the oscillator portion, has a high mu and low interelectrode capacities, and therefore, like the majority of high mu tubes, makes an excellent crystal oscillator. Its chief advantage is that it only requires a small amount of grid drive, and this means low RF current through the crystal. As the RF through the crystal is low, the power input, and consequently output, may be raised proportionately. At 400 volts about 5 watts output may be had for driving the frequency multiplying portion. The second triode portion of the tube is also high mu, and has a high mutual conductance. As it has a high drive from the crystal oscillator, and as the high resistance in its grid circuit gives it a high bias, it generates harmonics very freely. The fact that the leads between C.O. and multiplier are extremely short helps to make the efficiency very high.

When first trying this type of oscillator it was tested against a Tritet using a Mazda AC/PEN type tube. This tube incidentally had previously been found to act far better as a Tritet oscillator than the more popular type 59. While testing the two circuits the plate voltage was kept constant at 400 volts, and the

screen voltage for the Tritet was 125 volts. The power inputs to the tubes were measured, and the power output was measured by coupling a tuned circuit to the output, and across this circuit placing a thermocouple milliammeter in series with a 1000 ohm carbon resistor. The same 3.5 MC crystal was used in both circuits, and the outputs were first measured at the second harmonic. The Tritet had a combined screen and plate current of 36 ma, i.e., an input of 14.4 watts. Its measured output at 7MC was 2.6 watts, while the RF current through the crystal was 75 mils. With the type 53, the combined plate current was read by means of a milliammeter in series with the cathode; this current was 66 mils, i.e., a total input of 26.4 watts. The measured output on 7MC was 6.4 watts, with a crystal current of only 45 mils RF. It will be seen that, although the output from the 53 is more than twice the output from the Tritet, the Tritet has an input of only a little more than half that of the 53, so that there is not such a great difference in the overall tube efficiencies when used to double the crystal frequency.

The two circuits were then tried with their outputs on the fourth harmonic of the crystal. In the case of the 53, a small amount of regeneration was used by means of the 15 mmfd. condenser between the grid and plate of the second triode. The Tritet had an input of 16.2 watts, a crystal current of 78 mils RF, and the output was only 0.2 watts. With the type 53 the input was 25.8 watts, the crystal current was 48 mils RF, and the output was 3.6 watts. This showed the type 53, when using slight regeneration, to give far better output than the Tritet, and also to be many times more efficient when used for quadrupling the crystal frequency. Quite a fair output was obtained from the 53 oscillator at the 8th harmonic, but this was not measured.

When tuning up the type 53 oscillator, it will be found that the cathode current is only about 15 to 20 mils when the tube is not oscillating. As soon as oscillation starts, however, this current jumps to about 70 mils. The doubler tank is then tuned to resonance, and the current dips to about 55 mils. It will be found when tuning the oscillator tank circuit that the tube draws lowest current when the tank condenser is at the maximum

capacity at which the tube will continue to oscillate. Fortunately, this point is also the point at which maximum output is obtained.

When first building up the circuit a small 50 mmfd. variable condenser was used to couple the doubler portion of the tube to the oscillator, the idea being to vary the coupling so as to give the lightest load to the oscillator that would give efficient operation of the doubler. This did not work out too well in practice, as it was found that the oscillator not only worked best at a fairly heavy load, but that the RF current through the crystal went up considerably as the load on the oscillator was decreased. A 50 mmfd. fixed mica condenser seems to be just about right.

Regarding the use of regeneration, this does not seem to be of much advantage when doubling frequency, as it was found to only give very slightly more second harmonic output than when regeneration was not used. It did have the effect of lowering the doubler plate current, however, and so is worth while, as the main problem in the use of this tube is to keep the cathode current reasonably low. When quadrupling frequency, the results of the tests given above show regeneration to be of distinct value in bumping up the output. The regeneration is not difficult to control, and should be set so that the tube will not oscillate when the crystal is removed from the holder.

It will be noticed that no grid leak is used in the oscillator section, the total bias for this section being obtained from the cathode resistor. A grid leak was tried across the crystal, but in spite of the fact that it was a non-inductive carbon type, trouble was experienced with high RF current through the crystal. Finally this grid leak was cut out altogether, and a path for D.C. current across the crystal was provided by a RFC. This choke should be an efficient one, as a poor choke in this position cut down the output very considerably.

When arranging the layout for the oscillator some thought should be given to ventilation, for the tube as a glass bulb becomes surprisingly hot while the tube is in operation. One more precaution is to make sure that the tube gets its full 2.5 volts across the heater. When first trying the tube, fairly good output was obtained

from the oscillator portion of the tube, but the doubler output was very disappointing. The trouble in this case was traced to the voltage across the heater being only 2.2 volts. Best results were obtained by running the heater at very slightly more than 2.5 volts, and this will probably not affect the life of the tube as much as low heater voltage would.

Although the 6A6 type tube has not been tried here, its characteristics are practically the same as the 53, and in consequence it should give similar results.

The Magazine Committee desires to express its thanks to all contributors of articles, notes, etc., for "Amateur Radio."

We are only too intimately aware of the care and attention regular contributions demand, and our thanks are, therefore the more sincere.

EDITOR.

Why the alarm got Alarmed

(On QTR 0300, October 8th.)

Peacefully slumbers the ham in his bliss,
He's dreaming a YL had blown him a kiss;
Oblivious, it's obvious, to things like
alarms,
He's a victim, it's sure, to the young ladies'
charms.

"Wot the blankety blank's that blankety
row!"

Yells the ham, showing symptoms of life.
As an R40 sig. from the clock by his bed
Ends the hopes of his winning a wife.

He lets go a boot, but he misses his mark;
How cud anyone hit the dam thing in the
dark?

'Es angrily scrambling out of his bed
He knocks his big toe. I won't say wot
he sed.

He commences a tour in a search fer the
switch,
Put his foot into sumthing—it feels like
a ditch.

'Es warily creeping around the far wall,
He trips on the mat es its mity the fall.
Wid a howl like a blooper he turns on
the lite.

And the clock QRT's in a terrible frite;
As "Yer so and so lid!" he roars loud,
by het up,

"Eight-thirty ack emma's the time I get
up.

"Wot's the idea of 'mittin' at 300 hours?"
(The clock pales a shade, 'es perceptibly
cowers.)

"Fer a dud fool I'd kick u rite over mi
ants—

"The DX contest!" He springs fer his
pants.

(Wid apologies to the masters.)

28 and 56 M.C. Section

(Conducted by VK3JJ.)

Contacts with DX stations on the 28 m.c. band appear to be getting easier with each burst of good conditions, and during the last three months of the year it was possible to hear numerous American signals practically every morning between 7 and 10 a.m. East Coast W's were very consistent during the peak in November, and W1AVV, W1LZ, W2TP, W4CBY, W5QL, W8CRA and others often reached B7. W6ZH took the place of W6VQ for the strongest DX station, and his 'phone often came through at R9. This just goes to show what a kilowatt and beam antenna can do for one's signals! W0JJU, W6DIO, W6JN, W6EWC, W6KEV, W6KRI, W7BPJ and W7AMX all seem very consistent and usually have stronger signals than the majority.

The Europeans were not nearly as consistent as the W's, particularly in the Southern States, but VK4BB, VK4EI, VK4AP and VK4GK have had many QSO's with stations in several countries. VK2LZ, VK2HY and VK6SA have also worked a number of Europeans, but the latter missed a large number of contacts due to his receiver not being quite sensitive enough. He has also come to the conclusion that something better than the old regenerative detector receivers are needed on 28 m.c., and has commenced to build a super-het.

Although VK3BD worked three or four G's and D during October, it was not until the last week in November that many Europeans became audible in Victoria. During the two weeks that followed, 3BQ and 3BD had many contacts with them, and on one evening the latter worked nine G's! VK3YP was getting out better to the east and only worked one G, but he realised his ambition to have 150 28 m.c. DX contacts in a month. They were mostly with W's, and twice he worked all districts on the one morning. On November 20th at 7 p.m. he heard LU1EP calling VK4AI, but as the latter never replied, 3YP called LU1EP, but is not sure if he raised him on account of QRM.

VK6SA had confirmation from ZS1H for their contact in September, which ZS1H claims as the first VK-Africa QSO on ten m.x. 4BB, followed by 4AP, made the first Eastern States QSO with Africa by working ZS1H on October 20th. 2LZ, 2HY and 3BQ have been in contact with F8SIH or F8SCR, so that makes 2LZ, 2HY, 3BQ, 4BB, 4AP and 6SA with five continents to their credit, and all waiting for South America for WAC. VK4BB has worked VE4OB, which makes him the first WBE on 28 m.c. in VK. Congratulations, OM! He is using an 800 tube as the final doubler now, and has found that a beam antenna similar to that used recently by 3BD increases signals by 2 or 3 points. 4BB is concentrating more on 'phone QSO's now, and has had several excellent two-way contacts with Yanks.

VK3UW and VK3CP are new to 28 m.c., but they both made a good start by working U.S.A. The former is using a pair of

4J's as the final neutralised doubler stage, which is coupled to a vertical 67 foot Hertz antenna, 84 feet high at the top. 3MR, 3NM, 3OC, 3HK and 3JJ have all worked a few W's and J's, but have not yet had any luck with Europe. J2IS has taken the place of J2HJ for the most consistent J station, and he is using a pair of 800's in push pull in the final stage.

W6RH reports hearing the following VK's on 28 m.c. (via 3YP):—2EF, 2LZ, 2HZ, 2PN, 2EL, 3YP, 3BQ, 3BD, 3EG, 3MR, 4AP, 4EI, 4BB, 4GK, 5SU, 5HG and 6SA.

Europeans who have had many VK contacts include F8VS, ON4AU, G6LK, G2YL, G6WY, D4ARR, G6FV, G2HG, G6WP, ON4JB, ON4AC, G6DH, D4KPJ, G6NF, G2PL, OH7NC, YM4ZO and E18B.

It is with regret we learn that VK2YC has resigned as representative of the N.S.W. 28 m.c. group owing to pressure of work and other W.I.A. activities. Jim has done much to make the 28 m.c. band popular, and his efforts have induced many well-known DX stations to try it out. VK2BX has taken his place, so VK2UHF enthusiasts should in future keep in touch with him.

NEW SOUTH WALES NOTES.

Conditions on 28 m.c. during December have fallen off a lot for extreme DX, but are improving for shorter distances. W's can still be worked from 7 a.m. to about 10.30 a.m., and J's about the same time, then interstate signals come through during the midday hour and also around sunset at times. The Europeans have become very scarce, and when they do come in are hard to raise. Best time seems between 6 and 7 p.m. No South Americans can be heard at present, but the W's can be heard working them. The best times for them would probably be early morning or late afternoon. I think the mornings would be better, but commercial harmonic TDC is often heard at sunset, his signals no doubt coming the long way round at that time.

VK2YC is back on the air at his new QRA, and now has a TBO4/10 in the final doubling to ten. The antenna is a 7 m.c. Zepp, supported by a 50-foot pole. A new 28 m.c. station put in an appearance with a nice C.C. signal just on the HF side of 2LZ. It turned out to be VK2EO, who pinches most of the 14 m.c. DX in Sydney. If he gets out as well on 28 m.c. he should cause 2LZ a lot of trouble. Hi! 2EO is using an 830B in the final and a half wave doublet antenna with twisted VIR feeders.

VK2LZ put 'phone over to G6LK one evening, and then to do something different went up to 80 m.x. and worked several G's and other Europeans around 5 a.m. VK2PN at Tumut has at last managed to get over on 28 m.c. and is working W's fairly easily. He has a pair of 800's in the final of a C.C. rig and small beam antenna. 2DQ will also be on ten in the near future, and would like the gang to keep a lookout for his signals.

(Continued on page 28)

B.E.R.U. Notes

Correspondence

SPECIAL CONTEST INFORMATION.

R.S.G.B.—Special VK-G 3.5 m.c. Test.—January 18th to 19th, 25th to 26th, 1800-2000 G.M.T.

R.S.G.B.—28 m.c. Test.—January 1st, 1936, to January 1st, 1937. Rules as before, Rule 6 omitted.

R.S.G.B.—Annual B.E.R.U. Trophy.—Junior and Senior, February, 1936.

Herewith brief notes ref. 80 mx. by VK3EG:—

During the R.S.G.B. 3.5 m.c. contest and since then the conditions on 80 m.x. have been surprising.

At 1900 G.M.T. conditions peak and all European countries are coming through at good strength.

The following G's have been heard:—G6RV (R7), G6NJ, G5YR, G6WY, also F8SX, SP2BQ, PAOCO, OZ7WP, D4AGG, ON4AC, all at good strength and easily readable.

Several VK stations have contacted G's on this band, and a test has been now arranged for January.

Other countries audible are EI, OK, OH, SM, U and J.

R.S.G.B. MONTHLY NOTES.

By G6WY.

(By Radio via VK3EG.)

1. Recent 28 m.c. achievements which have been credited to a group of British amateurs have stirred up tremendous interest in the lay and technical press. Details of the first G/VK contact have already been published in this journal, but it is interesting to place on record Miss Nelly Corry's (G2YL) feat which took place on October 27th.

Beginning with a QSO at 0900 G.M.T. with VU2LJ, G2YL proceeded in six hours twenty minutes to work stations in another five continents. In working VU2LJ she qualified for the first British 28 m.c. contacts W.B.E.

2. Entries for the international 28 m.c. contests have now closed, and the results will be made known early in January. All VK and ZL entrants are thanked for their support.

3. The attention of readers is drawn to the 3.5 m.c. test being organised by the R.S.G.B. during January for the purpose of contacting VK stations.

A special test will be held on January 18th-19th and 25th-26th, between the hours of 1800-2000 G.M.T., and will be announced in the T. and R. Bulletin." Owing to the unsuitable times arranged for the W/G trans-oceanic tests in December on 3.5 m.c., contacts with VK will be very improbable, and this has been arranged to give the 3.5 m.c. band a real try-out.

4. The rules for the 1936 B.E.R.U. contest have been circularised with the November "T. and R. Bulletin."

The awards committee trust that the new methods of scoring will prove in every way satisfactory.

The Secretary, W.I.A., Federal Headquarters, Box 2127L, G.P.O., Sydney.

Dear Sir,—I am instructed by the members of this Division to write, drawing attention of all amateurs and deploring the prevalence of phone stations on the 40 meter band after dark.

The Eastern States are in particular heavy offenders in this regard, and some of them with carriers of doubtful stability are taking more than their share of the band.

Members in this State are experiencing considerable difficulty in maintaining skeds through heavy phone QRM. What must the position be like in VK2, 3, 4 and 5?

Perhaps at the next Convention of the W.I.A. this matter could be discussed and arrangements made to curtail unnecessary interference with CW signals.

Yours faithfully,

CHAS. QUIN, Hon. Secretary.

162 Subiaco Road, Subiaco, W.A. 22nd November, 1935.

Unfinancial members of the B.E.R.U., who are members of the W.I.A. or N.Z.A.R.T., can obtain entry forms from their divisional representatives.

5. With the near approach of the festive season the president, council and headquarters staff of the R.S.G.B. send cordial greetings for Christmas and the New Year.

6. Details of the R.S.G.B. international 28 m.c. test, to start on January 1st and continue for twelve months, have been forwarded to the W.I.A. The rules are the same as last test, except that Rule 6 has been omitted.

The R.E.P. has published in their magazine, "QSL," the following official list of French Colonial prefixes:—

- F3, F8.—France.
FA3, FA8.—Algeria.
FB8.—Madagascar.
FD8.—Togo.
FE8.—Cameroons.
FF8.—French West Africa.
FG8.—Guadaloupe.
FI8.—Indo-China.
FK8.—New Caledonia.
FL8.—Somali Coast.
FM8.—Martinique.
FN8.—French India.
FO8.—Oceania.
FP8.—St. Pierre and Miquelon.
FQ8.—French Equatorial Africa.
FR8.—Reunion.
FT4.—Tunisia.
FU8.—New Hebrides.
FY8.—Guiana.
CN8.—Morocco.

—By courtesy VK3RX.

R.A.A.F. Wireless Reserve Notes

Federal Notes by the O.C. (1A1-3ML).

A vast amount of hard work is being put into a standard and systematic training procedure for 1936. Our membership is rapidly growing now and the work is getting too big for the energetic D.C.'s., consequently much of the exercising should be left to the S.L.'s. However, there is only one way to teach procedure, and that is from a standard training manual showing many examples of each section therein and details on the conducting of the exercises. Incorrect teaching might lead to serious misunderstandings of the procedure. With this scheme in mind, it is hoped that a complete manual of this nature could be compiled to cover the four years of a member's enrolment. By the time he is through there should be little that he will not know about procedure. This idea has many faults, and a special meeting of the Staff Officer for Signals, the Director of Communications and the Deputy Director of Communications will be held during the holidays to survey the whole reserve training.

Exercises are greatly handicapped just now in all districts owing to the unfavourable conditions on the 80-metre band. There is a general rush to H.Q. for allocation of a frequency around the 40-metre band to overcome the trouble. Unfortunately, only three sections have been provided on this frequency in the crystal allocations, and they include one in VMD, VME and VMF. However, a recommendation has been made to the Air Board for at least two more similar frequencies and crystals to go with them. We shall see.

Arrangements are being made for a monthly "Demonstrations of Traffic Handling" by several of the permanent Air Force stations for the edification of Reserve members. This should prove very interesting indeed. The idea is that two, or maybe more, squadrons will exchange traffic with one another for a period of an hour or so, at a suitable time, and on a suitable frequency to which members would listen-in. Logs would be filled in as usual, and perhaps an award could be made for the most accurate of those returned to H.Q. Simultaneous transmission of these stations could be made on three frequencies, so as to completely cover the Commonwealth, and all squadron stations would work on the same frequencies, thereby eliminating constant tuning of the receiver. Full particulars of this exhibition will probably be circularised to all active members by post.

The Air Board desires me to convey seasonal greetings to all members and its hopes for the continuance of the Reserve's excellent work done in 1935.

R.A.A.F. WIRELESS RESERVE V.M.C. NOTES.

The end of a year and the dawning of a new one are usually times of looking back and of looking forward. In VMC we look back on a thoroughly enjoyable year together in which our old friendships have been strengthened and many new ones formed. Most of our newer members now handle their traffic on schedule like our "veterans," and we look to them, as well as to the old-timers, to help the newest members over the first few hurdles of their Reserve training. We are looking forward to 1936 with the hope that it will be the best and most enjoyable year we have yet had, with all sections fully active and the arrival of our new crystals training will be able to go ahead in a way never before possible.

We are going to run a number of field exercises next year, using portable gear as training for any emergency. In these exercises each station will have three or four members grouped there, and will have to run a complete signal office. Our metropolitan field stations will also be linked with five-metre 'phone. The organisation of preliminary details for these exercises is taking shape, and we should have some thoroughly interesting week-ends' work ahead.

Conditions have been very bad on 3.5 m.c. during the last six weeks, and on occasions it has been impossible to copy some stations. Strangely enough, Shepparton always seems to be the town most seriously affected by a spell of bad conditions, with Merbein running a close second. During this last bad period it has been practically impossible to copy the Shepparton men. However, we can look for improving conditions shortly.

Our new Section leaders take over on 5th January, 1936, and we wish them the best of luck. At the same time, the men just passing out of these positions have my congratulations and sincerest thanks for their hard, enthusiastic work during their term of office.

3A5, 3B3, 3C3 and 3D4 resume their normal places in their Sections, knowing they have done a hard job well.

3C3 has been doing a lot of work on his new portable transmitter, and his advice should be invaluable to others who do not know the pitfalls in portable design, but who will be designing outfits for our exercises.

3B1, we understand, is back from his last country trip, but we have not heard from him to date. We are all interested to know whether to blame pressure of work or conditions for not hearing the signals of his portable while he was away, as it was working beautifully before he left.

3Z1 is in the midst of building a "Hestet" (or what have you?), for 14 m.c. and 28 m.c. operation, in the coming BERU Contest.

3Z2 seems to eat, drink and sleep 28 m.c. He certainly has put up a wonderful record with the Europeans.

3A6 has been furthering his experiments on 56 m.c., and has been putting good 'phone across Shepparton to 3RS.

Bill Murden (ex-3AC) has been transferred to Tasmania, so we should shortly be hearing him operating under a VK7 call.

A very Happy and Prosperous New Year to all VMC members, and I know VMC joins with me in wishing all other districts and our O.C. a Happy New Year also. May 1936 be the finest and most progressive year in the W.I.T. Section's history.

SECOND DISTRICT'S NOTES.

By 2A1.

Apart from the usual "X's" on 80 metres, things generally have been quiet on this sector for the past month, and there really isn't much about which one could write.

The D.C. tells me that enquiries are constantly coming in from prospective members, and things look as though he is going to have quite a busy time keeping us all on the move. He also tells me that he paid another visit to Richmond to further iron out the way to co-operation with the R.A.A.F. station there.

While on the subject of traffic, I would like to remind all (spelt "ALL") Second District men that their traffic returns must be handed in to me immediately at the close of the period, otherwise it becomes impossible for me to get them to Melbourne in time for publication.

Brief descriptions of Reserve stations in this area might well furnish the subject matter of relayed messages to me on Sunday nights, thus making it possible for each of us to get to know what the other fellow is using between the key and the aerial.

Lastly, it will no doubt be a constant source of delight to members in this district to know that we have petitioned the P.M.G.'s. Department direct to have the static interference on 80 metres removed as from 30th February, 1936. Till then cheerio and the best of luck.

TRAFFIC RETURNS FOR MONTH.

2A1.—Received 3, 75 words; sent 8, 152 words: total 11, 227 words.

2A2.—Received 21, 441 words; sent 15, 418 words; total 36, 859 words.

2A3, 2A4 and 2A5 not to hand.

2A6.—Received 6, 355 words; sent 7, 181 words; total 13, 536 words.

2D1.—Received 10, 993 words; sent 5, 190 words; total 15, 1183 words.

R.A.A.F. WIRELESS RESERVE.

By 6Z1.

It is regretted that last month's issue of our magazine did not contain notes from VMC to enable this district to express its seasonal greetings. The link with VMC, namely, 5A2 (good old Joe!), broke somewhere. Whether it is skip or our friend is off the air is not known. However, as this should appear in the first 1936 issue, this district takes the

opportunity of wishing all reservists a Happy and Prosperous New Year. Better late than never.

The final sentence in the last paragraph is a phrase which could be applied to watchkeepers in VMC. Still, we won't delve into domestic trivialities during the festive season, but dwell upon the bright side. News comes through to-day that 6Z2 is making a rapid recovery from a severe attack of gastric 'flu, and so very shortly we shall hear once again Neil's sweet voice calling "All stations" (not CQ, mark you—that is not done in Hollywood, W.A.). 6A2 is studying industriously for the next first-grade commercial. If there is anybody we would like to see possess such a ticket, it is Jack, who is one of the finest operators ever born in Ham radio in VMC. Good luck, 6A2!

The time comes for us to express a few words of sympathy. These are directed to 6B1. Poor old Jim has been having a terrible time with combatting interference caused by electrical machinery. Seems to be refrigerators cropping up in every house and shop around 6B1, and with D.C. mains we shall leave the result to your imagination. Jim has been devoting his cigbeer coppers to buying suppressor condensers lately, whilst irate owners of B.C. sets abuse the innocent Jim as being the cause of the foreign noises in their sets.

Skip has put us out of touch with 6A3. Bob has been trying hard to hear 6Z1 on 7317 k.c. during Sundays' watches, but with no success so far. His enthusiasm is not damped, all the same.

Electronic Communications Ltd.

With eight years in the experimental game, and four years in the broadcasting industry, Allen Fairnall, of VK2KB, figures he knows what the boys want, and has set out to see that they get it. The real amateur apparatus and real "ham" tubes will be found listed in the advertisement of "Electronic Communications Ltd." in this issue.

Traveltone Radio . . .

Traveltone Radio of 367 Bourke St. Melbourne, has a remarkably fine range of secondhand instruments which are of interest to Hams. They include Ferranti wall meters and Heavy Duty car transformers. The prices are practically half of the actual prices charged usually and everything is good as new.

Federal Headquarters

By 2HZ.

One of the biggest problems that confronts any W.I.A. Council is that of affording the country members of the Institute the greatest service that can be rendered.

Following on a Zone Questionnaire which was circulated some months ago, a special sub-committee was appointed to go fully into the problem of supplying the country members the greatest return for their subscriptions and support.

The following are the major recommendations back to the State Divisional Council:—

(1) That all lectures delivered at general meetings be published in "Amateur Radio."

(2) That cards be sent to all country members monthly, and if cards are not available a suitable notice to that effect.

(3) That a Sydney central station be established for operation on telephony and supply publicity to country and to schedule Zone Officers at regular intervals.

(4) The number of Zones be reduced from eight to five, and that Zone Notes be more to the point.

(5) That a country delegate be appointed to Council, and a booklet be published covering the activities of the Institute.

The proposed phone-CW channels were the subject of an impromptu debate at the last technical meeting, and it was felt that, while there were minor obstacles in the way, the proposal was an extremely sane one, and should go far in eliminating much of the QRM troubles that are so prevalent to-day. The matter, however, will be discussed fully at the November general meeting.

The 28 m.c. bonus rules of the VK-ZL contest were the centre of discussion at recent State and Council meetings, and it was decided to send a letter to the Contest Committee expressing this Division's views on the matter.

(If Item 1 is passed the technical editor won't be sorry.—Ed.)

Federal and Victorian Q.S.L. Bureau

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

George Bridges, VR1AN (ex VP1AN), on leave from Ocean Island, recently spent a few weeks with his folk in Melbourne. What prevented you looking up the boys, George?

The recent walk from KA published in this column regarding the lack of QSL's from VK was productive of great mirth in Tasmania, where the KA's name is mud from a QSL viewpoint. One VK7 rejoices at receiving two cards from KA out of 12 sent.

Wanted urgently by this Bureau, the full QRA of CR8AA. Will someone please oblige?

Things still seem to be rather unsettled in Spain, as again there are two rival societies, each claiming to be the national organisation. Political considerations seem to determine the membership of each society.

"Radio QRA," the journal of one of the rival Spanish organisations, has arranged an international contest for transmitters and receivers. The contest consists of the exchange of a five-letter code group. However, following the usual procedure of European societies, no notification of the contest was received until it was half over.

The half-yearly clean-up of unclaimed cards will commence early in the new year. Cards listed in these notes in the January "Amateur Radio" will be consigned to the flames unless claimed by January 31st.

Cards are on hand at the Bureau, 23 Landale Street, Box Hill, for the following Victorian stations:—3AI, AT, AX, AY, BD, BE, BJ, BK, BL, BS, BX, CA, CK, CL, CW, EW, FC, FG, FL, FN, FW, FM, FH, GB, GU, GV, GW, HE, HH, IL, JC, HJ, JL, JK, JR, JV, KA, KB, KD, KI, KG, KK, KM, KV, KT, KW, LE, LF, LI, LP, LT, LY, LZ, NA, NG, NR, OU, OZ, PH, PM, PN, PY, QY, QL, QX, RE, RW, SP, TC, TG, TV, UF, UR, UW, UY, WC, WE, WH, WN, WO, WX, XK, XU, XZ, YF, YR, ZA, ZB, ZK, ZL, ZO, ZW.

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Divisional Notes

N.S.W. Division

The W.I.A. standard frequency skeds from VK2OC are still proving a success, and quite a large number of amateurs are making use of the Them. They are still being continued on 7000 k.c. each Sunday from 10 a.m. till 10.30 a.m. standard frequency, and from 10.30 a.m. till 11 a.m. on frequency checks. After VK2OC has concluded the standard transmission at 10.30 a.m., call him and he will be pleased to supply frequency checks.

The State Council has been unlucky to lose the services of E. Colyer (VK2EL), who resigned owing to pressure of business. VK2EL was a very ardent worker in the Institute's interests, and he will be greatly missed. In amateur radio work there always seems to be a point when the hobby interferes with one's work. Although "Ham Radio" may be the greatest and finest hobby in the world, the wise are prepared to let it slide.

VS2AC (Mr. Wylde, of the Post and Telegraph Department of Malaya) is at present holidaying in Sydney, and lectured at the December meeting of the N.S.W. Division. The lecture proved of great interest and provided many tales of radio in the tropics.

The membership is still steadily increasing and averages up to six and seven a month, and the results are very pleasing. In the near future a State-wide publicity campaign is to be started. A circular will be sent to all experimenters, together with suitable publicity in the press. The ham who is just starting in the game has often a misconstrued idea of amateur organisations and their functions, so an endeavour will be made to rectify any wrong impressions.

The proposed 'phone and C.W. channels are causing no end of comment in this State, and the November meeting was the centre of some ardent debating. However, during the next few days the result of the ballot should be to hand and the final decision be made.

ZONE 3 NOTES.

This month conditions have been rather changeable here; 40 metres not much good most of the time except for locals. On many occasions VK signals were still romping in at midnight and very little DX heard. During the few cool spells things were fair. Generally 20M has been good. Most of the gang have been concentrating on 20, and, believe me, that only half describes it. QRM max, plus! Hi!

OJ is back from his holidays in VIM, and was a ball of energy on 20 for the first week, but has settled down again and rebuilding. Going to put in another tube, a 53, on 20, as he is not getting out too well. Could only W.A.C. in about 1½ hours one evening. Fancy wasting all that time, Noel O.B. Hi! Is taking out the resonant filter as it seems to be causing parasites on 20. Less QRM for the local gang, too. Hi!

YI on 20, with a very pretty note. Says he is not using a Ford coil for his power

supply! Oh, yeah! Getting out well, though, and QSO'd D and got R max from W. Vy. fb. Harry ob.

EU very busy on 40 and having many fb. QSO 2' with the gang when not learning to play that jazz drum. Hope u don't put it fore om hi. Still QRP 20, not much DX.

QD now out of the doctor's bands and looking quite fat on it. Hasn't much time for QSO's as is busy studying. We know OM but what?

QE getting out well all around using a Zepp, and has sum vy. fb. DX. Was lucky enough to have the 20 band to himself one good night and QSO'd about half a dozen Europeans, including the GYI that WAC on ten recently. Now wants South America for W.A.C. himself. Reports hearing a pirate with 3EG's call. Also says 1G has a Ford coil! Nasty man!

NORTH SHORE ZONE NOTES.

By VK2VQ.

Conditions on the more prominent frequencies have remained practically unchanged during the past month, the only noticeable difference being the ever-increasing additions to the static bogey. On 7 m.c. the die-hards struggle through the QRN to work elusive Europeans in the late afternoons, and complete the agony by contacting Yanks and Japs later in the evening. 14 m.c. still is an attractive band, as Europeans appear from 1400 until 1800 E.S.T., and also round 2200 E.S.T. This location appears utterly hopeless as regards DX communication on 28 m.c., but in Crows Nest the evergreen 2LZ continues to contact overseas stations. The right bait for working South America has so far not been determined. 5 m.c. continues to hold up for numerous fone stations, but no startling developments have so far appeared from that direction.

2DR is believed to be still in the throes of a YL, while 2AE in the same direction is QRL study. 2ZH, of Roseville, has pep behind his signal and seems to make the most of it. 2SV and 2VM seem similarly troubled to 2DR, while the latter is even to the stage where the YL recently said "Yes." Congrats! A nice portable has been installed by 2VG in his sailing skiff. 2HA and 2TU are both intent on fone with varying results. 2VE will be tripping with a 59 and 210 final, while 2VP makes rare appearances. 2IP tries to tame another xtal rig, and his neighbor, 2WW, is QRL study. Complaints are made that 2LZ has removed the liquid refreshments from his shack and signed the pledge. 2HY has now five continents up on 28 m.c. 2BJ plans a bigger and better Radio Club, but rather hush-hush up till the present. An 830 B has replaced the blown 242A at 2HZ with better results. 2JE, of Cremorne, uses quite fair telephony on 7 m.c., and 2VN of the same suburb. 2 stages add additional countries at times. 2FM is on 14 m.c. a lot, with no regard for QRP. 2PY and 5PK have a clear xtal sig. on both 14 and 7 m.c. A new xtal rig at 2PV should improve DX, and it's all set to start

when the "Uni" exams are over. 2HI has interest in a greengrocery business. Of the Manly gang 2HF has been mainly on 28 m.c.—73.

WESTERN SUBURBS NOTES.

By ZO2MY.

VK2PT on holidays and spending most of them rebuilding his rig. Why, goodness knows! It's easily the best built rig in the district now.

VK2FD also been QRL rebuilding, principally concentrating on fone, and has been receiving FB reports on transmission from ZL.

VK2EL.—Congratulations, Eric OB, on at last landing that elusive LU. The secret of making 'em QSL, OM, is to send 'em a card or two cards every mail till they QSL to stop you. Guaranteed to work.

VK2CW.—Don't know whether he is a Yank or not, but he appears to have borrowed the rock-crusher that KA1HR used to have. What are you using, OM?

VK2NH was kind enough to forward me some data re KA1KG, including his QRA es rig, also that he would appreciate some of the VK gang reciprocating his QSL. What about it, gang? Sorry, 2NH. I put it all in last month's notes, which appear to have vanished the same as the previous month's.

VK2RY caught the model aeroplane craze and now busily engaged in designing one for himself. Did hear that he swiped his 40-foot pole to make the propeller, but don't think it's right.

Anyone wanting a South African for WAC will find that FB8C Madagascar is fairly easy to raise from midnight onwards. Has good DC note on about 7200 k.c. CR7MB is another that can be raised about same time es same frequency.

1G also among and assisting the QRM on 20 and as with QN want that elusive South America. Keen rivalry between QN es 1G for DX es W.A.C. and two lovely pots for the one who QSO's South America first. (No more entrants wanted. Hi!) As only about 200 yards separates the two stations. QRM is about 100 per cent., and looks as though one will have to die before the other gets through. Hi! 1G using a full wave Herty fed at $\frac{1}{4}$ wave with twisted m. imp feeders and gud for DX.

3EG was visited by OJ and YI, who gave his gear the once over on Sunday, 8th. No startling news, though has had a few storms there, but no damage done.

2AP visited Albury one week-end and met some of the boys. Went to Buffalo with YI and had an fb. trip, returning to spend the evening with OJ.

Well, guess this about cleans the slate, so 73 es cheerio for the present 2C's.

VK2ZR been experimenting with antennas, and gave a lecture on same at the last W.I.A. meeting. Jack sure knows his onions and gets out FB with those 46's. Getting R7 from G is real DX. But I'm still unconvinced re my antenna, Jack.

VK2BX.—Bert did a spot of DX during the test on 20 m.x., his first seven QSO's being in seven countries. That's the way to pick 'em. Were they harmonics or undertones, Bert?

VK2CG noticed wending his way to church t'other Sunday morn, perhaps to get local atmosphere. 2CG is the official

W.I.A. rep. on the Inland Mission Board. Bill Moore says that if 2CG attends any conferences it will be necessary to come attired in a nulla nulla and yam stick.

VK2FO still appears to be QRL tennis, jazz, etc., although occasionally heard on fone on 40 m.x. Been trying new condenser mike and says FB.

VK2JT on 20 mostly DX es occasional fone appears to be suffering from feedback occasionally, although quality good here.

VK2DW divides his time between 5 es 40. Mostly on fone es one most improved fone stations on band appears to have at last eliminated most of bad AC carrier hum.

VK2SK, DX hunter on 20, possesses very FB panel es rack outfit es makes good use of it, although keying sounds bit queer here. What system using there OM?

VK2XU.—Sounds like old times to go across the band and hear every second DX station calling 2XU. Gilbert must have found another good location.

Occasionally we still hear of some energetic ham doing real QRP DX. VK5FBX, Frank Brandon, of Wilmington, South Australia, was QSO a W6 with two watts on 40 m.x. es got R6. Have a go at it, gang. Afraid I wouldn't even know whether my haywire was oscillating around that figure. Another QRP merchant is VK6ZZ, who uses about three watts and comes in R6 in VK2. Perhaps the secret is that they haven't got to penetrate that Western Suburbs QRM band.

VK2FT, of Paddington, puts out nice fone on 40, being QSA 5 R6 out here, but carrier could be improved a bit, there being fair amount of AC in it.

VK2IU, of Burwood, mostly 40 m.x. fone. Quality quite fair.

QRG??.—Despite the advent of a FB frequency check and station at 2OC, some of the local lads, lids and pirates still continue to chirp CQ, blissfully ignorant of their frequency.

VK2QM, of Coogee, puts out nice sig. Uses 3-stage rig 59 CO 46 and 46 in PF and comes in very solid in Western Suburbs.

VK2MQ has rig all ready, including SSS, but finding trouble in fitting an antenna into his backyard, so decided try Collins system.

VK2PG.—Ronnie still QRL building, and says hopes to be on the air for Christmas with 3-stage xtal rig. We will miss that old toaster trannie of urs, Ron.

VK2GR seldom heard now. What's the trouble, Alec? Occasionally on 20 m.x. on duplex fone with 2 MN, but the DX bug has died altogether.

VK2VG trying his hand with portable equipment and gets out very FB indeed. From here there was no noticeable difference 'tween that 2 watts, Rex, es the 211.

VK2MY proud possessor of an antenna which all the experts except 2NO assured me was not so good. Spent last W.I.A. night listening to reasons why it was no good, then went home and in 5 cqs worked m.x. FB8, CR8, CR7 and G5. Wonder where I'd got if I could fix it properly?

Would very much appreciate any notes from Western Suburbs hams re their doings, same to arrive here at 2MY before 17th of each month.

LAKEMBA RADIO CLUB—VK3LB.

By 2DL.

At a recent meeting of the above club considerable discussion was entered into with regard to the phone-CW question, and as an outcome a motion was passed to the effect that "all transmitting members of the Lakemba Radio Club pay particular attention to the adjustment of their apparatus, obtaining maximum efficiency in order that the problem of interference may be reduced to a minimum."

Lectures for the past two meetings have included "Directional Aerials" by Mr. Pinnell (2ZR), and "Modulation," by Mr. Freeman (2AS). It was with regret that the resignation of the secretary, 2XZ, was accepted. 2XZ is expecting to be transferred to a ship operator's position at any time. Mr. Williams (2XZ) has been elected secretary. The latest transmitting members are 2XU, 2VA, 2BO and 2YG, while 2WB has been nominated as a prospective new member.

2XZ and 2OD report that a "pirate" is using their call signs on 5 and 20 m.x. respectively. 2FD and 2XW are both re-building; both rigs certainly look very professional. 2IC and 2OW seem to be working all the DX, 2OW being now WAC. 2OD recently delivered a lecture to New Zealand lecturers on 5 metres, relayed by 2DL on 41 metres. New Zealanders were quite delighted to hear a 5 m.x. station from Australia, even though it was relayed.

The Lakemba Radio Club extends to all the very best wishes for a prosperous New Year.

NEWCASTLE CLUB NOTES.

By 2RF.

NEXT YEAR'S HAMFEST.

Hams generally will be pleased to know that at a recent club meeting it was decided that another hamfest will be held next year on the first week-end of May. Organisation has already been begun, and some new ideas are being put forward.

The club's DX contest over a period of three months has just concluded, and in the closing stages resolved itself into a neck and neck struggle between 2MT and 2ZC, the former eventually winning. Final points were as follow:—2MT, 337; 2ZC, 318; 2DG, 280; 2RF, 174; 2UF, 162; 2KB, 141; 2ZW, 114. 2MT, Chas. Hedley, in annexing the local DX championship, showed what could be done on 20 m.x. with comparatively low power. The rig used consists of 59 CO, 46 dblr., and 45 PA, the receiver being 3 tube TRF. Here are some of the countries worked by the winner, who will hold the N.A.R.C. shield:—G, F8, OK, NY, ON, K4, K5, D4, OE, YR, OH, VP5, LY, TI, ES, SM, HC, CX, YJ, FB8, EA, OA, OZ, PAO, etc. Charlie is to be congratulated on this very fine work.

The contest was such a success and was so interesting throughout, that the example could well be followed by other clubs. The idea is for each ham to submit the best three DX stations he works each week. A scale of DX countries, which could be forwarded to anyone interested, allocating points from one to fifteen. For example, W1, 2, 3 and 4, 2 points; other W stations, 3 points; PK and K6, 4; J, KA and VS6, 5; XU and VE, 7, and so on up to stations worth

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15 points, the latter being regarded as almost unworkable.

The points for stations participating are marked up in the club-room each week, and the leader at the end of three months wins. It was surprising just how much interest the contest created, and members are eagerly awaiting the next one after a month's spell.

Several local hams have come to the conclusion that superhets are not so good without a xtal filter, and it is on the cards that a few supers will soon turn into TRF affairs.

2UF has been getting good results using a 53 as CO, and is occasionally heard on a bug. For heaven's sake, keep the weights on, Frank! Hi!

Congratulations to Bob Best, who has just passed the A.O.P.C. Bob will be a welcome addition to the local hams.

Victorian Division

PHONE SECTION NOTES.

By VK3DH.

At the Phone meeting on November 26th, as usual a good attendance was recorded. One or two lively discussions took place, keeping general interest going.

Members better known as 'EL, 'OV and 'SB suggested that all stations should take only one session, going right through the list; then, when all had taken their choice, spare sessions and frequencies to be divided between stations, going through the list again, according to the order of merit. This might, in practice, mean that one station would have to take two crystals. Unfortunately, due to the limitations of our stock of crystals, this could not be arranged.

Mainly due to lack of support this suggestion did not get any further. Even if support had been there the thing was not possible.

A further discussion was introduced by 3OV, who intimated that in his opinion the Allocations Committee should be composed of members who were actively engaged in transmissions, since they must have a better working knowledge of the requirements of technically good transmissions. In keeping with the above remarks, 'OV gave notice of motion that he intended to move that the motion on the books stating "The Allocations Committee be composed only of full members not actively engaged in transmissions" be rescinded.

Further on this subject 3PA and 3FL had another idea. They were in favor of retaining the present system of election of the Allocations Committee, but that a Technical Committee be elected to advise members on matters pertaining to the technicalities of transmission.

To explain the motive of this idea, the Allocations Committee have at present a full time job, since each member has to listen to each station for a fairly long minimum period, in order to allot the marks for the various details of a transmission on which points have to be recorded.

On several occasions the committee has expressed very clearly the difficulties attached to the making of a detailed report on any number of stations.

This explains their inability to answer a man who asks "What's wrong with my transmission?" when he happens to suddenly score only a few marks and gets a poor position on the order of merit. Well now, the idea of the Technical Committee is to do this work of criticising a transmission in a way which ought to be more satisfactory to the station being observed, because this Technical Committee is composed of members actively engaged in transmissions, and who, in the opinion of PA and FL, ought to be in a better position to judge technically a transmission, and diagnose a fault over the air, than the Allocations Committee.

The committee was elected as set out here, and their services are available on the nights mentioned:—

Tuesday.—3OY, W 5494.

Wednesday.—3CR, U 7511.

Thursday.—3JB, X 4285.

Friday.—3PA, JW 3921.

Saturday.—3FL, W 3972.

Sunday.—3DH, X 3725.

The idea is that, if and when any station operator has made some changes, or wishes to make some tests, he phones the particular member of the Technical Committee who happens to be on the list as available that night, and the latter proceeds to listen and report either by phone or radio on the various tests, etc.

According to the sponsors of this scheme, an operator would then have a good idea of what was going on, and would know what to expect in the way of points scored in the order of merit, according to whether the Technical Committee's report was that the transmission was good or bad. If the latter condition happened to be the case, the operator would still perhaps have a chance to rectify faults before the following Sunday, when the allocation of points takes place. —73.

KEY SECTION NOTES.

By C. WOODWARD, VK3YO.

The December meeting of the Section was really a combined general meeting, the Short Wave Group being in charge of arrangements.

After the Key Section business was concluded, a most interesting lecture was given by Mr. R. H. Doyle, of Messrs. Warburton, Franki Ltd., on standards of frequency and frequency measurements.

His lecture was very well received, and the chairman endorsed the feeling of the large meeting when he said that it was one of the best lectures he had heard.

A notable presentation during the evening was made to the chairman of the Section, VK3MR. The presentation was made by the QSL manager, VK3RJ, on behalf of the D.A.S.D. reporting stations. As a mark of appreciation for the manner in which 3MR always acknowledges German reports, they sent him as a Christmas present a nice big Hamburger sausage.

2DP has shifted to the "Hamburg" area, and soon will be hot on the scent of 3MR. (This has nothing to do with 3MR's sausage.)

3YP completed 150 DX QSO's on 28 m.c. during the month of November.

A 4-tube super is actually working on 56 m.c. at 3DM.

3RX called five continents in two hours on 14 m.c. one night last month, and hooked them all.

By the way, 3RX was responsible for the big scoop in November A.R. In case someone missed it, the subject was the wedding of 3CX.

Talking of 3CX, the newly-wed says there is no room for an antenna at his flat, so he is going to stick to 5 metres. (N.B.—He hasn't been on 5 yet.)

3UW worked his first W on 28 m.c. during November, whilst 3XP is considering getting on the same band and has installed a 53 as a C.O. and doubler.

3KE is now looking for a hum in his receiver. (No, it is nothing to do with 3MR's sausage.)

Our popular president, 3WG, is holidaying in the hills, and 3WY is keeping the W.I.A. on its feet whilst Bill is away.

3YK is inactive, being more concerned with yachting.

A kangaroo invaded the garden of 3ES recently and nibbled his guy wires. It is strongly suspected that the 'roo was lured to the spot by the sound of the bagpipes which 3ES delights in playing.

3OX, one of the well-known lookie lookie Cookies, has a 53 exciter feeding two type 10's and grid modulated. Gets his greatest kick from 40-metre phone. It's nothing to the kick he might get if some of the anti-fone gang gets him first.

The matter of fitting the generator to supers is easily done if one follows the "system" used by 3RX. He has regeneration in every tube except the P.A. and rectifier.

3OC is getting in a supply of bottle openers and bung starters for use at Christmas.

It is reported that a certain W2 uses an 800 driving a 150 T, followed by four 150 T's in P.P. parallel 6 k.w. input. Yes, we heard him.

VU2CQ does not appear to be able to read any more than calls and reports. This is vouched for by 3MR, 3RX, 6FO and others, including W's.

Just to show that marriage has no ill effects on him, 3CX has again taken up the pen in the cause of amateur radio and better signals.

As he was returning home from toil the other evening he saw a well-known ham, a trifle the worse for wear, standing in front of a large jockey scale and asking the world, "How many mills is she drawing now, OM?" No, that was not 3RX.

That fella 3RX has gotten bitten by the fone bug and makes noises nearly as bad as 3CX's fone on the 14 m.c. band, and so that he can be heard in two places he has borrowed CX's xtal and finds it better than his own, so 3CX is wondering if he will ever get his xtal back.

In regard to the "secret" wedding of CX, all he can say is that hams don't read the news, as the event was published in all the leading papers for months before. The sad-faced guy behind CX was not his tailor or pa-in-law, but he WAS the best man. Not now, though, as he got himself engaged last week. It's the heat over here in VIM.

On 20 metre band the low-powered stations continue to show the way to the high-powered stations. Just imagine a signal like 2XU puts out all coming from 10 watts. There must be something in

his double wave antenna and 75-foot stick.

3CX tried phone (??) on 14 m.c. with the result that he has worked five continents on fone now, and all the short-wave listeners for miles round have headaches. New countries abound on 14 m.c., and 3CX has gotten his total to 82 now. 3RX is hot on his track with about 40, having got 17 of them in the past month. That is since he put up the same kinda antenna that 3CX is using.

3RX heard 3CX's fone and said, "I can do better than that," so he tried it, too. I won't say what it sounded like first, except that he was so discouraged that he gave it up. But came back again and has now worked VS6 and VS7 on fone!

3OP potters round on 3.5 m.c. and works Yanks, while 3GU works DX on 14 m.c., but with a signal that is about half a mile wide, and then some, even tho' T9.

3YO, 3OC, 3MR and 3RX run four-way QSO's on fone, much to the enjoyment of others who are trying to work DX on the same frequency, as YO and OC are on top of each other, and MR and RX are the same.

3CX has a new wonderful receiver—he can hear 3KE and 3RX on fone ALL OVER THE DIAL. Ain't that fine? Or is it?

Foreign fones like HI7G, HI5X, YN1OP, K4SA, etc., are only R9 on it, but 3KE and 3RX are twice as loud as that.

3OM has practically given up ham radio. He had to, as most of the hams in the district borrowed nearly all his gear, and that keeps him off the air.

3LQ got married and shifted into Gulchview, but he has not been on the air since. We don't know if it's the married life or the district in which he now lives.

3OL is another ham that has just got himself engaged. S'certainly catching!

WESTERN DISTRICT NOTES.

By 3HG-3OW.

There seems to be very little activity in this district, mainly owing to most operators being busy with the harvest, etc. The 80 and 40 metre bands are practically useless at present, due to QRN and QRM, but 20 has been fairly good if one stays up late enough or rises early in the morning.

3HL active only on 80 metres on Sunday mornings for local QSO's and reserve work. Has joined in with the northern chain gang in their Sunday morning hook-ups. He recently erected a special 20 metre antenna for 3HM, but can't raise a thing with it. Thinks it is being affected by his own large 40-metre beam.

3NN, another of the northern gang, has greatly improved his phone with the aid of a Harlie mike and a 250.

3PG had the great misfortune to have his large beam antenna system wrecked in a recent heavy storm, so is inactive for the time being. Guess he will make up for it later, though.

3HG very inactive, due to pressure of work and lack of interest. The same can be said of 3OW.

3JE says he is coming on 200 metres.

3OS heard the other night working ZL on 80 phone. Evidently has his generator going at last.

No news from the Camperdown, Colac or Warrnambool boys. Heard 3WW on 20 with a fairly rough note.

Special! 3PG "heard all continents" in three minutes, and wants to know of anyone who can beat this record.

The Queensland Division being settled in their new headquarters at Celtic Chambers, George street, Brisbane, for a month or so, things are running smoothly once more.

It was pleasing to note that we managed to bring home the Flisk trophy once more in the face of strong opposition. We wish to thank all those who took part in the contest and helped to make it such a success. Here's hoping for another of the same nature!

Another matter of vital importance is the ballot on Phone Sub-divisions. We would like all members to give this matter their earnest consideration, as we feel sure it will do much to alleviate a lot of the hard feelings prevailing at the present moment between DX and phone men.

Conditions during the past few weeks have been rather patchy. QRN is playing merry hell on 7 m.c. during the evenings, and DX signals are hard to copy. But during the early hours of the morning, from 2 to 7 a.m., 7 m.c. is a DX paradise, Europe, Africa and Asia putting exceptionally fine signals into Brisbane. African fone has been heard R8 on speaker here. 14 m.c. is very patchy and DX very weak.

28 m.c. also rather patchy, but DX signals are very good when they come through. 7.30 a.m. is the best time for Yanks; they are putting R9 fone into VK4 at that hour. Europeans still consistent at 6 p.m. 3.5 m.c. now showing up, with a few European signals peaking at R4 about 5 a.m. We wish to congratulate 4EI upon his QSO's with G.

4RC blew his P.A. power trannie and is giving DX a chance to recuperate. Hard luck, Bob!

4EI smashing more records by his QSO's with Europe on 3.5 m.c. Fb, Ray!

4CR only heard on rare occasions.

Clarrie is troubled with B.C.L. QRM!

4UU changed his QRA and has a swell location now. It took eight of the boys all Saturday afternoon to re-elect his 65-foot stick. What a job! Hope it never comes down again. Motto: Never change QRA!

4YA at Yangan puts a solid signal into VIB with his T.N.T. and 3 watts from "B" batts. Fb, OM!

4WT heard at odd times between fishing (?) (Boojing!) expeditions and polishing his tank coils.

4JF has been QRL lately. His new QRA is not so hot apparently.

4EL has been heard a few times in VIB from his new QRA at Ayr, N.Q., using very QRP! Hope you are having some luck with it, Eric.

4LE still working plenty of DX with his 46 in T.P.T.G., and is now W.A.C. George cracked FB&C after many heartburns. Congrats., George!

4UR contemplating going xtal early in the new year. Fb, Jack, but get a rock well away from mine! I want some DX.

4US has been having a feast of Africans and Europeans in the early a.m. Fb, OM!

South Australian Division

By Leth Cotton (VK5LG).

The monthly meeting of the Division took the form of a general discussion night, and among the subjects discussed was the proposed subdivision of the amateur frequencies. After many arguments for and against, the very representative gathering voted unanimously against the idea.

The Secretary read out the report of the Federal Executive, and, according to the story, great are the expectations thereof.

It was decided to leave the rules, etc., of the Centenary D.X. contest to the State Council to frame, but there will be no radical changes from the two preceding contests.

After distribution of QSL cards the meeting was closed and general haunfeasting and rag-chews indulged in till a late hour.

I regret that my work calls me from Adelaide to Whyalla, so that I will miss the Christmas meeting of the Division, because from all accounts it will be a bumper affair.

Anyhow, although late, I take this opportunity of wishing each and every ham, OM or YL, the season's greetings, and may your D.X. never fail.

This being my last write-up as local reporter, I would thank all who have read these notes for their kindly help, criticism and advice, and if my successor has half as good a time as I have had, then he will not regret it.

However, I intend to still write scandal about the bhoys, so, as I will be listening, don't breathe your indiscretions over the air, as I thrive on radio "faux pas." Hi! And now for some scandal.

The Hi Fidelity King (5DC) graced the last meeting with his presence. Wish he'd brought his stoodloh. Hi!

Have you met 5DK yet? He QSL's.

5WK had a beaming smile on his frontispiece. Must have got on to some good D.X.

Somebody said 5MH was married, but Dick indignantly denied the rumour and said his hair was as curly as ever. Hi!

5KL refuses to enter his condenser mike in the gear contest. 'Fraid it will get pinched, Clarence?

5HD is collecting QSL's. Hi! He offered to swap three VK cards for one Yank or two ZL's for a G. Hi!

5GP sneaked off before I could interview him. Was it a YL that attracted you?

5RT.—Robert entered a very nice-looking Reise-type mike for the contest.

5CR.—Who said Charlie had lost all interest in cigars? However, he is never heard on the air now, so perhaps the cigs. have him beat.

What awful crime has 5JC committed? I overheard it said that lots of VK2's are after him. Hi!

5PS is a talkie operator, and has the low-down on Hi fidelity.

5MK runs a sked with ZU5AC. Holy Hamdom! What next will Jack do? Oh, yes, just to keep him occupied they

(Continued on page 28)

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Doings in the West

(By VK6LJ.)

Whew! It's hot! As I swelter and pick the deciding verdicts for the local lads, it feels like 300 degrees Centigrade. But, lo! 'Tis only 85 Fahrenheit. Summer is here at last, the birds twitter in the dusky twilight, the doves softly coo, and the DAM QRN has arrived! But now to return to Radio!

Did Daddy Xmas bring little Oigle that 50 watter? We don't know that, but we know that there will be a social outing to Penguin Island on January 19. This will be the only gathering of the Institute until the February meeting. We held an outing to the same place last year and it was QSC 5, so we are hoping for the same this year.

A Field Day was held last month in the form of a transmitter efficiency test, and was won by Jack, 6BB. This reminds that he promised an article for the magazine on "Music on a Beam of Light." Perhaps he will be energised when he sees this!

6AG gave a lecture at the December meeting on "Suppressor Grid Modulation Adapted to Portables," but it was poorly attended owing to the holidays. I noticed in the November issue, that for Mae West yarns, QSO 5LD or 5UK, but there is a ham in VK6 (a commercial traveller at that), who, I think, could beat 'em all! His guilty conscience will make him squirm now!

Well, now, the first call sign on the list is 6AA. Bert is heard on 14 m.c. and uses an 800 tube. 6AC down amongst the gins—doing service work—oh, yeah? 6AE breeds canaries in his transmitter, Say, om, have you tried putting salt on their tail? Hi! 6BB still rejoicing over his contest victory. And Bert, of 6BN, tears around in a P.M.G. van. 6CA has gone into recess as we never hear him. 6CB—say, OM, feeling guilty, yet? Hi! Let's go! 6CX thinking of other things just now aside from radio.

6CP was heard on 14 m.c., but don't think he did much. 6CY must be down on 56 m.c., as we haven't heard him lately. 6DH going away for Xmas and is another one we never hear. 6FG wants a rap on the knuckles with the Wouff Hong for not entering the ether. 6GM says he is going on 14 m.c. wid his fone. 6GW was away for a while on holidays but has returned to toil now. 6JE said he heard South Americans on the new receiver, but was not down on 14 m.c. with the transmitter so he didn't QSO any! 6JK is the sirloin specialist. 6JS still on 200 metres and is another one who uses a type 800. 6JW QRL exams. 6KZ ventured on 14 m.r., but has a ripply note and not too good. 6LK sat for first-class last month and we wish him the best of luck. 6LJ busy thinking out these notes! 6LR only on the air very occasional. 6LY NEVER on the air. 6MN got work, and not on that much. Mostly on 14m.c. 6MW heard calling a long drawn out cq. The only thing, Bill, is plenty of patience. Hi! 6PK punches the key! But not on the air. 6NJ and 6RD a few more seldom heard. 6RW still maintains Sunday as RADIO Day! Hi! 6RL returns to Hamdon. Says he may be on the air. 6SA gone quiet since the contest. And, Bill, if 6WS cannot get going on 7mc as he would like it to, 6ZZ gso's the east quite good, and is heard quite regular.

You know there are a few more weapons than only the Woriff Hong. so if you lazy snoozers don't exterminate some ether, there will be great doings among the lads.

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(Continued from page 10)

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DO YOUR PART. Get lined up for survey work to-day if you have not already volunteered. Your acknowledgment card, and a word as to which range you can cover will bring you details and the new League button when your logs in behalf of the cause have been forwarded.

W3FAR and ZS1H W.A.C. On "Ten."

Here's the latest dope from George Grammer, W1DF, on new ten-metre records. October 12 goes down in history as the day on which the first ten-metre WAC completed! W3FAR hooked J2CL at 5.40 p.m. est to climax a week of work in which the other five continents fell with no trouble at all. The second ten-metre WAC followed hard on the heels of the first, when ZS1H worked J2HJ at 0750 on October 13, only nine hours after W3FAR got his J! Bit of tough luck in this one, because ZS1H had heard a J two weeks before but had been unable to QSO. The morning he made it, J3FJ and VS6AH also were coming through on ten.

October Conditions: To any of the ten-metre gang in the eastern half of the country, at least, it hardly seems necessary to go into any details about conditions this past week or two. DX work has been the rule—and not only that, it's been pretty consistent. ZS1H has been covering most of the country like a tent every day during his operating period (11 a.m. to 1 p.m. est), most of the time with S7 to S9 signals. European signals have been piling in regularly around 8 to 9 a.m. est and again around noon practically every day since October 10. At the same time it has usually been possible to work W stations over 1500 miles away. South Americans continue consistent,

along with X1AY. VK's and ZL's seem to be utting in strong signals everywhere in the country except New England, where some first-class ear-straining has to be done to hear them at all. J's are getting through regularly in the West and have been heard by several 9's. W4AGP reports hearing both sides of a QSO between J3FJ and W7AVV. Knowing ten of old, we've daily been expecting a sudden zoom and out, but miraculously the DX keeps rolling in. We hope conditions on "ten" stay like this for a spell, and suggest that everybody in a position to do so give it a whirl and report DX heard and worked to A.R.R.L.

(Continued from page 24)

made him a councillor of the W.I.A. Congrats., O.M.

5LY, like the old owl, said nothing, but I bet he works a lot.

5HW is lecturer at the School of Mines in radio theory, and how that boy can lecture!

3XA.—Nuffin' dojn'. Hi!

5RF is dead, but he won't lie down. Collin always bobs up when least expected.

5LD, our TFC manager, bewails the fact that he doesn't get enough work.

5ZX has more ideas than the proverbial dog has fleas, and then some. Hi!

5LP now walks about FB and hoorays.

5WW is the very able AOCPC lecturer of the Division, and a pleased smile betokened some more successes in recent examinations.

5RH cropped up at the meeting and said how-do to the scribe.

5LG paid a visit to a ham's shack—5XA—and called CQ, but listened for 5LG calls instead of the right call. Hi! Hi!

5FW had his wrist in bandages after a call on XA's key. You can call or QSO by just blowing on Eric's (5FW) key. Hi! He said 5XA needed a sledge hammer. Hi!

(Continued from page 14)

Here's an excellent (?) example of the "ham spirit". G6LK was hearing VK2LZ for a couple of weeks before the first VK-G QSO took place, yet kept it all to himself instead of passing the news around to the other G 28 m.c. gang!

VK2BX having trouble due to bad shielding (crook QRA and how!). Have put up a new antenna as much in the clear as possible, which seems to be perking OK, although the feeders are long enough to take the R.F. to the DX without bothering to radiate it. Hi! It is a 14 m.c. half wave Zepp.

Compliments of the season and 73 for 1936 to all the gang de VK2BX.

R.A.A.F.W.R. Stations

2A2 (VK2XP).

As those who are acquainted with him know, 2A2 is a very energetic man, and here we may guess that he has not too much spare time to devote to anything in the nature of rag-chewing or DX.

He is, however, very well known to 2nd district Reservists as a first-class chap with a first-class fist, and last, but not least, an excellent signal.

He is located on a milk foundry or something at Wyong, about 60 miles airline from VIS, where such a thing as 240 volts A.C. is something of a prophecy—hence the rig.

TRANSMITTER.

Hartley, with crystal lock. Motor Gen. Hand Gen. (magneto).

For high tension we have a hand generator made from a cream separator (driver) and generator giving 250v. and an M.G. giving 350v. to a 201A or 245 respectively.

I understand that when working the hand generator the perspiration is diverted to a water turbine, which automatically alters the radiation angle of the antenna to suit the Heaviside layer. The antenna is 133ft. long x 66ft. at far end, and 25ft. near end, with Zepp. feeders. Points East and West, with the high end to the west.

The receiver is a 3-tube Sehnell, plug in coils, and covers 20—750 metres. It brings in European and Yankee signals at R6-7 on the speaker, which is good going.

Receiving aerial 66ft. vertical.

2A1 is building 47—46—pp. 410 for 7 and 14 mc., with about 40 watts to a 66ft. vertical aerial on a 90ft. stick. He tells me that this gro. rig is a necessity, because his average report from the U.S.A. men on 40mx. is only R8 when he uses 8 watts. Looks like being R40 with 40 watts, eh?

Now I'll tell you a secret. Look back a bit and notice that 40 metre vertical aerial 1/4 wave above the ground. NOW! Sneak up to AWA and get two T250's and a 5000v. supply, then give him a go in the next dx contest. You'll need 'em.

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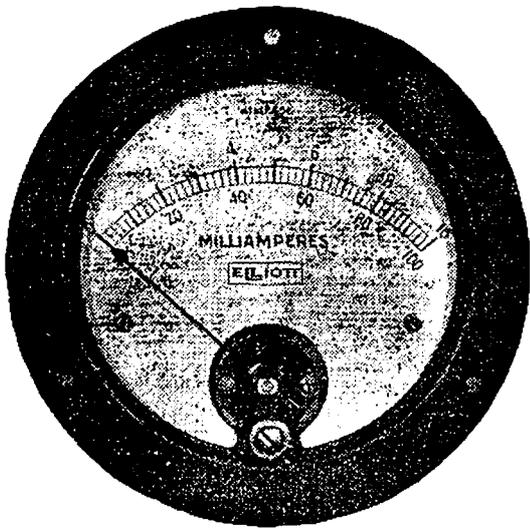
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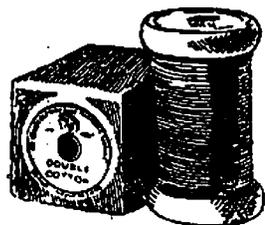
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AMATEUR RADIO

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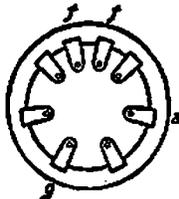
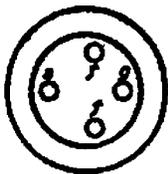
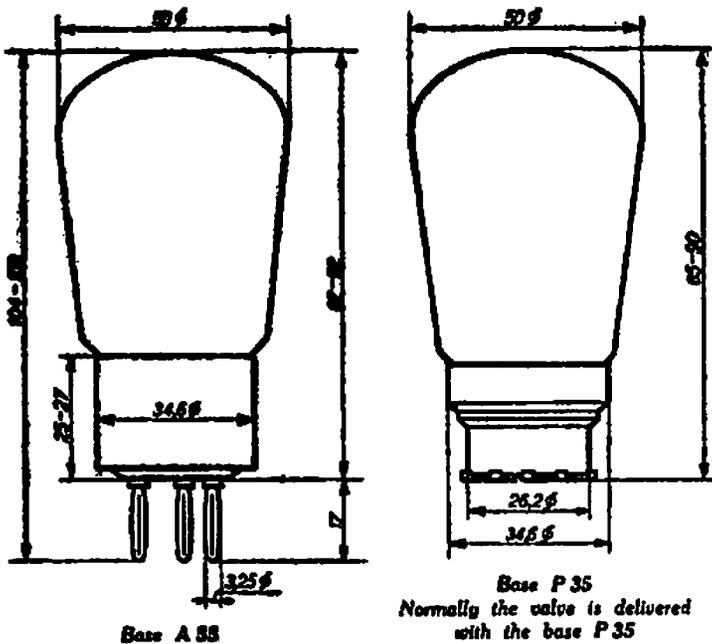
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				Dissipation	Continuous 6W
					Key down 10W
AMPLIFICATION FACTOR					6
SLOPE	(1) Normal	1.5 mA/V
				Maximum	2.3 m/AV
RESISTANCE	....	....	....		4000 ohms
ANODE FILAMENT CAPACITY	....	....	....		3 appr.)
GRID-FILAMENT CAPACITY	....	....	....		3 appr.) (2)
ANODE-GRID CAPACITY	....	....	....		3 appr.)
DIAMETER	....	....	....	d —	50 mm
LENGTH	....	....	....	l —	90 mm



PHILIPS

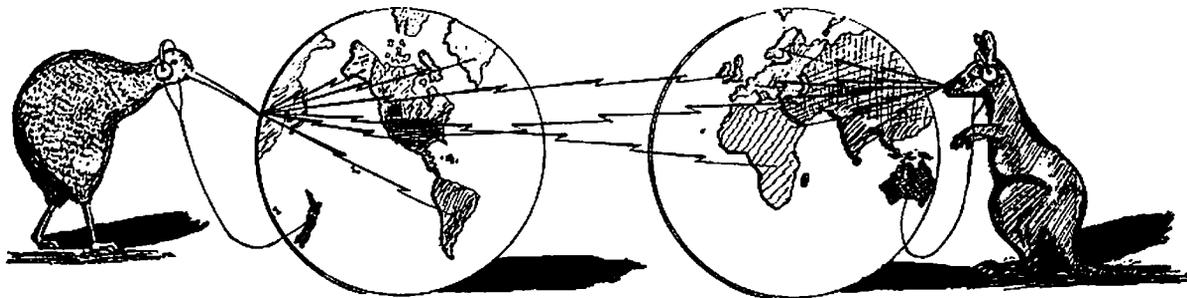
WORLD'S LARGEST RADIO MANUFACTURERS

In Memoriam



The Members of the
Wireless Institute of
Australia and the Royal
Australian Air Force
Reserve Wireless Sec-
tion deeply mourn the
loss of King George V.

Contest Results



VK-ZL International DX Contest

(By R. H. Cunningham, VK3ML, Manager W.I.A.-N.Z.A.R.T. Contest Committee.)

The success of a contest can be solely judged by the number of entrants; the more logs returned the bigger the show. If we all agree on this we have every right to say that this contest was even better than the Centenary one of 1934. October, 1935, aided by good radio conditions, attracted more stations than ever. Aided by support from ZL, the VK's were able to offer the DX stations more contacts, which is necessary to cope with the extraordinarily large number of them that returned logs this year. Whether the bands were sufficiently "saturated" with VK's and ZL is hard to say, but, judging by the comments from all the overseas stations, there must have been enough to make everybody happy.

At this juncture the N.Z.A.R.T. and the Victorian Division of the W.I.A. wish to take the opportunity of congratulating the many overseas societies that took our contest to heart and gave it the support and publicity we so very much appreciate. If their members got as much fun out of the contest as the ZL and VK's did, then it really did deserve worldwide support.

Our heartiest congratulations are extended to the top scorers, both in VK, ZL and all parts of the globe. VK3EG obtained his greatest score on 7 and 14 m.c. only. What a difference a few 28 m.c. contacts would have made to his total! VK4BB, after making 188 contacts in 35 countries, added a cool 61 contacts on 28 m.c. His best effort was 28 ten-metre QSO's in a string, consisting

of W, J, F, ON and G. VK3EG worked 50 countries, made W.A.C. in 6 hours 23 minutes, and W.B.E. in 80 minutes. VK3MR was not far behind this year either, with 31 countries and a couple of 28 m.c. contacts. VK2LZ made 80 28 m.c. contacts, 17 of which he had to lose owing to the cross checking of the serial numbers showing up inaccuracies in operating. VK3PG worked 17 countries with the usual 3.5 watts input. ZL2CI did a great job with 100 watts and a 7 tube S.S.S. Thirty-seven countries made up his multiplier. ZL1GX made 13 contacts on 28 m.c. as well as 37 countries on other bands.

W9TB, with his P.P. Parallel 860's, blocked many a second detector, and turned in a nice 4800 points. W6KRI develops 1 k.w. also in his P.A., and marked up the best W total of 5040 points. W5EHM did splendidly with 3187 points. W5QL returned 22 28 m.c. contacts and topped the W ten-metre section. W5WG came a good third in that class with 21 28 m.c. QSO's. ZL4BT made both W.A.C. and W.B.E. within 5 hours. He was probably the only one to get these as he actually contacted an Oceanic station—a ZL !!.

D4ARR made 10 ZL-VK districts, and three 28 m.c. contacts. F8EB worked ten districts also, and all on 14 m.c. G6CJ maintained top G score with 2220 points. HB9AT had no opposition, but they would have had to have gone some to compete with his de luxe beam 14 m.c. signal. PAOAZ made ten districts with 50 watts into a Zepp. OA4J was a delight to contact for many VK's, who

still wanted South America for the coveted W.A.C. His signals were just "plus, plus, plus" most of the time. VE5BI made a fine impression with his 400 watts and a good fist. VU7FY knocked up a rattling score of 2730 with 10 watts input. VS6AX pipped VS6AH by ONE district and no more! Both stations made 72 contacts. ZS2X stuck to 7 and 14 m.c., whilst ZS1H rotated the 28 m.c. beam all the time.

An explanation is due to the reason for the awarding of two separate certificates under every award rule of the contest. This was brought about by a misunderstanding that arose due to the too loosely worded rule number 14, which relates to a 500 point bonus for 28 m.c. At the time of the formulation of the rules the contest committee never, in their wildest dreams, thought that this band would suddenly spring a surprise on the world and open up international contacts. Possibly no one else would have guessed it, either. Consequently, in the minds of the committee, this rule was sufficiently watertight. A tremendous amount of discussion took place between both of our societies in regard to nearly every rule in the contest. It is interesting to note that Rule 14 was never queried in any shape or form, but was taken for granted. However, 28 m.c. turned up trumps and caused participating stations to look more closely into Rule 14. Some found that it definitely meant one thing, and others thought differently, but the majority considered it could be read in two ways, i.e., 500 points for each 28 m.c. contact, or 500 points for all contacts (one bonus only, irrespective of the number of contacts).

The Contest Committee suffered motions of censure to no end, not to mention many unpleasant discussions, over this matter. Finally the committee resolved that, in the interests of the true ham spirit, a compromise must be effected that would be equally fair to each party. Consequently two separate awards have been drawn up and will be made by means of two certificates; one for the man who set out to work a large number of countries and an occasional 28 m.c. contact, and the other for the one who concentrated on that band with the understanding that he would receive 500 points for each contact. This means that the 28 m.c. man is com-

peting with others in the same section and the all-band man with those that come under his class only. This arrangement will apply in all countries.

Many VK's will notice that their claimed score is considerably higher than that which appeared on their logs. Owing to a typographical error in "Amateur Radio" only one point was allowed per QSO, and in all the other contemporaries three points were shown. The VK logs that bore a one-point claim have been corrected on the three point basis.

Rule 13 undoubtedly had a marked effect as regards to the tone of the competitors' signals. Happily we can announce that not one station was disqualified through having worked with a tone consistently less than T8.

The only disqualification that had to be effected was that of VK4US, whose log return did not cross-check to the satisfaction of the Contest Committee. VK4US claimed 43,656 points.

Many contacts had to be crossed out in the cross-check because of serial numbers not being identical in both cases. VK2LZ was the heaviest loser in this respect. He had to forfeit about 8500 points through showing numbers that were not in agreement with those sent and received by the contacted station. When 500 points a contact are at stake stations should have paid considerable attention to the accuracy of the number exchange. Several American stations will observe that their 28 m.c. claims have not been allowed, and it is for the reason just given. Contests which depend on serial numbers as the exchanged message require these numbers to be accurately transmitted and received. This is the operator's pigeon and no one else's.

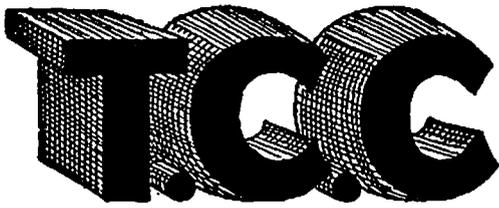
VK3EG's award of £1/1/- to the station that made W.B.E. in the shortest space of time was made to VK2EO, who worked the British Empire by 0410 on 6th October. Congratulations, 2EO!

Entries in the Handicap Section were very poor. Nobody, with the exception of two stations, made any effort to claim an award in this section. One station of these two clearly stated on the top of his log that he was an entrant in the Handicap Sec-

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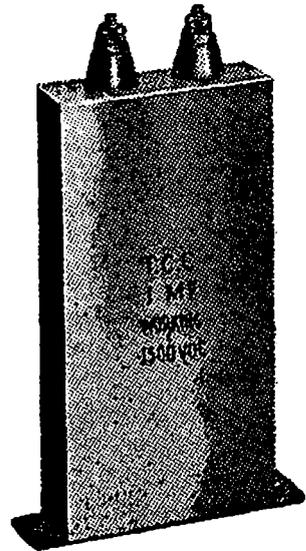
Whatever the
Mitter
use



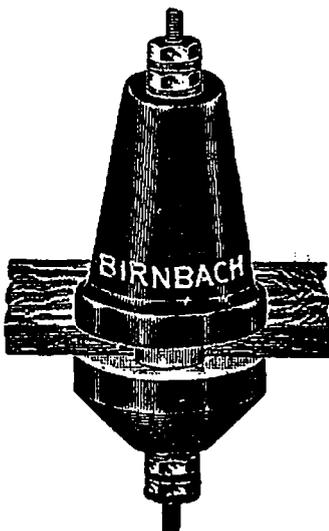
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478J	$\frac{7}{8}$	3/-	966	1in.	1/2
4125	1 1/4	3/-	966J	1in.	1/6
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tion. Thinking that the rest had left this claim to the imagination of the Contest Committee, all logs bearing power inputs less than 50 watts were sorted and worked out. Under the rule of 500 points for each 28 m.c. contact VK4GK won this section with a score of 540 points per watt. Under the other meaning of the rule VK3KX returned a figure of 455 points per watt. It is rather obvious that chaps do not seem to worry about a Handicap Section, and consideration will be given in future to leaving it out altogether. Those who are desirous of seeing such a section in future contests are invited to communicate their views to the committee immediately.

Special mention must be made of the ultra fine co-operation that was tendered by the D.A.S.D. This society made use of the contest as a local affair as well, in that special certificate awards were made to the winners of the various districts as well as a range of prizes (tubes, etc.) in certain cases. Due to this we received the German logs all sorted in the correct order, together with a list of the scores the D.A.S.D. had awarded and checked. The receiving section was treated in the same manner and greatly helped the work of the committee.

Outside Germany and England the returns from the receiving stations were very poor and disappointing. The balance was made up by one return from U.S.A., one from PA, one from Spain, and one sole entrant from VK. It is easy to see where the enthusiasm in the short wave receiving gang lies. For the DE and BRS stations a receiving section in any international contest is essential, and as long as they get some fun out of such a contest we will continue staging them for their benefit.

Cracks—Wise and Otherwise.

G6LK is proud that he established the first VK-G contact on 28 m.c. during the contest. It looks as though something good has come out of Rule 14 after all! To quote K6AUQ: "To say that it was a pleasure to work in the contest would be putting it mildly." G6OJ wanted to get in early, so he sent his log via air mail. The same ham sent an excellent station description along, but unfortunately we will not have room for it in

"Amateur Radio" this month. W5EHM found competition rather great during the year, and had to QRO from 100 to 900 watts in order to make himself heard! W5EBT says, "Here's to another contest next year." Many VK and ZL's were heard at VE3WA, but none contacted so far. G6RB and others plea for shorter CQ calls. Best operators worked by W3BES were VK7RC, ZL2KK, VK2EO, VK2HF and VK3KX. Best ZL's at "G2AGW" were ZL2CI, ZL1GX and ZL2GN. DE 1692 EA, operating in Spain, heard VK6SA, VK5HG, VK4BB and VK3BD rolling in on ten metres. VE5BI worked VK and ZL's at most unusual times. This seemed to be the case all over the world. Both 7 and 14 m.c. appeared lively the whole 24 hours each week-end. W3DBD, like many others, states his score was nothing to gaze at, but enjoyed the contest nevertheless. GI6YW blew up his power transformer during the last week-end. YL2BB, at Riga, Latvia, East Europe, put a good signal into VK. G2ZQ started off well on the first week-end, but was QSP'd to Belfast by the BBC suddenly. W9TB's log was six feet long! VE2HG invites any VK hams visiting Canada to step around and have a look at his Centenary contest certificate framed on the wall. VR2OZ, ex VK2OZ, contacted many old friends. The VU gang had special log sheets printed for their gang. VU2EB must have bought three of them! VK3MR sent in another of those logs that looked more like an illuminated address! Oyez! Oyez! VK3KR managed to get fone over to South America and qualify for WAC on phone. VK2EL must have gone on board the Strathnaver to recuperate; that's where he wrote out his copy of the log, anyway! W5ARO put up a 132ft. length of wire in place of the 60-footer, and got much better results. W6KRI sent 777,777 36 times. W6TI did not have time to put up as good a show as last year. W8ZY gives good reasons why VK and ZL stations should always indicate from what end of the band they intend to start listening; he also suggests a QRZ after a QSO in place of another CQ for a change.

Amateur Radio

Australian and New Zealand Logs.

American Logs.

Scoring Basis: 500 points for all 28 m.c. contacts.

Scoring Basis: 500 points for all 28 m.c. contacts.

1. VK3EG	42,150	36. VK5ZX	1,096
2. VK3MR	23,750	37. VK3LJ	1,008
3. VK3KX	21,812	38. VK3VW	972
4. VK7RC	21,384	39. VK5MZ	972
5. VK4BB	20,240	40. VK3DM	882
6. VK5FM	19,982	41. VK3GC	858
7. VK4AP	15,206	42. VK3UW	756
8. VK2EO	14,175	43. VK2DR	735
9. VK7JB	11,678	44. VK6MN	528
10. VK2HF	11,600	45. VK3YP	512
11. VK2OJ	10,725	46. VK5WR	504
12. VK6FO	9,275	47. VK3BQ	503
13. VK2AS	9,236	48. VK3ZW	399
14. VK2DA	6,615	49. VK5HD	378
15. VK2ZC	6,472	50. VK2EG	360
16. VK4GK	5,516	51. VK3HG	315
17. VK2LZ	5,180	52. VK3JA	312
18. VK3CP	4,752	53. VK3OR	252
19. VK5LD	4,368	54. VK5RX	252
20. VK4EI	4,340	55. VK3RJ	216
21. VK6SA	4,217	56. VK3OW	192
22. VK2GM	4,161	57. VK2KJ	162
23. VK3DP	3,240	58. VK5DQ	135
24. VK3HK	3,009	59. VK3ZC	120
25. VK5KL	2,823	60. VK6JE	90
26. VK2HZ	2,372	61. VK3HL	84
27. VK3XQ	2,304	62. VK6CP	72
28. VK5DW	2,268	63. VK3KR	60
29. VK2OC	2,001	64. VK2PV	48
30. VK5RT	1,785	65. VK6PK	48
31. VK2EL	1,709	66. VK4UR	36
32. VK6KZ	1,709	67. VK3TL	27
33. VK3PG	1,275	68. VK4CG	27
34. VK2YL	1,260	69. VK5MX	6
35. VK3WH	1,248		

W1CMX	624	W6EPZ	710
W1GSH	72	W6HVU	600
W1APA	12	W6RH	595
W1ZI	12	W6GTM	165
W1BBN	9	W6KJK	96
W1FPP	3	W6JIH	72
W2BYP	1,566	W6IZE	72
W2DZA	716	W6AM	36
W2AIW	525	W6DPK	9
W2HHF	462	W6BVX	3
W2BSR	450	W6LVQ	3
W2GVZ	36	W7DL	2,190
W2CC	12	W7AVV	1,244
W3EVT	1,229	W7DBY	105
W3SI	1,152	W8ZY	2,460
W3BES	720	W8JIN	1,410
W3EVW	675	W8LIR	756
W3ENX	195	W8AAT	144
W3FKK	189	W8DGP	48
W3DBD	180	W8APB	24
W3CZO	72	W8HGA	12
W3AWH	27	W8DWV	12
W3EJO	54	W8CBI	3
W4AJX	1,550	W9TB	4,800
W4AJY	875	W9IJ	3,800
W5EHM	3,187	W9FM	2,660
W5QL	3,017	W9AEH	1,755
W5EBT	2,280	W9GHN	878
W5WG	941	W9BQM	590
W5AFV	794	W9ADN	525
W5EUL	135	W9BTW	420
W5BDW	72	W9PST	324
W5ARO	72	W9CP	234
W6KRI	5,040	W9LW	180
W6CEM	2,670	W9NNZ	96
W6FZL	2,670	W9CCV	84
W6GRX	2,220	W9TIZ	84
W6KBD	1,560	W9RSE	60
W6DIO	1,148	W9DQD	48
W6TT	918	W9MRW	36
W6TI	840	W9UAZ	12
W6CIS	716	W9LQ	3

Scoring basis: 500 points for each 28 m.c. contact. The following scores are awarded only to those concerned:

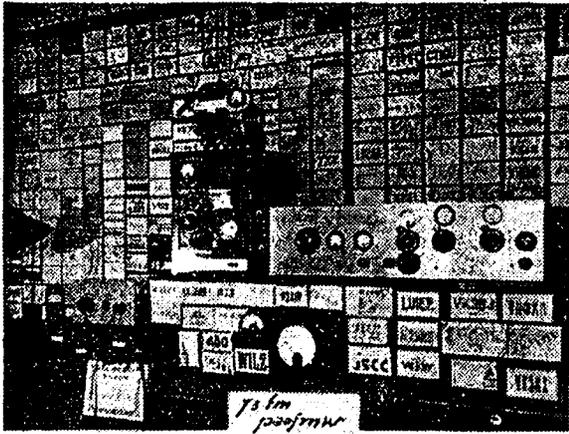
W2DZA	1,216	W6EPZ	4,510
W3EVT	1,729	W6RH	3,096
W4AJY	1,878	W6CIS	1,716
W4AJX	1,550	W7AVV	10,744
W5EHM	2,670	W9TB	11,350
W5QL	12,020	W9IJ	6,830
W5WG	10,941	W9FM	6,660
W5AFV	1,294	W9BQM	2,090
W6GRX	7,720	W9GHN	878
W6DIO	10,148		

1. ZL2CI	23,099	12. ZL2QM	1,365
2. ZL1DV	19,680	13. ZL2LE	900
3. ZL1GX	19,400	14. ZL1AR	608
4. ZL4BQ	17,424	15. ZL4BT	405
5. ZL2KK	16,512	16. ZL2OD	364
6. ZL3BJ	16,330	17. ZL3JX	144
7. ZL2GN	11,160	18. ZL2FA	45
8. ZL2QT	4,650	19. ZL2GQ	34
9. ZL3AJ	3,065	20. ZL3CU	27
10. ZL1FE	2,688	21. ZL3CP	12
11. ZL3AB	1,938		

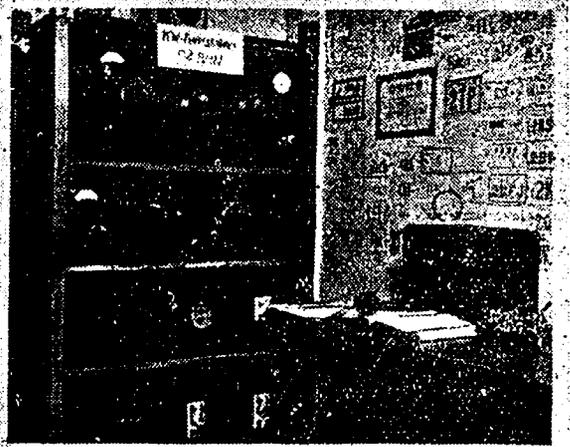
Scoring basis: 500 points for each 28 m.c. contact. The following scores are awarded only to those concerned:

VK4BB	48,740	VK4EI	14,840
VK3EG	42,150	VK2EO	14,175
VK4AP	36,206	VK4GK	13,516
VK2LZ	36,180	VK7BJ	13,178
VK3KX	25,312	VK2HZ	12,372
VK3MR	24,250	VK2AS	11,236
VK7RC	21,384	Etc.	
VK5FM	19,982	ZL1GX	24,900
VK2HF	15,100	ZL1AR	608

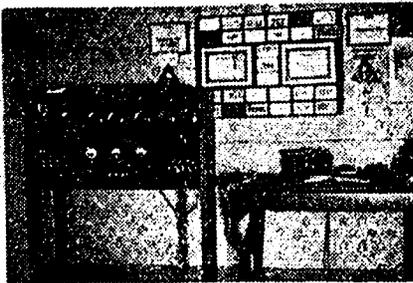
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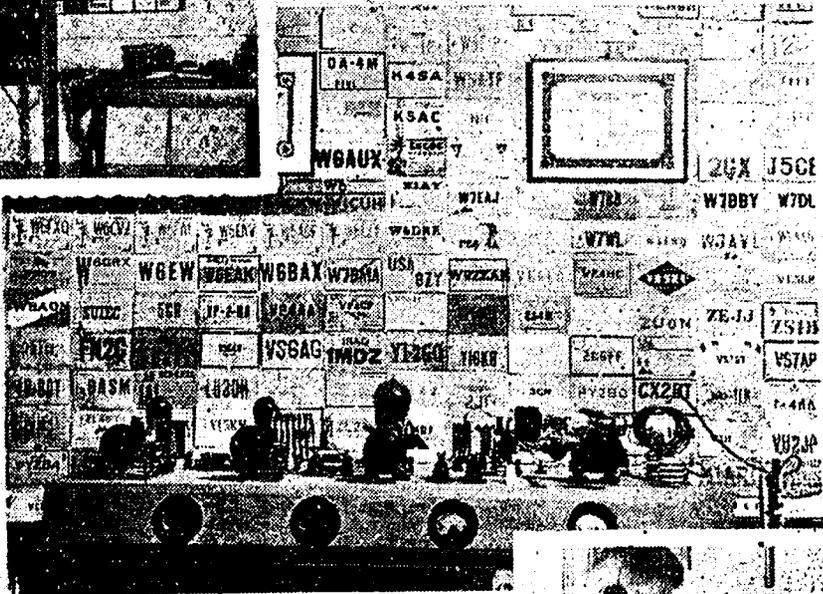
PAOJMW



D4BHN

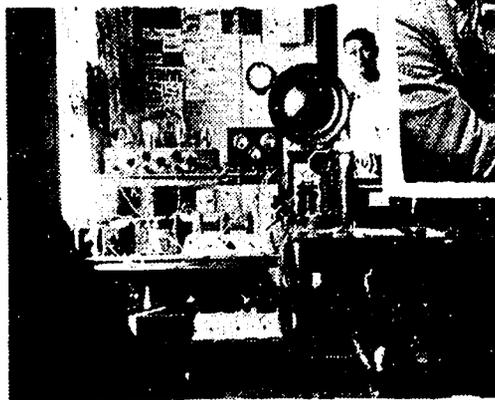


OK2OP



PAOAZ

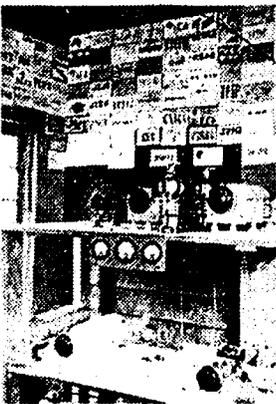
G6LK 28M.C.



PK3ST



D4GAD



WGKRI



Amateur Radio

British and Foreign Logs.

Scoring Basis: 500 points for all 28 m.c. contacts.

CR7MB	225	KA1CM	135
CR8AA	1593	K5AZ	2295
CX1CG	1431	K6AUQ	1350
D4ARR	4070	LU1CH	1365
D4CSA	1410	LY1AG	12
D4GAD	660	LY1J	384
D4GWF	644	NY2AB	1269
D4KPJ	524	OA4J	2106
D4DZMK	503	OH3NP	63
D4MNL	408	OK2LO	3
D4JVB	252	OK2OP	2220
D4LWN	231	ON4RX	999
D4LYN	120	ON4AU	581
D4GOF	72	OZ9Q	1140
D4DTC	48	OZ2M	3
D4LGM	30	OZ7KG	120
D4MLL	27	PA/AZ	1740
D4BEC	24	PA/UN	1269
D4BUF	12	PA/JMW	552
D4HAF	12	PA/RN	90
D4OYT	3	PA/WH5	3
EA4AO	3120	PK1MO	702
EI9G	144	PK1WB	270
EI4G	3	PK2MP	648
GI6YW	864	PK3LC	3810
ES7C	12	PK3ST	336
F8EB	2250	PK4RM	300
F8VP	554	SP1LM	72
F8TQ	552	SM2VP	60
F8GV	234	TI2EA	210
F8EO	135	VE5BI	2070
F3LE	103	VE3WA	216
F8RR	48	VE1EP	144
G6CJ	2220	VE4IG	108
G5YG	1770	VE1HG	72
G2PL	1400	VS2AG	288
G6RB	1200	VQ8AF	156
G2YL	506	VS6AH	2660
G2HG	506	VS6AX	2376
G2OI	252	VS7RP	36
G2ZQ	225	VR2OZ	120
G5WG	216	VU7FY	2730
G6XN	210	VU2EB	1770
G6LK	196	VU2LJ	644
G5BP	180	X1AY	1256
G5RV	84	XU3ST	12
G2WQ	48	YM4ZO	794
G5JU	30	ZS2X	9541
G5JM	12	ZS1H	503
HB9AT	2370	ZT5Z	285
J2HJ	1172	ZU5U	36
J2LK	456		

Scoring basis: 500 points for each 28 m.c. contact.

The following scores are awarded only to those concerned.

D4ARR	5070	J2HJ	13,672
D4GWF	1144	J2LK	2956
D4KPJ	1524	ON4AU	4081
D4ZMK	503	VS6AH	2660
G6LK	2096	VU2LJ	644
G2PL	1400	X1AY	1256
G2YL	1006	YM4ZO	794
G2HG	1006	ZS1H	2530

Receiving Section.

Australia.—B.E.R.S. 195, E. W. Trebilcock, 20,640 points.

U.S.A.—W. C. Littlewood, 18 points.

Spain.—DE 1692 EA, 3,350 points.

Holland.—PA-R226, 878 points (2878).

England—

BRS 1535	2,070	2BTQ	1,200
BRS 1173	2,040	2BLK	1,140
BRS 1581	1,890	2AXX	870
2AGW	1,620	2AFA	135
2BVU	1,566		

Germany—

DE1729/U	3,320	DEH2549/F	600
DE2161/J	2,580	DEH2097/U	594
DE1914/H	2,520	DEH2526/K	486
DE2614/P	2,400	DEH2617/P	480
DE2441/T	2,340	DEH2572/M	432
DE2089/H	2,220	DEH1889/O	360
DE2857/L	2,190	DEH2709/F	357
DE1789/D	2,130	DEM1137/U	336
DE1556/D	1,800	DEM2415/H	324
DE2665/T	1,800	DEM2439/T	288
DE2409/F	1,796	DEM2881/O	252
DE1963/R	1,730	DEM2346/K	234
DE3250/M	1,380	DEM2581/I	144
DE3022/U	1,140	DEM2800/N	105
DE3036/H	1,026	DEM3265/T	54
DE2782/K	1,020	DEM1417/F	48
DE2290/I	696	DEM2442/T	45
DE2093/U	945	DEM1970/F	36
DE1943/H	918	DEM1977/B	27
DE2078/D	837	DEM2951/I	3

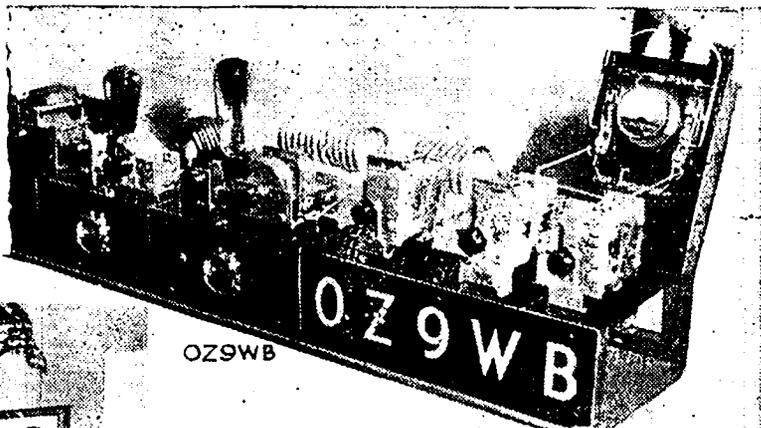
WEST AUSTRALIAN ARTILLERY SIGNAL STATION, G-71.

This station, sometimes using the call sign VK6KZ, works on 66 and 73.1 metres, but may be worked by our stations to the delight (?) of the DX hunters, who imagine it to be some new and distant outfit. They are always glad to QSO.

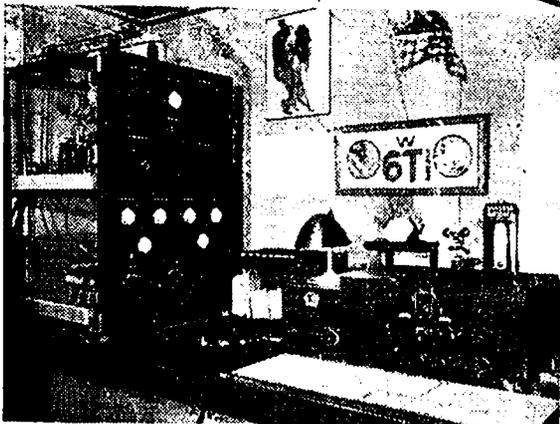
Amateur Radio



D4GAD



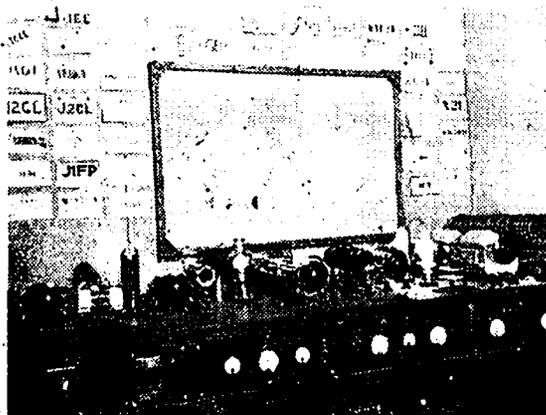
OZ9WB



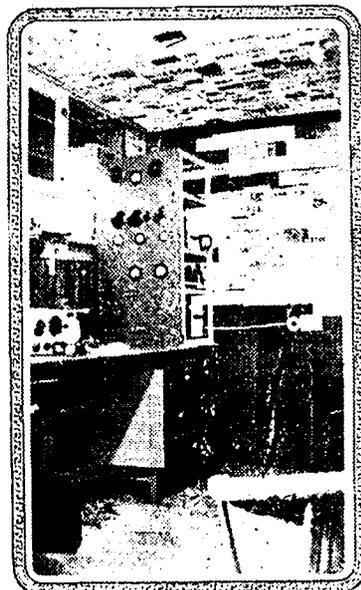
W6TI



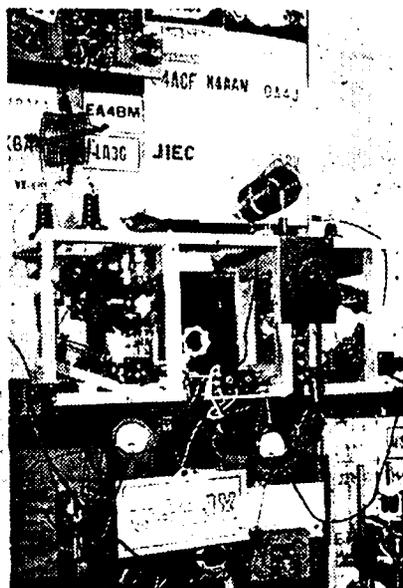
D4GAD



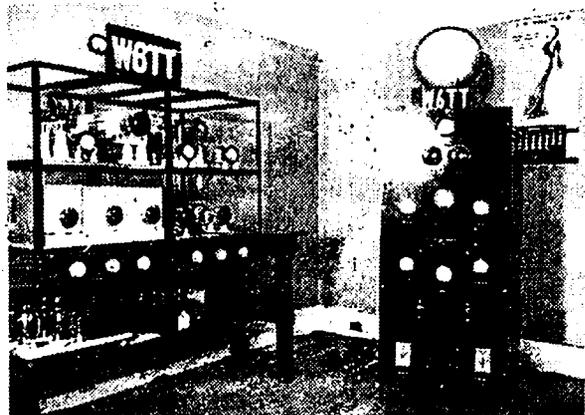
W6CEM



W3EVW



W4AJX



W6TT

German Report of 1935 VK-ZL Event

(By D4BUF.)

There is to be another contest in 1935, VK3ML said last year. And here is the German report of this year's event, with its new thrill and the same difficulties as the year before.

Well, comin' along from the Saturday's work and them—a lot of time to take a good dinner, so sleep several quarters of an hour, to drink a cup of tea what rest before start!

At the early eve goin' to the "rever" and tryin' catchin' our old friends of the year before there in Oceania. The newcomers, our New Zealand friends, were comin' thru' at other times as the "Aussies," multiplying our chances of getting another of these desired contacts by that.

ZL is the longest distance to work from here, but one of the most consistent DX which proved to be reachable very easily.

The conditions of the contest were changed considerably. One change was met in favour with our hams; it was the reduction of test time, these 24 hours proving sufficient for working a lot of Aussies and NZ's. A physical breakdown didn't happen, as far as we were told. The October sickness, typical for German hams last year, this characteristical "Aussie-headache," was unknown this year.

But, oh, why did you change the scoring of the contacts so seriously? Last year our merit was the distance, and the VK's were glad to work long distances, thus bringing a lot of points. This year the interest of the Aussies was considerably less in working difficult DX, most of the Oceanian participants being satisfied to work one D4 only during contest!

The experiences of the contest 1934 were useless for the 1935 event. This time conditions changed to higher frequencies, 14 m.c. proving most successful in the early hours of the European morning. God be praised, less fone QRM happened on 14 m.c.,

the band-saws working still on beginner-band of 7 m.c. In the different parts of our countries very different reports of the energy blowers came. One chap was testing on ten, and had bad success; the other heard much on 40, but worked "better things" on 20, etc. But they all say that the better luck was on the 14 band, especially in the hours where the normal person takes his last sleep. The winners of this year's event—of course, D4ARR, ex D4BAR, Hans Bauer, and H. Schulz, D4CSA, were working with all possible tricks to get the ear of their remote friends. D4ARR had such QRK's, as he reports, that you over there were thinking he was keying an Australian or N.Z. station.

Wave-changing is the main trick to free from other competitors. Or the trick to use the CQ call of another competitor for QSO's of one's own. It showed very useful for D4ARR to know in what direction these Oceanian boys were turning the knob of their dial, so that he was able to put himself on the right place in the band. Hi! "My QRK's were still large enough," he writes, "but these chaps had to find me first, and this is the secret of my more than hundred contacts. . . ." D4ARR was the best European DX-hunter, and he got the first place this year again with 4,070 points, in spite of the new smaller scoring!

One chap had to work one QSO only to get 503 points—one ten-metre VK contact. Why do more to get a good place? Hi! Sorry to say that only 17 German transmitters were assitting the nice hunt, but the scores improved so that we are satisfied with our result.

The best work in the 1935 event did the DX-fishers in opposition to the DX-hunters. Hi! Our DE's were very keen to find and catch the whistles of VK and ZL and to bring on the paper every signal they heard from them. Forty boys were grinding off the tips of their pencils on that rough paper

(Continued on page 14)

A Simple Way of Re-magnetising Headphones

Contributed by Bob Cameron, VK3FQ
(Ex 3OT, 4ZL, 2XV.)

The following way of re-magnetising ordinary headphones is not generally known, and has been found by the writer to be satisfactory in all the cases in which it has been used:—

No special equipment is required, only a few truly junk parts—no magnets, batteries or direct current source. The ordinary house lighting alternating current is used.

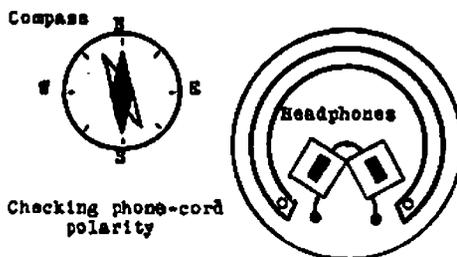
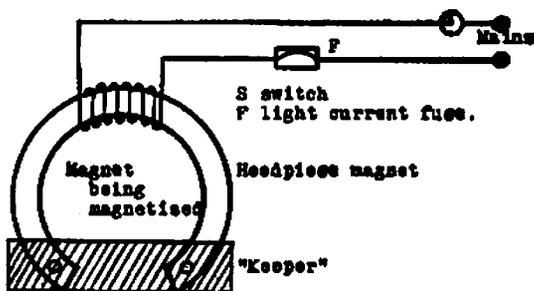
The material required is a small quantity of covered wire about 24 swg., and a fuse somewhat lighter in gauge than the house fuse in order that the auxiliary fuse will blow first on short circuit.

There is very little preliminary work to set up except the removal of the permanent magnet from the headphones. Some phones have a solid magnet, whilst others are laminated. It is advisable to note the polarity by a compass when removing the magnets, as this method often magnetises the weak magnet in the opposite polarity. This is not usually an inconvenience, as the magnets can usually be mounted upside down if necessary. Anyhow, this objection may be overcome by re-magnetising once more or reversing the cord connection. The final object of these remarks is only to insure the correct magnetising current being maintained through the phones when in use so that they will not be de-magnetised once more.

Before describing the actual method a hint to make sure the phone cords are correctly polarised may not be out of place.

The static plate current of the output tube is usually sufficient to cause an indication on a compass placed near one pole of a headphone. The compass should be placed near one pole of the headphone so that it is partially attracted from its natural direction of seeking north and south. This should be done with no current

flowing through the phones. By watching the compass needle it should show an indication when the plate current of the phones commences. If the cord connections are correct the compass needle will give an increased movement in its already attracted direction. Wrong polarising will cause a deflec-



tion of the needle in a reversed direction. Check both phones and the polarity of the magnets and then remove the magnets.

The sketch should show how the magnetising is done. The covered wire is wound roughly on top of the magnet. A large number of turns is unnecessary. About a hundred turns or so can be wound on in quick time. The magnet may have a "keeper" of soft steel placed across the poles, although it is not always necessary.

The ends of the improvised coil are now connected to the AC mains with the fuse in circuit. The hopeful ham now turns on the juice, the fuse blows, and nine times out of ten he has a properly rejuvenated magnet. If not, he makes another fuse and tries again

(continued on page 29)

The Construction of an Inexpensive Moving Coil Milli-amp Meter

By K. G. ALLEN, VK3UH.

Probably a large number of hams have D.C. moving coil ammeters about the shack, and have put them aside, wishing they were milliamp meters.

A D.C. ammeter is merely a low range moving coil milliamp meter with a shunt across it. The following will give some idea of how easily it may be altered into a first-class plate current meter.

Unscrew the case and remove the works, etc., being careful not to damage the hand or moving coil. If the meter is a fairly high range ammeter, say full scale, 20 amps, the shunt will consist of a copper strip, unsolder and remove this.

The next step is to find out what movement the meter has, i.e., what it reads full scale without the shunt. To do this, connect it to a source of D.C. supply, say a 45-volt B battery, being careful to put a register (carbon type) in series; try a high value of resistor at the start—about 1 meg. Close the circuit and watch the hand of the meter; if it doesn't move, the resistance is too high and must be reduced. Experiment with it until the hand is approximately on full scale; now take the meter out of circuit and connect up with one which is calibrated and read the current, which will probably be anything up to 15 milliamps. This is too low for plate current measurements, so a shunt must be constructed. It will be seen on inspecting the scale that the divisions are equal, and not crowded at one end. If the scale is 0-20 amps by steps of 5, thus—0-5-10-15-20—it is best to alter the face to read 0-200 by simply adding 0 after the figures.

It may of course be altered to read 0-100, but it will be necessary then to alter the figures, and these are harder to write in. Above the word "amperes" write the word "milli", thus finishing the face.

To construct the shunt, the following is necessary:—A calibrated D.C.

milliamp meter full scale about 200 milliamps; D.C. power supply, any voltage, but capable of standing up to 200 milliamps, and some voltage dividers that will be O.K. with 200 milliamps.

Connect the calibrated meter, the power supply, and voltage dividers in series, and adjust the dividers until the meter reads 50 mills.

Take some resistance wire from an old rheostat and solder it across the leads from the moving coil of the meter, being calibrated. The best place is the back of the terminals of the case. Only two or three inches of wire will be necessary.

Connect the meter in place of the calibrated one, and read the current. It may be higher or lower, and the shunt must be adjusted till it reads exactly 50.

Now again connect the calibrated meter in circuit and adjust the voltage dividers, so that the current is 150 milliamps. If the meter being calibrated is now again connected, it will read 150 milliamps. The job is now finished, and if the shunt has been made carefully it won't be possible to detect any difference in the reading of either meter when in circuit.

.....

(Continued from page 12)
of our uniform DASD logs.

Well, OM, a contest is a good thing, and the time spent for it is amusement, but the VK-ZL event was again the best of these things, and we are looking forward to the next one.

In addition, we think that a lot of VK and ZL hams fulfilled during contest the rules of the German transmitting master. We are enclosing a photo of this diploma and its rules, and, if you can, please publish these things in your magazine.—W. Hawyk.

Correspondence Section

The Interference Problem.

(By W9FM.)

Without for a moment denying that our bands are excessively crowded, and are likely to become more so in future years, we wish to make some suggestions which, if they would reduce interference 25 per cent., would be distinctly worth while.

Our pet illustration of the present state of affairs is an experience during the 1935 A.R.R.L. international contest. When a receiver (with crystal) was tuned from 13,950 to 14,000 kc. we heard nothing, but from 14,000 into the band at least 100 kc., there was just a "wall of sound," in which W calls could simply not be copied. The volume indicator, which was at minimum up to 14,000 kc., just went up and stayed there, wiggling somewhat when we tuned into the band. DX signals could be heard only because conditions permitted them to come through with better volume.

But what were all these W's doing—working each other? No! Just calling, mostly fruitlessly. Many would send 20 calls or so before raising anyone. In fact, some were calling a DX station that had been closed for an hour while the operator was at luncheon. In 1934 we tried to raise ZS2A, and did so on the 32nd attempt of the fourth night.

In the 1935 test we heard Dick Bartholomew, K4SA, attempt to "break-in" on stations calling him, mentioning the long calls. But think of the several hundred W stations who had spent hours calling! Why shouldn't they call, always in the hope that "this time" will raise him? The mistake is not so much that of the long-calling W as the DX station that doesn't indicate how he is going to tune his receiver at the end of the previous QSO.

It would seem that a DX station would follow one of two logical methods—tuning from the frequency of the last station worked, or tuning from an edge or from the middle.

What other choice is there? Is there much excuse for tuning just from any old point, unsystematically, to some other point on the dial? But now a station on 7150 kc. will call CQ and be called from both ends of the band; another on the 14 m.c. band will be called by many stations at various parts of the same end, and even by a few at the other end! What a waste of time and power, interfering with others! What needless QRM!

Our suggestion involves using this international abbreviation: QSX—"I will listen for.....on.....kc."

On finishing a QSO, K4SA could have sent, "QRZ? QSX 14,300 de K4SA," or cut it down just to "QSX 14,300," indicating approximately where his receiver is tuned, and only stations close to that frequency need bother to call—the rest have no chance. Or, when there is not a long waiting list of fellows ready to call, use one of these:—

QLM—"I will tune from the low frequency and across the middle."

QML—"I will tune across the middle toward the low frequency end."

QHM—"I will tune from the high frequency end across the middle."

QMH—"I will tune across the middle toward the high frequency end."

These are easy enough to remember. Just keep in mind "low, middle and high," using the proper initials to indicate. The use of "middle" seems to some to be a complication, but permits tuning from the middle, giving the fellows in the middle a chance, also making four "edges" in each band for the W stations to pile up into. It will help to scatter the stations rather than force them to concentrate at the edges and fight it out.

During the 1935 A.R.R.L. contest, ZE1JB used these, saved plenty of time and QRM. Once, from around 14,300 kc., he used QLM at which

(continued on page 20)

Things You Didn't Know

By VK2KB.

Strange, is it not, how we hams of 1935 think we are the salt of the earth with our measly little 25 watt (?) outfits and our paltry DX? And, perhaps you want to know what prompted the thought? Well, you see, it occurred this way.

DX wasn't so had the other night. In fact it was dam-fine. I'd only been at it four hours and had raised three W6's in a row and they all gave me Rmax, the liars. Was just about nodding after the strenuous ordeal of copying the "tnx QSO, 73 cul" three times in as many minutes, when I thought I heard a DX sig, and felt called upon to respond nobly with a special effort.

Making a few hasty calculations in the log book (good ham practice that, scribbling in the log book!) I discover that 50 CQ's are necessary to raise VK and 150 to raise W or other DX. If authority is necessary for this deduction try the 40 metre band any night, then swoon. Well, to make a long story short, I hoisted in another bale of hay, fired the boilers, trimmed the wicks, oiled the key and went to it. After fourteen minutes it appeared certain that I would surpass the record of 743½ CQ's established by A. Payne-in-the-neck, but missed out by 2½ CQ's.

However, it did the trick for back came that t9 r½ sig., which turned out to be Alexander the great way back in the 17th century, plus or minus, 20 per cent. Great Scot. Alex. mentioned that he had just cut his last Gordian knot and had been crying for some time about the shortage of world's, but realising that VK was a new country in the bag he promised to dry his eyes PDQ, which was good of him.

We had quite a good QSO, and I mentioned some of the fb gossip we have dished up to us in school histories about the old boys of his time and Alex. got proper annoyed about this distortion of the truth, especially when I told him about Canute ordering the waves back. Alexander said

it was a dam lie. What really happened was that Canute was making a study of Wave Motion down at Margate or Billingsgate or Crystal gate or some such, and stayed so long that he got his feet wet. So, you see, Canute deserves our respect for his work in the cause of science instead of our jeers.

My friend Alexander also said that the tale about King Alfred and the widow's cakes was all hooey and that Alf. didn't get his shins kicked at all.

The trouble came about through Alf. raising a QSO right at dinner time and he was such a tender-hearted guy that every time the other op. came back with "73 and cuagn," Alf. simply had to go over again and say "tnx" and they kept at it so long that the dinner went cold and the landlady switched off the juice.

I also learned that King Charles was beheaded for whistling into his microphone, so I went back "muy pronto," which is bum Spanish for "in a hell of a hurry," and said it was a pity they hadn't carried such an honorable and worthy custom down through the years.

Another execution noted by historians was that of Ann Boleyn, so I asked Alexander what happened to her. He said that being a YL she couldn't observe the regulation about the secrecy of third party messages and spilt the beans about a QSO she heard between Henry the Eighth and another YL. Worst of it was, Henry's fone was nearly as bad as some we hear to-day, so I guess we can't blame her for getting it all wrong. However she lost her head . . . was quite cut up about it too, poor girl!

It also appears that King Bruce, after watching a spider trying to land a hawser onto a convenient beam, was inspired to do mightily, so went home and actually worked a South American for his WAC. Perhaps you wonder why his name does not appear on the list of the mitey? Brothers . . .

there's a reason! He's still waiting for the QSLL!

I am also in the position of being able to give to the world the real story behind the burning of Rome. You remember the show when Nero played the obligato. It may be news to many to know that Nero was the cause of the whole mess. It is practically certain that Claudius Vacuum Tubus, who was on the publicity band at the time, had Nero on the mike doing his stuff. Claudius didn't think of the extra jolts under modulation and turned the gain control up another spot with the result that the midget condenser couldn't stand the 3,000 and promptly burned up the bum insulation and set the shack on fire, so there you have it

Alexander also passed on a hint which I shall submit to Cannedbeera. He said that when the treasury became depleted they put a tax on BCL QSLL's and made a wad. I agreed that the time was ripe for another clean up.

We fell to discussing ham radio generally, and I complained about the commercial racket. Alex. said James got that way once and figured the king couldn't go wrong and just to prove it set up a 500 cycle AC racket in the middle of the band.

From that we got to other QRM and Alex. said YL QRM wasn't anything new 'cos Caesar had been trying to raise Mark Anthony for months but Cleopatra didn't seem to be interested in Ham radio.

I also have the honor to inform you that one Horatius, a Roman bold, was the originator of five metres and set up a 5-metre 'phone across the Tiber when he was bridge-keeper there.

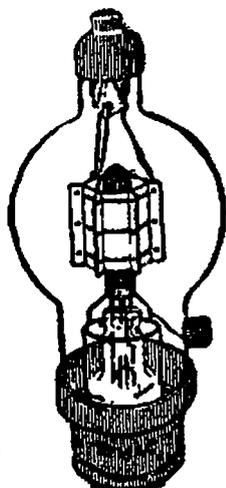
About this time the sigs began to fade a little from my end so I pounded the key a little harder after the manner of hams work working DX and accidentally got myself all mixed up with the HT.

I woke with a rush (boy and how!) and cast about for the inspiration for this wild dream. There, peeping at me from under the pile of QSLL I've threatened to post for weeks, was the reason, "the bright blue cover of "Amateur Radio," dated October, 1935."

Editor's Footnote.

With reference to the concluding sentence of the above article—Blame us not, oh you scribe! That date sadly dogs our sleeping and waking thoughts, for it seems like 1635 since we received our last technical contribution.

As we go to press we learn with regret that Jack McMath (VK3JJ) is an inmate of Prince Henry's Hospital as a result of a motor cycle accident. We feel sure that all hams will join with us in wishing him a speedy recovery.—Ed.



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R.A.A.F. Wireless Reserve Notes

RESERVE NOTES, VICTORIA.

(3Z1—VK8UK.)

All V.M.C. members join with me in wishing other districts a very Happy New Year and a record year for Reserve activity and progress. We are looking forward to the arrival of our crystals, in order that our new method of running schedules may be introduced. In Victoria this year, weather permitting, we are going to carry out a number of portable exercises with all conditions, approximating as nearly as possible to those of a state of emergency. Our one aim for 1936 is going to be a maximum interest and maximum efficiency for minimum drudgery. One of the greatest difficulties which persistently besets any traffic organisation is that the work necessary to maintain efficiency does become very boring unless a constant stimulus of new interest is being infused all the time. In Victoria we have struck all the snags and are gradually evolving a perfect system of training, where our aim, mentioned above, will be realised.

We have had flying visits from 3B3, 3C3 and 3D4 within the last couple of weeks, but as each was in a hurry to return, our talks were brief.

3C3 brought down his new portable transmitter-receiver with him, and it is a beautiful job. We always look for a perfectly finished piece of work from Ivan, and this outfit is no exception. The band changing in both transmitter and receiver is accomplished by just rotating two witches and tuning the Tritet doubler tank and 'phone to C.W. only requires the flicking of a switch. A description will shortly appear in "A.R.," so I won't give any technical details.

3D4 has had a bad throat for a while, but is recovering now. He is still managing to carry on schedules during his rebuilding operations at home.

3B5 is just recovering from a serious appendicitis operation and is convalescing at Black Rock.

3A5 had an accident to his right hand. It is slowly healing now, and in the meantime has been carrying on schedules, using his left hand.

Our personal notes seem rather to be a report from a clinic rather than radio notes!

3Z2 has to be congratulated on gaining his 10-metre W.A.C. He contacted the much-sought-after South American, after 3B2 had contacted this man for over 20 minutes.

3Z1 took advantage of the suspension of schedules over the Christmas holidays to take down both masts and put in fresh halyards with the help of 1A1 and Co. Both masts were pulled down and re-erected in the one morning. 3Z1 is rebuilding his transmitter in preparation for the forthcoming BERU contest.

The new line-up will be 53—TB04/10—TB04/10's in P.P.

RESERVE NOTES, SIXTH DISTRICT. (By 6Z1-6MN.)

During February the BERU contest will occupy our spare moments, and consequently watches will be suspended. An unofficial camp is being held at Northam in March by the Reserve members of the Aero Club, who have invited two members of W-T Reserve to attend and operate two transmitters and receivers. It is possible that 6Z2 and 6A5 may attend the seven-day camp. New watch-keeper this month (6A6) at Katanning, who, although not in possession of a signal manual, manages to put up good performance. 6Z1 is going away on annual holidays, preparatory to BERU contest. 6Z2 turns up for watch according to the condition of his liver. 6A1 seen in town and finds running a B.C. station and ham one takes a bit too much, and consequently the ham one suffers. 6A2 will be another BERU starter, and asks rude questions about arrival of crystals for Reserve work. 6A3 paid a visit to Perth over the holidays, but not heard since return home. 6A4, no news. 6A5 on a few months' holiday, and 6A6, our latest recruit, is quite active.

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Every Crystal tested to 50 watts input to Penthode Crystal Oscillator
Accurate grinding to .03 per cent. 3.5 M.C., 20/-; 7 M.C., 30/-
100 K.C. Xtals. 465 K.C. Xtal "Gates. Prices on application

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Life-saving Construction

(By W9FM.)

During the past fifteen years we have had a few experiences in the matter of getting across the high voltage supply of various transmitters, the latest resulting in a vaccination mark that has nothing to do with smallpox. Pressing the key, leaning over to peek around the rack and bumping against the plate milliammeter was the cause. Several cases of getting tangled with 1500 volts or more included one of tuning a "200 meter" transmitter back in 1922, and accidentally trying to move a clip on the inductance and pushing the key at the same time with the other hand. Figuring one foot for each 100 volts, most of it must have been up, for we landed behind the chair without upsetting it!

For years, reports have reached us of accidental deaths from power supplies. From the outfits most of us use, it is a wonder that the death rate is so low. But there are many precautions which can, and should, be taken. Perhaps you know of others, but here are some.

Primary keying is a great help. It largely eliminates fooling with the transmitter when the power is on, because when the set is not radiating there is no high voltage.

It is customary to ground the negative high voltage to the ground or shielding. This is very dangerous. We once touched the positive end of 2300 volts, rectified, and at the same time bumped against a radiator. Because the negative was not grounded we live to tell the tale. If it is necessary to ground a transmitter, such as when using a single wire feed antenna, do it through a good high voltage condenser. Grounding the shielding is satisfactory just so neither ground nor shielding is connected to the negative except perhaps through the high voltage condenser. Don't hook low voltage supplies and circuits to high voltage ones—it is usually not necessary with link coupling, and at other times it can be done through a

high voltage condenser. Don't connect the negative to more metal than is absolutely necessary—that just increases the dangerous area, and likewise the possibility of getting hold of both the negative and positive.

Always use "parallel feed" in high voltage stages, regardless of choke losses. Put in plate blocking condensers able to stand more than twice the peak plate voltage. If tubes of the 852 type are used, string cheap glass beads on the wire plate lead to make it nearly impossible to touch. Put the stopping condenser close to the plate lead, and wrap several layers of good rubber insulating tape over the bare binding post. Give the plate r.f. chokes the same care. Use an insulating bevel over the front of the plate milliammeter and tape up the binding posts in the rear. If the plate lead goes to a tube socket, cover the terminal somehow. The power supply can receive the same treatment, but if not possible, enclose the unit in such a way that opening a cover or door automatically breaks the primary voltage. In short, build the rig so that neither the plus nor the minus high voltage can be touched even accidentally. It should be absolutely impossible to get both ends of the power supply at the same time. Once we pushed a hand in the W9MZ transmitter with the high voltage generator running; something touched something, and we had to count our fingers by feeling with the other hand to find how many were left. When our sight recovered from the flash we saw that one finger had been between things, and the bone was laid bare.

If your keying system involves connecting the key to the high voltage, such as with bias or centre tap keying, use a relay insulated between armature and coils well enough to stand the full voltage; and don't use the filament voltage to operate the relay—use a separate transformer winding.

(Continued on page 29)

28 and 56 M.C. Section

(By VK8JJ.)

The most outstanding events on 28 m.c. during the past month were two contacts with South American HJ3AJH. VK3HK was the first to work this station at 10.30 a.m. on December 26th, after which VK3BQ completed his 28 m.c. WAC by working the same station. 3BQ is, therefore the first VK to accomplish this feat, and, considering that he has been active on ten metres ever since the band was allotted, he thoroughly deserves the success. Congratulations, OM!

Communication with Europe improved during December and early January in Victoria, and 3BD, 3BQ, 3CP, 3YP and 3NM had many QSO's with G's, D's, OH, etc. G6DH and D4ARR seemed to be the strongest and most consistent of these stations. 3OF and 3JJ visited Sydney during the holidays and met most of the VK2 stations operating ten. We were surprised to learn that no Europeans had been heard or worked during December in either N.S.W. or Queensland, which seems to point to the band being effective over a comparatively small arc, which has gradually changed from the north in spring to the south in midsummer. It will be remembered that in October the VK2's and 4's could work Europeans who were not audible in Victoria.

The W's have not been quite as consistent lately, but it is noticeable that the ones using beam antennas are usually among the strongest. W6JN has been much improved since installing his. W5WG is now using a simple half wave horizontal radiator with a single reuector wire, the whole mounted on a frame which can be rotated. Although only using 75 watts input to a pair of 210's in the P.A., his signals are usually as good as those using five times that power.

Matched impedance coupling to Zepp antennas is getting popular among VK3's, and most of the recent DX worked by 3BD, 3BQ and 3YP has been accomplished with this type. The

flat tops can be either 2, 3 or 4 half waves long, which should give strong radiation on four peaks at various angles to the wire. 3NM found that by increasing the length of Zepp feeders to 24 feet, instead of opening a switch at the 8-foot mark, he so altered the characteristics of his antenna that made all the difference needed to work DX. Since the change his signals have been much weaker locally.

VK6SA worked his second W, W6JJU, towards the end of December, and has found conditions very patchy. Two or three Europeans have also been worked, and he is receiving dozens of European listeners' reports, mostly German. VK6MN is on occasionally and CQ's, but has no QSO's.

(Continued from page 15)

Rodimon, W1SZ, raised him at 14,004 kc., followed directly by W9FM; both had been at the other end, made a quick change, and a successful, short call. In the recent VK-ZL test ZL2KK used QHM frequently, could be raised on three calls and one sign!

DX stations could reduce W QRM for each other by the use of these five signals, in and out of contests. Even W stations should make a habit of using them to reduce needless calls, permit short calls on the part of those who then know that a short call will be effective.

Let's all use these Q signals regularly.

E. H. CONKLIN, W9FM,
(Assistant Editor, "R/9"),
512 N. Main Street,
Wheaton, Illinois.

Ten Metre Meanderings

(By VK5LD.)

Conditions on 28 m.c. in N.S.W. are much the same as regards the time that DX comes through. Most W's are weak, the exceptions being a few W6's, notably W6ZH on phone and CW.

Interstate signals are very FB. and easy to raise; heard 3BQ at 9 p.m. on 5th inst., but he faded shortly after. Did you hear my call, OM? VK's 4EI, 3BD, 3BQ, 5ZC and 5HG are all putting good signals through, but no sign of 3JJ or 3OF. Guess you must have both got bushed on the way back, although heard a rumour from 2YC that 3JJ spent several hours QSO Europe the night he arrived back.—VK2BX.

(By VK4US.)

Roy Belstead, VK4EI, from way up north, first started the ball rolling on 28 m.c. with his record-breaking QSO's with Europe, being the first VK to contact Europe on that band. He started off by working ON4, D4, F8 and OH on the first week-end of the VK-ZL DX test. He was closely followed by VK4AF and VK4BB, who lost no time getting amongst the DX.

The DX test was influential in opening up 28 m.c., as the 500 point bonus for each QSO enticed DX men from all continents to have a try on that band.

On 22/12/35 VK4AP had a doubtful QSO with LU9AX, making him first 28 m.c. W.A.C. in VK.

4AP was received solid by LU9AX, but the LU faded out on Alf!

VK4BB was the first East Coast VK to QSO Africa on ten, bagging ZS1H immediately after he was finished with 6SA. 4BB also was the first VK to make W.B.E. on ten. 4AP followed 4BB in working ZS1H by QSO-ing him an hour later on the same day. 4GK was not long in following, he having worked all continents except South America.

During the DX both 4AP and 4BB were working on an average about 12

Yanks each week-end on 28 m.c., but 4EI didn't have much success from that quarter. His sigs seemed to have an affinity for Europe.

VK4GK, EI and BB require South America for 28 m.c. W.A.C.

VK4XN works the Yanks and Japs consistently, but hasn't had much luck with Europe.

VK4US has worked a few Yanks and Japs, but on the whole hasn't had much success, as his receiver rather patchy on 28 m.c.

The highlights were:—VK4EI, first VK to QSO Europe; VK4BB, first East Coast VK to QSO Africa; VK4AP, first VK QSO with Ireland; VK4BB, first VK W.B.E.; VK4AP, first 28 m.c. W.A.C. in VK, 22/12/35; VK4EI, first VK QSO with Sweden, Germany, Hong Kong, Finland, Belgium, Austria and France.

The favourite rig appears to be Xtal using an R.C.A. 800 as P.A. This is used by 4AP, 4BB and 4GK. 4EI uses a pair of RK 20's in the final.

The most consistent stations heard in VK4 on 28 m.c. are:—FA8CR, ZS1H, W8CRA, W4AJX, X1AY, J2IS, J3FJ, W2TP, W9NY, ON4AU, ON4AC, G6LK, G6WY, F8KJ, YM4AA, OH7ND, D4ARR, G2YL, OK1AW, VS6AH and PK3ST.

At the present moment conditions appear to favour the extremities of the Continent, North Queensland and VK3 seem to be hearing most of the good DX.

Ten-metre conditions in VK5 were good as far back as 1928-30, when VK5CM contacted Africa, VK5RW Siberia, and VK5HG India and Japan. Local stations have been there regularly since, but no outstanding DX has been worked until recently, when, during October, 1934, QSO'd D4ARR and U.S.A. stations. Numerous VK5's have QSO'd Japan and U.S.A. regularly. VK5WJ on telephony has

worked G, PA, OK, W, J, with European reports up to R8.

Unfortunately activity is confined to a few operators, and the band has not been used to its utmost. It is suggested that stations endeavour to tune the whole range of 28 m.c., and not just the low frequency end, where the majority seem to congregate.

VK5KL, 5HG, 5FM, 5SU, 5WU, 5JC, 5LJ, 5LB, 5ZC all report active on 28 m.c. and have had DX QSO's there.

Ten-metre activity in VK6 first started early in 1928, when VK6SA started up with a pair of 201A's in the transmitter and a two-tube receiver. Shortly afterwards Jack Watson (then OA6JW) came on with a similar rig. For some months 6JW and 6SA, who were about half a mile apart, had to content themselves working each other, as no other ham signals except local harmonics were heard. A number of commercial harmonics were also heard.

Quite a sensation was caused on 2nd September, 1928, when VK6SA and VK3BQ contacted and established the first interstate QSO on ten. Having broken the ice, VK6SA was soon QSO all States except Tasmania, and VK6JW soon did likewise, but shortly afterwards went off the air, leaving the band to 6SA.

In 1930 VK6WR decided to try ten, and worked a few eastern States. For the next five years ten-metre activity in VK6 was at a low ebb, VK6SA being the sole occasional occupant, except for a short period during 1932, when he and VK6AG carried out duplex fone transmissions on ten over a distance of 4½ miles.

Late in 1934 activity revived, and VK6MN and VK6CP came on to accompany VK6SA, who had just built a CC rig, using a pair of 46's in the final. VK6CP was unsuccessful in effecting QSO's other than with 6SA and 6MN, and soon retired from the band. VK6FO came on for a couple of week-ends during the last VK contest (1935) and effected his only ten-metre QSO with PK3ST.

Although 6MN has been a consistent trier, he has so far had only two QSO's outside VK6, one with J2HJ and the other with VK4BB. VK6SA has worked all VK (except 7), ZL, J, PK, ZS, D, F, G, EI, PA, W and VU, in each case being the first VK6 QSO.

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Federal and Victorian Q.S.L. Bureau

(By VK3RJ, Federal QSL Manager.)

Log forms and copies of rules for the forthcoming B.E.R.U. tests may be had on application to this Bureau, or to the Victorian B.E.R.U. representative, Mr. R. Ohrbohm (VK3OC).

Mac, of VK3QY, who had his old call sign, 3YR, pinched during a very temporary lapse of licence, is back on the air after a sojourn in the Ovens Valley, a district in which he anticipates spending more time in the near future. Leave a few trout for me please, Mac.

Leo Maguire, another old-timer, who used to sign VK3LX in Wodonga a few years ago, is back on the air under the call sign VK3KM. His splendid fist has not suffered during his enforced absence from the air. Present QRA, Myrtleford.

The gang will regret to hear that Dud McDonald (VK3DM) is again experiencing bad health and is confined to hospital. I trust that before these notes appear in print he will be up and about again. In any case he welcomes visitors, who will find him in Ward 4, Alfred Hospital, Melbourne. His interest in radio is keen, and he eagerly awaits South American cards for his WAC. Pay him a visit.

VS1AJ advises he is on 28 m.c. regularly, and is on the look out for VK.

Ivor Stafford (VK3XB) is spending the school vacation at the parental home at Heathcote Junction. Considers that location ideal for the tx which he brought down with him, and is pleased to know that the flies and heat at Manya North will have to seek fresh victims for a couple of months at least.

M. Mozoomder, who pushes the key at VU2CQ, and who put out the best sig on the 14 m.c. band, but who possesses the world's worst receiver, bemoans the lack of QSL's from VK. On one occasion following his CQ, I counted 17 stations answer from all parts of the world, but OM Mozoomder still called CQ. The following VK's owe him a card:—2KS, XL, OJ,

AS, JZ, HX, BW, ES; 3GC, WX, LP, EG, OM, MR, XQ; 4AP; 5RT, WR, LD, MH, MD, XA; 6GP, CA, AA, JW, LJ, HP, FO, FL, SA; 7JB. Drop him a card direct to M. Mozoomder, care Indian Radio and Cable Communications Co. Ltd., Radio House, Apollo Bandar, Bombay, India.

The attention of listeners is directed to a decision of the Council of the R.S.G.B. appearing in the November "Bull." Council decided that after 1/1/36 the R.S.G.B. will no longer accept report cards from listeners for distribution in Great Britain and Europe. The R.S.G.B., however, will continue to distribute report cards relating to the 1.7, 28 or 56 m.c. bands, claiming that reports on these bands have a very definite value.

VR4BA, ex VK2BA, is active on 14 m.c. His QRA is:—B. Chapman, Kakambo, British Solomon Islands.

For the information of numerous members and competitors who complained of the indefinite construction of the rule relating to bonus points for 28 m.c. contacts in the recent VK-ZL DX contest, and who as yet have had no official intimation on the point, it is stated that the matter was discussed by the November meeting of the Key Section of the Victorian Division, who moved that Council investigate the matter prior to the allotment of points. Council, after discussion, suggested to the Contest Committee that two separate lists of awards be drawn up, one recognising one bonus only, and the other for 28 m.c. competitors alone recognising a bonus for each contact.

Cards are on hand at the Victorian Bureau, 23 Landale Street, Box Hill, for the following:—3AI, AP, AX, AY, BE, BS, BX, CK, CL, CW, DD, ET, EW, FL, FM, FT, FZ, GB, GE, GM, GW, HE, IL, JC, JH, JK, JN, JR, KB, KD, KM, KT, LK, LP, LQ, NA, OI, OP, OU, OZ, PA, PH, PL, QK, QL, QR, AY, RE, RW, SL, SP, TB, TE, TD, UJ, UR, UW, UY, VK, WC, WH, WX, XF, XK, XU, XZ, YF, ZA, ZL, DINAN, THOMPSON.

Divisional Notes

Divisional Addresses :-

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VICTORIA	BOX 2611W, G.P.O., MELBOURNE
QUEENSLAND	BOX 1524V, G.P.O., BRISBANE
SOUTH AUSTRALIA	BOX 284D, G.P.O., ADELAIDE
WEST AUSTRALIA	62 SUBIACO ROAD, SUBIACO
TASMANIA	BOX 547E, G.P.O., HOBART

Victorian Division

'PHONE SECTION NOTES.

(By VK3DH.)

Owing to the fact that a meeting of the 'Phone Section did not take place in December, a report on the meeting cannot be made; likewise the doings of the members individually are on the obscure side.

Our chairman (3TH, Mr. G. F. Thompson) made a holiday visit to New Zealand over the Christmas holidays, and I think we might hear something of that at the meeting on 28th January next. Of course, when these notes appear that will be all over and we shall know all about it.

Although I have met the gentleman in question several times since his return to Melbourne, he was not particularly talkative on the subject. One thing that was mentioned, however, was with regard to reporting to VK amateurs. Apparently a number of New Zealand "D.-Xers" were rather in the dark as to what really constituted a useful report, and they were duly enlightened. So I guess we can expect something more concrete in the way of reports later on.

According to the regular manner in which transmissions were made during the Christmas holidays, one is led to believe that not many of our gang went away for any length of time.

30Y is one exception. He migrated to the heights of Daylesford for an indefinite period. He is still there.

3XL went away for a short spell, and was active with portable gear on 7,000 and

14,000 k.c. He deserted the 14,000 k.c. activities for the time.

Fairly consistent "rag chewing" has gone on, commencing at 0000 hours each Monday morning, between HF, CR, FW, TM, FL and BY. So they apparently did not take a lengthy sojourn.

BH is on the move again. He is transferred to Mornington this time, and, after a reasonable interval for reinstallation of the gear, Charlie promises us that he will be disturbing the air again.—73.

S.W. NOTES.

By G. W. Manning (VK3XJ).

On account of the Christmas and New Year holidays, there has been very little activity within the Group, hence the briefness of these notes.

The attendances at meetings of late have been showing a marked decline, and, to arouse a little more enthusiasm in the gang, a series of lectures and experiments will be held on each meeting night, i.e., second and fourth Wednesdays of each month. Gang, a glimpse of your face at the next meeting will cheer us all up. Never let it be said that you have lost heart. Bring along your friends; we want more members.

VK3HX (Tom Hogan, of Charlton), paid the Group a visit on 22/1/1936, and has been having an FB time in VIM. Too bad that Tom had to leave us so soon.

It is with regret that we lose the services of our well-liked chairman, Arthur Mildern, owing to his promotion with his firm requiring a little more devotion of his time to business matters and less to radio. Good luck from the gang, Arthur!

Our new chairman is none other than Herbie Stevens (VK3JO), and the gang extend to him all the best in his new office.—73.

N.S.W. Division

ZONE TWO NOTES.

(20-2HV.)

CQ versus YL and YL the victor was evidently the case with Bay, of 2HC, who was married last month. Good luck and congratulations to you both from the rest of Zone 2. Ray will be definitely QRT until a lighting plant is installed at his new home.

2KB is on consistently on 80 and 40 with CC, and is building a linear amp. for 14 m.c. work. The bottle to be used is a 20 watter, and, speaking of bottles, I believe Cess and the old John, of 2XQ, busted a bottle of KB on the platform at Walgett t'other night. Good work! Hi!

2KN gets out well when not QRL with work, cricket and YL's.

2XQ, three stages and all 46's; 240 D.C. used on CO, but a converter puts the volts on the Bfr., and PA John can be heard QSO Ivan, of 3EG, most week-ends, and very QRQ, too. Re QRQ, old 2VO turns out a swell line of bug keys; price, cheap; quality, real FB.

2DD is now Secretary of the Tamworth Amateur Radio Club, and, although Don. is the only transmitting member at present, it looks like "It won't be long now." The new rack and panel job is the chief item of interest at present—50 Tritet, 50 Bfr., 10 Bfr. and 800 final. Sounds the Berries. 2DD tried on one occasion to QSY, but ground crystal out of the band. It might come in handy after the Cairo Conference, Don.

2ZP looks like giving up ham work for RAAFWR, although second operator Joe should have his own ticket in a few months.

Ivan Newport, a successful candidate in a recent A.O.P.C. examination, visited Inverell for his Christmas holidays. Although Ivan has not yet received his call sign, he has proved himself a fair dinkum ham. Five and forty metres will be Ivan's chief haunts.

Good old John, of 2DZ, who travels for a well-known radio firm, had the misfortune (much to Cess's delight) to leave his sample crystal mike at 2KR's place for a few months, and, believe me, Cess made the most of this opportunity and boosted up the quality of his fone lots. John is on the look out for contacts with Sydney hams per medium of Zone 2 stations, and was recently QSO Freddie Stirk, old 2XV and Mac, of 2ZH, from 2HV.

Rumoured that there is a movement afoot to get Mac, of 2ZH, and Bill Picknell back to Zone 2.

2ZX still knocking 'em over, and has reports from almost every worth-while town in VK on his 240-metre fone. Ted's YL is on a visit from Sydney, so for the time being 2ZX is off the air.

2HV, QRL RAAFWR work, YF and junior second operator. However, should be on 40 and 20 in a week or two.

No dope to hand from 2RV, 2NF, 2JF, 2CR, 2UR or 2WT.

Anyone at all who can supply dope on the doings of any Zone 2 chaps are requested to shoot same along to 2HV any time.

73 now and a Happy New Year to the rest of VK from the Zone 2 gang.

NEWCASTLE NOTES.

(By VK-2KB.)

Well, the festive season came and went. Christmas must again be noted for the continued failure of Daddy Christmas to bring the big bottles the boys want. The old boy probably figures we're doing well enough with our 46's!

2MT is anyhow; seems to work all there is on 20. It might be murmured that Chas. won the trophy for the last three months of 1935, and then had to work on the night of the bean! when it was to have been presented!

N.A.R.C. regrets that Bob Best (now 2TY) and Geoff. (2FN) have left Newcastle for work in the country. 2CS has a huge antenna, which wanders into everyone's back yard for blocks around. Uses Collins and puts hefty sig. into EA and all points west. Frank (2UF) does not have much to say; he just goes out and gets 'em.

2QS and a new 'un (2UI) seem to be forming an unholy alliance out Mayfield way. Welcome, 2UI, ob. George (2SO) still insists his location is NRG. Boys say "altee same gargle" he makes club nights, but do those boys make that coffee fly?

Allen (2KB) says new outfit will probably be too pretty to work, and threatens trip to W soon.

Of the local broadcast engineers, 2KG is busy with new daughter. 2ZC is building some excellent gear between DX, and 2MS continues to blow things—the latest wreck a 5KW bottle. Hi! He even says he didn't feel ill. My, what this commercial radio does to a ham! 2ZW is training the new junior YL op. to wake him when DX is on! Hasn't been so good up to now, but that kid sure gets ideas at funny hours of the a.m.

2RG still pounding key and recently holidaying with a portable at lake with 2BG. Had visit from 2XU t'other day. Gil. threatens big things. Always pleased to see visitors in this neck of the woods.

The local club has plans in hand for a publicity campaign for ham radio. QRU—73.

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The new year has started favourably. D.X. conditions seem to be improving steadily. Of course, QRN, as usual during summer, causes some trouble on 7 M.C., but the majority of D.X. signals seem to break through quite well.

14 m.c. is rather patchy, D.X. being very scarce at times.

It has been decided to run code practice nightly on 7 m.c., from 6.30 to 7 p.m., for the benefit of students. Monday, VK4U5; Tuesday, VK4UU; Wednesday, VK4UR; Thursday, VK4OL; Friday, VK4AW; Saturday, VK4CR; Sunday, VK4HR.

In future, "Amateur Radio" will be supplied free to all members who pay their fees for the year in advance.

VK4AP had a scratchy QSO with LU9AX on 28 m.c. on 22/12/35, which makes him W.A.C. on 28. FB, Alf!

VK4RC using grid modulation on his P.A. with excellent results. The quality of the music is swell, but the speech is a bit rough.

VK4UL, the latest addition to the "U" gang, uses T.P.T.G., with 20 watts, on a 46, and seems to get out quite well. Good luck, Paul!

VK4HR is the proud owner of a seven-tube "Sniggle Sniggle Snooper." "Tibby" swears by and at it.

VK4UR and 4UU.—QRL holidays.

VK4OL working taps with 15 watts on a 46. Frank has just completed a 4-5 T.R.F. receiver, which sure does pull in the D.X.

VK4EI still working the Europeans on 10. FB, Roy, O.M., hope to see you get that South American soon!

VK4FJ, another newcomer, working plenty of Yanks with a T.N.T. and 25 watts on a TB0/410. Roy can copy as fast as you can send it. Give him a shout, boys!

VK4LE has not been heard lately. Guess he's had "holidayitis" as well. Let's hear you some time, George!

VK4RM has been heard shoving out some pretty decent fone on 7 m.c., but the carrier is rather unsteady. Whaffor. Bob?

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(By VK6LJ.)

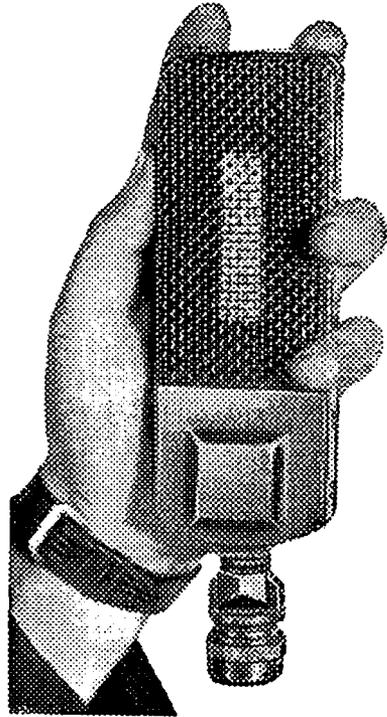
During the past month we were fortunate enough to renew our acquaintance with some of our country members, and amongst those who travelled to the city superb were 6LR and 6LK, both of Northam; 6RW, of Wagin; 6MS, of Geraldton; 6RK, of Ora Banda (somewhere north of Kalgoorlie), and 6KS, of Meckering. Quite a few of those mentioned have not been on the air for some time, so perhaps this will wake them up. (I said perhaps!) 6KS is too busy with bank work and hotel QRM to break the ether yet, but promises an early awakening! 6LK still awaiting results of exam. 6RK installing new Diesel engine on gold mine, and sez he may return shortly.

There is nothing new in the VK6 W.I.A. Division, becoz we are all in recess, but the gang have supplied me with a couple of good articles and hope they will appear in print before long. Oh, yes! Charlie 6AC was another who traversed the wide open spaces between Corrigan and Perth, and saw Father Xmas! 6BB and 6BN—the old contemptibles! You know, Jack, we once had a W.I.A. museum. Now, how about Lizzie, in case you don't know she is Noah's daughter in the shape of a Ford 1066 model? Now we will leave Jack alone and tempt someone else—6CB. Cliff was the chappie who once upon a time had a car battery, and all he wanted was a car. I mean he had a car and all he wanted was a battery! 6CX not heard. He must be QRL something else. I wonder what? 6CA must be on 56 m.c., as we haven't heard him! And 6CP has something up his sleeve! Yes, sir—his arm! 6AE has given up the idea of breeding birds, but he still has plenty of chirps! 6CY down at the Port never heard of! Say, OM, what's the trouble? 6DA w'l break into handom early in the noo year, too! 6DH QRL on his new Standard, and has car radio, and is general deluxe model. 6FG blew the dust off his portable gear the other day, but don't forget, Frank, that a licence is necessary! Hi! (What a nasty one!) 6FL on 14 m.c., but complains of QRN. 6DJ still on 6FO QSO-ing plenty. FO was laid out sumtime ago when he

got the full HT. Bad luck, Nell, but switch it off first! 6GW on 3.5 and warns us he will be on 14 m.c. shortly. 6GM—to George we extend our sympathy in his recent bereavement. 6GS—now Blake, when are you coming on the air? 6HW—ah! Harry is a dark horse! I heard him QSO-ing ZT the other morning about 4.30 a.m. 6JK seldom seen. Say, Jack, when will we hear you? 6JJ QRL PMG telegraph work, but will be on shortly. 6JW has been away on holidays and will be in BERU test. 6JG, another one of those who have luxurious jobs and get holidays! 6JH gone into the bush. 6JE trying to get on 14 m.c. with new gear. 6KO—congrats., George, and good luck in your new sphere of life. 6KZ on 14 m.c., but QRN too bad. 6KM warns us that he will be on shortly. 6KB on 7 m.c. and can be heard regularly. 6LJ busy—pardon? 6LK—Minor was QSO G6 and D4 on 28 m.c., with low power. FB, Alan! 6LY is still QRL bad attack of ylltis! Good ole Ralph, he will be the next to go off. 6LR never heard down here, but has few months' holidays. 6MW has spent a holiday on Penguin Island, but didn't use radio. 6MN QRL with DX! Oh, yeah! 6NJ gone quiet with his fone, but I spose he is still recuperating after Xmas! 6PK seldom ever seen, never mind heard, and now 6RD is another not on the air. He said sumtime abt going into the bush for a while. 6RW paid us a visit while down, and I was pleased to see his beaming face! Hi! 6RL busy swotting, pse don't disturb him. 6SA down on ten and revamping for BERU test. 6WS on 7 m.c. with CW and fone during the day. Only day, thanks. 6WI has stopped just for a moment, but will be on again soon. 6WM and 6WH using same gear at present. Congrats., OM. And at Katanning Harry, of 6ZZ, punches the key. Also 6MX is heard on frequently. And there still remains sum students to be criticised! Mr. Wignall is bizi on his super blooperdyne leaning out of the window and getting Chili. Mr. Morrissey has joined the social committee and is kept going. Redfern Smith and Pearce are all too bizi for exam. to be disturbed, so they will be let off. We gang QRU now 73 till next month. GB, Jack.

The Bruno Mike

The Australian Engineering Equipment Co. Pty. Ltd., of 415 Bourke street, Melbourne, announces the securing of an important agency. The new representation covers the two types of Bruno and Velocity



Microphone. This famous mike, which today is used by nearly all the leading American broadcasting stations, has just been landed, and is listed from £10/10/-. It has a frequency response plus or minus db from 50 to 12,000 cycles. The company would be pleased to supply full information to enquirers.

Country Readers!

Traveltone Radio, of Bourke street, reports increasing sales. This concern is anxious to interest country hams, and invites them to study the advertisement in this issue. Traveltone Radio specialises in practically everything wanted by readers, and communications from the country will have prompt attention.

The Council of the Victorian Division was delighted to receive a visit from the Federal President, Bill Moore (VK2HZ), who made a special trip to Melbourne recently.

(Continued from page 13)

until he is successful, but usually the first time acts.

The secret of magnetising on alternating current is that the fuse usually blows before the cycle of the AC has had time to reverse. Sometimes, of course, it does, but fuse wire is cheap. Owing to the fact that the ordinary common garden type of fuse is unable to discriminate as to whether it will blow on a positive or negative cycle, the polarity of magnetising is not guaranteed. The magnet may become reversed in its poles, so if it is not possible to fit your magnets upside down in the case, one must blow fuses until the polarity becomes as desired.

(Continued from page 19)

Of help is a large 100 volt red lamp which burns when the high voltage transformer is on. Don't light the lamp from the key or relay circuit, but take the voltage directly from the transformer primary, so that a frozen relay will keep the lamp lit, even if

the switches are in the "off" position.

We learned long ago to keep one hand in a pocket, and never to stand on anything but insulation—or to kneel on a chair—when touching the transmitter, on or off. Perhaps that is why it has been 13 years since we took the high voltage through the heart. A few thousand volts between the fingers or down one arm may only burn off a bit of flesh; the same voltage between two arms or from hand to leg may very well be fatal.

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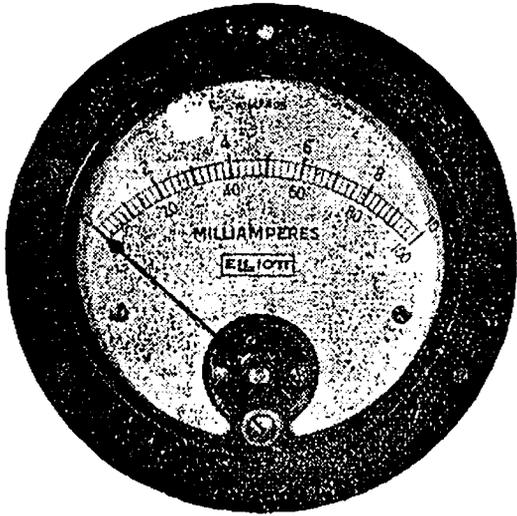
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EDITORIAL - - -

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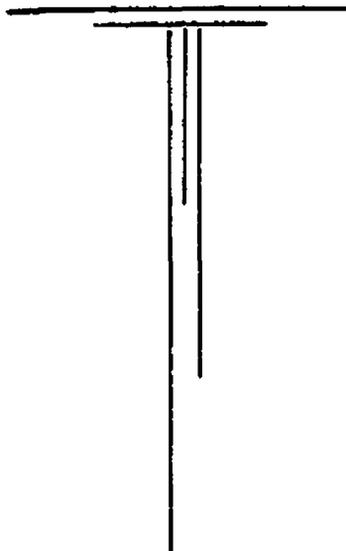
With world-wide contests having become a regular feature of our radio lives and the only difficulty to make the twelve months of the year stretch enough to hold them, a brief survey of the position of contests would not be out of place. Do contests serve a useful purpose? It sounds a rather controversial question, doesn't it, but we will answer it by saying "Yes" with reservations, and then by asking a further question. Are the useful purposes sufficiently useful? "Ah, now you are reducing the discussion to a quibble over words," a reader may say. But no, we don't agree that we are quibbling over the word "useful" because we feel that around it centres the discussion. We, of course, admit that the basic principles of competition are served, that the spirit of rivalry, the pitting of one's skill against that of others with the sheer joy of victory as the reward, is present. But does that spirit pervade all the entrants? Our reply is that it certainly does not because only a very small percentage of entrants are competitors in the average radio contest.

Let us come at the subject from a different angle. Suppose the Councils of the Radio Societies of the world got together and agreed that there would be no more contests because the number of serious competitors did not warrant their continuance. What would the average member of any one of those societies do? You know and I know that he would feel the decision almost as a personal insult, but how many of those members would be able to supply a watertight reason as to why they want a continuance of contests. Very, very few probably; this fact you can appreciate when you yourself enter wholeheartedly for a contest. At the commencement the air positively seethes with the signals of stations frantically calling and answering, but as the hours pass one by one stations drop out, except at DX peaks, until you hear only the same old handful of regular DX men. You become intrigued after a while to find out why this is, whether the right type of contest is being run or whether contests just have not the necessary appeal to the average station. At the meetings of one's Society subsequent to the test one hears on all hands, "Oh, I was just having a cut at it to work a bit of DX" (or "to work a few stations," if the test was a local one). Only the same old few work "flat out." Admittedly, the times and occasions cannot be convenient to everyone, but that can't be the case for every contest and often for as many as 90 per cent. of the entrants. Further, the entrants often total less than one per cent. of the available active stations, and the serious competitors—well, work it out for yourself!

Amateur Radio

Take some practical examples, our own country first. Why is it utterly impossible to get a team of five stations per State to compete for the Fisk Trophy tests. Ridiculous, isn't it, yet one can't blame the Contest Committee. Federal Headquarters have run every known type of test, yet the result is always the same. Look at the BERU annual test—carefully compiled rules, a paradise of countries to be worked, but the result does not differ. The same old band of DX men are heard year after year, and they number—it would be interesting to know what the percentage to the number of active Empire stations would be; a small decimal of one per cent. in all probability.

We all know that the majority enter "for a bit of fun" or "to work a bit of DX." But think, does any man emerge from any test one whit a better Ham or a better operator? Has he learned one single solitary theoretical or practical fact. No! Contests can't help a man in those ways. Therefore, we revert to our original query—Are the useful purposes sufficiently useful? Talking over the subject with the typical Ham of to-day almost leans one to the conclusion that he is a "dabbler" in his contests as in his ordinary Ham life. Thus, can one evolve a contest that will inspire a typical Ham to come out of his sloth, to break new ground, to create, to do something really worth while? Perhaps in some dim way this typical Ham realises the months and months of hard work and experiment with aeriols, transmitters and receivers that go to make the essentials of the potential world contest winner probably he feels that he hasn't a chance so he enters "just for fun." To him will never come that glorious thrill of success after months of work. Can a contest be evolved, a contest which can truly be called "the perfect test," which will inspire the typical Ham to deeds of which he does not feel capable, to effort greater than ever before, to make him a better, more efficient Ham, and, finally and above all, to make him feel the effort was WORTH WHILE, and that he will try again? Such a contest and its originator may exist only in Utopia, but he and his creation will go down to posterity if he ever achieves the ideal result.



Detector Plate-Current Indicators for Low Sensitive Receivers

In a previous article the installation, calibration and use of a second-detector plate-current indicator was described, in which it was assumed that the amateur was using a superheterodyne. The application of a detector plate-current indicator is not limited to a superheterodyne, but may be used on a regenerative receiver employing several stages of tuned R.F. ahead of the detector. The average amateur receiver is usually a regenerative receiver either with or without tuned R.F. amplification, or a superheterodyne having a biased or grid-leak detector. The superheterodyne with a biased detector was treated first, since it is a high gain receiver and uses a relatively insensitive detector. The regenerative type of receiver is a low gain receiver and employs regeneration to raise the signal voltage and also employs the more sensitive grid-leak detector. A grid-leak detector equipped with a plate-current indicator is a very sensitive device, and is used in measuring very low voltages.

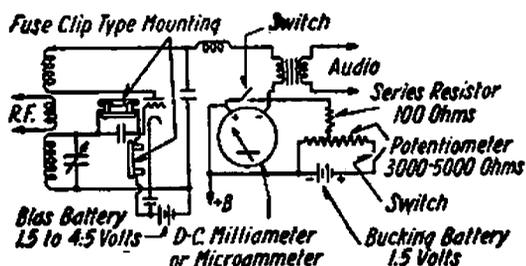
For calibration purposes it is advisable to change such grid-leak detectors over to the biased form, and this can be done by returning the ground end of the grid leak to a bias battery of 1.5 to 4.5 volts instead of grounding it through the grid coil.

Calibration of a simple regenerative receiver is not practical, since without the regenerative effect it would be quite insensitive, and could be used only at points quite close to a transmitter, since the regeneration would have to be kept at zero in order to hold a calibration.

Should the receiver employ one or more stages of tuned R.F., it is possible to change the detector to the biased form, and the added stages of tuned R.F. will so increase the sensitivity so that it can be calibrated to give accurate readings from transmitters located as high as 10 miles away and having antenna power of 10 to 50 watts. The more stages of tuned

R.F., the more sensitive the receiver. Regeneration must be kept at zero, since it is impossible to calibrate a regeneration control and expect it to hold.

Low frequency receivers, 200 to 500 Kc. range, employing several stages of tuned R.F., have been calibrated for field strength work, and the calibration has held over long periods of time, even though the receiver was subjected to rough treatment in transportation. A Government checking receiver covering 1500 to 30,000 Kc., and employing three stages of screen grid



tubes in the tuned R.F., was used in conjunction with superheterodynes and a standard signal generator for general reception work. This receiver held its calibration for long periods of time. The accuracy of the calibration decreased with increase of frequency and was unreliable below 15 metres. Since the amateur covers relatively small bands, the calibration holds for an entire band.

The installation of the instrument is the same for practically all types of regenerative receivers, but the calibration and the range of calibration will vary, dependent upon different circuits and the gain controls therein. It is necessary to install a means of bucking out the current drawn by the detector. The installation of the instrument bucking circuit and the changes in the receiver are as follow:—See Fig. No. 1.

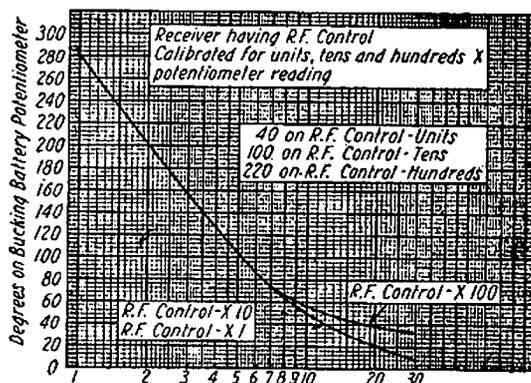
Provide a fuse-clip type mounting for the grid leak if the leak is not mounted

in this manner. Provide another clip mounting connected between the grid and a bias battery to ground. Bypass the battery with a condenser. These mountings will make the change of detector from one type to another more convenient. Adjust the bias so the detector draws between two-tenths and five-tenths milli-amperes when no signal is being received. The range of instrument is dependent upon the sensitivity to change of signal desired, but an 0 to 1 mil instrument is about right. A more sensitive instrument such as an 0 to 200 or an 0 to 500 microammeter can be used, but greater care must be taken or the instrument may be easily damaged. Install the bucking circuit. It will be noted that direct current of opposite polarity is passed through the instrument so as to neutralise or buck out that drawn by the detector. A resistor is used in series with the arm of the potentiometer to limit the bucking current through the instrument and prevent damage which would result were the full voltage of the bucking battery applied to the instrument. The potentiometer should be wire wound and provided with a 0 to 360 degree dial. Switches are provided to open the bucking battery when not in use, and also to short circuit the instrument.

Procedure in calibration is dependent upon the method of controlling the gain. If the receiver has only a regeneration control, only the bucking battery potentiometer dial can be calibrated. If the receiver has two or more stages of tuned R.F., it is probably provided with an R.F. gain control. In this case the R.F. control should be provided with an 0 to 360 degree dial, since it will be possible to calibrate this dial in steps of units, tens and hundreds.

Arrangements should be made with a nearby station to provide means of varying his power over a wide range. Antenna ammeters capable of reading from 10 to 20 mils up to the maximum antenna current possible are needed, usually an 0 to 100 mil, an 0 to 500 mil, and an 0 to 3 or 5 amp. R.F. ammeters will cover the range. Start operation with an antenna current of 10 to 20 mils, and then increase it by ratios of 1, 2, 3, 4, 5 and so on up to 10. It will probably be necessary to then change instruments. The point

of change should be checked with both instruments in the circuit, and then the smaller one removed or shorted out. This will constitute a calibration on the unit scale. Now start increasing power so the indicated antenna current increases in steps of 1, 2, 3, 4, 5 up to 10. This will constitute a calibration of the tens scale. If further power is available, it will probably be necessary to change instruments and continue the same procedure for the calibration of the hundreds scale.

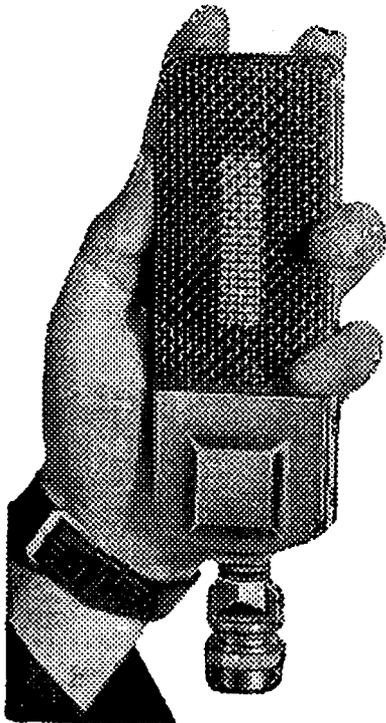


A. Procedure at receiver having only a regeneration control. Short meter, and see that bucking battery switch is open. Tune in transmitter by means of phones or speaker, using a little regeneration if necessary to identify the station. Cut regeneration to zero, open meter shorting switch, and have transmitter adjust his power until the instrument shows about a 20 per cent. increase in the no signal value of plate current. The transmitter antenna current should be noted, since this is the value taken for the starting point, or unity. Now see that the potentiometer is in the low bucking current position. Close the bucking battery switch and adjust the potentiometer until the instrument reads zero. Note the dial setting and call this point unity, or one. Now have the transmitter increase his antenna current, following the procedure given. After each increase in antenna current, note the dial reading. This will give you ratios of 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, etc. If the series protective resistor is not too large, it is possible to run the calibration up to a point where the curve flattens out when the detector overloads. Fig. 2 shows a typical curve.

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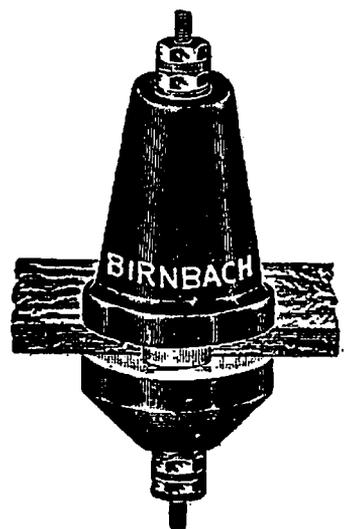
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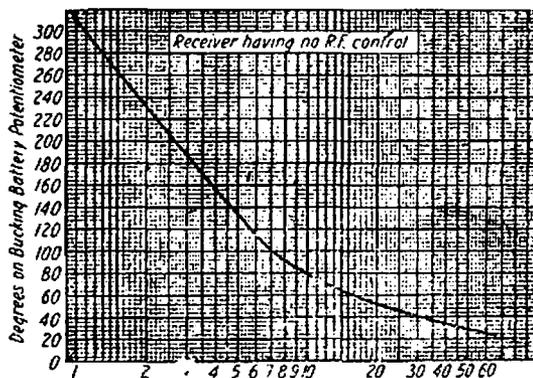


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B. Procedure at receiver having an R.F. gain control. Short meter. See that bucking battery switch is open. Tune in transmitter, using all the R.F. gain available, and a slight amount of regeneration if necessary. Cut regeneration to zero. Cut R.F. gain to zero. Open instrument shorting switch. Increase R.F. gain until instrument shows a 20 per cent. increase over the no signal value. Have transmitter decrease power to such a point that your R.F. gain is at maximum, or until he reaches the lowest dependable reading on his smallest antenna ammeter. Always adjust the R.F. gain so that the instrument reads the 20 per cent. increase above the no signal value. Now note the position of the dial on the R.F. gain control and call this point "units." Do not change the adjustment of the R.F. gain control until the bucking battery potentiometer has been calibrated for the unit scale. Now close the bucking battery switch and adjust the potentiometer until the instrument reads ZERO. Note the position of the dial and call this point unity, or one. Have transmitter increase his antenna current by the stated ratios as in A. After each increase adjust the potentiometer so that the meter reads zero, and note its position. After the antenna current has been increased to ten times its original value, slowly decrease the R.F. gain and at the same time return the bucking battery potentiometer to its unity position, always keeping the instrument reading zero. When this point is reached note the position of the R.F. gain control, and call this point "tens". Now have the antenna current increased along the 10, 20, 30, 40 ratios. It will be noted that these points will fall almost on the same points as the "units" calibration on the bucking battery dial. When the antenna current has been increased 100 times, slowly return the potentiometer dial toward the unity position as you decrease the R.F. gain control, always keeping the instrument reading zero. When this point is reached, note the reading of the R.F. gain control dial, and call this point "hundreds". If enough power and antenna ammeters of sufficient range are available, continue the 100, 200, 300, 400, etc., ratios. These points will still fall very close to the original "units," but as the R.F. stages start to overload, they will fall short of the unit calibration and finally no

increase will be noted. It is possible in a high gain tuned R.F. receiver to proceed up to the "thousands" and "ten thousands", but such calibration must be done with a standard signal



generator. These points may be plotted on semi-log paper, degrees of potentiometer dial against ratio of antenna current increase. Fig. 3 shows a typical set of curves, overlapped.

In using the last calibration for checking adjustments, one should set the R.F. gain control on one of its calibrated points, and then bring the plate-current indicator to zero. The field would be noted as the potentiometer reading times the R.F. gain control reading. Example: 8 times ten equals 80, or 5 times units equal 5.

An Unsolicited .. Testimony

The following letter dated 13th February, 1936, has been received by the Advertising Manager of Amateur Radio from Mr. Allen Fairhall, managing director of Electronic Communications Ltd., of 57 Hunter Street, Newcastle, N.S.W.:—"It is with pleasure that I write to advise the splendid results which have been achieved through the little space taken in recent issues of your journal to advertise the products of this company. Enquiries have been received from every State, some of them from men who have been inactive for some time. This seems to indicate that Amateur Radio has an appeal even to the man who is not 'on the air.' We shall certainly be taking bigger spaces in your worthy journal as time goes on. With best wishes."

Tourmaline for the Ultra H.F. Bands

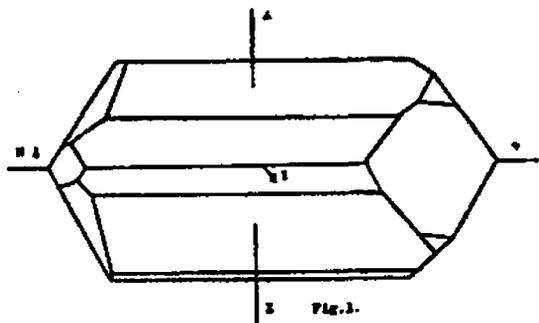
MODERN DEVELOPMENTS IN CRYSTAL CONTROL.

By VK3RX.

"Two stages and you are on 112 M.C."

What a joy that would be to the U.H.F. gang who have been having difficulty in getting a steady signal on five-metre and two-and-a-half-metre bands, but with the advent of tourmaline crystals the day is not far off when you can discard the cumbersome copper tubing lines, and with a modest two tubes put out a T9 signal equal to any on the low frequency bands.

Tourmaline is one of the semi-precious stones, and appears to be most plentiful in South Africa and Brazil. though reasonably good specimens have been found in Victoria near Beechworth. It is practically as hard as quartz and somewhat brittle,



and, due to its more complex chemical structure, is usually found to contain more impurities than quartz. These impurities give it the characteristic colors ranging from yellow through blue to black. The black variety is opaque, and this form (known as schorl) is generally unsuitable as an oscillator.

Tourmaline crystals are rather small in diameter and half-an-inch is considered quite a good size when dealing with this mineral. Reference to fig. 1 will show the axis of a typical specimen. In tourmaline the Z or optic and the electric axis have the same direction. Plates are, therefore, cut perpendicular to the optical axis. With quartz the plates are cut parallel to this axis.

In spite of their small size, tourmaline crystals oscillate particularly easily and do not show any sign of double peaks. It is necessary to have perfectly flat electrodes if the oscillator tube is run at full plate voltage, because any sparking due to irregularities may, under these conditions, cause part of the crystal to melt, rendering it useless; ordinary splintering, as occurs with quartz, is not experienced.

The main advantage of this crystal is that it will give a frequency about 35 per cent. higher than quartz of the same thickness, i.e., 80 metres per m.m. thickness.

According to Straubel, of the Jena University in Germany, the ratio is:

$$\text{Thickness} = \frac{146.25}{\text{frequency in KC}}, \text{ approximately}$$

which would give us 20 thousandths of an inch for the thickness of a 40-metre crystal. Fundamental crystals on four metres have been ground and give remarkably good output.

Tourmaline has a negative temperature co-efficient of about 46 parts per million per 1° Centigrade, and for perfect frequency stability it is necessary to use an oven. For ordinary purposes, however, these crystals have practically the same characteristics as a V cut quartz plate, and may be used accordingly (without temperature control).

From personal experience, 250 volts seems sufficient to put on the plate of any crystal oscillator tube and should not be exceeded if a reasonably steady signal is sought for.

In the U.S.A. tourmaline plates are offered for sale at about \$15.00 each, but it is possible that some readers will be able to get specimens from a mineralogist in Australia; but for the

(Continued on Page 13)

"This Decibel Business"

By "Tiller."

"I say, Sparks, what's this decibel business you fellows are always talking about?" The crew of the yacht "Sunset" were yarning around the cabin after dinner one Saturday evening, during a week-end cruise. Pipes and cigars had been produced, and after one of those short lulls in conversation which occur on such occasions from pure contentment, the Skipper had asked the question which contrasted strangely with the previous discussion on sword-fishing.

"The decibel," said Sparks. "Oh, that's ten times the common log of P one —"

"Yes, I know," interrupted the Skipper, "but what IS it? I have an elementary conception of what a volt or an amp. might be. I learned that at school, but this new-fangled decibel seems to be a bit more complicated. I notice that even the popular radio papers use the term these days."

Sparks thoughtfully applied a match to the fag which he had just carefully and feloniously extracted from the Forrard Hand's cigarette case, and began:—

"Well, the decibel, or d.b. as it is called, is really not a new term at all. The telephone, not the radio, people were responsible for its introduction. In the old days, telephone engineers found it necessary to standardise a method of measuring loss in speaking efficiency over telephone lines. The simplest way of doing this would have been to use a section of line itself as a standard, but the loss over a section of aerial line is small, so that a very great length would be required to give any appreciable value. Besides, the nature of aerial line does not lend itself readily to the construction of a standard of loss.

"Underground cable, however, has a very much greater loss per unit length, and so it became usual to consider the loss of a line or piece of apparatus as being equivalent to that of so many 'miles of standard cable.' Of course, even a mile of cable would be far too

bulky to use as a practical standard, so small networks of resistance and capacity were made up, having similar characteristics to the 'standard' cable. Several laboratories, however, used an actual mile of real cable as a prime standard.

"The M.S.C. unit was used for many years, but when it became necessary to use higher frequencies on telephone circuits, for broadcasting purposes, for instance, engineers began to appreciate the fact that their standard had its limitations, because the loss of a mile of cable varies considerably with frequency."

"That's very interesting," said the Doctor, "I think I can see why. Was it because the electrostatic capacity of the cable bypassed more of the high frequencies than the lows?" The Doctor had recently been bitten by the Radio Bug, probably as a result of his frequent contact with Sparks on the "Sunset."

"Yes," continued Sparks. "That was exactly what happened. It was like having an india-rubber lead-line whose fathom-marks increased in spacing as a greater length was passed overboard."

"I suppose you used that lead-line to measure the tunny you caught at Lamont Reef." This remark came from Mac, but Sparks ignored it, and continued in his best lecturing manner.

"Well, some bright fellow, I think in the Bell Laboratory, hit on an entirely new method of expressing a loss in transmission efficiency. Instead of comparing the LOSS with a standard loss, he compared the power in the circuit, before the 'loss' portion, with the power in the circuit after the 'loss' portion, and expressed the result as a ratio. To do this most simply we might consider that if the input power to a certain piece of apparatus was twice the output power, the loss would be equivalent to two units; or, if the input power was three times the output power the loss would be

three units, and so on. However, this system, in practice would not be ideal because the ear, which detects all these effects, is non-linear and — ”

“Just a moment,” interrupted the Skipper, “I don't quite get that.”

“Sorry, sir. What I mean is that our ears are very sensitive to weak sounds, but not so sensitive to strong ones. For instance, suppose we hear a certain weak sound. Now, let that sound be increased in energy, say, one hundred times. One would expect the volume apparent to the ear to increase to one hundred times also, but in practice it increases only about twenty times. Nature provides this feature as a protective measure, otherwise the ear, if made sensitive to weak sounds, would be damaged in all probability by strong ones.

“However, to get back to the decibel. If we were to express losses as simple power ratios, the difference, as perceived by the ear, between, say, two and three units, would be very much greater than the difference between, say, 100 and 101 units. What we need is a unit which is appreciable to the ear to the same extent under all conditions. Fortunately, we may obtain this feature very easily by expressing the loss as the logarithm of the power ratio, and by this means we obtain the absolute unit which is called the Bel. In practice, however, it is rather large, so we divide it into ten parts and call each a decibel, which is, therefore, defined as ten times the power ratio of the power ratio.

Now this decibel notation is very much more useful than would appear at first sight. It may be used to compare any two powers, and, therefore, to measure gains as well as losses. Also, don't forget, the decibel is not an electrical unit at all, but simply a ratio. We might quite easily say that the fishing this month has increased ten d.b. owing to the southeasterly weather. Or that the traffic over a certain road has increased so many d.b. owing to improvements on a certain section. However, we use the decibel mostly in communication circles and once his simple nature has been solved, a very useful little fellow he turns out to be.”

Just at this moment, a frantic rattling on deck indicated that the proper-line needed attention and all hands stood to, the decibel, for the moment, forgotten.

Notes: Recipes and Data

For two and a bit years now we have been able to keep the standard of the technical section of this magazine well up to expectations. Six months after the first issue the technical editor's file was fat and the cream of the contributors' efforts was selected for publication.

To-day, we are sorry to say, things are different. We still have with us the men who are supporting the section in the best way they can periodically. Yet there are hundreds of hams who have not contributed a bean.

It is hard enough work as it is to have to edit articles and draw the circuits for block-making without having to squeeze persons for technical articles. In very plain words, this “Amateur Radio” of ours is not being supported as it should. The magazine committee members are putting in a lot of time that they could well devote to things that might mean a financial gain to them. Instead, the magazine must go out and contributors must be found. Does it seem reasonable that all this work should fall on the shoulders of a few? Promises from local and interstate hams have been made but are seldom realised. The general impression must be that we have only to dip a hand in the lucky bag and pull out a handful of articles, sort them out and pick the best. We wish it were like that. You have heard the home truth; now, what are YOU going to do about it? We are proud of the fact that all past contributions have been fellows who seek no remuneration for their efforts, and hope that it will continue thus.

It is within the power of every true ham to write up some sort of article. We read in the news and notes section every month of someone who has rebuilt his transmitter, receiver, power supply, and made some kind of a measuring device, or even designed a new type of oscillator. The experimental field in the radio game is unlimited and so can be the supply of data gained therefrom. All this kind of dope is valuable and can be of interest to someone else.

It is known that the feeling is that a contribution would not be of interest to others or that everybody already

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Station Description

G6CJ

G6CJ was founded way back in about 1925, when kilocycles were measured in wave lengths; the 80-metre band was on 90 metres, 40 was the land of the advanced "pro.," and 20 metres had hardly been invented, and was, anyway, "ultra short."

Those were the days when the operator was starting out in the hope of some day becoming a radio engineer, and the consequent lack of time, knowledge and resources did not encourage the idea of Ham Radio. But with the usual ham enthusiasm, experimental work was begun and gear built, until by 1930, when a decent Qra (with mains!) became available, it was possible to think about d.x., and the d.x. history starts from then.

The present transmitter was started about then, and is built in rack form, and has been developed continuously since. It is now in a flexible state, such that it is possible to get on any band in a few seconds. One bay houses at the base the crystal unit, with a progression of FD's above it, all link coupled on plug and jack circuits. The required chain of doublers is brought into operation by plugging through and lighting their filaments.

To the right of this is a bay with a separate PA for each band, link coupled to the doublers as before. By attention to the design the tunings are independent of the links, so that all one has to do is to light certain filaments, patch the right links and hook on the feeders if not already there, and away we go. No messing about. The grids are all high-L and so flattened by grid current, and moving up and down the band only involves tuning one or two anode circuits. This is the next best thing to two transmitters where quick change is required.

The PA stages are medium power, as the licence is for only 50 watts. A 50-wattter is used in the 7 m.c. P.A., and a pair of receiving tubes in push pull on 14 m.c.'s.

On the receiving side, the usual "Detector and one" was developed to its best until the single-signal receiver was invented. The finer points of this were soon appreciated, and by the time of the 1933 BERU fight a home-made crystal S.S. was doing its stuff and going to prove that the d.x. was there if only it could be fished out of the mess. This receiver was developed until it was, so to speak, "kilowatts" ahead of the transmitter, and it was possible to hear much more than could ever be raised.

The VK Centenary Contest was thoroughly enjoyed, and a fb time was anticipated this year in the next attempt. It was realised, however, that to compete with the Qro stations in this part of the globe something would have to be done about that 50 watts. Alternatives were either to go Qro, which was forbidden, or else use directive aerials.

Intensive work was done on the aerial idea in September, with the result that, by the time of the contest, signals in VK had been raised by two points on both 7 and 14 m.c. The final arrangement had two half-wave horizontals—one for each band—with matched feeders. With the aid of 16-foot spreaders a pair of wires was hung behind these to reflect or direct the wave. On 14 m.c. this was easy. With the wire 35 feet long reflect o.s. took place, and by simply lowering and altering it to 31 feet it became a director and signals went the other way. On 7 m.c. the separation of the wires was only one-eighth wave, and the tuning of the radiator was so much upset by it that it was no longer possible to change over by altering the length of the free wire. The coupling was such that, even with the free wire 66 feet long, it was still a director. So it was left thus, and transposed for transmission in the opposite direction. The whole system was slung between two 60-foot poles, the wires running north-south, as VKZ1 is east and west of here.

Results from these two aerials were very encouraging. With the old pair of half wavers between the poles, it was usually possible to raise the Antipodes if they could be heard, but with the new system it became a practical certainty. Sigs. were better by one or two points, and held out after other G sigs. had gone.

The great point about this system is the fact that lower angle waves are radiated. The gain of three d.b.s. by sending all the power one way is hardly worth notice, but the result of saving a few hops on the way to d.x. is worth kilowatts of extra power. On shorter distances, such as 3,000 miles, no improvement was reported. "Turning-over" tests were made, and in each case the sigs. went weak and full of fading, dropping three to four points. This is because the back radiation was high angle. The local signals round the countryside went right down, thus avoiding local Qrm. The aerials were naturally used for reception also.

It was found with these aerials that signals from the Antipodes came from two opposite directions, according to the time of day. Thus on a good day VKZ1 14 m.c. signals appeared about 0700 GMT from across the U.S.A. About 1,000 GMT they get thin and hard to raise, and seem to have no particular direction. About 1,400 they are up again and coming from across Asia. On 7 m.c. they are the same except that they are absent from 0,800 till 1,700. There is evidence to suggest that certain VKZ1 stations transmit one way and listen the other!

Well, that did the trick, as nearly 100 contacts were made in the contest, which is something original for 50 watts in this part of the world.

The method of attack in the contest was to maintain a thorough knowledge of what was doing on the bands, and always, if possible, have two or three stations under observation at one time, as well as the competing stations. Thus if there are two or three "hot" competitors nearer the edge of the band than oneself, it is a great help to know that they are all busy or have worked "so and so," for you can then slip in and get him. If you fail, look up one of the others you are watching. By adopting such methods it was possible to get him

nearly every time. It was far more successful than making blind test calls and filling up an already overcrowded band. Only about three of the Qso's were made off test calls.

To facilitate this method of operation, the receiver was arranged to have two tuners working into one I.F., with one on each band or both on the same. By a switch either or both were in; and it was possible to hold two signals at once. With the additional aid of a monitor oscillator, with a large dial full of pencilled stations, it was possible to hold several at once; in fact, to "look up" old So-and-So and see if he is on the band yet, and get him! These devices turned the band into a living organism, and removed the need for constant searching and hoping. The stations were all laid out, and all it was necessary to do was to watch the right moment and get each one in turn.

I should like to say thanks to all those old friends I met in the contest, and also to new ones, and I hope to see you all again in February, if not before.

.....

3LN showed movies of his American tour to the Melbourne meeting on February 4, and said they wanted to include Mae West among the famous figures that are being carved out of a mountain in South Dakota, but the designers of the memorial couldn't get a mountain that was big enough in the right places.

To work a twisted pair-fed doublet as a full-wave instead of a half-wave, WK3DD says add another half-wave on to one end of the ant., which does not impair the excellent impedance match and materially improves the radiating properties.

.....

(Continued from page 10)

knows about it. That is wrong. Give us the article and let us decide whether it would be valuable to some hams or not.

Whenever possible, photographs and diagrams should be supplied. Never mind about the style of writing, we can fix that.

Federal and Victorian Q.S.L. Bureau

(By VK3RJ, Federal QSL Manager.)



Log forms for the recent B.E.R.U. Tests may be had on application to Mr. R. Ohrbohm (VK3OC), Victorian B.E.R.U. representative, or from this bureau.

Frank Brandon (VK5FB), of Wilmington, S.A., contemplates another interstate trip. He is to be accompanied by his brother and by VK2DQ. They propose rushing through VK3 and on to Tasmania, and expect to spend a few days in Melbourne on the return journey. They will be heard all along the route per medium of portable VK5FBX during the end of February and early part of March.

The international competition of the Polski Zwiasek Krotkofalowcow (Polish section of the I.A.R.U.) was held between December 8 and 22. Stations contacting SP during this contest should report, giving details of QSO and cypher group to the Polish QSL Bureau, PZK, LWOW, Bielowskiego 6, Poland, by May 31, 1936. Failure to report annuls the score of the SP station, and the highest competitor in each country will secure a diploma. In addition, the three highest foreign competitors will get special diplomas and a yearly subscription to the magazine, "Krotkofalowiec Polski." Unfortunately, an interpreter is not included in the last-named award.

"Tubby" Vale (VK3MK), late of Coburg, is now located at Mildura, where he is enjoying the climate and getting amongst the DX.

Victorian members who were not present at the February KP meeting missed a rare treat in the personally conducted tour of U.S.A. and Canada given by Mr. Len. Moncur (VK3LN),

by means of some thousand feet of his own "shots" and an entertaining running commentary. Self could enjoy a repeat performance.

Many thanks to all who answered the S.O.S. for the QRA of CR8AA, and the QRA of XE1JC is now required.

Cards are on hand at the bureau, 23 Landale Street, Box Hill, for the following VK3's:—AP, AX, AI, AY, BE, BS, BX, CV, CW, ET, EW, FN, FT, FC, FW, GJ, GV, GY, HE, HX, IL, JK, JR, KA, KB, KD, KG, KM, KT, KS, KY, LK, LP, NJ, NG, OI, OP, OZ, PA, PL, QL, QR, QY, SL, TC, TE, TD, UB, UJ, UY, VK, WC, WH, WX, WK, XF, YF, ZA, ZB, ZK, ZW, DINAN.

For sale, new shipment of "Dx Oil," fine for wrenched wrists and sore sit-upons, due to the recent B.E.R.U. contest. Recommended by 3MR and 3UK. Snowy says: "I'll bet a Hamburg sausage to 600 D.A.S.D. reports that it will fix any radio ailment."

A chance for the last remaining record was missed by 6FO when HJ3AJH called him and he heard not! No VK6 has ever made WAC, and he would have been the first—if he had listened at that end!

6FO gave 6MN the full list of the zones for the Contest, and it took him nearly 20 minutes solid sending, while the VK3's were waiting to collect some points!

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sake of other hams who come after you, don't pay too much for it and thus fix a high market price.

In Melbourne, quartz lease blanks have gone up from 1/- to 3/6 and 5/- on account of the demand. Until we can definitely say what type of tourmaline is suitable for oscillators, and what is rubbish, it is not advisable to pay too much for indifferent specimens. The writer has been promised a good crystal, and should this prove satisfactory, the results will be written up for "Amateur Radio" as soon as they are available.

Federal Headquarters Notes

The third annual dinner of the Wireless Institute of Australia (N.S.W. Division) will be held on Thursday, March 26, at 8 p.m., at The Dungowan, Martin Place, Sydney. Tickets are 3/-, and are available from the W.I.A. Secretary (Box 1734 J.J., G.P.O., Sydney), or at any of the W.I.A. meetings. An invitation is extended to any amateurs who care to attend. Liquid refreshments will be available in bulk at a small charge.

The end of February completes the fourth year of the Institute's activities in New South Wales. That is, of course, since it was reorganised. The Institute was originally formed in March, 1910. The ballot for the election of officers takes place during the period between the February and March General Meeting. In both the nominations and final voting all members are circularized. Some of the older members of the Council are retiring from office this year, as they have decided that they have done their share in Institute affairs, and so we may expect to see quite a few new faces on the Council. Members are reminded of the monthly technical meetings, held on the first Monday of the month at the Y.M.C.A.

VK2LZ (W. E. C. Bischoff) was the New South Wales delegate who represented this Division at the Brisbane Convention, and he will present his report on the Convention at the March Annual Meeting.

The Annual Meeting is to be held as usual at the Y.M.C.A. on March 19, when the results of the election of officers will be announced.

New South Wales will lose one of its foremost d.x. hams when VK2AH leaves for England early in March to look at television and radio in general, possibly taking in U.S.A. and the Continent. Allan has promised to bring back anything that interests the "hams" greatly.

It looks as if the Amateur Exhibition, that was talked about in New South Wales last year, will come off about May or June. There were one

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R.A.A.F. Wireless Reserve Notes

Federal Notes by the O/C (1A1-VK3ML).

A lengthy discussion took place between the Director, Deputy Director of Communications and the Staff Officer for Signals on February 5, 1936, in regard to the present position and needs of the Reserve.

It was agreed that the experimental stages of the organisation have passed, and that the Reserve is in a position to be standardised throughout in training methods and organisation.

We have something to be rather proud of in that our Reserve was the first of its kind in the field of amateur Reserves in the world, and the complete running of it has had to be of an experimental nature. There has been no other organisation to show us the way, but now we know more about the requirements of such a Reserve, our future prospects should be mighty bright. With the advent of the formation of squadrons in other parts of the Commonwealth, it is impossible to forecast our future.

Just at the moment it is rather hard to say whether there will be any Reserve left in 12 months, because of the absorption of the personnel by the permanent forces. We have had to lose several members recently, and many more will become permanent operators. If the Reserve performs no other function, it undoubtedly serves as a training basis for permanent personnel. Any member that is interested in such an occupation can obtain particulars from the Secretary, Air Board, Melbourne.

It is expected that two camps will be held later on in the year, around September, one at Laverton and one at Richmond. These camps would be for members in VMC and VMB respectively, but if any interstate members care to arrange their holidays at that time it might be possible to arrange for their attendance also.

Bulletin No. 3 is well on the way, and may reach members before this magazine. Once again it has been our

object to make it as interesting as possible with articles on the Air Force generally.

A new supply of training manuals is now ready for distribution to newly-enrolled members. There have been no changes in the procedure, just the combination of Volumes 1 and 2.

It is also most probable that when Reservists read these notes they will be in possession of their crystals and holders. Frequency assignments have been made to all ACTIVE members only. Inactive members are asked to get busy and brush up gear and procedure prior to the change over to the new frequency channels.

Another use for the Reserve has been found in VMG, where 7Z1 and 7A1 are working in conjunction with the commercial airways and the R.A.A.F. D.F. station at Western Junction by supplying weather reports daily. The service has been going for some weeks now, and has proved highly satisfactory. Old 3A6 (Bill Murden) is operating the D.F. outfit. Fine work, boys!

Victorian Notes. (3Z1—VK3UK).

Activity in VMC is always at its lowest ebb in VMC during February, owing to the BERU Contest. As so many members are keen contest men, schedules are usually abbreviated and sketchy during the contest periods. 3Z1, 3C6, 3C2 and 3B4 were heard among the d.x., and we were delighted to hear our old friend, Alf. Kerr, ex 3A4, on 7 m.c. Alf. has been "snowed under" at work for some months, and reluctantly had to transfer from VMC1 just after winning the section leaders' trophy. We are hoping he will be able to return now to active work.

As mentioned before, we are re-organising our whole method of running sections, and in view of the experience we have had in the past, we feel we will be able to evolve an

organisation far superior to anything we have used before. In order to co-ordinate all the ideas of members, a meeting of metropolitan stations is being held on the 20th, and this will be the first of a regular two-monthly meeting. As our sections now have at least one metropolitan station in each, these meetings will be far more representative of sectional ideas than the ones we used to hold four years ago. 1A1 is off on a cruise this week. A fortnight leisurely running up the coast in good weather seems a perfect holiday.

Ex 3C2 is on a car tour for his holidays, and is expected in VIM this week. We are hoping to have the pleasure of a yarn before he passes on.

Ex 3C5 and 3B3 are also on holidays. In fact, everyone but VMC's hard-working DIC seems to be having a break. HLZ!

3B1 is away on another country tour, and will be away until the middle of March. He had the misfortune to smash his crystal in his portable on the last tour.

3B5 has returned home after convalescing in Melbourne. He is well on the mend now, and is anticipating a spell of heavy work ahead.

3A5 has just finished building his new three-tube T.R.F., but has not had time to take the bugs out of it yet.

We have to congratulate 3D6 on the arrival of a junior operator. Perhaps a future Reserve member!

WEST AUSTRALIA.

Owing to the BERU Contests, no watches have been held during February. 6Z2 and 6A1 are unofficially attending a week's camp at Northam conducted by the Aero Club Reservists, and should have a good time all round during first week of March. 6B1 is missing 5A2, and as nobody here has heard JE lately, some concern is felt about his welfare. 5A2 was a valuable link and always on sked.

Correspondence Section

W.I.A., Melbourne, Victoria, Australia.

B. Naylor, 1330 Beach Avenue, Vancouver, Canada.

The following notes may be of some interest to VK amateurs re conditions during the test, etc., as we found it here.

It was with little hopes of being able to do any good work that I listened on 20 metres the first evening (here) of the test, as at this time of the year and night it usually is completely dead after dark P.S.T. However, much to my surprise during the 1935 test, it proved to be the best band, and the majority of contacts made from this station were on 14 m.c.

The first week-end (October 5-6) a number of VK-ZL stations were contacted between the hours of 7 p.m. and midnight (local time). However, the second week-end of test proved to be the best, 19 stations being contacted up to midnight on 14 m.c.

The third week-end of test proved to be the poorest, it only being possible to Qso three stations on 14 m.c. and five on 7 m.c.

The last week-end was good on 14 m.c., but the band went dead rather early—about 9 p.m. local time. However, 7 m.c. was good this week-end, as skip was preventing a lot of the W Qrm.

The 7 m.c. band seemed to be good all through the tests, but, due to the excessive Saturday night, Qrm was a very difficult band to Qso on, with the exception of the last Saturday night. For every ZL-VK station heard there were about 20 W stations, making it difficult to hear d.x. signals.

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Divisional Notes

N.S.W. Division

By VK2IG.

Condx NDG here this last month and nothing of much importance been done.

2QE getting busy with some overdue qsl's and, as with OJ, finds it's a hard job to get up with. (Why not Qrt for about a year or so, O.M.'s?) Q.E. been nibbling the fat on 40 quite often, is giving 20 a spell.

OJ keeping fine skeds with 2AP on Sunday, and both fone vy fb; 2AP plenty of punch and nice quality. The locals here visit OJ and say "how do" to Arthur and his gang quite often.

QD building a nice pretty frame for his rig. Must be only for show, as we don't ever hear him on tho!

EU, the strain of getting his new timber vertical has been heavy, and Artie taking it easy. Has very fb qri.

YI going to Sydney for a spell (FB!). Will be back by the time this issue appears. Is taking his "fil" portable 10 or 20 tube sss, too. Is interested in the railways, so has got a spare carriage to put it in! Also cleaned out the shack and persuaded IG to take some of the junk books. Don't know where I'm going to burn 'em either, so anyone wanting "Literature" see us!

IG doing a little DX, but mucking about with antennas, some punk and a lot, punker! Had a go at BERU contest, but condx poor and the rig not up to the mark, so not so good. Qri pretty rotten, too! Anyone got a spare crystal? Might even pay the freight on it, hi!

NEWCASTLE SECTION.

By VK2KB.

The first contest for the Electronic Communication trophy having been won by Charles Hedley, 2MT, the next competition to be staged by the Newcastle Amateur Radio Club was the usual 12-hour contest staged twice a year.

This was won for the third time in succession by Jim Cowan, 2ZC, in spite of a heavy handicap.

He turns in a beautiful log showing; 11 countries and 23 contacts in twelve hours' working time. 7 and 14 m.c. were used. Others to turn in good scores were 2MT, 2UF, and 2RF.

7 m.c. rather slack lately in Newcastle, 14 m.c. looking bright. Almost everyone active and rebuilding. 2ZW and 2KB promise some activity shortly.

N.A.R.C. has decided to again run a "Ham fest" for 1936, but it will be a bit later . . . probably in September.

WAVERLEY'S ANNUAL REUNION.

The oldest radio club in New South Wales celebrated, on 4th February, its seventeenth birthday.

The annual reunion of the Waverley Radio Club was held at the Grahamc Memorial Hall, Charing Cross. In previous years the reunion had been held at the club rooms, but the committee were very wise in selecting the larger premises, as some 85 club members and delegates and visitors were present, and the annual reunion is unique in the annals of radio club history.

The menu, as usual, was a work of art, and ran from R. A. C. Soup to Wood (2VB) Alcohol.

Delegates were present from the Wireless Institute, Zero Beat, Manly, Lakemba, Hurstville, and Woolahra Radio Clubs; J. Moyee, Esq., represented "Wireless Weekly." D. B. Knock, Esq., "The Bulletin," and Quiet Humphrey the Second Division Signals.

The usual toast to the King opened proceedings, then W. Regan, Esq., asked that those present observe a silent period of a minute in memory of Silent Keys.

Mr. Perry, an ex-member and one of the original amateurs in this State, proposed the toast to the Waverley Radio Club. The speaker urged amateurs to look after their rights, and that they should be better recognised

munity in general. The one fact that was the basis of all speeches was the fact of the wonderful success of the club in its seventeen years of progress.

Mr. H. Petterson, VK2HP, in replying, thanked Mr. Perry for his kind remarks.

The toast to Associated Societies, moved by Mr. W. Stewart, was replied to in turn by the many delegates.

The Federal Executive of the W.I.A., W. Moore, Esq., State division of the W.I.A., C. Macgregor, Esq., VK2EH Lakemba VK2CN Zero Beat, G. Shelley, Esq., Manly, and representatives from Woollahra and Hurstville.

The toast to the Radio Inspectors' Department was moved by W. Moore, Esq., who made mention of the fact that the P.M.G.'s department was very fair to amateurs generally, and that the department might be termed pro-amateur. Mr. Macintyre replied on behalf of the department.

Mr. J. Moyee, in replying on behalf of "Wireless Weekly," made special mention of the "Wireless Weekly" cup, which was shortly to be competed for again. Mr. D. B. Knock, radio editor of "The Bulletin," also replied on behalf of that paper.

The Highlights were reached shortly afterwards, when those present were asked to contribute their share of the humour. 2JT, as usual, led with one on Trolley Buses, and quite a large number of those present contributed to the list of jokes. The reunion, the largest ever held of any radio club, was eminently successful, and Gordon Wells, who occupied the chair, and other members of the committee are to be congratulated.

LAKEMBA RADIO CLUB.

VK2LR.

The meetings of the above club are held every second Tuesday at the club rooms, 334 Canterbury-road, Hurlstone Park. The Slade Cup DX Contest was held over the first two week-ends in February. Most of the DX was worked on 20mx. Best conditions prevailed over the first week-end, as a very severe thunderstorm on the second Sunday made conditions almost hopeless on all bands.

The next contest is for the Chanex-Dulytic Cup, to be conducted in April, this being a VK-ZL test, so that all may have a chance of taking part.

The club would appreciate the cooperation of VK and ZL amateurs in this test. Points are allotted for contacts with the various States and New Zealand, and the competitor with the highest number of points is the winner. Last year the scores were very close indeed.

Conditions for d.x. on 28 m.c. very poor. Yanks were almost impossible to raise, although they could be heard some days. One was even heard as late as 2 p.m. Europeans also conspicuous by their absence.

VK2EO Qsoed an HJ and took the opportunity of testing different aerials for d.x. on 10, and a big 7 m.c. single-wire-fed Hertz came first, sigs. being reported R6 on 7 m.c., 66ft. Hertz; R4 on 10 m.c. doublet, and R2 on 20 m.x. doublet. A big aerial operated at a harmonic seems to be best for d.x. at this Qra, too.

VK2YC has been putting up new aerials, and his Qra is beginning to look like Pennant Hills Radio Centre now (VIS, 2FC, 2SM, 2ME, etc., etc.), he has that many aerials up; but they must be for birds to rest on, as he never seems to be using them.

VK2LZ has been taking a well-earned rest from 28 m.c., as is also VK2HZ.

Conditions for interstate Qso's were very fb at times, but absolutely punk at others. Best sigs, and most reliable seem to come from VK4 and VK5. Old 5HG was heard with a fairly decent self-excited sig. one Sunday about the end of January.

Victorian Division

KEY SECTION NOTES.

By VK3YO.

At the February meeting of the Key Section, the main feature was a moving picture record of the trip to the U.S.A. taken by VK3LN. It was a most interesting show and was enjoyed by everyone.

The big event of February was the B.E.R.U. contest, and from all accounts there were some big scores put up in the Senior Section. At the time of writing the junior contest is still unfinished, but conditions on the first week-end were very good.

Judging by the number of stations on the air, the two contests appear to have had a large entry and the win-

ners do not seem to be outstanding.

Information is not yet to hand re the A.R.R.L. DX contest for 1936, but many stations are already preparing for the big Qrm of March.

On 12 m.c. quite a number of W.A.C.'s are being obtained through OA4J, who has been very consistent for the past two or three months.

Another strong South American on 14 m.c. is OA4AA, who is using class B phone, so those looking for a phone Qso with this continent are advised to keep an ear cocked for him. He is in approximately the middle of the 14 m.c. band, and his carrier is a good R7 to R8.

VK3DP is operating again from his new Qra and is putting out a good loud signal. Unfortunately for 3OC. DP's location is less than 500 yards away! However, as 3OC says, "It might be worse," DP nearly shifted next door.

PHONE SECTION NOTES.

By VK3DH.

The first meeting for 1936 of this Section took place unfortunately on Tuesday, 28th January. We would have passed over the meeting in view of the day on which it occurred, but since the allocations had already run for two months—December and January—we decided that was actually a necessity, so allocations only was to be the business.

As it happened, there was more business on hand, in connection with the necessity for all stations to carefully look after their frequencies and method of operation, as now—if any station fails to make full use of an allocation or actually suspends operations for an indefinite period—there may not be any possibility of getting back on the band.

The allocations committee have caused a slight stir by watching (or listening) very closely to as many stations as possible right at the hour of closing-down time, and a few unlucky members have lost a considerable number of marks through being unfortunately caught late.

For a number of years now the rule has been to subtract half a point for each half-minute over the correct time. Since the committee deal in hun-

dredths of a mark when placing the order of merit—this half-mark business assumes comparatively large proportions.

A few members expressed their disapproval of an allocations officer penalising one station when there might be another on at the same time—also running late. There are not enough members to the allocation committee to "park" on each frequency and so check everyone fairly, so we have to trust to luck.

The moral, of course, is never to be one second late and then you must be safe—and when in doubt, close down a minute or two early.

One of our phone "gang," 3LN, treated the general members of the Division to a very "F.B." lecture and moving picture (without sound) show, on Tuesday, 4th February. No doubt this will be commented on elsewhere in full—but I should like to say here that everyone present obviously enjoyed very much the effort.

I guess that at the meeting of 25th February our chairman, 3TH, will enlarge on his observations of ham radio in general during his tour of New Zealand.

WESTERN DISTRICT NOTES.

By 3HG—3OW.

3JE now active on 229 metres and putting out very nice phone with an input of about eight watts from the D.C. mains.

3AC, in Hamilton, has also put in an appearance on the 200 metre band, and is also putting over very decent phone.

3DX still holding the fort in Warranbool with his high-class transmissions. 3WW and 3JA active on 7 m.c., the former with quite good phone. The Camperdown gang inactive, 3GQ spending his spare time catching up with the 800 Qsl's he owed after the DX contest!

3OW has at last got his long-promised new receiver going and should be heard on more in the future. 3HG now on Qrp, as his engine has given up the ghost. Has been hearing quite a lot of DX on 28m.c. This station will be operating portable gear under the call of VK3EF during the end of March and early in April, while on a motor tour of VK2. Would welcome a call any time on 3.5 and 7 m.c.

South Australian Division

Well, the Christmas meeting was held on 18th December, and took the form of a social with supper. There was a large attendance and all had a good time. Transmitters' meeting on 29th January was well attended and all enjoyed the lecture by Mr. Alf Traeger, on the subject: "Radio and the Inland Mission." A cricket match is being arranged with the Fullarton Radio Club.

20 and 10 METRES, by 5KL.

20 Metres. — Conditions have not been at their best for some weeks now, although a large amount of DX is being worked.

5GW has a hefty signal and sure works them by the large pack of cards he sent away last meeting. How about some dope, George?

5LJ heard, Qso'ed HH5PA with YL OP on key. Beware, Reg.!

5WK has nice crystal note now; also new antenna single-wire fed.

5TX, VK5, Qrp, King, been working some DX, also called by GZAS. F.B. Jim.

5ZX, 5RT, and 5WR make big noise here in Prospect and work plenty DX.

5FM. Haven't heard Pete on of late. What's up, Pete, o.m.?

5LD has no trouble to raise some DX.

5RX been trying his rig out for junior B.E.R.U. Using same antenna as 5WK.

5HD says he is satisfied with his antenna now.

5MY reports condx very quiet on ten.

5LJ has heard all continents, but has Qsy'ed to 20 again.

5ZC very active and has Qso G, ON, DX, P.A., OK, W and J.

5KL Qso HJ3AJH, Wednesday, 12th February, 10.30 a.m. Only want Europe and South Africa now for Wac on ten!

Western Australia Division

By Radio VK3ZC.

Well, boys, here we are again, and the main item of the month has been the visit and stay of VK2IC and the hurried exit and entrance of ZE1JC,

who is going over to VK3, 4, and 5, but will return to VK6 on his return journey. 6DH and 6LJ were the only ones to see the latter, so it can be seen the huge hurry he was in. Hi! There is a shack meeting being held at VK6WS on 20th February, and 2IC is going to be the speaker.

The lecture given at the general meeting on 13th February was by 6SA and entailed some 28 m.c. detailed dope, which was taken in by all and given in the usual FB style.

VK6CX has had to resign the secretaryship and we will greatly miss his remarkable consistency. Just to keep our friend 6WS interested, he was duly installed as secretary. Also, owing to change of business address, 6LV has had to resign all touch of the magazine and trust that my successor will get every help from the gang.

On 19th January, the social outing was held to Penguin Island, and 6WS made the trip in his motor launch, Bambina, together with radio and 6RL, 6MW, 6GM, and a few students. The Osc Section of 6MW gear was used and a 16-foot chunk of wire used as antenna. 6WH and 6LV only were Qso'ed, as the gang had to leave the boat very early and continue on their journey by car, leaving the gear parked in the tub.

Haven't seen 6AC for a few weeks. 6AG Qrl as consulting radio engineer, and haven't Qso'ed him. 6BB—a-ha. Jack hasn't come to light with that Matilda 1855 model for the W.I.A. museum yet, but will forward by first post. Oh, yeah! 6BN speaks about the electric eye—in case you don't understand, it is a gadget for looking through curved key-holes. Oh, what a good one! 6CA, down at the sailors' residence, not heard of late. 6CB has not got over that nasty Mae West one put over him! 6CP—oh, boy—talk about a saxophone causing riots! Clarrie's accordeon is sufficient! 6CX is a man with tons of time now—just ask him. 6DA taking a long time to rebuild. Must be manufacturing everything. 6DJ seen for the first time in about two years. 6CY another Port ham gone in liquidation. 6DH, too, Qrl service work to think of ham radio—was seen touring about town the other night in his Standard bus, and, boy—was he rushed—now! 6FG must be the Wx that keeps him off. 6FL on sometimes, but is the wander-

ing bam! 6GM nses a type OO tube—that has you tricked—yea, an 800. 6HD—No, don't disturb! 6JK—No, sir, won't break the ice.

6JE has had his holidays and hasn't hit here, however. Hi! 6KZ, with a note like a lot of marbles sliding down a roof, is heard a lot. 6KB has a good sig. and Qso's plenty Yanks. 6JW entered both senior and junior B.E.R.U. contests and did quite well. 6LK successful in first class. Congrats Minor and very fb. 6LR seen in town and heard very seldom. 6LY has ylitis very very, very bad, and an auction sale will be held by him shortly, I think! 6LJ is still alive and very qrl. 6MN has been away again. I think Syd lives in the mulga half the time. 6NO has at last Qso'ed South America. Norm. has not been on the air for years and more years, but comes on and Qso's H.C. You know it isn't fair. 6NJ still on 7 m.c. with canned moo—sic! 6SA not heard on 7 and 14 much—guess he must be on 28. 6WM on 7 m.c. very seldom. 6WH on fone, beg pardon, fone? Yes, fone! 6WS on 7 m.c. sometimes, but we have him cornered now with the secretary's job. Hi! 6ZZ not heard up here much, owing to skip, And, lastly, don't let 'em catch you on 1st April!

Tasmanian Division

By 7PA.

The lecturer being one of our younger members, Mr. R. Shorthouse, who took "Alternators" as his subject. Unfortunately, the State Field Day for 1936 fell through at the last minute, owing to insufficient northern members being able to make the trip, but an attempt is being made to bring it off within the next few weeks.

Quite a stir, and no small amount of comment was caused in 200-metre circles recently when the Council, acting on first-hand information, decided to prohibit the practice of giving cheerios and personal greetings over the air on this band. It is the Council's intention to preserve this band here as far as possible, and it will force the measure to this end.

VK7 STEPS OUT!

5-Metre Equipment Aids Regatta Association.

A step forward in 5-metre work was made when two transceivers were

pressed into service at the Hobart Regatta on the 11th of February, as the outcome of this division's offer to the regatta committee. Communication was maintained throughout the morning between a launch moored off the starting buoy and the judge's box, and much information was passed through that would have been impossible otherwise, and the whole affair was claimed 100 per cent. 7JH operated at the starter's end and 7NC handled the shore end.

Should soon be heard. VK7YL, congrats on your success recently, Joy. Another YL prospect for VK7 is close at hand, if school can do the trick. Ask Buck how she handles the key!

7JB still finds time for a little DX-ing, says 20 m.x. fone fb lately. Should be with 8-tube super, a pair of 800's and a good locality, plus a 50-watt permit. 7CW suffering that universal malady of Qyl. Once a week for the next twelve months. — 7JH, with his technical class. Of course this will still leave time for a Qso or two! W.A.C.—What a curse! Buck on when Chummie wants to listen—have to work in you boys.

The only way to an A.O.P.C. for sure is school—so our Sec. says—can't find time to study when home.

Doing good wook—Skeeter, as assistant secretary—Good lad, K.V.

7NC hopes to be active shortly when Qra stability is secured.—1936 resolutions, Nev!

7LJ appeared at last meeting—must be annual vacation; ay, Lon!

7BJ speciality—all pens destroyed if not kept beyond his reach on meeting night. Is it a nervous temperament or sheer destructiveness, Joe?

7PA at it again—yeah! Back on 40 m.x. again lately; seems to disturb a W or two between times.

7WI still living in hopes; voted a few pounds of the accrued surplus to purchase some gear recently.

Northern members little heard of—except when they want to growl. What about some notes, one of you chaps? Qrn still pretty bad here.

VK-ZL INTERNATIONAL CONTEST.

The Contest Committee desires to have the logs of the following competitors acknowledged as having arrived too late for competition:—CR7MB, CT1JU, EI5F, PAOXR, PAOCE, W1EZ, X2C.

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The ultra-high frequencies are well covered with two big chapters telling how the super-regenerative receivers work, and how to build them; about super-hets and **THE NEW SUPER INFRA-GENERATOR RECEIVER**. Constructional dope for the various types with the acorn, glass and metal tubes is included. The U.H.F. transmitter chapter is a general treatment of the problems of simple circuits, linear oscillators, and oscillator-amplifiers.

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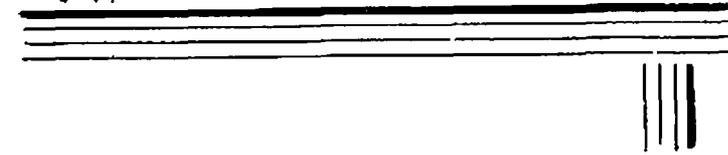
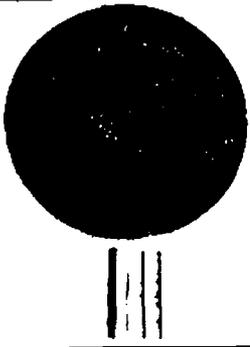


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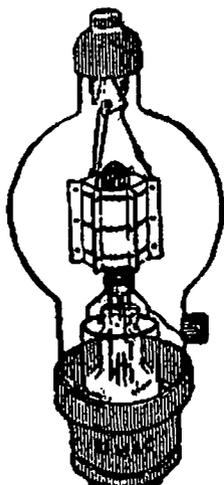
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(Continued from Page 14)

or two obstacles that couldn't be passed too well last year.

These charming resonant filters are making large holes in the band over here, and undoubtedly elsewhere, too. They kick up a devil of a row locally, but one thing must be admitted—they make wonderful copy. I.C.W. is not in accordance with the P.M.'s regulations.

Married life hasn't changed 2JX; he still changes his Qra as frequently as before. Four times in a year is fair going.

The R.S.T. systems never took on too well, and now most of the amateurs use abbreviation. Q for Qsa; it has no very apparent advantages.

.....
Popular Opinion points to VK3UK as having the most consistent unfiltered signal in the recent Beru Tests. Anyone challenging his position will have a hard job to prove it to 3RX, who lives within half a mile of 3UK.

(Continued from Page 16)

During the last VK d.x. test the best work was done on 7 m.c. (the 14 m.c. band being completely dead) on Friday evenings and Saturday mornings, and no work was attempted on the Saturday evenings, due to Qrm here. However, this year, as the test was only open the one evening (Saturday), it would have proved impossible to make much of a score if it had not been for the unusual conditions of 14 m.c.

Rig here is same as last test except for the final stage, which was changed to a single ender, using an HK354 (Gammertron) tube in final. Input was 400 watts on both 20 and 40 bands.

This year antennas used were for 40 half-wave horizontal and for 20 half-wave vertical, both centre fed, with twisted pair feeders of No. 14 weatherproof telephone wire. These antennas have been in use since March, 1935, and have proved considerably better than any antenna previously used.

—B. Naylor (VE5BI).

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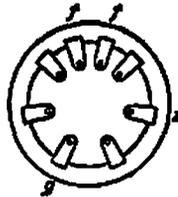
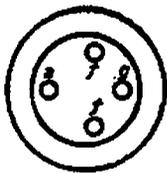
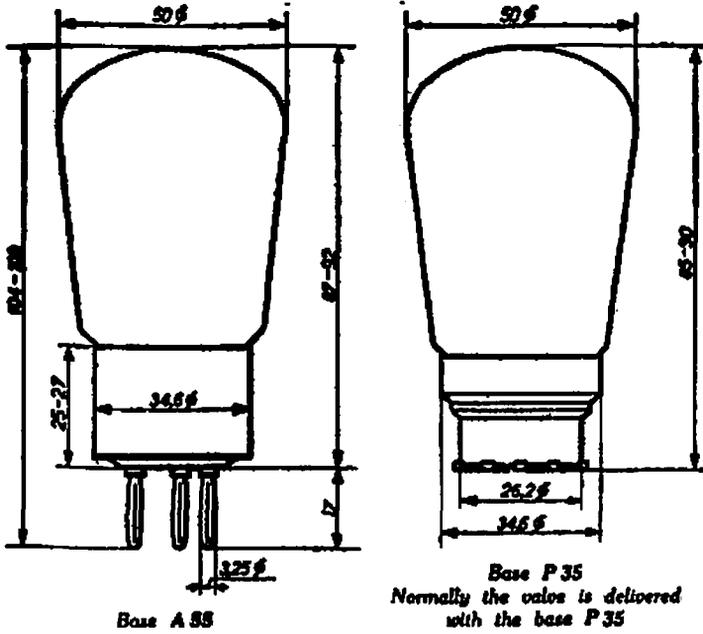
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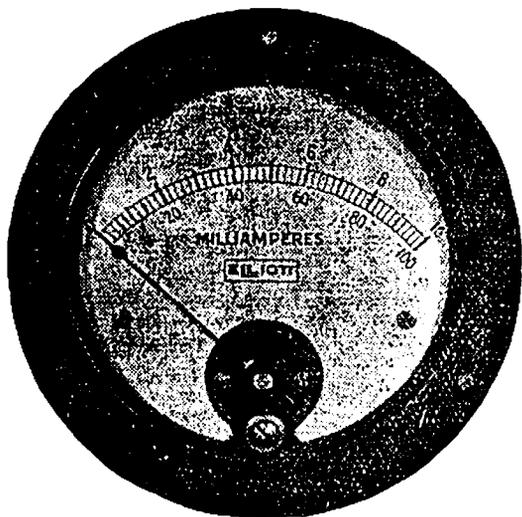
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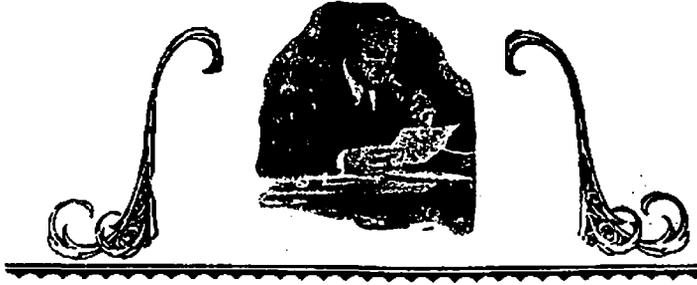
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. . Editorial . .

The majority of the amateurs in Australia have, no doubt, heard of the I.A.R.U.—in full, International Radio Union—but how far these amateurs appreciate the functioning of the Union is an entirely different matter. The Union goes much further than the mere awarding of W.A.C., or the printing of personal notes in Q.S.T., and the following should go far to clarify the position.

The Union consists at the moment of 26 national amateur bodies, amalgamated under the one binding constitution, to function in a manner determined by the majority of the member Societies to be in the best interests of amateur radio. The constitution provides for a Headquarters Society of the Union, but this can be changed at will by the members. The present H.Q. Society is the A.R.R.L.

Every six months a calendar is forwarded to each of the 26 National Societies, and in cases of urgency special calendars are circulated. The calendar provides "The constitutional medium for effecting international agreements between member Societies concerning the affairs of the Union." These can be divided into three phases—firstly, direct motions by members who desire the direction of the Union; secondly, the discussion centred around such motion; and thirdly, items of general interest. Concerning international amateur affairs, these two main calendars are

dated June and December of each year. This Institute is a member Society of the Union, and it is represented by the F.H.Q., at present located in Sydney, and it is left to the Federal Executive to adjudicate on matters arising out of the constitution. Included with the December reports of member Societies, and at times such calendars run to 30 pages.

It is futile to dismiss the fact that much of the hope for a successful future for amateur radio centres around the effective operation of the I.A.R.U. It will be an International Conference that may rob the amateur of his rights, and, just as logically, it will be an international body that can do most to save them. The International Technical Consulting Committee on Radio Communications (C.C.I.R.) meets in Bucharest, Roumania, in the spring of 1937. An I.A.R.U. delegation will be there. Australian amateurs will be indirectly represented, and the Institute, together with member Societies, will be paying their share of the cost. The International Radio Regulations Conference will run in Cairo in 1938, and that is not far off when the fate of our bands, our rights and our privileges are in the balance. You are interested surely; will do your share by joining the Institute if you are not already a member; and, if you are, well—put your shoulder to the wheel and push the Institute, and indirectly the I.A.R.U. to operate for the future of your hobby.

W. M. MOORE, Federal President.

28 M.C. Transmitting Antennae

By E. H. Cox (VK3BD).

All that follows this heading has been written very largely under false pretences, and calls for some explanation. The facts are that that curious person (3ML), who rises, works schedules, and even alleges that he dresses and goes to his office before ordinary folk have settled decently in bed, called me to the telephone early one morning and, before he had thoroughly awakened me, extracted a promise to discuss 28 M.C. antennae systems.

There was a time when ostentatious youths were in the habit of boasting, upon their cards, of the thermo-couple amperes in their antennae, plainly being under the impression that an ampere, measured by a thermo-couple metre, was a unit quite superior to that recorded by the less expensive hot-wire instrument, or the even more humble moving iron meter.

The fabulous thermo-couple amp. and the 28 M.C. antennae are in a class. They are no different to ordinary amps. or ordinary aerials, and the halo in which some tend to see them is the product merely of a blurred vision, and not of some special virtue or some unusual problem of design or construction.

If the design of antennae systems to operate on 28 M.C. has any special interest, that interest lies in the scope which the thoroughly manageable dimensions of the basic active unit of the radiator offers for the common-sense application of the simple, known radiation characteristics of the unit to make the most of the power impressed on it. On 3.5 M.C. and 7 M.C. all too many amateur antennae are designed by the enterprising profiteer who subdivided the allotment years before. There are only two diagonals to the average back yard, and the 3.5 and 7 M.C. antennae must lie along one of them. The beginning of emancipation from this situation comes on 14 M.C., but a 14 M.C. signal gets out so well anyhow, and so many people using that band have lower frequency in-

terests also, that not very much has been done until very recently to capitalise the possibilities of considered design which the dwindling doublet length for the 14 M.C. band offers. On 28 M.C. the outlook has changed materially. On the one hand, reliable communication between any two distant points is still sufficiently difficult to maintain to make it well worth while to employ every practicable aid to communication. On the other, the convenient size of the doublet permits the erection of simple and multiple systems of high efficiency, and, where required, fairly sharp directivity even on the smallest allotment, while the shortness of a wave-length, in proportion to the masts within the reach of most people, enable the radiator or radiators to be sufficiently "in the clear" to approach, in practice, the theoretical radiation characteristics of the same wires in the mathematician's "free space." The radiation pattern of 14, 7 and 3.5 M.C. radiators supported on the masts which most people can afford is invariably modified very materially by the proximity of the ground and adjacent conductors on or in buildings. These influences are not entirely negligible on 28 M.C., but their effect is very materially reduced, and in consequence an antenna can be built on a theoretical design with considerable hopes that in operation it will behave very much as was intended.

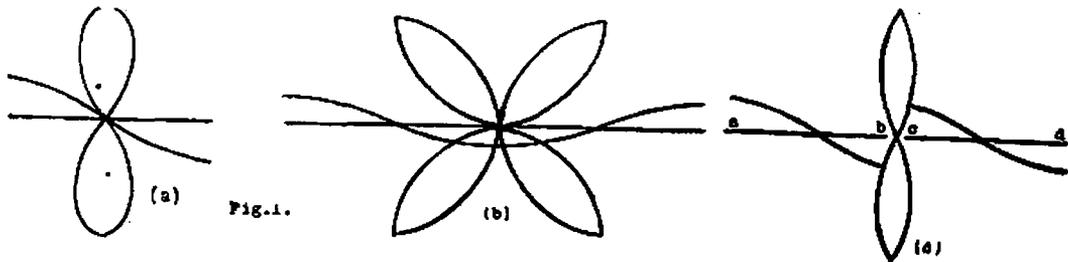
This being so, it is imperative, at the outset, to develop at least a sketchy familiarity with the radiation characteristics of the radiators within the reach of the ordinary experimenter, and all of these can be inferred with fair clarity from the familiar figure-eight pattern of the half-wave radiator, still the favourite of so many. At this stage it may be worth pointing out that, provided that the feed to the half-wave wire is a feeder only—and in practice it never quite achieves this unity of accomplishment—the radiation pattern is quite independent of the form of feed used. It is thus possible to adopt the

convenient policy of separating problems of feeder construction from those of radiator construction and to deal with the former quite independently later. Fig. 1 (a) shows the voltage distribution and radiation pattern on a half-wave wire in a plane through the length of the wire, and this pattern, of course, is quite independent of whether the antenna is horizontal, vertical or sloped, so long as the antenna is sufficiently far from all disturbing influences to be unaffected by them.

Next to the half-wave wire, the full-wave wire is probably the most used in amateur work on all bands, and probably the full-wave or two-wave wire is more generally used on 10 metres at present than any other

This process of multiple-wave production can be multiplied by adding further half-wave sections to the wire. A two-wave wire produces a whole series of eight lobes, arranged round the midpoint of the wire like the petals of a daisy. It loses altogether the noticeable directive characteristics of the parent doublet, and it begins to approach an omnidirectional radiator.

Bearing in mind the fact that extensive conductors close to the antenna can modify these patterns considerably, and remembering also that "closeness" is a relative term measured in wave-lengths rather than absolute units, it becomes possible to use these patterns profitably in horizontal antenna for nearly all the amateur bands.



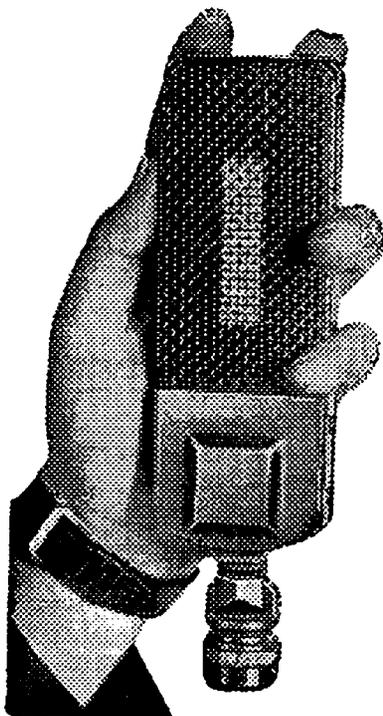
form of antenna. Its characteristics are easily inferred from a consideration of the half-wave wire, as in Fig. 1 (b). Here a study of the voltage distribution on the wire clearly shows what its radiation pattern must be. On the left-hand half-wave — that between points A and B—the voltage distribution is opposite in sense to that on the right-hand half, B.C. In somewhat clumsy terms it may, therefore, be said that while AB is trying to produce the crest half of a wave, BC is trying to produce the trough half. Each half is trying to produce its radiation along the normal line to the antenna, as, in fact, the simple half-wave wire does produce its figure-eight radiation lobes. Versatile though it is, the ether so far has not quite mastered the business of sustaining in the same point two sets of waves equal in length and amplitude and exactly 180 degrees out of phase with each other. Consequently there can be no radiation along the normal line of the antenna, and the lobes which each half-wave is trying to produce are deflected outwards from each other to produce the celebrated "cloverleaf" pattern of the full-wave which Fig. 1 (b) shows.

The horizontal doublet provides its most powerful radiation field at right angles to the line of the wire. Therefore the supports must be so placed that they lie at right angles to the line along which it is desired to radiate the most powerful signals. The "cloverleaf" pattern is one of much promise to the D.X. men, and is particularly valuable for 10-metre overseas working, provided that the aerial is suspended along the correct line. The lobes of maximum radiation are not inclined quite at 45 degrees to the line of the antenna, but they are so nearly so that the angle may be taken as 45 degrees. Hence a full-wave aerial which is built in South-eastern Australia to run either north and south or east and west will throw one good lobe along the short great circle path to London and another along the short great circle path to North America. The London lobe will take in the Dutch East Indies and Southern China. It will be sufficiently wide to put good signals into Northern India and practically the whole of Europe. The south-western lobe will serve South Africa and West Africa, and will provide good "long-path" communication to North America. The south-eastern lobe, on its way

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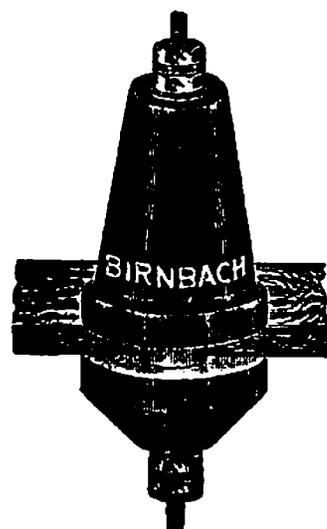
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finer "beams" at right angles to the line of wires. A horizontal "beam" antenna of this type is well within the reach of most people for the 10-metre band. Four half-wave wires fit snugly between the masts, spaced to carry a horizontal doublet for the 40-metre band, and the power again, both for receiving and sending, is impressive. Unfortunately, the line of the masts must be such as to give radiation in the desired direction, and the efficiency of the arrangement for transmission in all directions is poor.

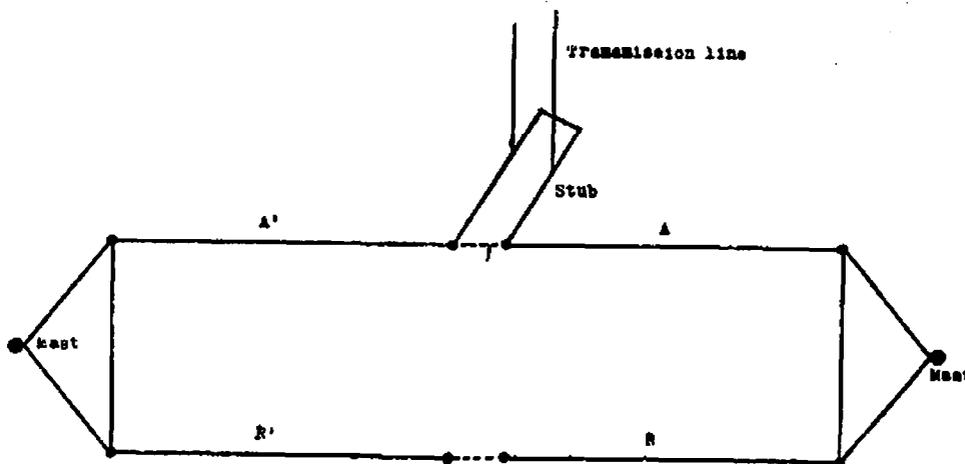


Fig. 2.

FIELD CONCENTRATION.

The full-wave wire of Fig. 1 (b) developed its multiple lobe pattern because, being a continuous wire, the two adjacent half-waves were necessarily excited out of phase with each other. Let us now break it in the middle (Fig. 1 (c)), and arrange for the two halves, AB and BC, to be excited in phase with each other. The voltage distribution curve on CD has now become the same as that on AB. Now, when AB is engaged in producing a wave crest, CD is doing the same. The result is a radiation pattern similar to that of the doublet, but with one important difference. The lobes of the figure eight are no longer nearly circular. They take the form of long ellipses. The intensity of the radiation at right angles to the wires has been greatly increased. That in all other directions has been much reduced. The pattern is showing signs of "beam" characteristics. Additional half-waves added to the ends of the system and still fed in phase with it greatly increase this tendency, and four, six or eight half-wave wires may be strung together in this way to produce very well-

Even a two-wire arrangement of this kind helps immensely on the 10-metre band, and it is sufficiently short to be employed on 20 metres also. Its marked advantages were proved repeatedly in a series of tests which extended all through last winter at Canberra in 20-metre 'phone experiments with the States. It was found again and again that this simple two-wire antenna invariably provided easy, positive contact with the States for voice transmission in the late mornings for several hours before not merely 'phone, but even C.W. communication could be established with the same transmitter running with the same power into a vertical doublet suspended between the same masts

REFLECTORS.

The horizontal double doublet, with the two doublets fed in phase, offers still further possibilities for practical field concentration on 28 M.C. It lends itself ideally to the use of a reflecting system. If, behind each of the two doublets, and spaced a quarter of a wave from it a reflector is hung, a further worth-while gain in field strength along the normal to the front

of the antenna is achieved. The merit of this arrangement lies in its extreme compactness, simplicity and, what is equally important when masts are not over robust, its lightness, and comparatively small wind resistance. The construction of the arrangement very closely resembles that of the old-fashioned two-wire flat top, and is indicated in Fig. 2, together with its field pattern. Two spreaders—curtain rod dowells an inch in diameter are excellent—each nine feet long, carry between one pair of extremities the two half-wave antenna (AA), and the other ends of the spreaders carry the reflectors (RR). The two antennas must be broken at their point of junction (B) by insulators, and the end of one can be four or six inches from that of the other. In the antenna pair the phasing unit must be connected in at B, to ensure that the two wires are fed in phase. This may take the form of a compact coil, but the construction of such a unit is initially difficult and tuning is troublesome. It is even more difficult to be certain that its tuning remains unaltered between extremes of weather conditions. An alternative method of effecting the phasing, which simultaneously solves the feed problem, is to terminate a pair of tuned Zepp feeder lines at B, one line being connected to the end of one antenna and the other line to the end of the other. Since the feeders are adjusted to produce a voltage loop at the point of their junction with the ends of the antenna wires, and since the currents on the two feeders are necessarily 180 degrees out of phase at such a loop, it follows that the adjacent ends of the two antennas are respectively positive and negative, and the current distribution indicated at Fig. 1 C is achieved upon them. In other words, the two antennas will be radiating in phase.

Still another method of effecting the phasing is available. It consists of joining the two antennas at B by means of a two-wire stub line closed at the bottom and one-quarter of a wave-length long. Since it is one-quarter wave long and consists of two wires, this stub in reality is a third half-wave antenna in the system. Joined to the two open antenna, it is actually excited out of phase with the pair of them when the whole system is excited, but since it is folded upon

itself the radiation which it would produce, if open, is cancelled, and its presence in the system does not disturb the normal phased field of the two open wires which it joins. Such a system is very efficient, but it must be carefully tuned. This, fortunately, is not difficult. The two antenna are strung up horizontally about 14 feet above the ground. The stub hanging from the centre of them is thus just within reach as one stands beneath the antenna. Initially it is left open. A temporary antenna is then connected to the transmitter in any convenient way, and one of its ends is brought to within a foot or so of one end of the doublet system. This temporary antenna need not be very efficient so long as its inefficiency imposes no excessive plate load on a transmitter to which it is coupled and excited at the frequency to which the double doublet is to be tuned. With the temporary antenna under load, the open end of the stub line is bridged by an adjustable jumper, carrying a pea lamp or thermo galvanometer. It is merely moved up and down the bottom of the stub until the resonance of the antenna with the field produced by the temporary antenna is achieved. An unbroken jumper, which must be exactly the same length as the temporary jumper carrying the resonance indicator, is then soldered to the resonance point, and the system is locked effectively to the desired frequency.

The reflector wires should preferably be joined by a quarter-wave stub tuned in the same way. They may, however, be cut to exact length in accordance with any of the formulæ now freely available, and divided in the centre by good insulators. As erected between fixed masts, the spreaders, which are joined to the halyards by the familiar yolks of rope, hang approximately horizontal, but it is worth remembering that the optimum angle of radiation of the system in the vertical plane can be modified within limits by tilting it. This tilting is easily accomplished by attaching a strong string, soaked in paraffin wax, to each end of each spreader, and anchoring the strings to hold the antenna spreaders at the required angle, which will generally vary from time to time, and which must be determined by experiment.

As described, this system possesses the disadvantage of being markedly directive. Its power gain, however, is remarkable. Working on the 28 M.C. band at Canberra in the middle of last June, signals could neither be

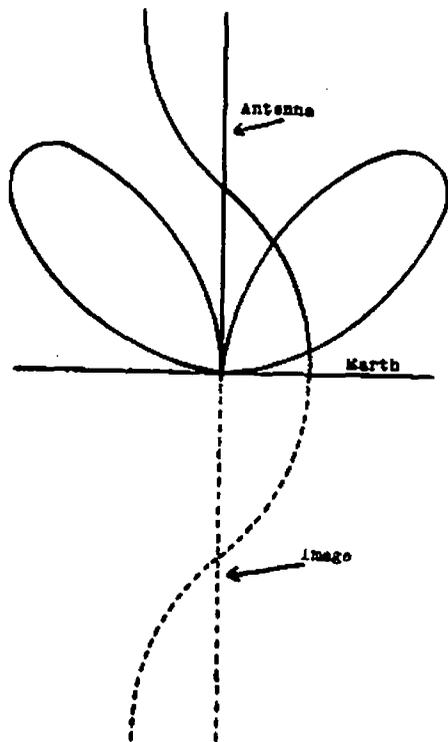


Fig. 3.

received nor sent to the United States on an open aerial. As soon as this simple little array was strung up, a flock of American code stations promptly appeared in the receiver, and the use of the antenna for transmitting permitted immediate contact with reports never below R7 for 'phone, and often R9 for code. All this was at a time when the excellent 28 M.C. stations working in Sydney could neither hear nor be heard on open wires.

While the sharply-defined directive characters of this system are an admitted disadvantage for general working, the "flat top" of the system need only be about 35 feet long. It is, therefore, well within the dimensions in which it can be adapted to some rotating support at moderate cost in any back yard. So long as such a rotating antenna just cleared obstacles, it can be depended upon to give much superior results to an open wire in any other location.

An alternative method of overcoming the disadvantage of directivity in a fixed-wire system would be to use two systems, suspended from three

masts placed in the form of a triangle, so that the lines of the masts are respectively north-east and north-west. A right angle triangle layout of three masts, with its apex facing north, would carry a system of two antennas, either of which could be used at will to throw strong lobes to Europe and to America. If unbacked by reflectors, such a system would give an identical coverage to the full-wave wire already discussed, but with very greatly improved signal strength, and, in many cases, reduced susceptibility to interference.

VERTICAL ANTENNA.

A census of the stations operating on 28 M.C. will probably show that those employing horizontal antenna greatly outnumber those using vertical radiators. This fact, probably, is not wholly fortuitous. A clear "take off" for the 10-metre wave is of paramount importance. This is synonymous with a fairly high radiator. The mean electrical height of a vertical wire will always be less than that of a horizontal wire supported from the top of masts of equivalent height to that supporting the vertical wire. When funds are limited and masts in any case just clear surrounding objects, this extra height is well worth having. Hence probably the general tendency to superior results on a horizontal antenna on the 28 M.C. band.

Nevertheless, a vertical wire can be used to give quite good results; but, again, it is useful to understand clearly the sort of radiation pattern it is going to produce to make the most of the power radiated. The pattern in the horizontal plane presents no difficulty. Save for the modification of pattern due to guys, steel halyards and other extraneous conductors, a vertical wire radiates equally well in all directions. It is important, however, that there should be strong radiation at a very small angle to the horizontal to achieve effective refraction of the radiated wave in the ionosphere, especially at the higher frequencies. Provided it is at least half a wave-length high, a horizontal wire is always a good low-angle radiator. A vertical doublet unaffected by the earth's surface would be equally so, because the lobe of the Fig. 8 pattern would define its angle in the horizontal plane. When the doublet is placed just above the

earth, however, the lobe tends to get into trouble.

Fig. 3 is a picture to which purists may object, but which, nevertheless, gives a good idea of what happens. In Fig. 3, for radiation purposes, we pretend that the earth is a mirror. The doublet reflects itself downwards into the earth, and it reflects its field distribution pattern along the reflection of the wire as shown. Now look at Fig. 3 sideways, and note that it is a very similar product to the old familiar full-wave wire of Fig. 1 (b), with a similar "cloverleaf" pattern. It is true that the four-leaved clover has lost its two bottom leaves. The antenna does not send waves off through the earth, but what is to the point is the fact that, far from being horizontal now, the radiation on the aerial proper is tilted up at a marked angle—an angle a little too great to give optimum refraction from the ionosphere. This situation can be corrected by several expedients. One is to increase the height of the vertical doublet to minimise the effects of earth reflection.

More progress towards one's objective can be expected in this way on the 28 M.C. band than when using the longer waves of the lower frequencies. A better solution, however, consists of putting up a double doublet of the Fig. 1 C type. With such a radiator, the influence of each wire on the other will be considerably stronger than that of the earth on either. The latter factor will, however, not be wholly negligible. The resultant lobe will still be elevated a few degrees, but it will be well within the limits required for good refraction. There is some disadvantage in using this system. A radiation which is confined within a very narrow angle in the vertical plane tends to be much more subject to fading than one effected over a fairly wide vertical angle. Communication with such a radiator may thus be expected to be less consistent than when a single vertical wire is used or when radiation is from a horizontal wire. Signal intensity at peaks, or under good conditions, will, however, be greater than that to be expected from the single vertical half-wave wire.

Both in its simple and multiple form the vertical wire is well adapted

for directive types of radiation on 10 metres. As most conveniently used, directive antennas of this type depend on the fact that the radiations from two vertical wires, spaced half a wavelength apart and excited in phase, cancel along the plane through the wires, and are in phase along the normal to that plane. Strong lobes are thus radiated at right angles to the feeder line joining the two wires at their base, and either lobe may be augmented by installing vertical reflectors one-quarter of a wavelength behind the wires. Similarly, the number of elements in the system may be increased far beyond two if space permits with a corresponding narrowing and elongation of the lobes of radiation normal to the plane of the wires.

Probably the chief advantage of a "directive" antenna of the multiple vertical type is the fact that it more readily lends itself to arrangement in a rotating "beam" than the horizontal type, discussed earlier. This is because in a four-wire system a rotating frame, extending less than nine feet on either side of the supporting bearing, is sufficient if the wires be arranged vertically. For the horizontal director, the supporting frame would need extend more than 17 feet on either side of the bearing support. On the other hand, for a given height of mast, the electrical height of a given vertical system would be considerably less than that of the horizontal system, and a marked loss of efficiency would probably result in the average congested amateur position.

FEEDER SYSTEMS.

Any of the feeders which can be employed on the lower frequencies, except, possibly, the direct feed of the Marconi type antenna, work well on 10 metres. A system of feed in which the radiator is connected more or less directly to the tank of the transmitter, of course, can be used on the higher frequency bands, but it has the marked disadvantage of radiating a great deal of the energy impressed on it into a sphere in which that energy has no hope of travelling further than the adjacent clothes lines or broadcast listeners' receivers. A non-radiating feeder system to an antenna well elevated above trouble therefore becomes imperative. And at this point one imperative point must be im-

pressed. An effective feeder system is substantially non-radiating. To be so, it must be symmetrical. Symmetry, after all, is a relative term. One side of a Zepp feeder operating on 80 metres can be a little longer than the other without seriously affecting the operation of the system. The disparity is easily balanced on the feeder tuner. On 10 metres, the effect of this unbalance in the same line is eight times greater. It may represent, in terms of wave-lengths, something approaching a quarter-wave. The task of correcting such a discrepancy becomes then a somewhat formidable one for the line tuner. Hence it is that scrupulous care is necessary in building any two-wire line for 10-metre operation to see that the line is cut, assembled and hung in a truly symmetrical manner. The great majority of feed and feeder balancing troubles on the higher frequencies probably arise from lack of attention to this important point.

As on other bands, the old, familiar Zepp feed line is probably the simplest to get working on 10 metres, and if properly adjusted it gives excellent results. It has the great merit of not limiting the operator to one frequency, because minor discrepancies in the antenna length can be reasonably adjusted on the tuner. It must be remembered, however, that discrepancies of a minor nature on the higher wave bands, for the reason just mentioned, become major on 10 metres. Considerable scope of tuning adjustment exists on a half-wave 10-metre wire operated on 10 metres by a Zepp feeder. Not nearly the same flexibility of wave-length adjustment can be expected on a half-wave 40 or 80-metre wire, because each additional half-wave on the wire multiplies the difference between its length and that to which it should be cut for operation on 10 metres.

A number of factors contribute to make some form of matched impedance feed to the antenna preferable to the resonant Zepp feed on 10 metres. In the first place, since the interference problem on the 28 M.C. band is immeasurably less than that anywhere else, the ability to change frequency easily is no longer of prime importance. A matched impedance-fed aerial, once erected, can only be retuned with wire cutters or a solder-

ing iron. The outstanding merit of a matched impedance feed is the fact that it is very much more efficient than a resonant line, especially when its length, relative to the length of the wave being employed, is considerable. The average 40-foot Zepp line is only a little over a quarter of a wave long on 40 metres. On 10 metres its length is nearly that of one and a half waves. Every half-wave produced on a resonant two-wire line is represented by two voltage loops and two voltage nodes, one on each wire. At the voltage loops the current is high. It tends to break over the separating insulators. The problem of procuring a good dielectric substance, not affected by weather, especially for use on the high frequencies, is so well known that the virtue of avoiding extreme high-frequency voltages at half-a-dozen or more points on a line is obvious. In the same way, every voltage node is a current loop. The high-frequency current at such a point reaches a high value. The power loss due to the pure resistance of the conductor reaches a value which is proportional to the square of the current value. When such points are repeated at intervals along the line half-a-dozen or more times, the aggregate loss is worth considering. These extremes, either of voltage or current, do not occur on the matched impedance feed line. Ideally, the voltage and the current are both uniform throughout the length of the line. Actually, they never are so, but careful mechanical construction and careful tuning can reduce standing waves on the line to a negligible minimum.

The matched impedance line has a further advantage. The current in a spaced line is never likely to approach an intensity of one ampere, when conveying the power output available in the amateur station. A heavy conductor is, therefore, not necessary to prevent excessive C₂R losses. The aerial proper may perhaps be of No. 12 or No. 14 gauge wire, but in any ordinary installation No. 18 will be sufficiently heavy for the feed line. This fact saves money, and, what is probably even more important, it assists in the achievement of symmetry. The thin line hangs straighter and more cleanly than the heavy wire of the aerial proper.

The quarter-wave stub line is becoming increasingly popular as a means of coupling the matched impedance line to amateur antennas. Therefore, let us get to know about the quarter-wave stub. As a coupling medium, pure and simple, its claim to favour lies rather in its convenience than in any special intrinsic efficiency. After all, it has a certain amount of resistance, and it contains one voltage node. Therefore, it dissipates a certain amount of power in pure resistance loss, even if it does not radiate. From that point of view, it is much better out of the antenna if its use can be avoided.

The alternative to the stub for joining the line to the antenna is the familiar delta fan—an admirable arrangement if the house and allotment are built to fit the masts, rather than the masts being built to fit the antenna. The trouble with the delta fan is that it is very temperamental. It works well only so long as it is built metriculously to specification. The feeders must fan uniformly, dimensions must be right, and the feed must approach an exact right angle to the antenna. Standing waves on the line, as husky as any on a resonant line, are the penalty for neglect of these requirements.

In a pair of phased wires such as the horizontal beam already described, a stub is employed for phasing purposes any way, so why not use it for coupling, too? Double up the doublet with delta feed, and it becomes a stub with a matched impedance line, terminating towards the closed end. The terminating point for good impedance match, on a stub for 28 M.C., will lie somewhere between 18 inches and 24 inches from the closed end of the stub, according to the spacing of the wires and the gauge of wire used in the transmission line. This point can be found initially by a pea lamp connected across the bottom of the stub while the antenna is excited over the line, and more precisely by testing the line for standing waves with a Neon lamp or other indicator. After all, it is current in the antenna which really counts, and if the line is adjusted for maximum antenna current, precise line adjustment is not of first-rate importance in the absence of manifest evidence that it is working imperfectly.

The stub method of feed is not useful for the two-wave beam only. A stub may be connected on to one of any type of tuned aerial, the second line of the stub being left free. Then it merely becomes the last quarter-wave of a tuned Zepp line, which may be conveniently regarded as transformer fed from the line through a transformer, the secondary of which is the whole stub and the primary that part of the stub subtended by the two feeders about the closed end. This form of feed has the advantage of permitting the feed line to be drawn away at almost any angle from the aerial, so long as the line does not pass close under the aerial without serious danger of the creation of standing waves by reflections set up by the field of the aerial. It has the further advantage of enabling the aerial to be conveniently and precisely tuned by adjustment of the jumper at the bottom of the stub by the method already outlined. In short, it combined many of the advantages of the Zepp system with many of those of the matched impedance system, and eliminates a lot of the troubles of each.

The matched impedance feed line can be coupled to the tank of the transmitter by a Collins coupler. A flexible method of matching impedance, as well as a convenient way of varying the antenna load on the tank is thus provided. The system, however, is not without its losses, and on 28 M.C. these tend to vary about inversely with the amount of money one is prepared to spend on condensers and dielectrics for the coupler. A good alternative is to couple a tuned tank to the transmitter tank and to clip the ends of the transmission line on to this tank across a section of the coil, of which the impedance is equal to the impedance of the line. This condition of impedance match is indicated by a minimum of disturbance of the tuning of the tank when the line is connected to the tank. A useful method of coupling, not by any means free from the evils of standing wave production, and therefore not recommended for permanent use, which is nevertheless sometimes a help in preliminary adjustments, consists of the connection of the ends of the transmission line across a coil of about two turns, which, while untuned, is

fairly closely coupled to the transmitter tank. The size and spacing of the turns must be determined by experiment to give an approximate impedance match with that of the line.

Those who favoured the twisted pair type of matched impedance feed should note that this system is quite adaptable to the stub line as a final feeder unit or as a phase changer. When twisted pair feed is to be used, its association with a stub is really only worth while when the stub has to be inserted in the antenna for the purpose of phasing, as in the two-wire directive system. Here the feed from the twisted pair line should be into the stub, rather than into either of the open antenna, for the purpose of effecting precise balance of load in the two half-waves of the radiator. The jumper bar of the stub corresponds with the centre of a half-wave wire, and a two-wire twisted line connected across the ends of the stub in place of the jumper, by which these ends would otherwise be closed, is working into an impedance approximately equal to its characteristic impedance, and therefore gives a good power transfer into the system at this point.

RARE LINES OFFERED.

Editor, "Amateur Radio."

Sir.—On perusing the advertisements in our March issue, I noticed that Traveltone Radio, of Bourke-street, are offering Westron Ferranti Meters, which is a new one on me. Seems to be a colorable imitation. Also are offering Special Pair Transformers. I was unaware that they are born as twins. I congratulate Traveltone Radio on their introduction of interesting novelties.—Yours, etc.,

SIMPLE SIMON HAM.
PKOZO.

[Note.—The comp. has been placed in the lethal chamber.—Ed. A.R.]

NEW FACTORY FOR SYDNEY.

Crompton-Parkinson Ltd., England, has decided to establish a branch of its works in Sydney, where it is expected that the company will be manufacturing electric lamps by the end of the year. The decision follows a visit to Australia by Mr. Frank Parkinson.

Federal and Victorian QSL Bureau

By VK3RJ (Federal QSL Manager).

Entrants in the recent B.E.R.U. contests are reminded that logs must be in the hands of the R.S.G.B. not later than 30th April. Log forms may be obtained at the above bureau.

Hans Bauer (D4ARR), ex-D4UAN and D4BAR, and an active experimenter over the last six years, has met with astonishing and well-deserved success in his 28 M.C. work. Hans has contacted no fewer than 50 countries on this frequency.

Our old friend, Charles Gavean (F7CGV), now signs FK8AA. Charles is a photographer and is located at Noumea, New Caledonia.

QSL managers view with dismay the issue of three-letter call-signs to VK stations. While recognising that two-letter calls must, sooner or later, become exhausted, we trust it will be some years before other States are forced to follow the example of VK2.

At the moment of writing, we are in the throes of ARRL D.X. Contest, and the customary bedlam on 7 and 14 M.C. bands. VK stations seem to be doing particularly well, except when OA4J and HJ3AJH are on. VK2EO and VK2LZ are performing well, the latter reaping a harvest on 28 M.C.

Cards are on hand at last from VK4JX, ex 7JK and 3JF. Guess you will have a job to pick up arrears. Jack. Congrats. on the interesting cartoon depicted on your wallpaper.

Another delinquent with cards is HJ3AJH, one of whose qsl's we are yet to see. Many VK's anxiously await his card for W.A.C., the most anxious being Jim Austin (VK6SA), the first station to ever W.A.C. from Western Australia. My personal congratulations on this achievement, Jim!

Cards are on hand at this bureau for the following VK3's (postage will ensure their despatch):—3AH, AN, AP, AX, AY, BE, BJ, BR, BX, CA, CV, DG, ET, FC, FM, FT, FZ, GA, GE, GM, GY, HE, IL, JL, JR, JZ, JK, KB, KD, KM, KS, KT, LK, LS, MK, MX, NA, NG, NJ, NN, OB, OI, OK, OP, OZ, PC, PII, PL, QY, RE, RM, RZ, SL, TC, UJ, UY, VF, VK, WC, WX, XF, XK, YL, ZA, ZF, ZW, ZX.

Obituary

It is with deep regret that we have to announce the passing of two of the A.R.R.L.'s oldest and most notable members. The first, Hiram Percy Maxim, W1AW, President of the A.R.R.L., and, secondly, C. H. Stewart, W3ZS, Vice-President of the A.R.R.L. Both Mr. Maxim and Mr. Stewart were so well known in the amateur radio field that to say much about their activities would be superfluous.

H. P. Maxim was the inspiration and presiding genius of A.R.R.L. from its beginning throughout its entire existence, more than a score of years. Its founder, who conceived the organization while relaying a message in the early days, he personally worked in the writing and mailing of A.R.R.L. bulletins and the official organ until A.R.R.L. grew beyond his expectations. He worked tirelessly in defence of amateur rights, and in the leadership of the affairs of all amateurs united in our A.R.R.L., and likewise became president of the International Amateur Radio Union. The president was nationally and internationally distinguished in the fields of science and invention. We cannot begin to recite his influence and his accomplishments. A man of character, with high principles, as well as being remembered as a spokesman for amateur rights, constantly mindful of the general amateur welfare, his human qualities, his personal example, his consummate tact and good sense won the affection and confidence of all.

C. H. Stewart was Vice-President of your A.R.R.L., and a member of the A.R.R.L.'s Board of Directors for fourteen years. He was manager of the Atlantic Division from 1921 to 1925, and held many other important posts. Most notable was his work in the field of radio legislation in which he was an expert. His legislative work started in 1908, a few years before the founding of A.R.R.L.

Mr. Stewart worked through his whole life for the defence of the rights of radio amateurs, and to make amateur rights into enduring radio laws for the protection of the amateur. With Mr. Maxim, he gave much time and energy to the building of the foundations on which our present-day amateur radio stands.

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R.A.A.F. Wireless Reserve Notes

Federal Notes by the O/C., 1A1-3ML.

March was the month of rejoicing for Reserve members, and it was all over the issuing of crystals to all by the Air Board. From one to two crystals have been issued to every active member, thus putting him on definite R.A.A.F. allotted frequencies. The bugbears of interference from stations of all kinds will be overcome and together with everyone being on a fixed and known frequency, should offer far more satisfactory working all round. Training and organisation will be altered slightly to provide for the new conditions.

Many ideas of competitive training now present themselves, such as rapid answering of calls; collective, general and otherwise. Punctuality on watches will be necessary if smooth running is to be expected.

The "Bulletin" this month has been delayed a while in order to insert certain important articles, but should be posted about the 31st. Six new members will have been enrolled by the time these notes are printed, and represent a general increase of enthusiasm in nearly all districts.

Right from its inception the Reserve has always suffered from the difficulties of communication between centres throughout the year. A plan is being constructed with the aid of a map with all members pin-pointed on it in order to see whether an entirely different zoning scheme could be brought about that would place members within reliable communication with others. This would mean probably totally disregarding the State boundaries as now exist and drawing of flexible zone areas as required. VMG would possibly be absorbed by VMC under the new scheme, and so with southern VMB.

THIRD DISTRICT.

By 3Z1—VK3UK.

At long last! After some months of hopeful anticipation, our crystals have arrived. After having checked through a dozen, it is no exaggeration to say they more than come up to

expectations. In a way, although it is now quite inadequate, we will be sorry to see our old allocated frequency system go, because it has served us admirably for over two years. We are still going to use these old frequencies for general yarning after schedules. We must pay a tribute now, as we pass to our new organisation, to Max Howden, and also Ivan Hodder, for their wonderful work in providing free, crystals for every member of VMC, ground to allocation. It is obvious that it would have been impossible to have achieved anything we have without their wonderful help. Every station was 14 K.C. away from his neighbour, thus each section occupied 84 K.C.; it sounded good and was a good system with the exception that the D/C. certainly had some dial twisting to do on each schedule in monitoring 504 K.C. continuously!

This is the time of the year when most country men take their holidays, and, as a result, we have had the pleasure of seeing quite a number of VMC country men this month.

3C1 made a flying week-end visit a fortnight ago, but unfortunately we had very little time for a yarn. 3A6, another of our Shepparton men, was down in the same week and had more time. Dud was able to spare a night to come out to 3Z1 and hear the new nine-tube S.S. Super. Dud has been very off colour of late, but is looking much better now.

3B1 is away touring Victoria again. We had a long yarn to him from 3C5's the other night. Leon must have latent talent as a long-distance runner, as when 3Z1 contacted 3C5, the latter station rang through to where Leon was staying in the town, and Leon arrived in the shack from nearly a mile distance by the second "over"! He will be passing through Shepparton on his way back, and we can imagine the night he will spend there!

We have recommenced metropolitan station meetings, and the first passed off very successfully and some excellent new ideas have resulted. We are also holding a regular fortnightly

Amateur Radio

luncheon to which all the metropolitan men have been able to get along. It is marvellous how easily new ideas come forth and are amplified into whole schemes over a cup of coffee.

3D4 was hoping to get down for the last one, but arrived in the city just half an hour too late.

3C3 has now returned and took 3Z2 part of the way with him. 3Z2 is still extra busy, but we are hoping he will be able to be back on regular schedule shortly.

3B3 is back on the job again after his holiday at Queenscliff. A schedule never seems the same when the real old-timers are away. They never miss except when on holidays or through illness.

VMC1 will be missing another of its old-timers for the next two weeks when 3A5 will be away on holidays at Lorne. Gordon was able to hear the working of a schedule from the D/C.'s end for the first time as he came out for last Sunday's work. It is most interesting to hear the work from the other end sometimes.

3D2 will be going on a motor tour into N.S.W. this week also, and so for the first time in what must be over five years, Coleraine won't be represented on a schedule.

All VMC and other district members will be delighted to hear of the recent successes of two of our old members: Ex-3C4 Dalziel has just passed his Commercial Operator's Ticket, and Ex-3E3 Phillips has just got his Pilot's Licence.

SIXTH DISTRICT.

By 6Z1—6MN.

There is not much to report from this district for the past month. By the time these notes are printed the

crystals should be in the hands of all active members. 6A6 is building a new rig and is anxiously waiting for cool weather so that the local ice works will not be working when he is trying to keep watches on Sundays.

6B1, with his FBXA receiver, does not worry about motors or other devices for causing interference. We are glad 5A2 is back on the air again and the link 6B1, 5A2 and VMC is working once again. 6A3 keeps watches but no other news. 6A2 busted his pet crystal last Sunday, and so the Reserve ones arrived conveniently. 6A1, 6Z2 and 6Z1 can be heard chasing W.A.C. on 28 m.c., and living in hopes. 6A1 had a great time at the Reservists' camp held at Northam. Unfortunately 6Z2 was unable to attend as arranged.

6SA W.A.C. ON 28 M.C.

The first VK6 W.A.C. was obtained on 7th March, 1936, by 6SA, after a period of 15 years, and a few particulars of the gear used are given:—

The transmitter is as follows:—

46 c.o., 80 m.x.; 46 bfr, 80 m.x.; 46 freq. doub., 40 metres; 46 freq. doub., 20 metres; 46 freq. doub., 10 metres; 46 Push-pull final amp., 46 Push-pull final amp., 80-foot antenna; horizontal, with single-wire feed.

6SA worked HJ3AJH on Saturday, 7th March; Sunday, 8th March, and Monday, 9th March, and was reported qsa 4, R4/5. 6SA gave HJ3 the same report, and HJ3AJH reported the 6SA was the second VK6 he had heard in 15 years. He heard the other VK6 (forgotten) when in Costa Rica under the call of TI3LA. W.A.C. was made in 21 hours, but he hopes to improve that time very soon. Hi!

A list of D.X. qsoed on ten is under:—J, G, EI, F, D, OH, ON, YM, PA, SM, OK, U, VU, W6, W8, ZS, SU, FA, HJ, ZL, VK2-6, PK.

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VICTORIA	BOX 2611W, G.P.O., MELBOURNE
QUEENSLAND	BOX 1524V, G.P.O., BRISBANE
SOUTH AUSTRALIA	BOX 284D, G.P.O., ADELAIDE
WEST AUSTRALIA	62 SUBIACO ROAD, SUBIACO
TASMANIA	BOX 547E, G.P.O., HOBART

N.S.W. Division

February 29th saw another year passed since the reorganisation of the Wireless Institute in this State, and with a nett gain of some 40 new members during the past year the position of the Institute in N.S.W. is very strong.

The Council feels quite sure that the coming year will even be one of greater growth. Unfortunately, with this event, this division loses quite a number of old faces from the Council. The first was the Secretary (Bob Power) late last year, and now, with the ballot being taken, the President (Frank Goyen) and J. O'Dean have announced their inability to continue. 2UX has the one and only President since the reorganisation in 1931, and his absence from the chair will be a decided loss.

Judging from the ballot paper that has been distributed, we will see quite a few new faces on the N.S.W. Council.

The annual elections here comprise, firstly, the distribution of a nomination paper by post, and then finally the ballot giving country members the same rights as city members in the election. The results of the ballot are then announced at the Annual General Meeting.

There have been complaints of the non-publication of publicity notes from New South Wales at times during the last few months. We can assure those concerned that the notes go down to Melbourne, but owing to special features appearing in the magazine at time to time, the Editors have deemed it necessary to cut same on occasions. However, a decided change will be made, starting from the May issue, in the presentation of notes, etc. It will be the aim to arrange as much as possible into a small space. Personal notes will be short and breezy. The names and addressés of the zone officers will be published at the head of the notes each month.

Exhibition arrangements are just being finalised for an all-amateur State-wide Exhibition, around the end of June. Everyone is asked to keep that in view and, when rebuilding, think of the forthcoming exhibition. The final rules, dates and times will be announced in the May issue of this magazine. If anyone is so interested, that information will be available from the Secretary from 1st April onwards. Anyway, direct publicity will be the order in this State.

Two members, in 2BW and 2JA, have been visiting Sydney. 2BW saw many of the outfits, but 2JA was handicapped with a YL.

Amateur Radio

NORTH SHORE ZONE.

2AE's 25 watts in the junior BERU sounded like 250. However, an antenna of 85 feet high was responsible.

The northern ham, 2DR, is still YL-ing.

At Roseville, 2NN, 2SV and 2ZH all fill the air with 'phone at odd moments.

The North Shore lost 2AH recently, when he sailed for England to have a look round at radio on the other side. His brother, 2EE, will shortly be up holding the family D.X. traditions.

2BJ's space for antennas is unlimited with 80-foot gum trees ad lib.

Crystal has claimed 2SS and his. From now on he can really claim the T9's he used to get with the P.P. 45's.

2PV, with two crystals, shoots up and down to 40 M.X.

2AG still survives with many 46's, and 2PP asks for budding steeplejacks to paint his pole.

2EO arrived D.X., and all from Enmore to Chatswood as acquisition. Not exactly; he is on too much. His new QRA, the 80 D.X. countries, is still going up, and that speaks for itself.

2YC, 2LZ and 2HZ are all contest cranks and after both BERU tests. The latter two are trying the Yanks.

2HY is quiet, and 2DU (next door) has not been heard for years.

Old 2JE, of Cremorne, can be heard as 4LI, as usual, on 'phone.

2EL made a come-back. 6A6 driving push-pull. 80Z's W.A.C. on 18 watts in two weeks' test from 2DA. That efficiency!

While on efficiency, heard the other day that these metal chassis rigs were generally 50 per cent. efficient; that the 50 per cent. is down the sink (with exceptions).

2QF, with a new Baby Ford, excited comment.

2IP and 2WW are rather quiet QRL.

2VE and 2VG are active. 2VE on grid bias 'phone.

WESTERN SUBURBS NOTES.

(By 2MY.)

Our sympathy to Charlie Richardson (2PT) on the illness of Mrs. Richardson, and we all trust that she will soon be on the road to health again.

Congratulations to 2GR upon the arrival of a new operator. Understand he is to take the Crooning Session on the B.C.L. Band.

2MQ let his call lie in Chancery for six months and then had it swiped. Now labours under "Alphabetical Boy Friend," or some such affliction.

2HR rebuilt rig. Now using 53 Osc., 2A5 and pair of 801's in final. Spent his holiday touring. Visited 2PF and 2TV at Cowra; also Trevor, of 2NS, at Bathurst. Sez sure a F.B. gang of chaps!

2MY anxiously searching for a South African YL fer W.A.C. YL. Hi!

2WD (Bill Dukes) and 2PY (Ralph Nancarrow) too qrl building transmitters at A.W.A. to take much interest in Hamdom, but Ralph has designs on a ten-tube panel es rack job shortly.

2UY (Harry) sure gets out with a F.B. T9 signal. Counted seven Yanks at top of the band calling him the other night.

And then there is the tale of the newest recruit to the Pirates, who, after much haggling at Paddy's Markets, bought a defunct 10-amp. Tungar charger bulb, worth nothing, for 5/-, and gleefully confided to his second operator that these dealers "don't know a 50-watter when they see it."

2FD grinds 40 M.X. crystals 'tween intervals of 'phone. Gets nice reports from ZL—one in particular.

2FO lands plenty Yanks on 40 with a pair of 46's in final stage, but missed a VE the other night. Bad luck, Tom!

VS4CS expects to be in VK2 on leave shortly, and hopes to personally qso some of his D.X. contacts.

2MW now only wants South Africa for W.A.C. Heard him try his Spanish out on OA-4-AA.

2IC. — Condolences to "Clarkie." Left his brand new SSS on the table near an open window. "Rain" flooded super; power switched on; super's tummy boiled; no super. Bad luck OM!

Another ham returned to the fold—2GJ. Now at new qra in Bondi. Reports Yanks easier to work than on North Shore. But, oh, that 'phone qrm!

Interesting to note that in these days of big tubes 2PX, 2IC and 2JT—three of our best D.X. merchants—all

use a single '10 in the final, with about 400 volts on the plate.

3YO (A. R. Jany) wants to watch out. Some VK2 will be selling him the G.P.O. clock tower at a rating of 2 watts.

Victorian Division

'PHONE SECTION NOTES

At the February meeting of this Section the main feature took the form of a complete resume by the Chairman (3TH) of his tour through New Zealand. Mr. Thompson paid a holiday visit to New Zealand at Christmas time with a view to getting away from the every-day things of life (radio included). According to the amount of time spent at the various D.X. club meetings, one is led to believe that good old radio did not take the back position which it was intended to get.

The meetings over there are apparently very well attended by a large band of enthusiastic supporters, who seem to consider it essential to have on hand always "bottles of supper" of a vintage outstanding in strength. Ask 3TH.

Most D.X. club meetings assume more or less the same system of procedure. The best verification for the month is chosen by the process of elimination, taking into account power of the station, on which the report was made and verified; its distance in miles from the receiver, and perhaps a consideration for the time at which the listening was done. Then, in some cases, a prize is awarded or a ladder of merit is altered to accommodate the leaders in their correct sequence.

Altogether from the report, we are agreed that 3TH had a thoroughly enjoyable trip, and if the same royal treatment is bestowed upon all visitors from VK3 to New Zealand, it would undoubtedly be a fine place to holiday.

The rest of the meeting was the usual procedure — allocation, discussions on late runners in sessions, and a report from the Allocations Committee Chairman (Mr. Kerley) re various rule breakers.

We regret to hear from 3BT (Mr. G. Bathold) that, owing to his position in business, where sufficient time can-

not be given to radio, he finds that he will have to give up his 200 M.X. transmissions. This, of course, means that B.T. will not be able to return to the band at a later date, if he finds it convenient, owing to the latest development in the regulations.

However, Geoff. assures me that he will commence work again as soon as business will allow, his attentions being directed to 5 M.X. 'phone. Let it be soon, Geoff.! Things are quiet down there.

3BH has been reminding us constantly of his presence. His signal from Mornington is received very well in Melbourne.

3HF was heard experimenting with an electrostatic microphone on a couple of Monday mornings from 0000—on.

3LM had a mandolin player there on a recent Sunday evening with one of these modern attachments whereby the sounds from the instrument are picked up directly and fed to the speech amplifier system without a microphone. This gadget functions on the principle of the Piezo Astatic Microphone.

I believe 3FW is without a receiver at present for 200 M.X. Has planned something on really superb lines which ought to eclipse all predecessors.

3TM was heard recently disturbing the ether with a mouth organ band (or parts thereof) in the early hours of the morning.

On Sunday evening, 15th March, 3BY had on hand a bunch of imported recordings of outstanding merit. The music was being enjoyed by all and sundry, and by 11.40 p.m. BY was to be heard as rebroadcast through 3FL, 3HF and 3DH.

It is with very great sorrow that we record the passing of an old-time 'phone man, 3CY (Arthur Burman), who had been ill for some time. We extend to his family feelings of deepest sympathy from the W.I.A.

KEY NOTES.

By VK3YO.

The details were received at the March meeting of a new tube from the A.W.A. Valve Co. The tube is known as the 6P6 and is similar in operation to the 802. It is suitable for operation as a crystal on E.C. oscillator, as a double and also as a suppresser grid modulated amplifier.

The tube looks somewhat like a 42 and plugs into a standard socket.

It seems to be the answer to the "hams'" prayer, particularly as the price is less than half that of the 802.

A report was made that the Dominican Amateurs were prohibited by a government proclamation from working VK's, although no reason has yet been given.

One heartening note in the month's news is that VQ8AB has advised via VK3RX that he has been out of QSL cards, but is having a big batch printed and will be forwarding approximately 120 cards to VK amateurs through the QSL bureau.

Someone has suggested that the P.M.G. be asked to shift the frequency of VK5DI right under that of JNJ.

A certain amateur wishes to know what is to be done when a crystal is purchased that has two peaks.

A suggestion was made that he was fortunate he was not asked to pay double price.

The American test is just over, and the DX bands have gone flat, with most of the DX hounds in their kennels or sleeping at their office desks.

It is to be regretted that at least ten VK2 phone stations did not have sufficient sporting instincts to keep off the DX bands during the contests.

The new rules of the contest certainly appeared to reduce the QRM in the U.S.A., but what the Americans forgot was that Australia has a very big proportion of active stations and the nett result was that there was an enormous amount of useless calling and QRM in VK, simply because the W's could not QSO more than three stations per band per prefix.

WESTERN DISTRICT NOTES.

By 3HG.

3PG now has his mast re-erected and the beam antenna again in place, and is working DX galore with his usual low power. He has been trying ten metres, but no luck so far.

3OW away on annual vacation. 3HG now using lower power, the supply being a 180-volt genemotor, and it gets out surprisingly well considering the input.

3HL intends building new rig for 20 and 10 metres. Has had some success on ten. Conditions on this band do not seem as good in this dis-

trict as in the city, but it may be our receivers that are at fault. 3KR, however, seems in a better location, as he worked five continents during his first 24 hours on ten! 3OR seems to spend most of his time travelling to and from the city and, owing to having a new home built, is on the air very little.

3KX working his usual DX on 40, 20 and 10, but he did not hear ZS1H calling him on 10 the other evening! 3BQ, after waiting over two years for a card from HC1FG for his WAC certificate, got tired of the long QRX, so worked an LU to double his chances of a QSL.

South Australian Division

By VK5KL.

Things are starting to happen now at the Institute meetings, and 1936 promises to be the most successful year for some time. The social side has been gone into and now supper is provided after every meeting. This is greatly appreciated by all attending.

Transmitters' Meeting, 26th February. One minute silence was taken in memory of the late Hiram P. Maxim, whose key is now silent. Mr. A. Richardson gave a lecture on "Neon Signs." Two committees were formed, one to conduct a dance in aid of "Miss Radio" Centenary contestant, and also for a stunt at Murray Bridge over Easter holidays. Have hopes of an article for "A.R.", so keep your eyes out for it, Mr. Editor. Now for scandal.

The most outstanding performance is the work of VK5ZC, VK5LJ and VK5IH, who obtained their WAC on ten on Sunday, 8th March, which was a paradise on the day mentioned. 5ZC beat 5LJ by half an hour for first VK5. F. B. Morrie, VK5IH ex 3WL, has been after his WAC since 1927.

VK5ZC wanted Europe for WAC on Sunday. G es OK called him but auto grm blotted them out.

5KL qsoed ZSIH but couldn't raise Europe. Worked HJ3AJH twice next morning to make up. Hi!

5WK was called by the HJ, but his rx. on about 15 mx. Bad luck, Nobby.

5PN, 5XJ, and 5DU have all joined the Institute. FB, om's. Let's hear from you.

5WW has a new mo' bike, but lacking a YL. How about trying to QSO "Miss Radio", Bill?

5LB worked an LU9 for his WAC on 20 mx. Still BCL.

5RX, 5ZX, 5LD, 5KL, all did well in Junior Beru.

5WR's 800 is perking. F.B. not even a blush.

5AP uses filament of a 250 for aerial ammeter. Says he gets an amp. in sky. Who believes him?

5JC consoled with 3JJ and so crashed off his mo' bike, but back on air again now. Heard working his first LU. How do they do it?

Activity on the five-metre band is increasing, and many hams are active. Five-metre gear has been installed at 5WI and some FB work done. Hams active now are VK5HD, 5BD, 5RT, 5ZX, 5ZC and 5GP. 5LD has a transceiver nearly built, but can't scrounge a 19ft. Hi! Heard that 5GF wants someone to test with, and 5XJ and 5GL have receivers.

Well, cheerio, for now, lads. Must see about some more Dx.

Western Australia Division

By Jack Meed, 6LJ.

Just the other night the general meeting of the Sandgroppers was held, and a good muster attended. All the boys are very elated about the recent triumph of 6SA on gaining WAC, more details of which appear elsewhere. He is the first WAC in VK6, and well deserves it, as he has been a regular sticker at the game. 6MN is another who is very patient and still sits on 28 m.c. waiting for his turn! 6CP has left the ham game alone for some time, as he finds many willing mouths to feed and no money to buy any willing valves. I might mention that the willing mouths are male and female chooks, I mean, fowls, and NOT a huge family! 6CP has been heard on a little bit with fone (?), and could be on a bit more, but for the grm caused by gobble! gobble!! and squawks, etc. Clarrie will publish an article on "Fowls and their behaviour as appertained to radio." Might be the "pst", "pst" of the hens that keep off the air!

And now we have 6CX. Charlie is qrl (nobody knows), but he is reputed

to be very busy, and I haven't seen him for some time.

6AE is heard very often, but, Jack, how about those birdies in that signal? Twit, twit, twit, tweet, is made for a letter V, and it is jolly annoying! What! 6BB is busy on his model T. All the boys are wondering when Jack is going to fit AVC and a tuning meter to the Ford! 6BN has been here and been there, but we don't HEAR anything of him. Bert threatened to annoy some elections about three years ago, but the newness has gone off and he has returned to his hens! (Sounds like a harem.) Hee! Hee!! 6CA very little time and may reburst into bud any time on 56 m.c. or perhaps even 7 m.c.

6CY and 6CA may continue their messing around on that band, very seldom heard of as 56 m.c., but CY will return to 28 shortly.

6CB—hush! There is a mystery about Cliff. We believe that he has started out in business (no—not radio) on his own. Well, good luck, Cliff, and don't forget that radio has still a vacancy for you (might squeeze in on 7 m.c.—hi!) 6DA—no, not alive—was thinking of rebuilding and coming on the air, but the depression hit the world (How nasty, hi!)

6FG struts around the local village and eyes everything, but does not seem to increase the electricity and gas consumption. 6FL on 14 m.c., and can be heard qsoing the usual gang of Dx.

HB9AT has been coming through on this band about R8 lately and on 7 m.c. G6CJ has been good—those two chappies seem the most consistent. 6FO is another who can be heard just about any time of the day on some baud, and must have a great total in his Dx list now. He had a good total in the Beru contests this year, but not so good as last year.

6FM has not been heard since his transfer to the greater southern West Australia. Guess his M.L. Converter is having a hard-earned rest, as it has been in use about eight years. 6GM is at present suffering a great discomfort in hospital, but when he reads this, we all hope he will be 100 per cent, again and dashing around on 80X again.

6GS was seen in town during the early part of March, and will be up here again shortly. Will be on the air shortly and annoy the lads. 6GW

—oh, George has been transferred, so we won't hear him for a little while.

6JE heard on the other day calling frantically the world, but seemed NBG. Jim has been on 14 m.c., and has been used generally, although not satisfied as much as he could wish, and wants the world to rush him! 6KR is another goldfields ham, but has "been taken for a ride," I think, as we never hear him on the air.

6JK promised to get back—into bed—not on the air, and the boys are going to buy a plug of TNT or summat to energise him! 6JS on holidays. 6KZ on the air quite a lot and is the Port's only representative, except 6HW. Harry, of 6HW, has been heard during the day, but his work keeps him off during the night. Charlie, 6KZ, totalled another massive list in Beru, and is well in the running. Good luck, om! 6KB has a very nice sig. and works quite a bit of Dx on 7 m.c. Val has not exploited the other bands much yet, but will adjourn down there later.

6NL has been taken from VK6 and placed in VSI on a service job; another relation will carry on the work shortly and we wish HER good luck and hope to hear our first YL op. on soon. Also to Vic, we all extend the hand of good wishes, and trust that he does vy fb.

6NO has re-entered his shell—must be missing his second op! 6MO heard all day and night with about $\frac{1}{2}$ k.w.—must be as he is about R50 down here when our skip doesn't operate.

6MN is qrl at present on revamping a bit of gear and listening on ten. 6LJ darn bnsy, and is putting in new line-up of tubes in tx. 6LY startles us by explaining that he is going to return to the Purgatory of Hamdom. Oh, yeah? 6LK is not heard on the air—except from 6 a.m. B/C station minor was on ten a few days, but not since then. 6WS is good-oh, and is putting up brand new antenna system, after hearing lecture by VK2IC. 6WH has been pretty qsl on 7 and 14, but has revamped his gear and has a much better note. (About time, hi!)

6WI is on quite regularly with 6RL as op., and has qsoed quite a few stations since its re-opening. Thanks to the boys. Messrs. Smith, Morrissey and Wignell all have their noses down to the grindstone and swotting like

mad in order to get on the air. Good luck, gang, and keep at it.

Tasmanian Division

By 7PA.

The monthly meeting for March was held as usual on the first Tuesday, 3rd instant, with the usual few attending. Owing to short notice from the intended lecturer, there was no lecture given and a general chart was carried on instead, quite a mothers' meeting.

During the meeting some discussion was given to the problem of answering reports on 200-metre 'phone, which has recently been ruled out. This arose out of controversial criticism that has been given, but circumstances require that this rule be carried out.

The council met on the 10th instant and usual business, also with 200-metre permits and a couple of members' applications were dealt with. Some 200-metre operators still persist in being late with their applications for 200-metre permits; they will moan when no permits are forthcoming. The State field finally fell through, so a local run was arranged for the 1st of March, and was a huge success, although the weather was not too good and a cold wind prevailed.

The transmitter party—7JH, the Hon. Secretary and friends—made a 100 per cent. job of the hiding, even ran the aerial through low trees, although they claim it was only because there were no trees convenient elsewhere to which to attach it. Oh, yeah! The worst part was that its contact with the moving branches caused the sig. to swing badly at times.

7PA and party were first in, and it took a quarter of an hour to actually unearth the 'mitter after having to leave the car. The location was about 400 yards from the road across paddocks. Messrs. Oldham and Lovett (7HL) were close on 7PA's heels by the time the find was actually made, and others followed on in fairly close order.

The hunt over, all removed to Ralph's Bay for lunch and an afternoon's sport. Some seining was indulged in, but the fish proved to be too wise for the fishermen—must have heard the 'mitter earlier, hi!

The Flying Error and crew paid VK7 a visit in February, and its presence caused quite a stir—it was even mistaken for an ambulance, hi! Must have been the bunks.

The crew, 5FBX, 2DQ and friend, made quite an extensive trip around this island, and visited most of the lads enroute, who were very pleased to make their acquaintance. The travel must have been too much for their gear, as they were not heard on the air while here.

The glamour has gone from the three-letter call now, Frank—VK2 has apparently exhausted its two-letter alphabet.

Spend a week-end at Chummie's shack at Ralph's Bay and get some fine sport fishing, but don't try it in the daytime, the fish are too wise; ask the field-day gang.

Who turned back on the threshold of success at the field day — Alan, not you? Too bad! Have to get an O.P. meter, like Chas.

Who taught young Happy to talk?

Seen at 7JB's—a 200-amp., quick-break, knife switch. Says it's in his modulation circuit. Poor old 800's. Sure it's not the main power switch, Jack?

W/VE contest going full swing—four minutes per contact seems to be 7JB's average so far; has worked 40, 20 and 10 metres, too. No wonder it's tough for the rest of the gang, hi!

7PA interested in contest; been very QRL with new receiver of the S.S. Super variety; has it perking fb now, but snagged on an earthed variable's rotor for quite a while before finding it. 7KV and 7JH also doing test, but no news available at present. Better have a night off, Buck, and give the boys a chance.

Bescued—A roundabout on Regatta Day, after its organ broke down—no good, no grind. For details see Roland, alias Mickle, speech amplifier expert.

Shock tactics — playing round a 'mitter with the juice on.

28 and 56 M.C. Section IMPROVED CONDITIONS.

(By VK2BX.)

Conditions on 28 M.C. were very quiet towards the end of February, but they have shown a steady improvement since the beginning of March. At present the band is wide open, and signals from all continents come through for hours on end.

On the 8th of March, ZS1H and OA4J through very well, and seemed to work a continuous stream of VK3's. The VIM gang seems to grab all the 28 M.C. D.X.! VK3BD puts out the best signal, and can be heard here at almost any hour of the day or early evening regardless of conditions. He is usually only R1/2, but when conditions are O.K. for interstate work he just pounds through.

It apparently takes a D.X. Contest to get the ZL's down on ten, as I had not heard one for months. Now that the W/VE D.X. Contest has started. ZL1AB and ZL2KI come through at R7, and I could hear the Yanks calling others. QRM is getting a real problem on ten now, and the top of the band is just a mass of stations piled one on top of the other.

VK2EO has moved to a new QRA at Chatswood, which is much better for D.X., and he has now W.A.C. on 28 M.C. by working HJ3AJH. In Sydney the gang is growing, and 2UC, 2AE and 2JT are putting out nice T9X signals. 2FG is another addition who is using S.E. and putting out a very solid T6 signal. 2JT is really an old-timer, as he used to be on 10 M.X. several years ago, when conditions were poor. Another old 10 M.X. station (2XY) is showing signs of life again also. Syd. has built a new super-het. receiver, and threatens to put a transmitter on the air soon.

A message from FA8BG via ZL3JR states that the former wants VK and ZL stations to keep a lookout for him daily at 18.00 GMT on 28 M.C. There should be a good chance of signals from Europe breaking through at that time, and several of the locals have been looking for them.

Good signals have been heard from the following D.X. stations during March: — ZS1H, HJ3AJH, OA4J, OH3NP, K6NJV, K6CRU, several J's and many W's.

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Federal Headquarters Notes

Now that the Federal Convention, held in Queensland, has been concluded, there is quite a large amount of work before the Federal Executive. This Convention was a huge success, both as a Convention and the work done, and also as regards the good time given visiting delegates by the members of the Queensland Division of the W.I.A.

The Convention itself was opened by Mr. E. T. Fisk from the Sydney studio of 2CH, who, in conjunction with 4BC, made a two-way broadcast between the capital cities possible. This broadcast officially declared the Convention open at 8 p.m. on Saturday, and sessions were held until all matters had been dealt with, concluding late on Sunday night. A complete report of these sessions appears elsewhere.

BERU CONTEST.—The senior and junior tests are now both over, and both were very well supported by VK hams. In Australia, VK3EG was the star performer in the senior Beru, and with a score of over 900 points should clean up the whole Empire. Most VK's thought they were doing very well to score 600 points, but 900 points—well, that's that.

ARRL CONTEST.—The ARRL contest has just begun, and, judging by the way 28 M.C. and 14 M.C. bands are behaving, some high scores are likely. Several VK's should almost clean up all the zones on 28 M.C., 14 M.C. and 7 M.C., which will give a very nice multiplier.

FISSK TROPHY CONTEST. — The next Fisk Trophy Contest has tentatively been set down for next August. Details have not yet been finalised, and the Federal Executive would be pleased to have your ideas on what type of contest you would prefer. So write now.

VK D.X. CONTEST.—The next D.X. Contest will be held in October, and this year F.H.Q. has granted VK5 permission to run one this year, to commemorate their centenary. Details are not yet available, but get ready.

W.A.C. CERTIFICATES. — W.A.C. Certificate applications continue to roll in, and are becoming too numerous to mention in these columns. However, don't forget the special W.A.C. 10-Metre Certificates. It looks

like VK4AP has first claims on the first VK W.A.C. ten, but time (and cards) will tell.

THE SECOND VK3 DIVISION 5-METRE FIELD DAY.

The success of the first 56 m.c. field day left no doubt in the organisers' minds that a second must be staged. The three or four contests held during the year helped to upset the plans for the second event, but now that the air is clear for some months ahead, and hearing in mind the closeness of old man winter, it was decided to name a date for the big event. It is to be held on April 26.

This gives us plenty of time to wire up portable transmitters and receivers. In addition to those who took part last time, it is hoped to have a large number of new entrants for the fun.

The same procedure will be followed again this time. Members can choose their particular locations around the country up to 100 miles from Melbourne. Contacts over 100 miles are expected with ease. During the first field day the record was 85 miles. Stations used power as low as 1 watt and all made a noise never less than R7-8. So, bear that in mind: power is only a secondary consideration. Attention should be paid to well-designed arrays for results. "Amateur Radio" has published various articles on antennae for this band, and these should be referred to before deciding on the antenna. A small super-regenerative receiver such as described by VK3ML in an article published in the August, 1935, issue, would be all that is required for receiving.

As we are anxious to find out who will participate early, will all those interested and who would like to join in the fun, please communicate with VK3ZC or VK3ML immediately?

COUNCIL N.S.W. DIVISION, 1936-37.

President—H. Petterson, VK2HP.

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Bug Hunting on 28 M.C.

By I. Patterson (VK3YP).

Practically every amateur has tried to get a receiver working on 28 M.C. at some time during his experience. The purpose of this article is to try to help the ham who failed to get satisfactory results in this attempt.

The T.R.F. type of receiver is the best from an economical standpoint. It should consist of three valves of the V.V.V. combination, two R.F. stages having been tried and found of little use on this band. Of the 2.5 volt series, the types 58, 57 and 56, and for 6 volt the 6D6, 6C6 and 42 tubes provide suitable combination. For the R.F. and detector grid coils, about four turns of 20 DSC on $1\frac{1}{4}$ -inch formers and spaced over $1\frac{1}{2}$ inches should land one in the band with about 20 degrees of the band setting condenser in. The most satisfactory way of obtaining good band spread is to use five pin coil formers. One separate pin is connected across one or two turns up from the earth end of the coil, and from this pin to the small ganged band-separating condenser, to which is affixed the main vernier tuning control. The two grid coils should be wound with an identical amount of wire, and the band-spreading tap taken from the same point on both coils, in order that the two circuits will track over their entire tuning range. Should, however, this not take place, a minor adjustment of the band-setting condensers will bring these circuits into resonance again. The antenna coil may be of any number of turns which best suits the antenna in use, but should not be too tightly coupled. Using this antenna coil as part of a link circuit coupling the R.F. grid circuit to a four-turn tuned aerial coil, with its centre earthed and the antenna feeder or feeders clipped on this coil until the impedance is matched to the best advantage, is a sure way of boosting signals one or two points and reducing the ignition QRM at the same time. This adjustment is not at all critical, and is well worth while.

Interlocking will be caused if the R.F. plate coil is too tightly coupled

to the detector grid coil. It is best to use maximum coupling at first, and then move the coil back until the interlocking just ceases. Care must be taken here to see that the plate coil does not exactly resonate on the band, as it will cause dead-spotting. For this reason it is better to use six or seven turns well away from the grid coil rather than three or four closer in. The cathode tap on the E.C. detector grid coil should be connected about a turn up from the earth end, but if this does not give an easy slide into oscillation, moving the tap up to one and a half turns should take care of this.

If a super-het. is being used, all the above hints apply with the exception of the R.F. plate coil spacing. In the super this coil should be interwound with the detector grid coil, and as many turns as possible should be used without causing interlocking taking place.

One big trouble that is usually found in both these types of receivers is that, unless plenty of by-pass condensers are used, it will be found impossible to get a T9 signal response. The salient points to be considered are the condensers between the heaters and earth. 25 m.f.d. low-voltage condensers used between one side of the heaters and earth should cure this trouble, but in cases where extreme difficulty is encountered, moving this condenser from socket to socket until the most satisfactory point is located should provide a solution to the problem.

The use of more than 250 volts on the plates is not recommended. With voltages of this order plate decoupling can be accomplished by the use of 10,000 ohm resistances, by-passed by about 1 m.f.d. Higher voltage will only increase the noise level, and lower voltages may be more effectively de-coupled without loss of voltage by the use of R.F. chokes, suitably by-passed to earth.

(Continued on Page 28)

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Many W.A.C.'s on Ten

(By VK3JJ.)

The best peak of 28 M.C. conditions that we have yet experienced seemed to extend to all States, and several stations worked all continents. HJ3AJH was the most popular South American, and his R.A.C. signals often reached R7/8. He was usually audible from 9 a.m. till 5 p.m., and could copy practically any V.K. on 10. OA4J put in an appearance one week-end and worked several VK3's, but his signals were not nearly as strong as the HJ. LU9AX was just audible around 8.30 a.m., but did not seem to work any VK's. The best of the Africans was ZS1H, who could work VK's for several hours on end each Sunday. ZS2A, ZU1C and ZE1JU also had a number of VK contacts, and the latter seemed to peak in strength after 7 p.m., when the others had faded.

Signals from North America pounded through by the dozen every morning between 8 a.m. and 1 p.m., many of the W's reaching R8/9 at times. Several VE's were also heard, and VE5BI seemed to have the most VK contacts. J3FK and J3DC were the most consistent from Asia, and could be worked practically any time during the day. Europe was rather hard to work from Victoria, but stations in the north and west appeared to have no difficulty with them.

Congratulations are extended to VK6SA for gaining what is believed to be the first W.A.C. in W.A. on any band. He was on night shift at the time, and happened to get up earlier on 7th March. Putting on the cans, he was surprised to hear HJ3AJH. Q4, R4, calling test. Springing to action, he called the HJ, who came back to VK3YP. After listening to the qso he called again, and this time raised him, making W.A.C. after being on the air over ten years. When the news went around several other VK6's returned to 28 M.C., and on the following day 6FO, 6MN and 6LJ put good signals through to Victoria. Other D.X. worked by 6SA included several W's and G's, F8CT, F8KJ,

YM4AA, OH7ND, D4CSA, D4GWF and SU1JT. OA4J has been heard by him.

Several 28 M.C. W.A.C.'s. have now been made in Victoria, and now 3BQ, 3BD, 3YP, 3CP, 3KX, 3BW and 3JJ have all managed it. 3YP and 3BD still seem to get most of the D.X., and the latter has had contacts with four of the Africans. 3KX has been very inactive on 28 M.C. lately, due to fishing trips. It was just by a stroke of luck that he was active on 8th March, when all continents could be heard QSA5. Contacts were made with several W's, VE4PH, VE5BI, HJ3AJH, ZS1H and ZS2A, the last two giving an R7 report. 3JJ spent a month in hospital, due to injuries received in an accident, but the first few days on the air in March brought contacts with HJ, OA and ZS1H, getting an R8 report from the latter. Listening on the 56 M.C. band one afternoon, the harmonic of VK4EI, working on 28 M.C., was audible. There was very little fading, and the strength reached R5. The conditions for VK3/4 contacts must have been exceptional at the time, and, no doubt, would be the most likely time to try and contact on 56 M.C.

The latest reports from U.S.A. indicate that 56 M.C. signals occasionally travelled over 1,000 or so miles during their past summer, apparently on a reflected wave. Interest in local 'phone work on the 56 M.C. band does not seem to attract much attention from VK's, so why not give higher-powered CW a trial? The best times for these contacts would probably be when the 28 M.C. band is particularly good between interstate stations.

The winner of the International 23 M.C. Contest held last year by the R.S.G.B. was XIAY, with 4,542 points; second, VK2LZ, 4,017; and third, W4AJY, 2,399 points.

(Continued from page 25) J. J. H. H. H. H.

For the purest signals with indirectly heated tubes, the filament voltage will be found quite critical. Experimentation with the primary tap on the transformer will cover this. Large by-pass condensers from the screen grids to earth will help in reducing interlocking effects. Suppressors should be preferably tied to the cathodes, and the latter, in all R.F. circuits, by-passed with mica condensers.

The use of shielded wire for the plate and grid leads in the I.F. stages is essential for preventing oscillation when high gain is used. The use of grid decoupling should not be necessary if the shielding is properly carried out.

Attention to these details should enable any ham to get his receiver working properly, and his next difficulty will be to locate the band. After roughly locating it with a harmonic from the transmitter, the commercial harmonics that are likely to be heard are TDC, JNJ, XOB, WIZ, WQT. JUM and TDH, in that order down in frequency from 28,000 k.c.

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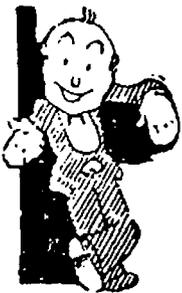
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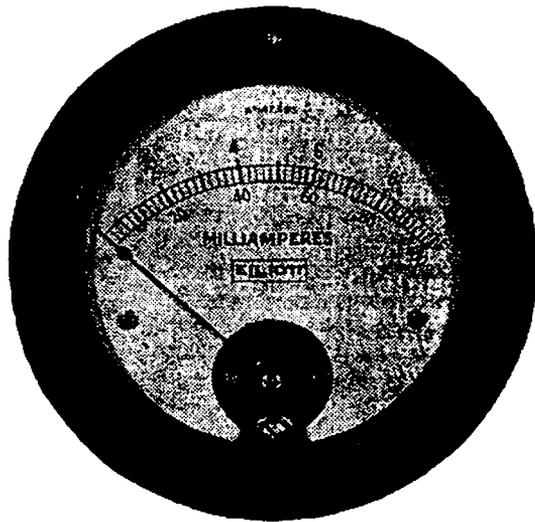
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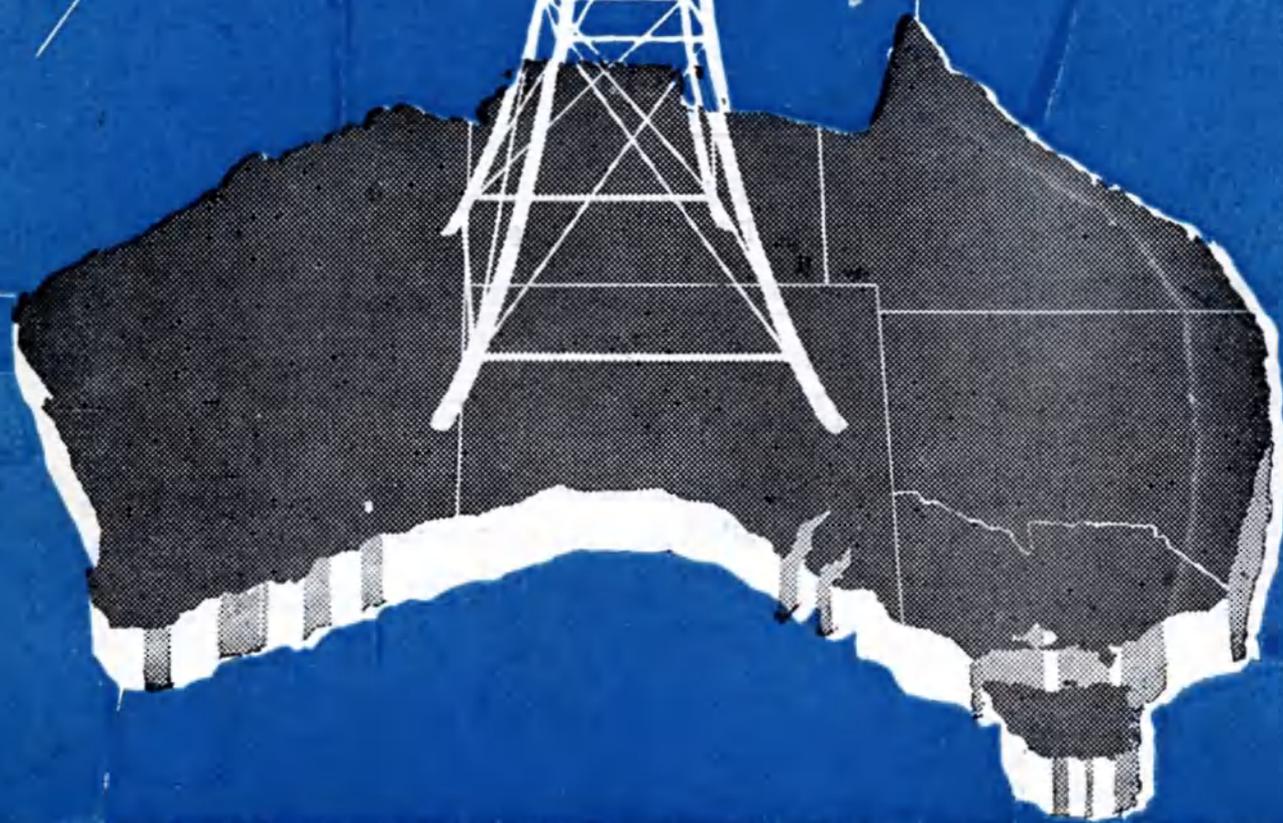
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. . Editorial . .

It is the supreme gift of a hobby for a devotee to find in it a complete relaxation from the worries and troubles of daily life. What a boon it is to come home at night and be able to "immerse oneself," if the expression may be applied, in radio after a hard, worrying day's work. A sense of contentment begins to pervade one's nature, the troubles and worries of the day, that before loomed so large, seem to recede to their correct perspective. Our hobby is the mental and physical panacea "in excelsis," but for how many?

In order to obtain the ultimate satisfaction and pleasure, we, individually and collectively, must make our contribution towards Ham Radio. It asks little enough of us for what we receive in return, but that small contribution seems far too much for a percentage of our modern-day amateurs. He gives nothing, this type of ham, in return he receives little from his hobby and, after a short period, drifts out of the game entirely. He will never understand the invisible bond that embraces the old hams; he will never understand that loyalty which every old-timer knows; to him will ever remain a mystery all that is grandest in the great old game.

Yet, just a little unselfishness, just a little of his time given spontaneously, could alter his outlook entirely, could rejuvenate his waning interest and could initiate him to that inner circle of those who "through giving, receive." In an altogether different theme, Wordsworth put the same thought: "Give all thou canst, High Heaven rejects the lore of nicely calculated less or more."

So many do nothing and expect all; some are not members of the W.I.A., yet gladly enjoy the privileges obtained by the Institute. "I give nothing and demand all" is their cry, and receiving nothing they usually lose interest altogether.

"Amateur Radio" can furnish an example of this type of Ham. Individually he criticises, yet never lifts a hand to help. Collectively he withholds the only assistance that is worth anything—his unqualified support and co-operation. Victoria has borne the whole burden of getting going and maintaining the Magazine, gladly, because she felt that in it lay an essential part of the welfare of the Australian Ham. She has carried on its publication practically unaided by outside support, with the result that members who were working on it had to neglect Divisional work. What a difference would be reflected in its pages if only each other Division rendered a little support! Victoria has had to find all advertisements, practically every article that has appeared, and publish the Magazine as well. As "Amateur Radio" is a Federal organ, Victoria has a right to expect—stronger still, she has a right to demand—Interstate co-operation. As if the above were not sufficient, most Divisions are lagging in their payments. Thus the position is rapidly becoming intolerable; added to the burdens she is already carrying is added that of carrying Interstate financial commitments.

Victorian Hams stand 100 per cent. behind their Magazine; they are proud of it and shall always have it. But they are not going to be forced to carry a financial loss for men who will not lift a finger to help their own official organ. This Magazine is yours, you Interstate men, with fair and reasonable support it will remain yours, but a continuation of your present attitude can bring only one result. Our hand will be forced for our own members' sakes, and you and those who come after you will ever feel the shame that your Magazine had to be withdrawn from your State because of your lack of support. It is little enough you are asked, and the alternative is a stigma that will be impossible to live down. Victoria will always have "Amateur Radio," but its future in your State is in your hands.

A Rehash on Grid Modulation

By Gordon Weynton (VK3XU/
VK5XU).

Much has been written regarding this subject, but still some of us have difficulty in getting things going just as they should; therefore, perhaps, a few wrinkles may not be out of place.

The most attractive feature of this system is low cost and relative simplicity of the modulating equipment, but the one drawback is that, if we do not make the adjustment of the transmitter intelligently, good results are not always obtained.

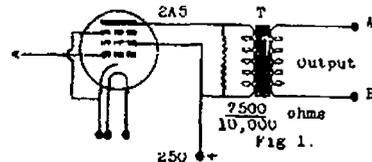
There is little to be gained by covering the operating principles and the question of tube efficiency and tube capacity, because this has all been handled by people more competent than the writer; but let us get down to brass tacks.

We will deal with two well-known systems, the one known as control grid modulation and the other as Telefunken modulation. Let us take the former system first. Firstly you have a modulator, which consists of, say, a 24A and a 2A5 or a 56 and a 45. Well, be quite sure that the output of this gear is perfectly free of any hum or other bugs which will eventually cause you trouble. The plate voltage on the modulator tube, i.e., the 2A5 or the 45, as the case may be, is fed through the primary of a 1:1 Class B input transformer, and across the primary terminals a load of between 7,000 and 10,000 ohms should be placed, the secondary of this transformer going to the grid-filament circuit of the tube to be modulated. (See Fig. 1.) Terminal A to grid and Terminal B to filament-earth circuit.

The essentials of the modulator unit are that it must be entirely shielded, and the resistor across the transformer primary should be capable of dissipating 5 watts.

Now, turning to the transmitter, we will firstly deal with the tubes in the stage to be modulated. These may be

210, 801 push pull or single ended, 46 in parallel or push pull, or our old friend E406, push pull or single ended. A 203A or a 211 could be included, but as these are not as common as the others mentioned, we will confine our remarks to them, although in general they will also apply to the larger tubes.



If the stage to be modulated contains such tubes as 210, 801 or E406, then battery bias is essential, but if 46 tubes are used grid leak bias can be used. Fig. 2 shows the circuit of a single-ended 46 P.A., but for our purpose we will deal only with the grid circuit, which will be the same for two tubes in parallel, and the only difference between this circuit and one using a '10 or an 801 will be that the resistance of 2,000 ohms will be replaced by battery bias. Push-pull circuits are essentially the same, so let us go.

(1) A means whereby the excitation can be conveniently reduced must be provided, so use a variable coupling condenser. If you use link you can still reduce your coupling.

(2) R.F. must not get back through the choke, so see you have got a good one—preferably a National or a Hammarlund. R.F. feed back will give you a bad spin, and is the cause of 50 per cent. of the bad operation.

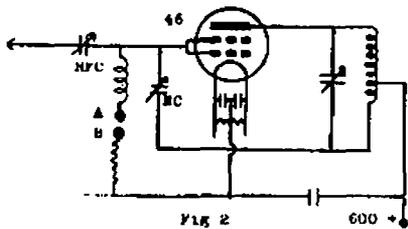
(3) Neutralisation must be complete and not half baked, like so many rigs. Bad neutralisation causes 25 per cent. of bad operation.

(4) Battery bias must be easily adjusted step by step at not more than 25 volts per step.

Now for the adjustments. First for low m.u. tubes, such as an 801, 210 and E406.

There are four variables—grid bias, r.f. excitation voltage, loading and audio grid swing. A bit more formidable than Class C plate modulated amplifier, but it is easy once you get the hang of it.

(1) Determine the operating plate current. For example, two type 10 tubes in push pull have a plate dissipation of 30 watts, but an output of



about 15 watts can only be expected, since the carrier output can be considered to be equal to half the plate dissipation rating. The total input will be, therefore, the output plus the plate losses, or 45 watts, or 500 volts at 90 mils.

(2) Having arrived at the operating current and plate voltage, set the bias at slightly beyond cut-off.

(3) Apply all excitation available and adjust antenna to maximum current. Plate mils. will be high, but never mind.

(4) Leaving all other adjustments alone, increase negative bias until plate current drops to operating value determined above.

(5) With audio gain at peak, speak in the microphone. Antenna current should rise, and so should plate mils. Back off again on modulator until the plate current shows only an occasional upward flicker.

This operating procedure should result in optimum power output under most conditions.

Now let us look at the high m.u. tube, such as a 46 or a 2A5.

We will assume in all cases that you will have two of these tubes either push pull or parallel, since greater output will be achieved.

If you have two tubes in parallel, it is absolutely essential that there is

no parasitic oscillation present and that the load is divided as evenly as possible between the tubes.

The following are the adjustments:—

(1) Tune up exactly the same as for C.W. work, only increase loading until maximum antenna current is obtained.

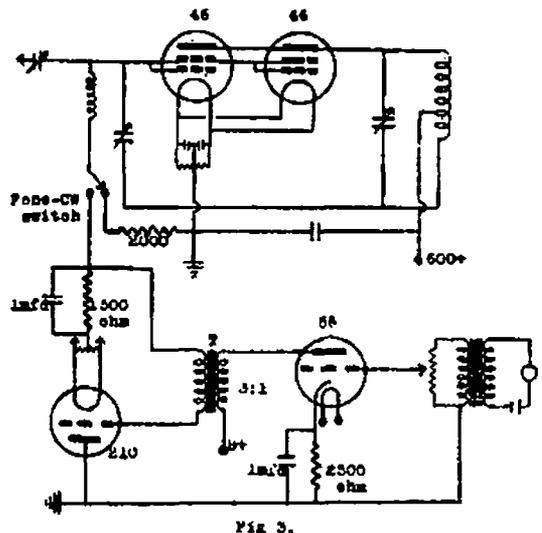
(2) Plug in the output of the modulator and watch the plate mils. drop.

(3) Decrease excitation until antenna current is halved and plate mils. drop by one-third over the reading obtained on adjustment in (1) above.

(4) With audio gain at full, speak into the microphone. The antenna current should rise and the plate mils. jump. If this does not occur, decrease excitation until the plate mils. do jump.

(5) Adjust plate mils. to normal rated figure by increase or decrease in drive, and adjust gain on modulator unit to give slight flicker in plate milliammeter on peaks.

(6) Check the quality on a crystal monitor.



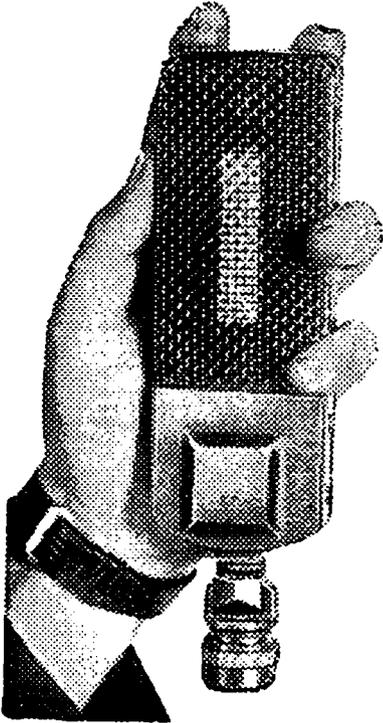
This operating procedure should result in optimum power output under most conditions. However, should the plate mils. move down instead of up, a decrease in excitation will be necessary, despite the fact that normal plate mils. are shown.

Now, the other system, known as Telefunken, operates somewhat differently, but just as good results are

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to be obtained. In fact, you cannot tell the difference between the two. Just in case somebody doesn't know the circuit, have a look over Fig. 3. The circuit uses 46 tubes, but if a 210 or similar tube is to be used, the fixed bias of 2,000 ohms will be replaced by battery bias or grid-leak bias of a higher order.

We must remember that the 210 tube in the diagram represents a grid leak, and matches up best for a 46 tube or other high m.u. tubes. If a medium m.u. tube, such as a 210, is used in the R.F. power amplifier, this tube will be replaced by a 56 or a 27 type tube, and the cathode will be in circuit, but be careful to bypass the filament circuit to earth in this case, and make the bias on the 27 or 56 tube 2,500 ohms, instead of 1,500, as shown in the diagram.

The adjustments for all types of tubes are as follow:—

(1) Apply all excitation possible and adjust antenna current to maximum.

(2) Plug in the modulator and note antenna current and plate mils.; then reduce excitation until antenna current is half that obtained in (1) above.

(3) With audio gain at peak, speak into the microphone.

Antenna current should rise, and so should plate mils.; then back off gain until there is only an occasional flicker on modulation peaks.

In actual practice this system is easier to get going than control grid system. However, both have their pitfalls, the control grid system being slightly more troublesome.

We set out some of the precautions to be taken to secure proper operation earlier in this article. Now let us turn to one of the biggest bug-bears of grid modulation—R.F. feedback. This is caused mainly by R.F. getting through the chokes and feeding into the modulator circuit. Once this happens you cannot proceed until you have entirely eliminated it. All the howls and squeals will occur even with the microphone circuit open, and when this circuit is closed even worse noises will occur. Therefore, be sure

your chokes do a job of work. Modulator and submodulator should be run off an independent source of supply to the transmitter supply. The writer tried a common source, using the buffer-oscillator supply to feed the modulator, and the result was disaster. Don't try it. In the control grid system a reversal of the output terminals of the transformer can cure R.F. feedback.

The only solution is to shield everything and use good chokes.

Downward modulation is common, and can only be cured by proper adjustment of antenna load and R.F. excitation. Nothing else will do, unless, perhaps, a slight bias adjustment on medium m.u. tubes.

Bear in mind high m.u. tubes draw greater grid current, and so the modulator unit is loaded to a greater extent. Therefore, adequate input to the modulator tube must be provided. All key filters must be out of circuit, and the modulator unit should be out of the R.F. field of coils and condensers.

Summing up, a grid-bias modulated amplifier offers a means of obtaining 'phone operation with a minimum of additional equipment, and when handled properly is capable of giving results which cannot be called other than satisfactory.

Proper adjustment is necessary. Handle the adjustments intelligently and you will get results.

.....

The editorial committee desires to express its appreciation of those contributors who send in "small articles." These are generally accompanied by a rather humble and apologetic note from the author hoping they won't be considered presumptuous. Believe it or not, we think "little fish are sweet." Many thanks.—Editor.

.....

Hydroplaning on 56 M.C.

By VK5LD.

At the invitation of the S.A. Outboard Motor Club, the Institute provided radio equipment and operators to accurately time the hydroplane races held on the River Murray at Murray Bridge, South Australia, during Easter.

For ease of operation and portability transceivers for 5 metres were constructed by 5ZX, 5KL, 5HD, 5GP and J. McAllister.

The equipment at the starter's end used the township's mains, 230 volts D.C., and that at the one-mile buoy was powered from dry batteries and located on a pontoon landing stage. Consistent R8/9 signals were maintained throughout the week-end; a little trouble was experienced from motor exhaust noise, but, strange to relate, ignition QRM was hardly noticeable.

Antennas were of the vertical doublet type with ordinary lighting flex feed lines, thirty feet high at the starter's end and about three feet above the water at the mile mark.

The portable calls of 5WI/X and 5ZX/X were officially allotted, and, in addition to 56m.c. working, the 3.5 m.c. and 7m.c. bands were operated on using a crystal tritet oscillator powered from a genemotor delivering 180 volts. Both telephony and C.W. contacts were established with both interstate and suburban stations. Reports on reception of these transmissions during Easter would be appreciated by the Division.

To enable the time-keepers to check the start and finish of a race, duplicate head sets were provided, so that watches could be stopped immediately the signal that a boat had crossed the sight line was given. It was then a simple matter for the time-keepers at each end to communicate and announce the winning driver's time.

The W.I.A. party were fortunate in meeting Crosby Walch, better known

perhaps as VK7CW, who, as representative for Tasmania, piloted an outboard of the same name.

We were indeed glad to be able to congratulate VK7CW on establishing an Australian record of 40 m.p.h. for a hull fitted with a "Class B" motor, his heady driving also enabling him to win two other races from the crack pilots of both N.S.W. and S.A.

On Easter Saturday evening we were the guests of the Outboard Club at dinner at the Bridgeport Hotel, a very jolly gathering, with much humorous speech-making. The Commodore expressed his appreciation of our work in making such a success of the timing arrangements, to which a suitable response on behalf of the Institute as a whole was tendered. In conclusion, our thanks are due to the Outboard Club for enabling us to participate in their function; also to the tavern masters who never failed us in our many requests, and last, but not least, to the YL's who helped us during the evening hours to forget. Oh, boy! What a holiday!

.....

The editorial committee have been in receipt of considerable publicity from W6MDJ, re the "Golden Gate Bridge." The opening of this splendid structure is to take place in 1938, so save up your pennies and prepare to visit San Francisco for the World's Fair. All amateurs are welcome and further information or booklets can be obtained from W6MDJ. A hearty welcome is assured to any ham from the "Frisco" gang.—VK3WG.

.....

SILENT KEY.

It is with regret that we have to announce the passing of "Bill" Roberts, VK5NR. 5NR was well known for his 200-metre phone transmissions and general amateur work. He was only 21 years old.

Station Description

VK2OJ—Noel Arnold, Forest Hill,
Albury, N.S.W.

This station is situated in Albury, and has been licensed since November, 1928.

The first xmitter used was a TpTg, with two tens in parallel, and excellent results were obtained with inputs of ten watts or less.

After two years xtal control was put in es has been used ever since, and probably accounts for the fine work done by this station.

The present xmitter line up uses a 46 as co, 210 doubler, 210 buffer, link coupled to a 203A in the final.

For fone, Heising modulation is used when an 801 serves as modulated amplifier with a 250 as modulator.

In the speech amp. we find a Reis mike fed into a 56, resistance coupled to another 56, which is in turn coupled by transformer to the 250.

The frame in which the rig is fitted is 4ft. 6ins. high, with four shelves.

The two lower ones contain the power supplies—a 400 volt one for the co. and doubler, a 400 to 700 volts supply for the buffer, and a 1250 volt supply, using a pair of 66's as rectifiers for the final.

The third shelf contains the co., doubler and buffer stages, and the top shelf carries the final.

The speech amplifier and the modulator are housed in a separate frame with their power supplies.

Two receivers are in use—one a two-tube job with a 6C6 electron coupled, and a 37 amplifier. The other rx which is generally used is a S.S. Super with regeneration.

A half-wave 7 m.c. Zepp is the standard antenna, but many different types are tried. The height at the free end is about 70 feet, and the feeder end is 30 feet.

Probably the best performance registered is WAC in two hours. Both WAC and WBE have been done on 7 and 14 m.c. on cw., and the tally of 80 countries speaks for itself.

And yet it's all going to be changed!
—VK2IG.

The pirate using VK3JA's call on the 3.5 m.c. band can have the Yauk cards which are coming to hand, on application to VK3JA.

We note that 3KR and 3TL are forwarding the Northern District Notes. Thanks, o.m.'s.—Editor.

S. H. Cans, Brunet
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Federal and Victorian Q.S.L. Bureau



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

Another year has passed and the usefulness of the Bureau continues to increase. Following are the figures for the Bureau since it was established in 1931:—

Year ending	Cards handled
March 31, 1932	9,790
March 31, 1933	18,333
March 31, 1934	18,686
March 31, 1935	22,043
March 31, 1936	27,110

The total number of cards handled in the five years is 95,962.—Nuff sed.

The unique DX contest propounded by "Utopia" for Melbourne hams, and set down for decision on the last Sunday in April, has aroused great interest. The method of scoring, while seemingly ludicrous at first glance, is rather novel, and results will be eagerly awaited.

A visitor to Melbourne during April was "Snowy" Harrison, VK3CN, ex VK7CH, and lately located at Shepparton. We were pleased to renew our acquaintance with "Snow", who casually mentioned that he intended to take unto himself a wife during the latter end of the month. Our congratulations. "Snow," and may your married life be as successful as your DX efforts.

Victoria has benefited at the expense of New South Wales by the transfer to Victoria of Dave Duff, VK2EO, who is now located at Crib Point, Victoria, and will use the call sign VK3EO. Dave, who is in the Navy, is an asset to any State.

Cards are on hand at the Bureau, 23 Landale-street, Box Hill, for the following VK3 stations, who may secure same by forwarding a stamped envelope:—

VK3 AN, AT, BJ, BS, CV, CZ, DG, DQ, EO, ES, FB, FQ, GA, GP, GV, GY, HE, JT, JZ, KA, KG, KY, MK, MX, NA, OD, OI, OK, PC, PH, QR, QY, RE, RM, RQ, RW, TC, TE, UF, UJ, VF, WH, WP, XF, ZB, ZF, ZK, ZW, NYE, Sebire.

Cards for the following have been on hand for some time, and unless claimed by 31st May they will help to warm the bath-water for the Jones family:—

VK3 AH, AX, AY, BE, BR, BX, CA, CW, DL, ET, EW, FC, FM, FW, IL, JL, JR, KB, KD, KM, KS, KT, LP, LS, NJ, OB, OP, OZ, RZ, SL, TA, UY, VK, WC, WX, YL, ZA, ZX, Endacott, Grimwood, Scott, Lavender, Thompson.

.....

We have been publishing N.S.W. Division box number wrongly for some time and desire to point out that Box 1734JJ, G.P.O., Sydney, is the divisional address. Unfortunately, in January and March issues, we published some notes from VK2 as "Federal Notes," mainly because they were of such a general and useful nature. However, the mistake may have caused inconvenience, so we are anxious to point out the error.

N.S.W. State Exhibition

The plans have been completed for the N.S.W. Division's State-wide Exhibition which will be held during the week of 15th to the 20th June, in the Lower Hall of the Presbyterian Assembly Buildings, Wynyard-square, Sydney. The times are as follows:— Opening 7.30 p.m. Monday, with the official opening at 8 p.m.; Tuesday, 6 p.m. till 10 p.m.; Wednesday, 12 noon till 10 p.m.; Thursday, 6 p.m. till 10 p.m.; Friday, 6 p.m. till 10 p.m.; and Saturday, 10 a.m. till 10 p.m. That is from Monday, the 15th, till Saturday, the 20th of June, inclusive. An extensive series of competitions have been arranged and should cater for everyone.

The floor space is over 6,000 square feet and the Institute is making every endeavour to make the exhibition an unqualified success. It means a terrific amount of organisation. They are going to have their television demonstration, transmitters working on all bands, ultra high frequency demonstrations, a first-class lecture every night, and military signal demonstration. The Institute appreciates it is really time the amateurs of this State put on a show to demonstrate to the public their activities.

K. B. Warner, Secretary to the A.R.R.L. and I.A.R.U., has been approached to open the exhibition, via W2XAF, the N.B.C. Station in New York, and A.W.A. has kindly offered to take the broadcast through their receiving station and allow replies to be transmitted back through VK2ME.

There are distinct sections of competitions: (1) for affiliated clubs and (2) for amateurs in general.

Under the first section there are two competitions: (a) The Wireless Weekly Cup to be awarded to the best stall exhibit of amateur gear by an affiliated club; (b) £3/3/- first, and £2/2/- second, to the best pieces of amateur gear contained on those stalls. These prizes are donated by Wireless Weekly.

The second series comprise six sections, A to F, and first and second

prizes are awarded in each section:—

(a) The most efficiently-designed and correctly-built multi-band transmitter.

(b) The most efficiently-designed and correctly-built amateur receiver.

(c) The most compact, complete, portable station, efficiency, design and method of building to be considered.

(d) The best U.H.F. receiver.

(e) The best U.H.F. transmitter.

(f) The best example of a piece of amateur apparatus, excluding gear that could not be exhibited in sections (a) to (e) (wave meter, P.A., monitor, key, mike, etc.).

It is necessary to include with each entry a description of the gear and points of merit and circuit diagram.

Points will be awarded for: (a) design; (b) workmanship; (c) covering description. The competitions are open to all members of the Institute and its affiliated clubs, and to all other short wave experimenters, at the price of 2/6 per entry.

The prize list for the second series has not been completed, but the following will give some idea as to the value:—

Best transmitter: 1st, 50-watt Philips R.F. Penthode.

U.H.F. transmitter: pair of TCO, 3/5.

U.H.F. receiver: £2/2/-.

Best piece of apparatus: Thermo-coupled R.F. meter.

Other prizes available and not allotted as yet are crystal microphone, filter condensers and condensers. The final prize list and general publicity will be forwarded to all amateurs in N.S.W. Entries will be received at the Lower Hall up till 6.30 p.m. on June 15th. The possibilities of a comprehensive (insurance) policy

(Continued on Page 12)

W.I.A. Dinner

The annual dinner of the N.S.W. Division of the Wireless Institute of Australia is becoming a very well-known yearly event in amateur radio circles. The 1936 dinner, held at the Dungowan Cafe on 26th March, was a success.

The new President of the Institute in this State, Mr. H. Petterson, was in the chair, and the dinner was officially opened with the toast of "The King."

The President reminded those present of the great losses that amateur radio had suffered in the passing of Colonel Clair Foster and Hiram Percy Maxim. In memory of these two fine "Hams" a silence of one minute was observed.

The toast of "The Institute" was moved by Lieut. McCormack, of the Army Signals, who mentioned how the Army was dependent, to a large degree, for their operators on the amateurs. He also expressed the opinion that in the case of a national emergency, the experimenters, especially if properly organised, would be of inestimable value to the Commonwealth, and, in concluding, he wished the Institute every success in their endeavours to forward the radio game.

Mr. W. M. Moore, Federal President, replied on behalf of the Institute, and mentioned the efforts of the body in the past and since its inauguration in 1910, and said he was sure that the Institute and its members would do all in their power to further the radio art.

The Senior Radio Inspector, Mr. W. T. S. Crawford, representing the Department, was present, and replied to the toast "The Radio Inspectors' Department," proposed by Mr. D. B. Knock, who said the Institute, and amateurs in general, appreciated the support afforded them.

Mr. Crawford, in replying, stated the Department had always been interested in the Institute's activities, and he was pleased to be present. At the conclusion of his reply, Mr. Crawford kindly

consented to answer any questions concerning the regulations. Quite a few members and visitors present availed themselves of the offer.

Messrs. Moyle, of "Wireless Weekly," and Knock, of "The Bulletin," replied to the toast of "The Radio Press," and both spoke of the valuable work being done by amateurs. Mr. H. Chinner moved that toast.

"Associated Societies" were toasted, and the following replied:—I.A.R.U., H. W. S. Caldecott; BERU-RSGB, J. Corbin; A.R.R.L., E. Colyer; Lakemba Radio Club, Mr. Clarke; Waverley, Mr. Wells; Manly, Mr. Shelley; and Zero Beat, Mr. Miller. VR3AM, of Ocean Island, was a welcome guest, and replied on behalf of the visitors. The Country Vice-President, Mr. O. Chapman, was also down from Wyong.

Some of the high-lights included the glowing references to the retiring council, replied to by Frank Goyen; 2JX ability to mix marbles and drinks; 2AG and 2GP formation of a left wing; Manly versus Zero Beat side bets on a competition; and, finally, the increased capacity H.C. without a doubt.

(Continued from Page 11)

being taken out for all gear is being considered.

One section of the hall has been taken for trade exhibits, and some ten firms who have amateur apparatus to show have notified the Institute of their willingness to participate. Further particulars will appear in all radio magazines and the daily press, so everyone is asked to build with an eye on the exhibition.

Further details from the Secretary, N.S.W. Division, W.I.A., Box 1734JJ, G.P.O., Sydney.

Federal Notes

The month of April saw not only a great amount of activity on the part of certain members who handled traffic during the search for the lost Dragon-Rapide machine, but a general increase in all Districts. At the moment the enthusiasm appears to be at its highest, which can be noticed more especially by the rapidly decreasing stock of Reserve crystals at H.Q. It shows that members are beginning to wake up again after a run of DX contests, 28 m.c. activities and a general lull in activity. A systematic training programme was submitted to all D/C's during the month, and if carried out should keep members busy for at least two years. It rests with the enthusiasm of the D/C's.

Congratulations must be handed to 4A3, 4B1, 4Z1 and 5A2, as well as others who took part in the lost Rapide search. Figures showing hours of operating and number of words handled are not yet available, but for about a fortnight each station put in at least four hours a day on the key. VJT was the central station during the operations, and Reservists kept a watchful eye out for signals from the search machines, both from the air and on the ground.

Seven new members have been enrolled during the month, and at least six more are waiting finalisation of their applications. A final appeal is made to stations that have been inactive for some time to get busy and recommence training, otherwise a resignation will be reluctantly requested.

3rd DISTRICT.

(By VK3UK-3Z1.)

It seems to be the most difficult thing in the world to write notes when one is on holidays. 3Z1 is having a spell in N.S.W. Had a wet, cold drive to Sydney around the coast, and went on to the Blue Mountains. Up to the time of writing the rain hasn't stopped, so the holiday officially hasn't started. In the absence of 3Z1, 3Z2

is carrying on the running of the schedules.

As usual, no schedule was kept by VMC on Easter Saturday, and the following week some interesting portable tests are going to be carried out on schedule by our metropolitan stations—3B4, 3C2, 3C6, 3D3, 3D5. They are taking their gear up into the hills and will carry on normal schedule work as well as making experiments in various aspects of the problems.

Two points we are endeavoring to do throughout VMC in the future is to make all our portable equipment standardised from the viewpoint of filament and plate supplies. To make our portable organisation sufficiently flexible any power supply must be interchangeable with any other. The other point is an essential—that all transmitters must be crystal controlled on Reserve frequencies.

3A4 is moving to a new QRA shortly and will be rebuilding his gear then. In the meantime his 47-45 outfit is doing great work.

3A5 passed through Melbourne on his way to Lorne on holidays.

3A6 has made a welcome re-appearance on schedules after his illness.

3B3 and 3C3 had a visit from 3Z2 and VK3YP, and, as may be expected, stirred up even more enthusiasm in 28 m.c. work, especially in the former man.

All VMC joins with me in offering heartiest congratulations to 3C4 on his recent venture into double harness. May 3C4 and Mrs. Powers have a lifetime of health and happiness.

3C6, in his capacity as Divisional traffic manager, is organising a 56 m.c. field day, which will be attended by the majority of the boys.

3D2 is away in N.S.W. on a well-earned holiday.

We are delighted to welcome a number of new members this month, in-

cluding 3KJ, 3WW, 3MK and 3ZR. We hope they will be able to settle down quickly in the organisation.

5th DISTRICT.

(By 5Z1-5SU.)

VME is showing more signs of activity than ever before, and all members of the first section have been issued with crystals. Four of them are already on watch with CC. Watches are being held each Friday from 2100 to 2300, and broadcasts on procedure are being given by 5Z1. Owing to the skip causing some country stations to be inaudible, excellent scope for practice in relay procedure is available through 5A2. For the benefit of country members it is proposed to hold another watch either at 0700 Saturdays or during the week-ends.

4th DISTRICT.

(By 4Z1-4AW.)

After a somewhat dormant period of activity VMD has sprouted to life with renewed energy. Our crystals have been allotted to active members for section work. The crystal fundamental and harmonic frequency are both reserve channels, so good use will be made of this convenient allocation for general coverage of this large District during all seasons. 4A5 and 4B1 have taken over command of VMD1 and VMD2 respectively. Two VK stations have made application for membership, namely, VK4WT and VK4LK, who are very enthusiastic. These appointments will complete two sections for VMD. At the time of writing 4A3, 4B1 and 4Z1 have co-operated with VJT, 1A1 and 5A2, providing fairly constant watch on signals from VMZAT operating from Newcastle Waters in the search for the lost Rapide aircraft.

28 AND 56M.C. SECTION.

(Conducted by VK3JJ.)

The 28m.c. band is now improving to such an extent that during the past few weeks it has been almost impossible to strike an off day. Many more stations are active and it certainly sounds more like 14 than 28m.c. South Africa was perhaps the easiest DX, and several of these stations remained audible for as long as five hours in the afternoons. ZS1H was the strongest, but was closely followed by ZE1JJ, ZS2A and ZT6K. Several others, including ZT6Y, ZU1C, ZE1JU and FB8AB are much weaker, but did not have much difficulty in working VK's.

Europe was the only continent seldom heard, and the signals which did come through in the early evenings were very weak. Judging by the way we hear J stations working LU around 0700 GMT (4 a.m. in LU), it should be possible for us to work Europe in our early mornings. Has any VK worked DX between midnight and 6 a.m. lately?

Several VK3's who were active on 10m.x. several years ago are now back on the air again, and locally 3GU, 3FM, 3BJ, 3CZ and 3CX all put out strong signals. New country stations who are doing well with DX are 3KR, 3HM, 3HL and 3GM. Two other VK3's to WAC on 28m.c. are 3NM and 3OC.

Complaints of the irregularity of size of "Amateur Radio" come to hand from time to time, and the Editorial Committee wish something could be done about it, but so far no remedy has been discovered. However, we will try to be more accurate in future. "Amateur Radio" was first printed in October, 1933, and has gone through some stages since then.—Editor.

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SOUTH AUSTRALIA	BOX 284D, G.P.O., ADELAIDE
WEST AUSTRALIA	62 SUBIACO ROAD, SUBIACO
TASMANIA	BOX 547E, G.P.O., HOBART

N.S.W. Division

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

COUNTRY ZONE OFFICERS.

ZONE 1 (Far West)—

J. Perooz, VK2PE, Hope-st., 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)—S. Grimmett, VK2ZW, 101 Tudor-street, Hamilton.

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

N.S.W. NOTES.

(By VK2BX.)

The outstanding DX station during the good conditions of late March and early April was ZS1H. He was there practically every afternoon from 3 to 6.30 p.m., and reaches R8, Qsa5 at times, always with a very FB T9x signal. On a Sunday afternoon ZS1H seems to work a constant stream of VK's and ZL's. ZT6K is another South African who put in an appearance

here on 10th April with an R7 NDC signal, but faded a fair bit.

OA4J seems to be the big noise from South America and comes through fairly consistently between 2 and 5 p.m. with a good RAC note and usually about QSA3/4 R3/5. K6 stations are improving now and come through from about 11 a.m. to 3.30 p.m. W6 stations seem to get through to New Zealand as late as 3 p.m. Sydney time, but fade out here between 1 and 2 p.m. European signals are very scarce now. FA8BG is on the lookout for VK and ZL's at 1800 GMT. (04.00 East. time).

The ZL's seem to be about quarter of a mile away, judging by the noise they have been making during the last few weeks. ZL4FK is outstanding with FB phone, and CW signals QSA5 and up to R8. ZL's 1BA, 1CD, 1GX, 2BG, 1HY, 3JA, 4FW and 3JA all reach R7 and come through consistently.

VK2LZ very quiet now, but only has to come on for a minute and raises some DX for sure. VK2EO has been moved to Melbourne and by now should be on the air again. The VIS gang want to know why the VIM gang pinch all our leading 10 m.x. DX stations? Remember old 2EP, Boys? And now poor 2EO has gone, too! If one more 10m.x. DX station goes south, the VK2 gang will be forced to consider "applying sanctions" against VK3!

VK2YC has gone to the dogs completely. I mean, the dog-fight on 7 m.c. VK2AS drops down to ten occasionally, working W, ZS, etc., fairly easy. VK2UC is giving 10 m.x. a go, but seems to be too interested in 20 m.x. phone. VK2AE puts out an R8 signal but DX not much yet. VK2BX finally busted out on 28m.c. and QSO'd all ZL districts and ZS1H, and was heard by ZT6K.

NORTH SHORE ZONE.

(By VK2VG.)

2AE heads the list for the North Shore (the alphabetical list), and has been doing some good duplex fone work. 2BJ's pet about the shack is his xtal mike, and although heard on 40 occasionally, has been very active with the recent formation of the North Suburban Radio Club. 2HL also contributes largely to this cause, his shack being opened for long hours to the many hams round about. Don, of 2DR, has not been heard for some months, but expect the coming winter will bring him out on 80 once again. 2DU's excellent fone from Wollstonecraft was heard once during a Sunday afternoon in April; don't remember having heard him for many months previous to that. 2FV in Mosman will shortly have a good fone rig on the air. Jack would be pleased to compare notes with any ham who has tried 2A5's in resistance coupled P.P. for audio amplifiers. 2GD is seen regularly at 2HL's, and is on and off the air, but finds work keeps him most busy. 2HA keeps the whole BCL population of Greenwich in entertainment down at the bottom end of the B.C. band, although actually he has his three stages on 40! 2HG puts out good fone, using Telefunken modulation and no speech amplifier; he works a Ford coil into the apparatus somewhere. 2HY still finds new countries to work on 20, and gets them, too. 2HZ's fone on 20 gets out well to the DX, although much business connected with ham radio off the air keeps Bill most busy. 2IP is heard more often from 2LZ's mike than his own. 2LD from Lane Cove puts out a strong signal on 40 from a S.E. rig. 2LZ was busy building during the Easter holidays. Guess his nearby B.C.L.'s will be dreading the approach of winter, when Con will be including 80 mx in his band selection. 2NN is

heard occasionally from Roseville on fone, but is not very strong down at this quarter. Paul 2NV (ex 2KA), who has been off the air for a year, will shortly stage a comeback, modulating a pair of tens in P.P. with a pair of 2A5's in P.P. 2PV puts out a good T9 signal to W on 40 at nights when QRM is not too bad. 2QF has a strong carrier on fone, but the modulation when last heard was not quite doing justice; however it should be FB by this. The S.E. T9 sig of 2SS is still being hard to equal on 40, and quite a host of Yanks are attracted by it. 2TD combines CW and fone, and the quality of both are excellent (as usual). Artarmon QRM is mobilising lately with 2VE, 2VQ, 2VP, 2VL, with 2VI and 2VG in the adjoining suburbs of Chatswood and Greenwich respectively. When they all come on together it's like a trench mortar. 2WW has not been heard lately. Guess its QRL study, eh, Bill? 2YC still gets more QSL's sent to him than he works stations. However, we are more pleased than sorry in his case. 2YA manages one local rag chew a week, but when the school holidays come he will have more time to work DX than mark examination papers.

ZONE 4.

(By VK2ZW.)

The re-incarnation of the WIA is a source of gratification here. Best of good wishes to the new team in VIS.

Would be pleased if Coalfield's gang would keep me posted on news for Zone Notes.

2JZ, the old timer from Singleton, still remains in ham obscurity, but is said to be making a pile out of the country B.C.L.S. His ham broadcasting xmitter on 240 mx has become very popular.

The Wyong crowd are not very active, although OC has frequency stidules going.

A new ham has started up in Swansea, on Lake Macquarie, OE (Mr. Allworth). OE had some experience in the early spark days, but has only just returned to active radio. He is using a 45 SE sig at present. The location being excellent, we should hear of great doings there soon. A hearty welcome, o.m.

Ron Glassop, RF, has shifted to Toronto, also on the Lake, and is very active. His fone is of high quality. Using "B" class modulation and bends, he works DX by the mile. He won the N.A.R.C. Electronics Cup this quarter with a remarkable collection of dx.

ZW is still rebuilding and the time something good to look upon with an 852 in final stages. Next month should see a switcho on ceremony.

A. Fanhall, 2KB, gets into double harness this month and sails for U.S.A. for a motor tour of that country. We all join in wishing him all happiness.

ZONE 5.

(By VK2IG.)

Condx hr fair on all bands, though 40 not very consistent (excepting qrml). On 20 W's coming in at all hours at great strength, many being r9 both on fone as cw. Somewhere about 400 to 500 W's have been contacted during the last month between 2QE as IG on twenty. Little other dx.

2QE complains that he has ruined up his not this week. (Why pick on this week, o.m.?)

2UE on nearly every lunch hour on 40 having chews with the regulars there.

2OD gg to put in high power (when?). Wid EU visited IG os had the thrill of a qso last Sunday, hi!

2OJ all in bits is being remodelled. If the new xmitter works as well as it looks the gang will all want supers.

2YI says that he is enjoying ship life. Anyway, we knew Harry wasn't truthful!

2IG qso'ing plenty w's but nil other DX. New antenna seems vy fb for North America, tho condx at present favorable there, so hard to tell yet.

W9MIN wants to know whether anyone can challenge his claim of a record in his working D4ARR on four bands. Sounds vy fb to us. (Via 2QE).

F7JDY of Noumea, New Caledonia, reports 2IG as qsa 8:r9 t9. Sure must have been readable, hi! His sigs were Qsa 5:r6 t9x. hr wid input of 1 watt to

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a couple of B405's in a Mesny circuit. Rather good work, too.

W4AH on fone (q5r8) trying for records in working VK cw's before breakfast (his breakfast!). Record abt 14 stns.

LAKEMBA RADIO CLUB—VK2LR.

The above club meets every second Tuesday at the clubrooms, 334 Canterbury Road, Hurlstone Park. The annual re-union will be held on Wednesday, 6th May, at the "Donnybrook" Hall, Canterbury. The usual silver cups and prizes will be presented. The winner of the Slade Cup for the DX contest was VK2KS. The official result of the Chanex-Dulytic contest has not yet been announced, but it is anticipated that 2KS will also carry off the prize in the latter contest. Congratulations are extended to Leo Myers on his very creditable performance. The most active members of the 5-metre group are 2OD and Mr. L. Taylor. A new transmitter recently constructed by 2OD, and operated at Hurlstone Park, was heard on Kurrajong Heights at a good R6, with excellent quality on both speech and music. At the recent A.O.P.C. exam. three candidates from Lakemba Club presented themselves, and we trust that they were successful in obtaining a satisfactory pass. By the time these notes appear a new committee will have been elected, as the last meeting in April is election night. The re-union is held the following week, details of which will appear in next month's "Amateur Radio."

NEWCASTLE RADIO CLUB.

(By 2RF.).

The club meetings present busy scenes these days from 7 p.m. onwards, as five associate members are being prepared for the A.O.P.C.

A new member is Mr. Allworth, who is awaiting his call-sign. He threatens to blow holes in the air soon at Swansea with p.p. 45's.

ZW still rebuilding; likewise KB. By the time these notes appear Alan will be en route for U.S.A., to see where the big sigs. come from.

TY pounding plenty of brass, and UF still chasing DX on m.x.

The club DX contest, with three weeks to go, has developed into a duel between MT and RF., MT concentrating on 20 m.x., and RF on 40; at the moment MT is 19 points ahead. RF has been picking up with extra points for phone contacts; Class B modulations with 46's is used on p.p. 210's.

The annual Hamfest is definitely to be held on the first week-end in September, and the Newcastle lads promise visitors an even better time than they had last year.

Victorian Division

PHONE SECTION NOTES

The meeting of this Section, held at the W.I.A. rooms on 31st March, was well attended by the loyal supporters of the Phone gang. In addition to those who always attend we had the pleasure of 3TM's company. Bert is usually there in spirit only, likewise 3JR.

Allocations were dished up in the time-honoured style, and everyone received what they wanted (within reason).

The Phone transmitters are to be congratulated on their good work in the last couple of months for the publicity given to the new A.O.P.C. class. These announcements prove of greater value than the individual members concerned may have imagined, resulting in a very satisfactory enrolment.

Activity on the phone 200 m.x. band is about the same as usual. On week nights such stations as 3HF, 3FW, 3RI, 3PA, 3CB, 3TM, 3EL, 3LN and 3JR can be heard feeding Australasia in general with classical, "hot" or otherwise, music in the course of their experimental transmissions.

This is supposed to be exclusively 200 m.x. phone in this department, but it is impossible to resist reporting the sudden appearance on the 56 to 60 m.c. band none other than our worthy chairman, VK3TH. Following hot in the wake of TH, VK3CR was also heard on Sunday evening last on this band.

Well now, boys, we have the chairman, the vice-chairman, and the secretary active on 5 m.x., so why not the

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rest of our infallible phone gang, and show the rest of the Institute how "phone" ought to be done?

3FW has been on 5 m.x. before, but rumour hath it that he will be there again in the space of a week with a special stunt.

3HF still commences on Saturday nights and runs till the "not so early" hours of Sunday morning—in fact, the clock quite regularly reads 4.30 a.m. now when Harry and Graham say "good night." Why not keep on until 10 a.m. and make a job of it, HF?

In the case of 3TM, the same remarks apply, except that they start on Sunday night.

3LN seemed to have an idea that the transmission was not nearly as good as it really was—when he was heard to be worrying aloud on 1400 k.c. the other night about a HUM!

3EL was heard using the audio frequency system of a standard B.C.L. receiver as a modulator during the reconstruction of the regular modulator.

—73's VK3DH.

WESTERN DISTRICT NOTES.

(By 3OW, 3HG.)

With 3OW recently returned from holidays and 3HG still away, radio activity has been somewhat diminished here.

3HG is at present in N.S.W. and is operating a portable, with call 3EF. This is putting out good signals, with the aid of a 6v.-180v. dynamotor, and regular skeds are run with the "home" stations.

Conditions on 14 m.c. and 28 m.c. have been very good, whilst there is plenty of activity on 7 m.c. and 3.5 m.c.

The new receiver at 3OW, whilst lacking nothing in sensitivity, gave a good deal of trouble on the selectivity side, but the trouble now appears to be eliminated, and op. is awaiting the return of 3HG—not without certain misgivings, all the same, hi!

3PG still working DX, and now has over the century in European stations worked.

3NC, on the staff of 3HA Hamilton, is planning a return to the air, so keep a look-out for him on 3.5 m.c.

3JA not heard since he left Warrnambool to live on the farm. 3WW still active with good phone on 7 m.c. and 3.5 m.c. 3XI working phone on 3.5 m.c. only.

With the colder nights coming on again a low angle radiator, actuated by a petrol drive, is proving very popular at 3OW, so call in, gang, when passing and test the radiation!

Queensland Division

Another year has passed in the annals of the Queensland Division. The annual general meeting was held at headquarters on 3rd April, at which was a large attendance of members—37 to be exact—and visitors in the persons of VK2BJ, Mr. G. Stroefeldt 4GS, and Mr. Riley, of the Radio Inspector's Department. At the conclusion of the various reports the president had pleasure in presenting the following trophies:—

The Mackenzie gold trophy for the best station was presented to VK4AP, and a red pennant to 4WT as second place. This is for annual competition and is won on station design and layout and actual performance.

The Cran trophy for the best performance in contests during the year went to 4BB, with 4EI as the runner-up.

The W.I.A. trophy for the most meritorious performance during the year was won by VK4AP for his first WAC on 10 metres. 4BB received second place and a red pennant for being WBE on 10 metres. This trophy is won outright.

For having secured first place in a recent VK4/ZL contest VK4JF won the W.I.A. Council trophy.

To commemorate the first VK/European contact on 10 metres, 4EI received a special trophy suitably engraved with the letters to that effect.

Pennants were presented to the winning team in the last Fisk trophy contest, namely, 4EI, 4BB and 4AW.

Amateur Radio

The election of officers for the coming year resulted in the following being elected:—President, Mr. A. E. Walz, VK4AW; secretary, Mr. F. O'Laughlin, VK4OL; assistant secretary, Mr. P. Pelly; treasurer, Mr. W. Chitham, VK4UU; council, Messrs. J. Bates, VK4UR; A. Guildford, VK4AP; P. Hubscher, VK4UL; P. Bauers. Mr. W. Wishart, 4WT, has since been appointed traffic manager.

During a recent radio dealers' conference we had the pleasure of meeting personally quite a number of country members who happened along on this occasion.

Conditions on 10 metres are becoming poor these days. Things seem to be going haywire. ZL stations and others are beginning to fade and play tricks like pre-DX days. VK4US reports hearing HJ station at midday recently at good strength, but no contact. Peak period seems to be during November, December and January. We wonder if such conditions will return later in the year. We shall see.

4HR has a super working 10 and 20, and drags the DX in in fine style, specially the Yank fone on these bands.

4VH was heard recently at 4FB exchanging hot numbers with 4HA on 40 metre fone. 4HA has improved his fone lately and gets good reports from dual-wave receivers.

4JB back again from the West and after more countries. Delights in telling 4RY of his new contacts, but Old Bill manages to keep at least one country ahead. What's wrong with the 53, Ock?

4GA, 4LK and 4JW, constituting the North-west Rock-crushers' Club, may be heard chewing the rag each Sunday morning. 4JW specialises in the old 201A and Ford coil outfit. Takes a lot of beating where no power is available.

4WT finally got the 52 working as the PA in his rig. Bill's rig has been christened the Queen Mary owing to the white baseboard and long lay-out extending one side of the shack to the other, and the time taken to complete. He was presented at the annual meeting with a defunct Marconi MT7A to put in as the final amplifier of the

first known amphibian transmitter, as the boys termed it.

4UR is concentrating on DX and has gone crystal to live up to the reputation and ideals of the "U" gang.

4LB encountered parasites in his push-pull rig and finally overcame the trouble by rebuilding.

4GU is having trouble getting rid of hum in his sub-modulator unit.

Both 4ES and 4TN use DC mains at Bundaberg with no filter at all. 4TN sure makes a noise on the 201A and can he speed the old hand key up?

4ES is going in for crystal, using DC tubes off the mains push-pull parallel PA on 240 volts to make an impression. 4ES is very strong in VIB in daylight.

4LN just appointed first officer and operator to Qantas' flying DH86's.

South Australian Division

Well, chaps, the end of the Institute's year has come, and now several new faces are to be seen in office. The annual general meeting was held on 1st April. The retiring president, Mr. Richardson, was presented with an electric timepiece donated by all members of the Institute. Mr. Barbler (5MD) was duly elected the new president, and the members on the Council should be able to manage affairs for the next 12 months. Visitors to the meeting were Mr. Whitburn (5BY), Mr. De Cure (5IH) and Mr. Doddy (6WH). The meeting took the form of a social, with light entertainment from a mouth-organ band under the management of Mr. McAllister.

At the transmitters' annual meeting on 25th March Mr. Pearn (5PN) was elected president, Mr. Dean (5LD) secretary, and Mr. Lloyd (5HD) assistant secretary.

AMONGST THE BOYS.

(By VK5KL.)

5MY reported married, but showed up at meeting and proved himself innocent. Take care, Harry!

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5BY enjoyed himself at annual meeting while presenting 5YK with present by teasing him abt his 50 watters. Doug. vows he will come back and take an active part in the Institute's affairs. FB, o.m.

5WP showed himself and told sum really gud yarns. Admitted he knows all about YLS. Oh, yeah!

6WH brought his cards over to save postage. Hi! Told a few W. Aust. hot yarns.

5MD presented with FB cup by Mr. De Cure for best article contest held last December.

5ZX also received trophy for his piece of work in the limited contest.

5LL has wrked his first Yank, also PK2KO. FB for 7 watts input to a T.N.T.

5JC hrd QSO'ing few Yanks on fone with R7 repts. Says P.P. mod, the Berries.

5GR re-appeared on 28 m.c. and QSO'ed few ZL's.

5KH deserting 200 m.x. for 10 m.x.

5LG? Not a word frm. Hrd that the air at Burnside is very clear nw. Hw cum? Gess Leith's ether buster used to jam things.

5TX, QRP king, hrd on 80 m.x. using Telefunken mod. QSO 5XJ.

5BU has started by wrking few Yanks.

5XA, 5LP es 5KL all went bargain-hunting one day. Don't worry, we didn't buy anything. Hi!

5DA on the quiet wrking sum DX on 20 m.x.

5FM hrd on agn. Using grid mod.

5LD couldn't keep quiet at last meeting. Kept yelling out for a drink. Gess fergot his table manners. Hi!

Our Hon. Secretary, Marshall Hyder, told fb yarn, accompanied with actions. Sure broke the boys up.

Gess I'll get broke up writing these dry notes, so will QRT. Cheerio.

CLARRY.

Tasmanian Division

(By 7PA.)

A very quiet meeting was conducted on 7th April in the clubroom, and after concluding the business for the month a letter was read from VK2BJ. There was no lecture for the evening, and Mr. H. Burdon offered some suggestions as to subjects and class of lectures that could be undertaken and should be popular.

The Council members were summoned for a meeting for Tuesday, 14th instant. The meeting then closed, and a "free for all" chat on general topics was pronounced.

The Council has, with other things, to start preparations for the end of the current financial year, which terminates on 31st May.

As the outcome of 2BJ's letter, mentioned previously, he was met at the wharf on Easter Saturday morning, when the Orford, on which he was making the tourist trip with his wife, arrived. 7JH (president), 7PA and 7PA's 2nd op. turned out to do the welcoming, these being all we could muster, it being a holiday and the majority of the gang were out of town. After acquaintances were made and appointments for later completed, we adjourned to home for breakfast, it being then about 8.30 a.m.

After breakfast he and his ow were met and driven to a number of vantage points around the city, and a peep in at 7JH's shack was taken; also, I believe they made several tourist trips outside the city area during the few hours at their disposal. On Sunday evening they visited 7PA's shack, and I think they were very satisfied, winding up after 11 p.m. to return to the boat.

Since the new year VK7 has added no less than six A.O.P.C.'s. Some have already acquired their licences, and others are preparing for early applications, so things here are looking up.

The Technical School classes are well patronised again this year, and it seems they are going to prove most satisfactory to the ham element here as well as the trade branch.

Have not got much in the way of jottings for this month. The usual few are operating in the Southern end, and information from the Northern members is as the proverbs say —. Conditions on 40 and 20 metre bands are rather patchy at present, some good DX work being heard at times, but most work being done with W's. QRM and QRN are very bad sometimes. We regret to say that Tasmania's grand old man of radio, 7AH, is not experiencing the best of health of late. Although he is about again, he has to take it very easily—not forgetting your Kruschen, Pop!

Western Australian Division

MORE VK6's ACTIVE.

(By VK6SA.)

Since South American signals started coming through to W.A. on 28m.c., interest certainly revived among VK6's, and now there are quite a number active on this band. 6MN is hard at it looking for HJ or OA, and has worked VK's, J, OH7NF and ZU6P. 6FO also on the warpath, working ZS, PK, J and a number of VK's. 6FL works VK3's and 5's with ease, and has heard a number of DX signals which he has been unable to raise so far.

After working a few VK's, VK6BO had a doubtful QSO with OH7NF, who gave him QSA2. 6NO was heard by VK3YP one day while using a transmitter only and calling to get reports. 6LR at Northam is rumoured to be on 28m.c., but owing to skip has not been heard here.

Quite a few ZL's are coming through and ZL1BA has heard both 6FO and 6MN, but was unable to raise them. 6SA has been trying to cut down the time for WAC on Ten, the best so far being in seven hours. A number of contacts were made with HJ3AJH, OA4J and HP1A, the former being the easiest DX station to QSO at present! It is remarkable how late these stations come through, as it is after 1 a.m., their time. It may be possible to work W's in the evenings here soon, as the summer comes on over there. A W8 was heard on the 10th April at 7 p.m., working ZS1H. The W was dead weak, but it shows the possi-

bility may come later on. When HJ3AJH is worked at noon here, it is doubtful which way the signals go, as daylight is about equal each way. Ten m.x. does not appear to be so much of a daylight band as they try to make out.

DO YOU REMEMBER—

When "Twenty Metres" meant anywhere between 19 and 24 metres, and the Aussies were on 32 and 35, the Yanks between 37.5 and 43, and the Canadians on 52?

When the present "W's" were "U's" and the locals "A" and "OA"?

When the ARTL and WIA were rival organisations with similar aims?

When Harry Kauper worked U6HM (Claire Foster) with a ux 199 and only 20 volts or so on it?

When Ross Hull was A3JU?

When the ambition of all was a T250, with about 3000 volts of rac.

When Ross Hull was asked if he spelt "zoo" as "zee oo oo"?

When the phone gang used 440 metres and the broadcast stations had acoustic gramophones and carbon mikes, and you listened to them with phones or a horn speaker?

And LP1 on 32 metres—and single slide tuners—and loose-couplers—and honeycomb coils—and VIM on spark?

Then, if you do you're no longer a Young Squirt, you're getting to be an Old Timer and should have more sense than to stick at the game!

—VK3RX.

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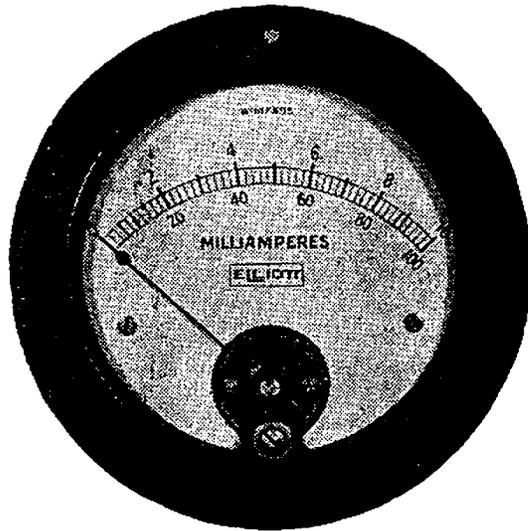
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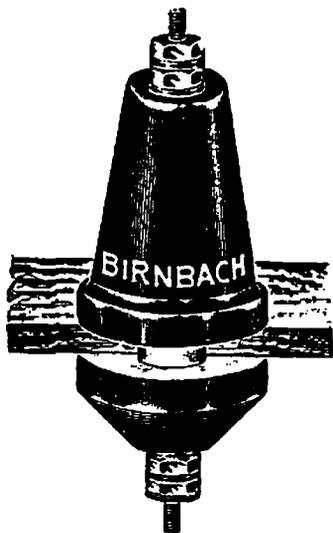
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EDITORIAL . .

CAIRO, 1938?



How many amateurs have given any serious thought to the outcome of the International Telecommunications Convention which is to be held at Cairo in 1938?

Previous Conventions have shown only too well that commercial interests, with their unlimited financial backing, can secure any portion of the spectrum that they desire, while the amateurs, who have pioneered all frequencies above 1500 K.C., with no thought of personal gain to themselves, have to put up with those frequencies that we were barely able to wrest from the commercials and those frequencies that commercial interests considered unsuitable for long distance communication.

In the first instance, the amateurs were given those frequencies above 1500 K.C., it being considered then that these frequencies were unsuited to reliable communication over long distances, and commercial interests did not desire to conduct any research into the possibilities of these frequencies.

After continued experiments the amateurs showed that these shorter wavelengths were most suited to long distance communication. In 1924, contact between Australia and the United States of America was first established on a wavelength of 80 metres. Almost simultaneously, amateurs in other parts of the world established contact over hitherto impossible distances.

Similarly, it was proved that other frequencies, namely, those between 7000 and 10,000 K.C. were equally

as valuable—and with what result—commercial interests, who had done none of the pioneering work, chiselled the amateurs out of the territory which should have been theirs by right. This “pirating” of frequencies has continued until now over 50,000 amateurs throughout the world are crowded into wavebands totally inadequate for a fraction of that number.

If commercial interests made full use of all the frequencies allotted them, and they could prove that such huge frequency allocations were essential to the efficient operation of their services, then the amateurs would have no kick coming, but they cannot prove that they require all the frequencies that they are now permitted to use. Many commercial stations spend hours on end merely sending the test sign V—this has apparently deluded the authorities into believing that they are making full use of their frequencies.

The I.A.R.U., with which the W.I.A. is affiliated, is being represented at Cairo, and data is required on the operation of these stations. The W.I.A. is organising listening groups, similar to those formed and being formed in all other amateur societies throughout the world, to get accurate logs of all commercial stations operating on frequencies adjacent to our bands, in order to illustrate the exact use the commercial stations are making of these frequencies.

We need, in fact, we must have, more territory, and the surest way
(Continued on page 7.)

Notes on the 6E5 (Magic Eye) Tube

SOME PRACTICAL INFORMATION OF USE TO HAMMS.

(By Denys R. Ayre.)

A good many Hams, when they *do* sleep, which is seldom, have been known to dream rosy dreams of Cathode Ray Tubes, and all their luxuries in the way of instantaneous circuit condition readings. Alas, however, the average Ham is not a millionaire! So his dreams fade, and he returns to earth and to moving coil or moving iron meters.

It is well known that all meters (except the better class of moving coil types) will, on the sudden application of a current or voltage, jump well past the scale reading of the actual value, and then return to the correct reading with a number of oscillations inversely proportional to the cost of the meter. This is of no great disadvantage if the current or voltage is constant. But if the input is rapidly varying, and it is desired to follow the variations, one has as much hope of doing it satisfactorily with an ordinary motor as one has of putting D.X. signals on Venus. Hi!

The chief reason for the unsuitability of this type of indicator lies in the weight of the pointer and associated moving mechanism. The input to a meter causes the arm to move. A body in motion possesses *momentum*. This momentum carries the needle past its correct value. The reaction then sends the pointer below its correct value. As mentioned before, the number of swings before it comes to rest depends on the quality of the meter (or the "damping").

With a varying input, the needle would not have finished the first oscillation before the input changed. Thus only part of a complete movement would take place, and it would not be of much use in forming an estimate of the current that caused it. (The writer is aware that meters of a type and quality suited to varying inputs *are* obtainable, but they will be found, for the most part, to cost nearly as much as a full-sized Cathode Ray

Tube. "Meter," in this article, may be taken to mean an ordinary ammeter or voltmeter.)

Most of you who read this will have heard of the new 6E5 ("Magic Eye") tube. The 6E5 is virtually a Cathode Ray Tube. Admittedly it is small. Also, it does not produce the flue "spot" or focussed beam of its big brother. It has, however, two advantages over even expensive moving coil meters. It possesses a movement or indicator with no weight at all, and it costs about 16/- retail.

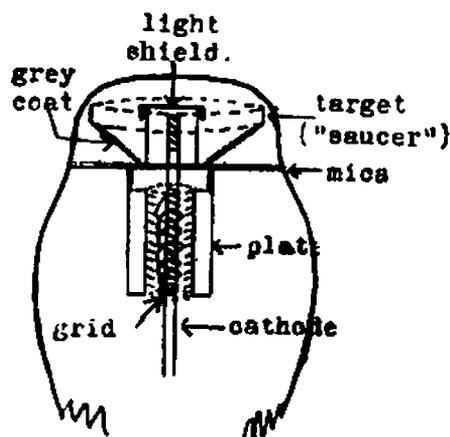


FIG. 1.

In appearance, the 6E5 is like any other valve; in internal construction, it is totally different. The chief feature of its design is a concave metal "saucer" situated in the top dome of the glass envelope, and coated with a grey fluorescent layer. (See Fig. 1.) In the centre of the saucer is a hot Cathode, shielded from outside light sources by a small black metal cap. Underneath, in the body of the valve, are a continuation of the Cathode, a Triode plate and a Triode grid. (The control grid.)

The theoretical diagram and basic circuit are shown in Fig. 2. The tube normally operates with plate and heater voltages of 250 and 6.3 respectively. The one megohm resistor shown in the figure should normally always be included.

In brief, the effect of the tube is obtained by viewing it from above. When the plate and heater voltages are applied, however, the saucer-shaped target glows a bright green. There is, however, a wedge of darkness, which varies in size according to the voltages applied to the control grid.

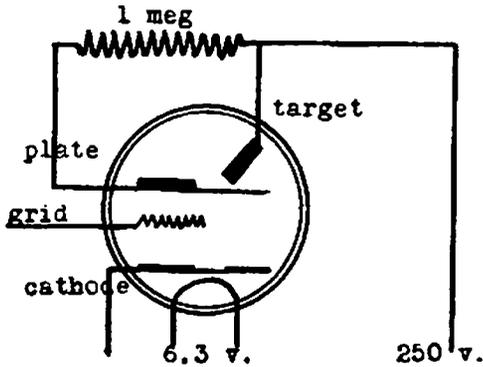


FIG. 2

When the grid is -8 volts with respect to the Cathode, the shadow-angle is approximately 0 degrees. (Fig. 3.) When the grid is at 0 the angle is approximately 90 degrees. (Fig. 4.) When the grid is negative to a further degree than -8, the shadow-angle is not only at zero, but the two edges of the green arch overlap, forming a small angle of a slightly brighter green. (Fig. 5.)

It might be advisable to note here a few facts that came to light in the course of some experiments with the tube.

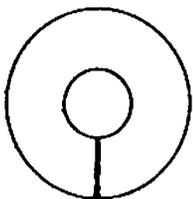


FIG. 3

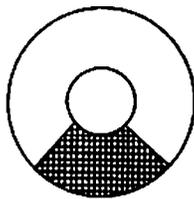


FIG. 4

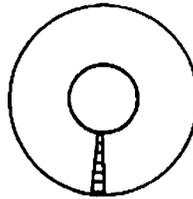


FIG. 5

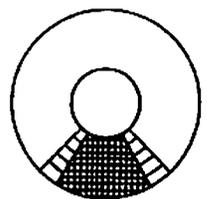


FIG. 6

- (a) Positive grid voltages do not increase the shadow-angle anything like the extent that negative voltages decrease it.
- (b) The tube is normally operated with a 1 meg. resistor between plate and target. However, increasing this resistor results in a slight increase in shadow-angle, while decreasing the resistor results in a slight decrease in angle. The colour seems to be unchanged.

These changes in shadow-angle take place at exactly the same rate as the changes in input. If the input alters instantaneously, then the corresponding change in angle takes place instantaneously. There is no time lag.

The normal use of this tube is as a visual tuning indicator driven by the A.V.C. voltage in Supers. This voltage is D.C. If an A.C. voltage is applied, however, a variation of practical use is still obtained, for the following reason. As pointed out previously, positive grid inputs to the 6E5 produce very little change in angle. Therefore, the *negative* half of the cycle produces an arc slightly lighter in colour than the main green arc, the limits of which main green arc are still visible as the zero value of the A.C. cycle. (See Fig. 6.)

This enables audio voltages to be fed into the tube with a visible effect.

A practical application of this is in speech amplifiers. It is well known that, if the gain control of a speech amp. is advanced too far, over-modulation may occur through sheer volume. It is not practicable to have a loud-speaker monitor in operation at the same time as the microphone, and no decent check up can be obtained through head-phones.

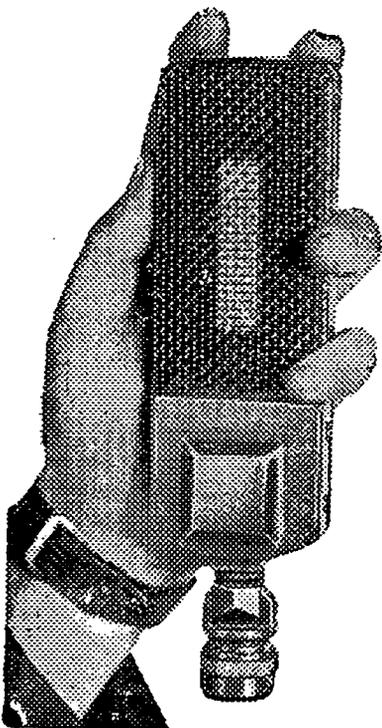
Insertion of a 6E5 is a great help here. The most satisfactory method of coupling the 6E5 to an audio amplifier that the writer has found so far is indicated in Fig. 7. The tube was

connected, by means of a potentiometer, in the output circuit of a 245 Triode, which was feeding a small loud-speaker for test purposes. The high value (1 meg.) of the potentiometer does not affect the impedance matching of the valve and its load. It is advisable to use a potentiometer of good quality, in order that the resistance may decrease gradually to zero—not fall from about 30,000 ohms. to 0 suddenly, as is usually the case with cheap potentiometers.

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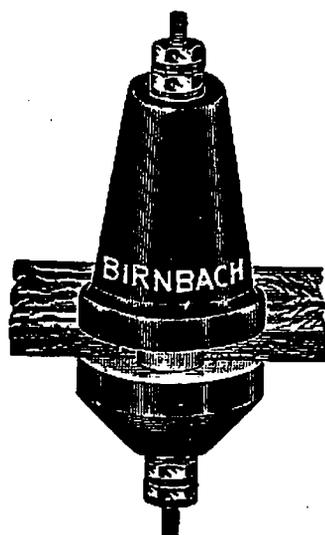
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Type	Height	Price	Type	Height	Price
458	$\frac{5}{8}$	1/8	866	1 5/16	1/8
478	$\frac{7}{8}$	2/6	866J	1 5/16	2/-
478J	$\frac{7}{8}$	3/-	966	1in.	1/2
4125	1 1/2	3/-	966J	1in.	1/6
4125J	1 1/2	3/6	400	G.R. Plug	1/6



FINE GRANULE MICROPHONE CARBON

We have small supplies of this carbon in stock, of the Polished Granule Type which we can sell to Amateurs only at 12/6 an ounce nett.

(Continued from Page 3)

The amplifier is operated at the maximum permissible volume before distortion or over-modulation sets in, and the potentiometer adjusted until the two varying arcs just touch on loud passages. Any further increase in volume will then cause the arcs to cross. It might be thought that the amplitude would vary too rapidly to be seen, but in reality the space between the arcs is easier to see the nearer they get together.

This 6E5 could also be used to advantage in the output circuit of a Monitor.

No doubt many other uses will suggest themselves.

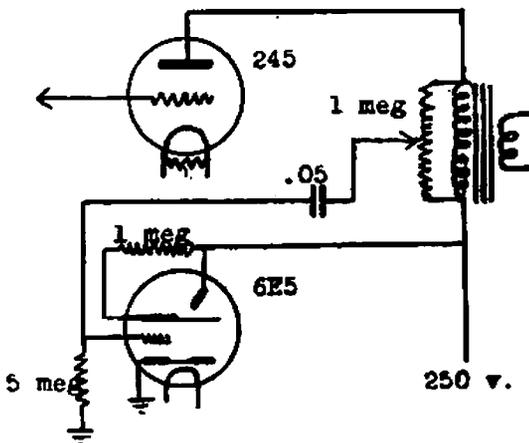


FIG. 7

The mechanical installation of the 6E5 should be effected in such a manner as to keep the target reasonably shielded from outside light sources, in order that the angle may be readily observed.

The writer is at present investigating the possibility of indicating percentage modulation by means of the 6E5. Should anything of practical value come to light, it should prove of great use to 'phone Hams.

for us not only to forego our claims for the additions we need, but also to stand the right way to lose what we now possess, is for every amateur to leave this job of collecting data to someone else.

The W.I.A., along with all other affiliated bodies of the I.A.R.U., will be contributing towards the cost of sending a representative to the Convention, and we must see that he goes armed with overwhelming information in support of our claims.

The Australian Government will also be represented at the Convention, and it is the intention of the W.I.A. to present a petition to it along the lines of the one already presented to the New Zealand Government by the N.Z.A.R.T., and to ask that the Australian representative be instructed to support the amateur proposals.

This is one of those rare occasions when there is a job of work to be done in YOUR Institute when the results will hit you as hard as anyone else if you do not do your share. Sometimes a "leave it to James" attitude only affects you in an indirect way, but this is a matter of such tremendous importance that a supreme effort by everyone is essential.

The information concerning the data required will be given in an early issue—the rest we leave to you!

QUARTZ CRYSTALS

Every Crystal tested to 50 watts input to Penthode Crystal Oscillator
 Accurate grinding to .03 per cent. 3.5 M.C., 20/-; 7 M.C., 30/-
 100 K.C. Xtals. 465 K.C. Xtal "Gates." Prices on application

PROMPT DELIVERIES

MAXWELL HOWDEN (VK3BQ) CONS. RADIO ENGR.

13 Balwyn Road, Canterbury, E.7.

A 2½ or 5 Metre Super-Regenerative Receiver

HIGHLY SENSITIVE; LOW HISS; COMPACT PORTABLE CASE;
A.C. OR BATTERY OPERATION; ELECTRON-COUPLED DETECTOR.

For ease of construction, simplicity of control and reliability of operation, we particularly recommend a super-regenerative circuit developed by Mr. George W. Shuart (W2AMN), of Ramsey, N.J. This circuit may be used on either 2½ or 5 metres, depending on the size of the tuning coil.

The electron-coupling arrangement of the detector circuit permits the use of a grounded tuning condenser and a single tapped coil, one end of which is also grounded. The advantages and convenience of this scheme will be appreciated by every "Ham" who has tried the usual split-coil hook-up which requires a "floating" condenser.

LEAK CONTROLS "SUPER" ACTION.

Super-regenerative action is produced by the grid-leak connected between the grid and the plate of the detector tube. While its value is not very critical and three megohms has been chosen as the optimum, different tubes may require slightly different resistor values, and it will pay the constructor to do a little experimenting at this point. The higher the value of the leak the lower the audio output of the detector, but the greater the sensitivity and vice-versa.

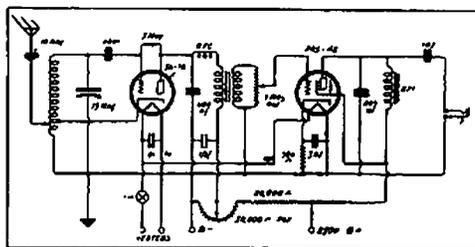
For five-metre work the coil consists of seven turns of No. 12 bare copper wire (tinned bus bar is excellent), wound around a form a half-inch in diameter, and then slipped off. The spacing between turns should be one-sixteenth of an inch. The Cathode tap is two to four turns from the grounded end, depending upon the particular tube being used.

The antenna tap is a matter of experiment, but as a starter it should be made to the Cathode connection of the coil.

For two and a half metres the coil consists of four turns of No. 12 wire, wound in the same manner as the larger coil.

CHOICE OF TUBES.

The detector may be either a 56 or a 76, the audio amplifier a 2A5 or a 42. The 76-42 combination is recommended since the heaters work on 6.3 volts, and the finished receiver may be used with only a slight chance on either A.C., with a separate power



pack, or on batteries for mobile operation. There is no appreciable difference between the two types of tubes in the results obtained, the choice between them depending on the available power supply and the probability of the set seeing portable service. It is a good idea to try more than one detector tube of the same type number. Some tubes are noticeably better super-regenerators than others, and give much better all-round results. Different leaks should also be tried.

Note that a volume control in the form of a potentiometer across the A.F. transformer secondary is used independently of the regeneration control in the plate circuit of the detector.

HISS DISAPPEARS DURING RECEPTION.

In operation this receiver will produce a strong hiss, which will drop in intensity considerably or disappear altogether when a station is tuned in.

The .005 mf. fixed condenser between the plate of the output tube and ground will help to reduce this noise.

At K2AMN, W2AMJ and other stations this receiver is used almost exclusively with a magnetic loud-speaker, because it has plenty of "hop." It lends itself nicely to duplex operation because of the complete shielding. Almost any kind of antenna will work, although, of course, the best results will be obtained with a half-wave vertical antenna, as high and clear as possible.

The case measures only $8\frac{1}{2}$ by $6\frac{1}{2}$ by $5\frac{1}{8}$ inches. It is constructed in two sections, which separate to allow easy assembly of the receiver. It is ideal for portable and mobile use, because it is compact and light in weight.

In and around New York, northern New Jersey and the Yonkers region, where five-metre activity is particularly pronounced at the present time, this receiver is very popular and has replaced many three-tube sets which use a separate low-frequency oscillator to obtain super-regeneration.

PARTS LIST.

1 Steel Case with Chassis, 1 Vernier Dial, 1 Phone Jack, 1 50,000 Ohm. Regeneration Control, 1 500,000 Ohm. Volume Control, 1 15 Mmfd. Tuning Condenser, 1 .0001 Mfd. Fixed Mica Condenser, 1 .01 Paper By-pass Condenser, 2 .1 Paper By-pass Condensers, 1 .004 Fixed Mica Condenser, 1 5 Mfd. Electrolytic Condenser, 1 .005 Fixed Mica Condenser, 1 3 to 30 Mmfd. Trimmer Condenser, 1 500 Ohm. 10 Watt Resistor (wire wound), 1 3 Megohm $\frac{1}{2}$ Watt Carbon Resistor, 1 20,000 Ohm. 1 Watt Carbon Resistor, 1 Special 1:4 Ratio Audio Transformer, 1 Audio Output Choke or Transformer; 1 R.F. Choke, 1 Length of Tinned Bus Bar, 1 5-Prong Isotex Socket, 1 6-Prong Wafer Socket, 1 4-Prong Speaker Plug and Cord, 1 Antenna—Ground Binding Post Strip.

.....

The editorial committee desires to express its appreciation of those contributors who send in "small articles." These are generally accompanied by a rather humble and apologetic note from the author hoping they won't be considered presumptuous. Believe it or not, we think "little fish are sweet." Many thanks.—Editor.

Books Reviewed

(By the Technical Editor.)

The 1936 "Radio Handbook," which has just arrived, is one of outstanding value to the amateur. The 360 pages of its contents are crammed with solid "dope" of all description, and it would be hard to find a phase of amateur radio not covered therein. Most of the constructional articles are compiled from recent issues of "Radio," and consist of the very latest in transmitters and receivers of one to ten or more tube designs. Chapters covering the following sections are to be found:—Fundamentals and vacuum tube theory, 25 pages; 38 pages on receiver design and construction, including crystal filters, testing and measuring of performances, Faraday shields, etc. Pages 79 to 242 cover the many fields of transmission, C.W. fone, controlled carrier and otherwise and UHF outfits. Twenty-six pages follow on with sound antenna dope, and the last technical section deals with power supplies. McGill's Agency, of Elizabeth-street, Melbourne, are the suppliers of this excellent handbook, for the sum of 7/6, plus 6d. postage.

MATHEMATICS OF RADIO SIMPLIFIED BY THE A.R.R.L.

This sounds more like the title of a series of books written by some well-known professor of mathematics as an attempt to bring this art down to within the reach of the average amateur. However, it is not. It is something more simple than this. Following on the success of the A.R.R.L. Lightning Calculator, for inductance and capacity combinations, the A.R.R.L. has published four more calculators of the lightning variety for the following:—

Parallel Resistance and Series Capacity.
Unknown Resistance Calculator.
Wire Calculator.
Decibel Calculator.

Gone are the days of the pages of figures, and even the slide rule, with the advent of these handy calculators. Valued by McGill's Agency at 4/- each, with 2d. for postage, they may be had from the recently-imported stocks.

Modulation, Depth and Fading

IMPROVING D.X. 'PHONE.

By E. H. Cox (VK3BD).

How deeply should an amateur 'phone station be modulated? Considerations of economy, and also ambition, say 100 per cent. Prudence says some level about 90 per cent., because at this level the danger of overmodulation, with its resulting repercussions on broadcast-listening interests, then disappears.

Recent experience indicates that for D.X. purposes on the high frequencies the modulation percentage should be considerably less than 100 per cent., and that a level of about 70 per cent. represents a reasonable compromise between the requirements of economical use of gear and the considerations, now to be indicated, which make very deep modulation undesirable.

The distortion due to selective fading is very familiar. Now that international 'phone working on the 14 m.c. band has become commonplace, most 14 m.c. 'phone men are encountering its distressing effects whenever conditions go a little off the perk. Distortion due to this form of fading is immensely more serious on the 28 m.c. band, and it may often render large parts of a transmission unintelligible, even though the minimum signal level is always more than adequate for good reception. Such cases genuinely arise from the fact that the frequency band affected by a fade at any instant on any signal at a given receiver is small compared with the frequency band occupied by the carrier and the side bands of a wireless telephone transmitter. For instance, if the fade affects the centre of the channel in use, the carrier frequency will fall in intensity or disappear completely, leaving the two side bands unaffected. The effect in the receiver is that of a spectacularly overmodulated signal, which quickly becomes unintelligible. If the fade affects the carrier frequency and the upper side band only, the effect is even more disastrous on intelligibility. By removing these frequencies and

leaving the lower side band unimpaired the fade "inverts" the modulation broadly in the way it is "inverted" in the secrecy filters of the commercial telephone services. If the upper side band only, but not the carrier, faded, this inversion effect would not occur, and though showing considerable distortion the transmission would in most cases retain its intelligibility.

The important point to be noted in both illustrations is that it is the loss of the carrier frequency which is so disastrous to intelligibility. It follows as a simple corollary that, if the carrier can be prevented from fading completely, distortion due to selective fading can be minimised. The simplest way for the amateur to effect this cure is to give the carrier plenty of scope for fading, while still retaining a respectable amplitude in comparison with the amplitude of the side band frequencies, or, in other words, by making the amplitude of the carrier initially large compared with that of the side bands. Such a condition is merely a left-handed sort of picture of a carrier modulated considerably less than 100 per cent. It is true that, when the total unmodulated input which may be applied to the final power amplifier is limited, a loss in absolute signal level for voice transmission follows failure to capitalise the whole of the power available by 99 per cent. modulation.

Effective transmission, however, is not governed wholly by absolute signal strength, and under unfavourable D.X. transmission conditions on the high frequencies the loss of absolute level will generally be more than compensated by the minimised distortion when the modulation level is held down to about 70 per cent.

German DASD Jubilee D.X. Contest, 1936

RULES AND LOG.

(By D4BUF, Contest Manager,
DASD).

The ten years' existence of the DASD and the arrangement of the XII. Olympiade by Germany causes the DASD to arrange its first D.X. Contest.

The idea of the contest is to contact as many amateur stations as possible. To guarantee a true logging, six cypher serial numbers have to be exchanged. To be eligible for an award, send completed the official log, a sample of which is printed herewith. (†)

THE RULES OF THE CONTEST.

TIME.—The contest takes place during the five week-ends of August, 1936, from 0000 GMT, Saturday, and running to 2400 GMT, Sunday.

FREQUENCY BANDS.—All frequency bands permitted for amateur traffic may be used. The German amateurs have no licence for 1.75 and 56 m.c.

CONTEST TRAFFIC.

(1) **CONTEST QSO.**—The idea of the contest is to arrange a maximal number of contacts between amateurs of Europe, Germany included, and oversea amateurs. Such contacts, which form one part of the contest, are named "Contest QSO's."

The call for such contacts has to be:—CQ, DJDC de . . . where DJDC is an abbreviation for "Deutscher Jubiläums D.X. Contest." An oversea amateur who wishes to work Germany directly may call CQ D de . . . German amateurs call likewise CQ DJDC de D. . .

In every contact between the participating stations the reception report and a six-cypher serial number similar to those in previous con-

tests have to be exchanged. (*) Contest QSO's may take place only once between same stations during each week-end and on each amateur band.

(2) **REPORT- (QTC-) TRAFFIC.**—

The DASD, as sponsor of the contest, wishes to learn as soon as possible what contest QSO have been worked by amateurs outside Germany. Therefore report- (QTC-) traffic has been arranged. QTC contacts are between stations outside Germany — oversea as well as European — and German amateurs. The station outside Germany sends as many reports to its German partner as it has worked Contest QSO's apropos the contest. The German station only confirms the reception of the reports. In QTC no individual serial numbers are exchanged between stations; the contacts are not handled as Contest QSO. The call for QTC traffic has to be: CQ D QTC de . . . German stations which wish to work QTC traffic call QTC de D. . .

Each individual Contest QSO can be reported to Germany only once. During each QTC QSO, however, as many reports may be sent to the German station just worked as are available. QTC traffic may be arranged with any D station as often as it is liked during same week-end. Regular traffic times may be stipulated.

Each QTC report must have a Contest QSO Europe Oversea as origin. It is not a rule, but we hope that each participant outside Germany will report all Contest QSO to Germany. This may be difficult for certain oversea stations.

(†) There are no entrance formalities; just send the DASD your completed log.

(*) Serial numbers: Six cypher groups; first three choose as you like; they are unchanged during whole contest. Add three zero for group of first QSO. In the following QSO'S add to the first three cyphers of your own the first three of the serial number you have received in last contact.

The reports shall be transmitted by the foreign station to the German ham in the following manner:—

According to above, W 8 HD has worked at any day of the contest G 6 CL at 0935 EST. He got from G6 CL the serial number 123 456. The same scheme is used for the other reports. The German station D 4 BIU acknowledges the correct reception by 3 QTC OK +. In the same manner foreign European stations report to Germany about their contacts with oversea hams.



LOG DASD Jubilee DX-Contest 1936

A contest apropos of the Olympiads in Germany and
the tenth anniversary of the DASD

„DJDC“

Final score:

..... points

Prefix:

Call:

Name, Address:

Input:

RX:

German Districts worked:

Date	Stn wkd	W. R. T.		Time local	Serial number		Distance in 1000 km	points claimed	In QTC were reported the contacts with:
		Sent	recd		sent	received			
9. 8. 36	G 6 CL	569	576	0935	987 654	123 456	5	5	Examples G 6 CL 0935/123456 F 8 RJ 1245/43267 CT 1 AH 2356 987345
"	F 8 RJ	458	568	1245	967 123	432 678	6	6	
"	CT 1 AH	467	358	2356	987 432	987 345	6	6	
16. 8. 36	D 4 BIU	—	—	1500	QTC	—	6	36	

1) Nr. of wkd German Districts: _____

2) Sum of points _____

Final score (1) × (2) = _____

I state that I have abided by the rules of the Contest and that my final score is correct.

73

Signature _____

Call of the station worked in the reported Contest QSO, local time of QSO, serial number received from the worked station.

Example: W 8 HD may have to transmit three reports, which originate from Contest QSO'S with G 6 CL, F 8 RJ and CT 1 AH. (He may have got in contact with D 4 BIU by CQ D QTC de W 8 HD.)

D 4 BIU de W8HD = HR QTC =
G 6 CL 0935/123 456. =
F 8 RJ 1245/432 678 =
CT 1 AH 2356/987 345 = OK
? +

We summarise once more: At times when oversea amateurs find conditions good for working with Germany they report their whole traffic worked with European stations outside of Germany in form of QTC to Germany. Those European stations which just have no possibility of contacting oversea, but are able to reach Germany anyway, report at such time; to Germany what Contest QSO'S they worked before. It is suggested to use low frequency bands in the latter case.

• • SUPPORT YOUR ADVERTISERS

(3) SCORING.—The scoring of the Contest QSO'S, as well as QTC Traffic, is done by points. There are for Contest QSO'S between—

Germany and Oversea — Four points for each 1,000 km. between capitals of contacting countries.

Europe and Oversea—One point for each 1,000 km. between capitals of contacting countries.

For each report during any QTC contact—

Europe-Germany, QTC, 12 points each report.

Oversea-Germany, QTC, 6 points each report, multiplied by each 1,000 km. distance between capitals.

The sum of all points, multiplied by the number of German districts worked in QTC or Contest QSO'S give the final score. There are 19 German districts. See the last letter of German calls: a, b, c, d, f, g, h, i, j, k, l, m, n, o, p, r, t, u, v (i.e., D 4 BAF, D 4 ARR, D 4 BIU, D 4 KPJ, etc.).

(4) AWARDS.—There is no world winner, the amateurs of each country competing among themselves. Regardless of their result, all participants get an artistic Verification Card of their co-operation

in the German Jubilee D.X. Contest, 1936, and the issue of the magazine "CQ-MB," in which the results are published. The competitors of each country with the highest score get an artistic diploma. If there are more than five competitors in one country three awards are given. (In U.S.A. and Canada, as well as Australia, each district is counted as a "country.")

The participant is the amateur, not the station. If more than one amateur worked at same station, each must have a log of his own.

(5) LOG.—All contacts claimed for scoring must be entered in a log, which shall be similar to the official one. It has to show: Date, time, frequency band and worked station of each Contest QSO, report and serial number sent and received. For QTC Traffic there must be entered: Call of the German station which received the reports, what and how many reports, date, time and frequency band. At the top of the log, the name and address of the competitor, his input and final score must be given.

The log must be in possession of the DASD HQ not later than November 30, 1936.

Address of the DASD is: Deutscher Amateur Sende Dienst Contest Manager, Berlin - Dahlem, Schweinfurthstr, 78, Germany.

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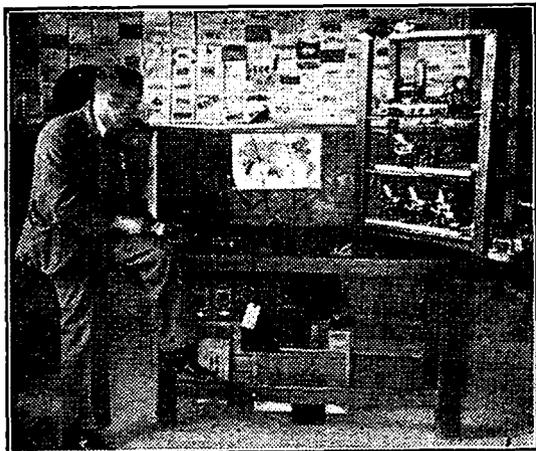
Station Description

(By VK3EG.)

Owned and operated by L. V. Miller, the station is located at Tallangatta, in North-Eastern Victoria.

Although first licensed in November, 1933, the writer has been operating ham stations since 1925. Studies prevented earlier participation, and it was not until becoming established at Quirindi that associations with VK2HC and John of 2XQ made a ticket become an essential. A crystal rig, with a pair of 210's final, was built, and operated under the call VK2EG until the present outfit materialised.

A certain amount of QRA changing went on before the present location became definite, and it is now in a decidedly good position on a hill which



overlooks the town. The shack is a deserted reservoir; concrete walls of two feet thickness, and isolated from all prevalent forms of QRM, BCL and otherwise. Photos show the view from the shack looking towards Yankee Land, in the direction of Mt. Kosciusko.

An atundance of cleared area, with convenient pine trees, give wonderful scope for antennae, and this has provided the main source of interest and experiment ever since.

During the VK/ZL Contest three antennae were used—the first a "V" type beam; each wire 330 feet long, for W/VE on 7 mms., fed with a

quarter-wave stub matched to 600 ohm. line. The second, used for South Africa, is a single wire, 330 feet flat top, falling from 90 feet to 50 feet at the fed end. This points north-east and south-west, and making use of the radiation off the ends, proved excellent for ZS, VQ and Alaska. Lastly, the 132 feet North-West Zepp, a quarter-wave off the ground, is used for all 14 mcs. work.

Although the location is ideal for 40 metres, numerous Europeans being worked on the former band, the behaviour on 20 m.x. is probably not all that it might be, and contacts with Europe over U.S.A. can only be had with difficulty, and then only when conditions are particularly good. Other directions seem to be more satisfactory, however, and make up for the peculiarity in that direction to some extent.

The rig itself is crystal controlled, built bread-board fashion, and five frequencies are available. The oscillator is a 46 type, driving a 46 doubler on 7 mcs., followed by parallel 210's, 801's, and a 203A graphite anode final

Separate power supplies are used for the various stages, using 82 rectifiers throughout, with a pair of 866A's for the final.

Telefunken method of modulation is used. The 201A modulator is seen beneath the desk; a two-stage speech amp. is used in conjunction with it.

The receiver is all D.C. operated, using A442 detector and two audio.

In all, 113 countries have been contacted, and regular skeds are kept with Empire link stations, in conjunction with the conducting of BERU affairs in Australia.

Federal and Victorian Q.S.L. Bureau

By VK3RJ (Federal QSL Manager).



J. P. Bird, of 176 Osborne-street, Williamstown, Victoria, desires to state that he will pay the surcharge on all insufficiently-stamped letters recently sent out by him.

Jack Murden (VK3TY), who recently joined the Air Force, is now located at the Western Junction Aerodrome, Tasmania, where he signs VK7TY.

Hams who were unable to obtain copies of February "QST" are advised that further supplies of this number have been ordered by McGill's News-agency, Elizabeth-street, Melbourne, and supplies should be to hand when these notes appear in print.

Our deepest sympathy is extended to Tom Lelliott (VK3ZW) in his recent sad bereavement.

We welcome to the ranks of short-wave listeners Miss Buxar Rowe, of 63 Grange-road, Toorak. We hope Miss Rowe will shortly join the ranks of the transmitters.

Jack Anderson (VK3JA) recently moved from Warrnambool, Victoria, to Nullawarre, Victoria, where power mains do not exist. He hopes to be on the air again shortly with Batts or a dynamotor. In the meantime his call sign is being used by a "pirate," who may have his cards on personal application to 3JA.

The first batch of cards from HJ3AJH recently reached this bureau. Further batches are expected, so W.A.C. aspirants should take fresh hope.

"Utopia's" D.X. Contest, for Melbourne hams, held on 26th April, proved highly entertaining; but, unfortunately, "Utopia" chose a poor day both for 14 and 28 m.c. D.X. The 10-metre section was annexed by the invincible VK3YP. The prize for this section was an article "worth a guinea a box," and should stimulate Patto to greater "efforts" in the near future. The 14 m.c. section was won by our handsome Alan Brown (VK3CX), whose prize was a crystal donated by VK3MR. "Snow" had no use for the crystal, as it refused to add the customary extra dots.

From our contemporary, "QSO," the journal of the International Radio Association of China:—"A BCL cut XUSOG's ant. four times, so he had to put up steel poles so that they might not be sawed off, as were the bamboo ones previously used." Truly an international problem. Hi!

Speaking of ants. painfully reminds me that the skyline at this QRA is much clearer. Arrived home recently to view the spectacle of a wrecked mast, not to mention the broken clothes lines and fences. "Twas but the wind."

Cards are on hand at the bureau, 23 Landale-street, Box Hill, for the undermentioned VK3's:—AC, AD, AN, AP, AT, BL, DS, DQ, EF, ER, EW, EO, FB, FN, FQ, FW, GF, GJ, GM, GP, GV, GW, GY, HE, HJ, JA, JW, KA, KG, KO, KV, KY, LS, MX, NA, NG, NT, OI, OP, PA, PC, PH, PL, PS, QJ, QR, QY, RE, RM, RW, RZ, SB, TE, TG, TZ, UJ, VK, WH, WN, WP, WZ, XA, XU, YD, YL, ZB, ZK, ZF, ZL, ZW, ZX, Nye, Dinan, Sebire, Grimwood, Hammond.

28 and 56 M.C. Section

(By VK3JJ.)

A gradual falling off in D.X. conditions on the 28 m.c. band is now being noticed, and most parts of the world are getting much harder to contact. Africa still seems to be fairly easy, and the best of their stations—ZS1H, ZE1JJ and ZU6P—continue to work many VK's. ZU6P is only using a pair of 46's in the P.A., and often uses 'phone. He recently had a long two-way 'phone QSO with VK3BQ. FB8AB appears to be a very hard station to raise, although his signals often reach a strength of R7/8.

American stations are getting much weaker now and are becoming very hard to work, only the higher-powered VK's apparently getting across. Europeans are seldom heard, but occasionally an odd OH or OK will reach R3 between 5 and 6 p.m. Very few contacts have been made between the East Coast VK and Europe during the past few weeks.

Many of the VK3 stations often change over to 'phone now, and 3BD, 3BQ, 3YP, 3CP and 3OC have had a number of good D.X. 'phone contacts. 3MR is testing out a beam antenna, but although it apparently increases the strength of signals at D.X. ranges, no difference can be noticed on it locally. VK6AA is another who is testing out aerials, and though his signals are always strong in Victoria, he has not done very well with D.X. yet.

Several new stations have been heard on 28 m.c. lately, and 3XP seems to be getting the best D.X. results of them. 3CX was active on 10 again after several years on the lower frequencies, and as he won a crystal in a recent 14 m.c. contest, will no doubt change over to C.C.

Interest in 56 m.c. field work is increasing again, and another field day is to be held on this band, for which special gear is being built by several of the Melbourne stations. Portables are again to be taken to the various hills around Melbourne in an attempt to work over larger distances than in the similar tests made last year. A prize will be allotted to the party obtaining the best results.

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Improving Our High Frequency Receivers

By C. Woodward (VK3YO).

The Autodyne.—Much has been written about this famous type of receiver, both for and against, yet it still lives on, although the modern version is far removed from the "tuner" of 1924 or thereabouts. For years the keynote has been sensitivity, and more sensitivity, practically forgetting all else in the struggle.

Receivers with a marked degree of sensitivity and selectivity have been few and far between; the general result seems to have been either one or the other. Both these factors are necessary in the present-day scheme of things, and if we can build a receiver with both characteristics, and then increase either at will, we have achieved something of note.

Obviously more sensitivity is useless after the background noise level is reached, and amplifying a signal that is below the noise level will certainly not make it readable. A tuned R.F. amplifier will, of course, increase the sensitivity, but at the same time it will increase the background noise in proportion—perhaps even more so—as tube noise has also to be considered.

The sensitivity of a straight regenerative detector is at its highest on a weak signal, and falls off quickly as the signal increases in strength. Therefore, increasing the input to the detector by the addition of an R.F. amplifier will reduce the detector sensitivity, as the R.F. gain is brought into play, and so we see why an R.F. amplifier does not increase the strength of signals as much as we might expect. This sensitivity characteristic of regenerative detectors would be all right if not for the fact that the detector does not work properly on both strong and weak signals.

It is difficult to heterodyne a strong signal to get a beat note when a detector is working at maximum sensi-

tivity, as the frequency of oscillation has a tendency to run into line with that of the incoming signal. This gives us the peculiar situation of strong signals simply spreading over the dial, with a corresponding "wash-out" of all weaker signals near the same frequency; so that the tuned R.F. stage actually *decreases* the effective selectivity, instead of adding to it in the process of bringing the signals up to a fair strength. The selectivity we require in our T.R.F. receiver is such that we can tune to within about 20 K.C. of a strong local without interference.

We are, all of us, familiar with the type of "detector blocking," and the consequent annoying result of being unable to copy anything within 100 K.C. of the offending signal. However, this trouble can be overcome quite easily by inserting a gain control in the R.F. stage and reducing the gain until the detector does not block.

Reduction of the R.F. gain may be accomplished in various ways. Shortening the antenna cuts down the input, but is not a practicable solution. The old idea of putting a potentiometer between the aerial and earth terminals and adjusting the input by the variable arm has the big disadvantage in amateur receivers of bringing R.F. out on to the panel.

Owing to their variable μ characteristics, tubes such as the 6D6 are ideally suited for a T.R.F. stage, because, with the gain control in the Cathode circuits, the grid bias can be varied with a corresponding variation in the amplification of the R.F. stage. Reducing the gain by this method definitely prevents detector blocking, and therefore proportionately increases the effective selectivity. The other main requirement in the Autodyne is *stability*.

PUTTING THEORY INTO PRACTICE.

The three main points necessary for the efficient operation of the receiver are, namely:—

- (a) Sensitivity.
- (b) Selectivity.
- (c) Stability.

The first two are obtained in the T.R.F. stage, and stability comes from high C. circuits, an electron coupled detector, and sensible shielding.

The parallel condenser method of band spreading is one way of obtaining a high C. detector circuit. Regeneration controlled by a potentiometer in the screen lead of the detector will give a very smooth action.

By the use of a drum dial in the centre, the R.F. and detector circuits may be isolated in their respective shield boxes, and so help toward the elimination of interaction between stages.

A separate power supply is recommended, four wires only being necessary. These may be connected to the receiver by means of a four-pin plug. The placement of the parts under the chassis hardly needs comment, the main points being to have a common earth wire, and to keep R.F. leads as short as possible. The separating of the R.F. and detector circuits incurs a long plate lead to the R.F. stage, but by keeping it above the chassis and going directly through the sides of the shield boxes, no trouble should be encountered.

A tuned R.F. receiver incorporating these refinements is a definite advance on other types of T.R.F. sets, and the little extra time required to bring the receiver up to date will prove itself well spent.

An Efficient 10 Meter Station

The main portion of VK2PN's activities have been directed towards the 10-metre band of recent months, with the result that a highly efficient transmitter has been constructed for that band. To those who know 28 m.c., it's no mean feat.

The transmitter is of the five-stage crystal variety, utilising the following tube line-up:—59-59-PP, TCO4/10's—PP 465—PP 800. Quite an array.

The first 59 is used as a Tritet oscillator, with its output on about 28.1 metres (Tripling from the 80 m.x. crystal); the second 59 is used as a Frequency Tripler to 28 m.c. These two tubes are fed from a 300V. pack, using an 82 as rectifier.

There are then two push-pull buffer stages, using firstly a pair of TCO4/10's, the second a pair of 46's, and the final stage is push-pull 800's, which are coupled to a rather novel antenna.

The antenna is to all intents and purposes a 67-foot Zepp, with 48-foot feeders, excepting that in the last 10 feet of feeders the spreaders are removed and the wire tied together (using insulated wire), and connected to the tuned tank in the normal way. The removal of the feeders means an increase of feeder current of 200 per cent. This effect is also noticeable on 80 metres.

The results with the above apparatus have been very pleasing, and all continents were contacted. OH7ND and 2PN keep a schedule every evening at 6.50 p.m. VK2PN is located at Tumut, N.S.W.

ARE YOU A MEMBER?

Subscriptions to the W.I.A. (Victorian Division) are as under:—

Full Member, 20/-. Associate Member, 16/.

Country—Full Member, 14/6; Associate Member, 8/9

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Divisional Addresses :-

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WEST AUSTRALIA	62 SUBIACO ROAD, SUBIACO
TASMANIA	BOX 547E, G.P.O., HOBART

N.S.W. Division

The higher subscriptions so far haven't frightened any of the lads away. The rise was really a necessity, and it allows things to be attempted that otherwise would be impossible.

The Exhibition is proving such a success. The only thing that was worrying the Council was the fact that they did not charge enough for the stalls.

Some ten trade firms will be exhibiting, and there is a promise to show off a lot of the latest gear imported from the States.

The complete prize list is as follows. The policy of the New South Wales Division has been always to pay for any prizes, etc., obtained from the trade. However, in this case, the prizes donated are as part payment on the value of the stall. The firms co-operating and prizes are as follow:—

COMPETITIONS.—To cater for the amateur transmitter and short-wave listener, a series of competitions has been arranged, and substantial prizes will be awarded.

There are two distinct series of competitions—(1) for affiliated clubs, (2) for amateurs in general.

FIRST SECTION.—Under the first section there are two competitions—

(a) "The Wireless Weekly Cup," to be awarded for the best stall exhibit of an affiliated club to the Institute;

(b) three prizes—£3/3/-, £2/2/-, £1/1/-—for the best pieces of apparatus contained on those stalls. The above prizes have been donated by "Wireless Weekly."

SECOND SECTION.— The second series comprises six sections—A to F. First, second and third prizes are awarded in each section; donor is mentioned in brackets after award.

(a) The most efficiently designed and correctly built multi-band transmitter—

1st — Philips' 50-watt Transmitting Penthode (Philips).

2nd — £5/5/- open order for Filter Condensers (Ducon Condenser Co.).

3rd — 801 Transmitting Valve ("The Bulletin").

(b) The most efficiently designed and correctly built amateur receiver—

1st—7 Radiotrons, to be selected (A.W.A. Valve Co.).

2nd — Ferranti Milliameter (Noyes Bros.).

3rd—Dual Wave Super Het. Kit (R.C.S. Radio).

(c) The most compact and complete portable station—

1st — Transmitting Condenser (Colville Radio).

2nd—3 6P6 Transmitting Valves (A.W.A. Valve Co.).

3rd — 300 Mill. Filter Choke (R.C.S. Radio).

(d) The best U.H.F. Receiver—

1st—2 Acorn Valves, 954 and 955, and a 6L7 (A.W.A. Valve Co.).

2nd—£2/2/- (J. Moyle, Esq., "Wireless Weekly").

3rd—£1/1/- (Mr. Sutton).

(e) The best U.H.F. Transmitter—

1st—2 TCO3/5's (Philips).

2nd—Hammarland Transmitting Condenser (J. B. Martin).

3rd—5-Metre R.F. Chokes and Interrupter Unit (R.C.S. Radio).

(f) The best example of a piece of apparatus, excluding gear, could be exhibited in Sections A to E (would include Wave Meter, P.A., Monitor, Key, Mike, etc.)—

1st—Crystal Microphone (Price's Radio Service).

2nd—Line Filter (R.C.S. Radio).

3rd—4 Special R.F. Chokes (R.C.S. Radio).

It is necessary to include with each entry a description of the gear and points of merit and circuit design.

Points will be awarded for (a) design, (b) workmanship, (c) covering description.

The competitions are open to all members of the Institute and its affiliated clubs and to all other short-wave experimenter at the price of 2/6 per entry. Prior entries are not required, although anyone entering large transmitters should advise the Secretary to that effect.

Entries will be received from 10 a.m., Monday, till 6.30 p.m., Monday, 15th June.

APRIL MEETING OF W.I.A.

VK2AS (Mr. Freeman, of the Amalgamated Wireless Valve Company), delivered an interesting lecture on "Method of Modulation," with special reference to the Suppressor Grid method. The lecture was received with the usual interest, and was much appreciated by those present.

The latter part of the meeting was spent discussing arrangements for the forthcoming Amateur and Short Wave Exhibition, to be run by this Institute from 15th June to the 20th, and to be held in the Lower Hall, Presbyterian Assembly Buildings, Wynyard-square.

Six thousand square feet of floor space is available. Full details appear in another place in this issue, or fuller information can be obtained from W. Ryan, Esq., the Secretary, New South Wales Division of the Wireless Institute of Australia, Box 1734JJ, G.P.O., Sydney.

R. Corthorn (VK2VG) has taken over the management of the official organ, "Amateur Radio," here in New South Wales, and can be reached at above box number. A special meeting is to be held shortly of the Exhibition Committee and club delegates to discuss the entrants for the "Wireless Weekly" Cup and cash prizes.

NEWCASTLE CLUB NOTES (2RF).

AFFILIATED WITH W.I.A.

Conditions patchy in April and May. 40 m.x. the usual din of R9 local cw. and fone. 20 m.x. with a good supply of North and South American fone and cw. 80 m.x. is rapidly coming into its own again, and 2ZC, R.F. and other locals will park their fone there soon.

2TY is now on with grid mod. fone, but very QRL and not a little QYL.

2ZC keeping quiet, but intends to be on fone a lot this winter.

2ZW on 20 m.x. with a self-excited 852. Wow! And doesn't he raise those Yanx, not to mention the VP5 he didn't hear. Hi!

Lionel (2CS) has built a special shack, and recently entertained the whole gang at a shack warming. Many and varied were the reminis-

cences that flowed when the oldtimers barked back to the good old days.

2RF has been indulging in an orgy of tube blowing, and has sworn off high-power modulation for good.

The latest D.X. Club Contest, for the Electronic Commission's cup, has just commenced, and at the end of the first week 2UF and 2MT were leading.

LAKEMBA RADIO CLUB (VK2LR).

AFFILIATED WITH W.I.A.

(By 2DL.)

At the annual meeting of the above club, held at the club rooms, 334 Canterbury-road, Hurlstone Park, on 28th April, the following were elected to hold office for the ensuing year:— President, Mr. J. Pinnell (2ZR); Vice-President, Mr. E. Hodgkins (2EH); Hon. Secretary, Mr. G. Brown; Treasurer, Mr. H. Ackling (2PX), unopposed; Publicity Manager, Mr. W. Phelps (2DL), unopposed; QSL Manager, Mr. L. Hughes (2QP), unopposed; Committee of three, Mr. J. Warren (2QX), Mr. I. Clarke (2IC) and Mr. T. O'Donnell (2OD); Social Committee, Mr. L. Myers (2KS), Mr. J. Warren (2QX) and Mr. W. Phelps (2DL); Auditors, Mr. J. Worrall (2XM) and Mr. J. Warren (2QX), both unopposed; W.I.A. Delegate, Mr. T. O'Donnell (2OD).

The sixth annual reunion of the club was held at the Donnybrook Hall, Canterbury, on Wednesday, 6th May. The Radio Inspector's Department was represented by Mr. W. T. S. Crawford (senior Radio Inspector) and Mr. J. Carroll (Assistant Radio Inspector). The W.I.A. (Federal) was represented by Mr. W. M. Moore (2HZ), and New South Wales by Mr. H. Peterson (2HP). Radio clubs represented were Waverley, Zero Beat, Manly and Hurstville. Mr. D. B. Knock represented the "Bulletin," while Mr. J. Moyle was to have represented "Wireless Weekly," but was detained at the last moment.

The newly-elected President (Mr. Pinnell) occupied the chair, and after the usual speeches and toasts the club cups were presented to the winners by Mr. Crawford. Mr. L. Myers (2KS) won both the "Chanex-Dulytic" Cup, for the VK-ZL Contest,

and the "Slade Cup," for the D.X. Contest. The winner of the Receiving Cup was Mr. G. Bower. The "booby" prize, in the form of another "cup," was won the second time in succession by Mr. H. Ackling (2PX). Mr. Crawford presented this trophy amid much amusement and cheering, and for some reason a recorded version of "the passing of the fruit" was emitted from the amplifier at the conclusion of Mr. Ackling's speech! Briefly, the whole function was an outstanding success, and great credit is due to the ladies who arranged the tables and catering. The club would also like to extend thanks to all those amateurs who co-operated with club members in the recent club contests.

WM. J. PHELPS.

Victorian Division

'PHONE SECTION.

Activity in this section is as usual, all stations plodding along steadily. The April 'Phone Section meeting was very well attended. Such usually inconsistent members as J.R. and T.M. repeated last month's good performance by attending this meeting.

All active members except 3LU applied, as usual, for a frequency allocation. Everyone was very surprised to learn of 3LU's intention of discontinuing his excellent work on the 'Phone Section frequency band. Colin definitely states that he is not coming back on the band. So this, of course, means that he can't.

3HF was very anxious to obtain a morning session, in order to make a "job" of their late Saturday night transmission. This idea has now materialised, and Harry was heard recently remarking, at about 0955, that they had been on the air for 10 hours and were then closing down.

Quite a number of the 'Phone Gang are actively interested in another 'phone band, namely, that commonly known as the 5-Metre Band.

Such stations as CR, TH, FW, OY, HK, TM and DH have done some 'phone work on the U.H. frequencies. CR has been consistently on this band of late.

We have heard that 3RI has spent quite a sum of money on new modern equipment for the popular Railways Institute Wireless Club Station.

T.M. has shifted his gear to a new location—not far from the old one—but, however, he is now in Glenferrie-road, and we are treated to large quantities of local street noises with every announcement. Sounds like a busy area there, Bert.

3XL has built himself a new "all-wave" receiver, which, I believe, "waves" signals at him from all parts of the globe.

An appeal to the "gang"! Would they send any news of their doings or a description of anything new, novel or interesting to D.H.? Thank you!

—73's (VK3DH).

KEY SECTION NOTES.

(By VK3YO.)

Arrangements were made at the May meeting for a 56 m.c. field day, to be held on 7th June, between the hours of 1100 and 1600.

Thirty-one different stations have been arranged into 15 groups, and will be located at various points, extending from Geelong to Shepparton and from Mt. Macedon to Arthur's Seat.

Providing the enthusiasm holds, the day should be even more successful than the one held last September.

The results of the 20 and 10-Metre Contest, held on 26th April, were also given. The winners were:—13 m.c., VK3CX, 1,168 points. 28 m.c., VK3YP, 747 points.

3CX was presented with a crystal that was reputed to be active, and 3YP was the recipient of a little box containing some small round objects, which are popularly supposed to be very much more active than crystals.

3YP considers that if he uses his trophy in the appropriate manner he will be in the running for the next Stawell Gift.

3OC received the congratulations of the section on his impending marriage.

3RX has been receiving some very good reports from overseas on his 14

m.c. fone, and it is rumoured that 3MR and 3YP have been heard in Germany again!

WESTERN DISTRICT NOTES.

(By 3HG.)

3CK is on 3.5 m.c. again, after a long absence. His sigs. sound like the same QRP rig and come in very strongly. 3XI quiet after his recent burst on 3.5 'phone. 3WW active on 3.5 and 7 m.c., while 3JA, who recently moved permanently to his QRA in the bush, has not been heard on yet. Guess he is thinking of some way of providing a power supply. 3PG says he has worked over 50 countries with the same old 201a! 3XB is a school teacher up in the Mailee and about four miles from the VK5 border. He gets out well on 7 m.c., using B batteries on a B240 tube. 3JE will soon be leaving Coleraine, after nearly two years in the radio trade there. His 200-metre transmissions will be missed by the local BCL's. 3OW fairly quiet, except for schedules. 3HG using QRP and working only a few locals on 3.5 and 7 m.c. Recently had the bad luck to fracture a good crystal and to have several tubes go west. 3DW operates gear worth £3,000. He is talkie operator at Shepparton. 7 and 14 m.c. are just a mass of QRM during peak hours, through which it is practically impossible to work. 28 m.c. is falling off as the winter approaches, but some good D.X. is still coming through. 3.5 m.c. rather irregular, the best time being just around sunset.

Queensland Division

If the past financial year can be taken as a criterion for the present one, the Queensland Section of the W.I.A. seems to have a rosy time ahead. The year just ended marked a record for the section in strength of numbers, no less than 80 fully-paid-up members being on the books.

On renewal of subscriptions members will now derive two very definite benefits. Firstly, "Amateur Radio" will be included with the usual subscription amount; secondly, the new membership certificates which have come to hand will be issued. (Good news! Editor.)

Amateur Radio

At the last Council meeting arrangements were made to hold a novel 5-Metre Field Day in conjunction with the Windsor Boy Scouts. Tentative plans were also discussed for getting 4WI back on the air again.

Now for the news!

4HR, our one-time dyed-in-the-wool 56 mc. enthusiast, has turned D.X. crank. "Tibby" now spends all his time trying to add to his total of countries worked.

Ask 4OL about the QRM from the local pirate.

Ten metres has attracted 4RY. Bill recently landed a ZL, and is very hot after W.

One has to get out well on "ten" to run weekly skeds, yet 4GK does it successfully with VE5BI.

Judging by the QSL cards coming through for 4YL, Mandeline certainly knows her D.X.

VK4's leading contest man, 4BB, is having a well-earned spell.

What's happened to 4EI these days? If your receiver will cover the ten-metre band, the answer will be forthcoming. Roy is raising 'em all right, and works Europeans that are inaudible in Brisbane. Must be after that 28 m.c. cup, Roy?

4ZO's QRA seems to be a veritable paradise for hearing the 28 m.c. D.X. What about a monthly list, O.M.? It would make interesting dope in these notes.

Keep your eye on 4UR. Jack, like VK2EO, is starting to pinch the pick of the 14 m.c. D.X. He looks like being another strong member for the VK4 transmitting force.

4UU has given up D.X.ing in favour of dancing.

4NO, a newcomer on the air at Gladstone, recently spent an enjoyable fortnight in Brisbane. Most ham shacks were inspected by the visitor. Don't forget to give 4NO a shout, boys.

The QRP merchant from Ayr (4EI) is back in Brisbane again.

The plate of some poor 45 will soon be blushing.

4AP is in the throes of rebuilding crystal gate filters and a converter for 28 and 56 m.c. Have Alf. rather troubled.

4FB is at present holidaying in Toowoomba.

4LE would like someone to build him an E.C. oscillator that actually works.

4UL seems to be getting out well, judging by some of the prefixes heard calling him.

4FE blankets out more than a few K.C. of the band with his fone.

When 4RC is on, it's hard to tell whether Bob's on 7, 14 or 28 m.c. Better harness the harmonics, O.M.

4CU and 4AF, both of Clifton, are on the 56 m.c. band in earnest, and want skeds with other VK4's. What about co-operating, someone?

VK's who want an Asian contact for W.B.E. are advised to look for VS6AH around midday. This interesting bit of dope comes from 4ZO.

It is rumoured that 4BB and 4AP are already planning what they will do to 2LZ's transmitter when they visit Sydney early next year. Better sell all the gear before Christmas, Con.!

4JF gets out well, but the boys never know about it unless they hear him working 'em.

This is addressed to country members only. What about some dope on yourselves, O.M.'s.? The other VK's are just as interested in your doings as you are in theirs. Our traffic officer (4WT) is going stale for want of work, so pass the dope along to him if you are too lazy to write. You'll find 4WT on 7 m.c., and with an 852 (Queen Mary) in the final you should hear him R9 plus.

South Australian Division

(By VK5KL.)

Transmitters' Section meeting on 29th April was well attended. Mr. Pearn, the new Chairman, presided, and called for one minute's silence in memory of the late Mr. Roberts

(5NR). Business was discussed, and Mr. Elliott (5RD) was welcomed back to the meeting after months of absence. Rules were read out re the cup donated by Mr. Harry Roberts (5MY), for work on 10 metres. All logs must be forwarded every three months for deciding who will hold the cup. Mr. Richardson (5YK) held the attention of all while he spoke on his experiences abroad during the war.

During Easter a party of six, with five-metre gear, attended the South Australian Outboard Motor Boat Centenary Speed Trials at Murray Bridge, and successfully did the timing. Please see article in this magazine for further reference.

All VK5 deeply mourn the death of Mr. Bill Roberts (VK5NR), who passed away on Saturday, 18th April.

A great loss to ham radio,

I'm sure, all will agree.

His memory will live for ever

In our minds and silent keys.

—VK5KL.

AROUND THE HAMS.

Conditions on 20 m.x. F.B. for Yanks, afternoon and night. Early mornings O.K. for Europeans. Ten m.c. quiet; 40 same as usual.

5JC.—Still raises the Yanks on 20 m.c. fone. Heard him QSO seven one Saturday night. P.P. modulation is the secret.

5MK.—Skedding with a ZS; remarked his tubes flat. Few weeks later got note to call at Customs Office and pick up a RK20. Whew! What a gift!

5BJ.—Has built a five-metre super.

5WJ.—Haven't heard him, but believe on 80 m.x. fone.

5WG (Port Pirie).—Reports few QSO's on ten—VK6, 4, HJ3, DA4, 5IH and Japs. Rebuilding rig again.

5HD.—Now proud owner of a three-tube Super.

5LP.—Heard on 40 m.x. with grid bias fone. F.B., Laurie!

5AP.—Has at last got going on five metres.

5FM.—Tried 5 m.x. over Easter. Heard remarking "it was a cow of a band." Perhaps you expected too much, Pete!

5KO (ex 5IH-3WL).—Renewed his licence, with a new call. Still active on 10 m.x., with 5ZC and 5LJ.

5RX (VK5's able QSL officer) finds time now and again to work some D.X.

5RE.—Is down in town at present.

5KD.—Our budding young copper. Been working some D.X. early a.m.

If VK3's want to see a card for HJ3AJH, they had better come to VK5. Several chaps here have one. My 10 m.x. QSO card with him arrived six weeks ago.

Notice.—All VK2-3 hams who may wish to try the possibility of QSO-ing on 5 m.x. with VK5, please drop a line to the following address:—C. H. Castle, 21 Harrington-street, Prospect, South Australia.

Well, chaps, not feeling too hot here. Old Man 'Flu has taken charge, so will QRT.

Tasmanian Division

(By 7PA.)

The May meeting, held on the 5th inst., was an important one to all, as after general business the fate of the annual gathering had to be decided, and after hearing a report as to prospective visitors, in the persons of some northern members, it was the decision of those present that a dinner be held on the first Saturday in June at a place to be fixed after investigation. It is believed that at least six members will make the trip from Launceston, if other districts cannot manage it. This was confirmed by a letter read at the Council meeting on the 12th inst. The annual meeting

Amateur Radio

will be conducted in the club rooms prior to the dinner.

A party of southerners made a social call on the northerners during the week-end of April 25-26, and visited all those that time and circumstances permitted, and in all had a good trip and were very delighted with the hospitality.

Incidentally, I hear we have a lot of teetotallers in the gang. So Chummie says. Hi! He also says that 7JH plays a very scientific game of "Contact," and was a trier even though the winner had to shout. Too bad to have to pay for your show of skill, Jack, and just as well you don't go north every week-end!

Some northern news is available this round, for a change:—

7AB.—One of the most active Launcestonians, and seems to be a live wire.

7BQ.—As far as is known, devotes himself only to the B.C.L. entertaining.

7AM.—Gets his fair share of D.X. Don't happen to have any of those midget power chokes to spare, O.M.. I suppose? Hi!

7CD.—Little heard of.

7CJ.—Also quiet. Possibly a silent worker.

7CK.—Hear you are planning a visit to VK2. Good luck and hope you have an enjoyable holiday.

7CP.—Too QRL with 7BU to put much time into ham radio, but is looking out for a bit of 200-metre operating again.

7LZ. — Has given up 200-metre transmissions owing to his QRA, but is still fairly active on the other bands.

7RC.—Has bigger things ahead, so rumour has it.

7RK.—Said to be anxious to QSO 7YL. Careful, O.M.!

7TY. — Commercial operating at Western Junction Aerodrome. Does his ham radio between times.

7XL.—Seems to have gone quiet, too.

There are also a couple of new additions to the ham list there that I am not at present detailed with, but offer congratulations and welcome, chaps.

The notes of a month or two ago have been the cause of a mild query from some of our northern brothers over my suggestion that we never heard of them unless or except when they wanted to growl. Sorry, chaps! No offence. Just a little overimaginative. Thought that you were so quiet that that would be the only chance we would ever have of hearing from you.

Here in the south:—

7YL.—Has been on the air and claimed a W5 as her first D.X., but has stripped the rig for a rebuild—rack, I believe, couldn't have been landing them fast enough, but it's bad judgment to be off during holidays, Joy. Should time it better than that.

7CL.—Our latest addition. Is doing his bit, getting on to the D.X., and now using crystal and putting out an F.B. signal on 20.

7JB.—Popped it over the lads. Made a sked with 7YL for her first QSO. He is very QRL, too. Has several hundred QSL cards to get out after the contest.

7CS and 7CW.—Heard occasionally on 200 metres.

7KV.—A very busy man. Takes an hour or more to do his round after work nowadays, so I hear.

7JH.—Working a good bit on 20 metres lately.

7PA.—Fairly active between times. Uses both 20 and 40 bands; also regular 200 metres on Sundays.

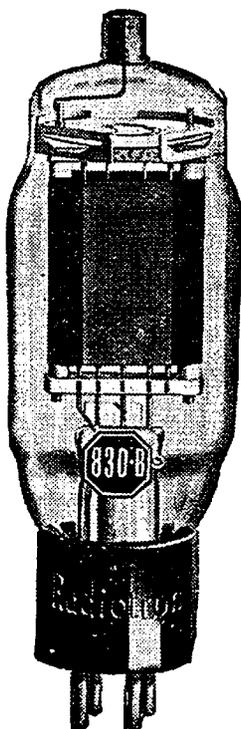
7LJ.—Not seen often, but carries on quietly as usual, and gives a 200-metre session on Sunday afternoons.

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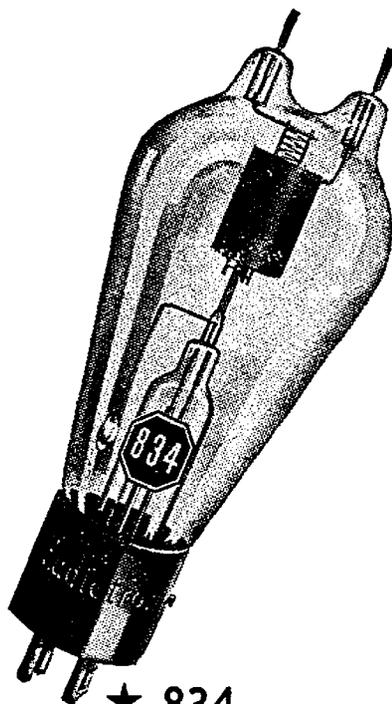
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V3.6

R.A.A.F. Wireless Reserve Notes

Federal Notes by the O/C.

(1A1-VK3ML).

The Reserve was called upon to render service to the Air Force on two occasions since the publication of last month's notes. Firstly, there was the case of the four Demons sent to attend the official opening of the Renmark (S.A.) aerodrome. An early opportunity to show what he could do was given to the recently-enrolled member at Mildura. 3F5 did a fine job of work in supplying weather reports and notes on the condition of the local aerodrome. Other western VMC stations co-operated as well, together with 5Z1 and 5A1. It is getting hard for a pilot to leave the ground anywhere now without having a weather report presented to him before opening the throttle!

The second effort is one that has just recently commenced. Two Wapitis are proceeding to Central Australia for duty, and will be absent from the base for some time. This provides an excellent opportunity for VMF and VME stations to help in the relay of traffic from Central Australia.

New ideas in the training of recruits have been put into operation in VMB and VMC. They provide for a training section under the command of a qualified instructor, whose sole duties are to bring new members up to a definite standard in a certain period. Consequently a section will not be burdened by having to put up with a raw recruit, who would naturally hamper general sectional progress. Victoria and New South Wales each have a full training section, and the scheme will be instigated in other districts when occasions demand.

3rd DISTRICT NOTES.

(By VK3UK-3Z1.)

We are right in the thick of a new reorganisation scheme, which we feel certain will solve the last of our difficulties. Sections are being modified and a new training section com-

menced. In future no man will go into one of our main sections until the instructor of our Training Section has passed him as efficient. Our main sections will have instructors looking after their procedure; also thus the section leaders will be able to concentrate all their attentions to the numerous matters incidental to running a section.

3A3.—Did a great job in connection with the recent flight to Renmark.

3A6.—Has now fully recovered from his illness, and is back on the air again.

3B1.—Is on his last country trip for some time. We were able to contact him on schedule from Merbein recently. He will be one of our metropolitan stations again shortly.

3B3.—Had the misfortune to blow all the tubes in his new receiver on schedule last week. Our sympathy, Allan!

3B4.—Is, unfortunately, laid up with an attack of 'flu.

3C2.—Is doing a great job as S/L VMC3.

3C3.—Paid a flying visit to the city last week, and we were able to have a long discussion on Reserve matters.

3C4.—Is a very, very busy man. He has just moved into his new house. We can see a job of pole erecting for the boys very shortly.

3C5.—Was well on the job during the recent flight. As we were copying his T9-R9 signals on the first morning of the flight, we wondered how on earth we ever had difficulty in making contact when he first joined.

3C6.—Is very busy organising the next five-metre field day.

3D2.—Is having bad power-supply troubles, and is investigating the best ways and means of overcoming the difficulty.

3D3.—Is hard at work on a new portable for Reserve work. If the "works" are as good a job as the case, it will be an outstanding outfit.

3D4.—Is off the air pending the finishing of his new shack. It sounds quite strange not hearing the old, reliable 3D4 signal in the VMC4 roll call.

3D5.—Has been having trouble with his crystals.

3D6.—Is back on the air again. It seems like old times to hear that signal again. Her enthusiasm is undiminished, apparently, as she stood by during the days of the flight from 1,000 hours till well after 1,700 hours.

3E1.—Has been down in the city for some little time, and it is possible we will have him here permanently.

3E2.—Paid us a visit early this month. Unfortunately, he had to return to his home the day after 3Z1 returned from holidays, so we hadn't much chance to talk over Reserve matters.

At our metropolitan stations' meeting this month we discussed the details of the new scheme at some length, and also had the pleasure of having 1A1 along and receive his ideas and criticisms as well. Our meeting this coming month will be a big one, as we have two very important items of business to put through. More of that next month.

5th DISTRICT RESERVE NOTES.

(By 5Z1-5SU.)

VME has been a very active district during the month. One district watch and one and two section watches have been held each week. In addition, 5A2 and 5Z1 hold several morning watches each week with 1A1. 5A1, 5A2, 5A3, 5A5, 5B1, 5B4 and 5Z1 are all active, and the message totals are reaching very substantial figures. 5A2, 5A3 and 5Z1 all kept watches during the search for the missing Dragon Rapide, but VME was unable to give as much co-operation as it would have liked during the Renmark flight. This flight took place during the day, and we were able to arrange for stations to keep watch. 5A2 is acting as relay station between

Federal Guard Station and the Sixth District.

Dual wave broadcasts are being given on 3900 k.c. and 7317 k.c. by 5Z1 at district watches on Friday nights, and it seems probable that this practice will have to be extended to include section watches.

Section members are being encouraged to construct portable equipment, and some results should be apparent shortly.

Message totals:—April: 5A2-62, 15/4 to 15/5: 5A1-48, 5A3-36, 5A5-11; 5B1-5, 5B4-11, 5Z1-88.

N.S.W. 28 M.C. NOTES.

(By VK2BX.)

Nothing very sensational happened during the past month on 28 m.c. (for a wonder), and the approach of winter has affected the conditions for D.X. slightly. The signals from U.S.A. were not very strong and were hard to QSO. Those stations who are known to be using beam antennas certainly seem to put through a far better signal than the rest.

The ZL's seem to be always R7/8 now, and come through at all hours during daylight. The J's also come in very well. The South Africans seem to put through the best D.X. signals in VIS at present, and ZS1H seems to pound through under all sorts of conditions. ZT6K is also very loud, but his signal is very unstable and chirps badly, making it a hard job to read him. On 10th May, at 1342, our old friend, FB8AB, was heard calling test 10. He was R7 QSA4, and sounded exactly the same as on 14 m.c., with that characteristic wobble or ripple in his signal.

The local gang on 10 in Sydney have been very quiet. 2LZ has been building a new super which goes down to 56 m.c. O.K. Con. recently heard the harmonic of TDC on 56 m.c., using this receiver. VK2WJ and VK2XM are two new 28 m.c. stations in Sydney, and both put out FB T9X signals. Guess the good conditions on 14 m.c. QRM the 28 m.c. activity!

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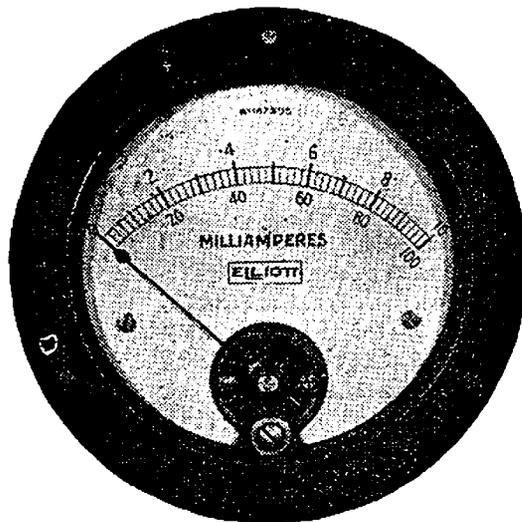
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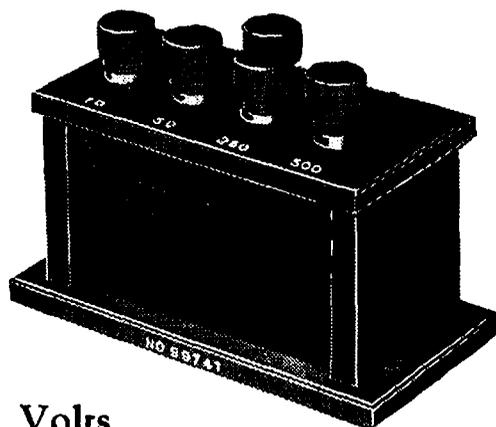
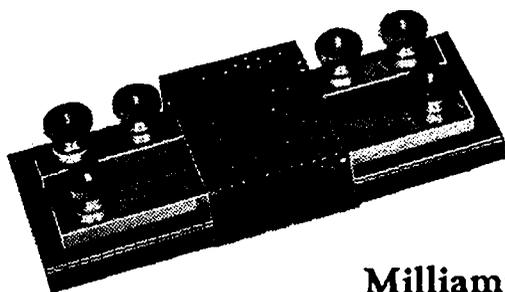
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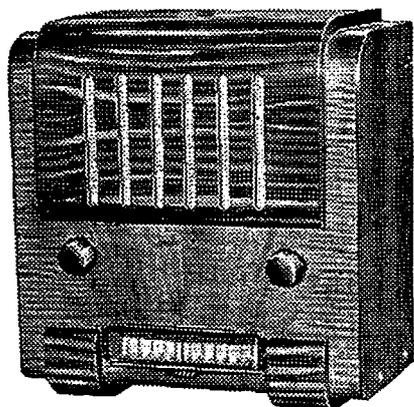
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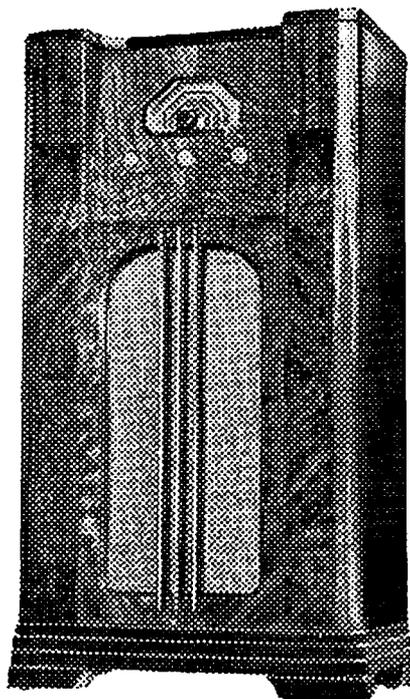
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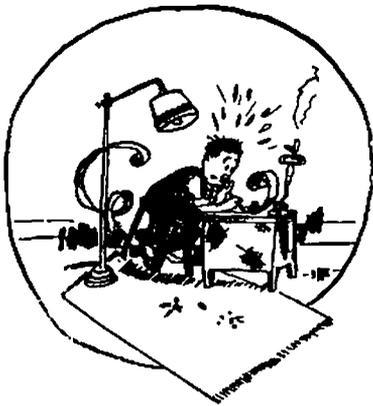
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EDITORIAL . .

One is often inclined to think rather dejectedly of the future of the Institute, when running up against the seeming brick walls which so often obstruct the progress of the amateur in general and the Institute in particular.

The one point that is often conveniently forgotten, or really in our own case just missed, is the fact that this Institute is carried on by its officers in an entirely honorary capacity, and, after all, the best of us must be forgiven if at some time we make the small slip that to some is the be-all and end-all of amateur radio.

The running of the Institute should not, and cannot, be at the present time the life work of any one member or members. Amateur radio is a hobby in the truest sense, and as long as it remains one, the arguments that seem inclined to run through the varied ranks should not be present.

One would be inclined to think, judging our hobby unbiassedly, that any arguments would be at least of a technical nature, but invariably they are political. The members of the Institute annually, in all Divisions, elect Councils to look after political things for them, and with them should be left this doubtful honour. There seems to be no better way to distort the truth in matters of controversy than to transmit it through various amateur channels, and the result would make the average politician promises gasp. The reflection is not on the amateur's honesty, but on his ability to add his own little rider on possibly a matter of which he knows little.

However, back to the Institute. A true example of the Institute's standing can be gathered from the success of the New South Wales Division's Amateur Exhibition. It is only just a year since they in New South Wales obtained the name Wireless Institute of Australia again, and during that year the progress has been remarkable. Without a doubt, the name W.I.A. is justly respected, and every amateur should be glad and proud to have the backing of the Institute, whose name in Australia, and for that matter in the world, means so much.

The progress of the Institute over the few years just past has been slow. World conditions have been unsteady. But the number of licensed amateurs is growing, and so with this growth the Institute should and will progress.

The general public are becoming more interested in the amateur every day. Dual wave sets are no longer a luxury, and as time passes we will play a bigger part in the eyes of the public.

The future of the Institute is assured. It is necessary for the amateur's well-being, and it is his unqualified duty in his spare moments to support and guide it in his future activity.

W. M. MOORE,
Federal President.

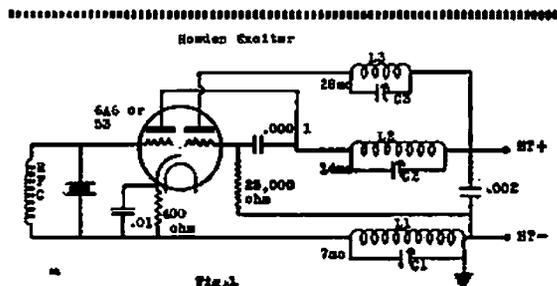
The Howden Exciter

Not satisfied with either the Tritet or the Jones' exciter as a frequency quadrupler, though the latter in particular gives every satisfaction as a doubler, some tests were carried out at 3BQ with a view to improving matters. In the first place, the old method of doubling in the C.O. by using two plate "tanks" was tried with the 6A6, and fair results were obtained. Then it was realised that greater harmonic output could be gained by using the fundamental circuit, L.C., in the negative lead, where it would be common to both plate supplies in this valve. Fig. 1 gives the arrangement, and its output is far in excess of that of the Jones' exciter.

At first glance it would appear that this circuit would put an abnormal strain on the crystal, but in practice it does not do so. With a 40-metre crystal, the R.F. in the actual crystal circuit is about 70 m.a., with 350 volts on the plate and 20-metre tank out of resonance, but this current drops right to about 40 m.a., which is a much more normal figure when the 20-metre tank circuit is tuned, so that there is little fear of frequency drift, let alone damage to the crystal. With this arrangement the output on 10 metres was practically equal to that of the 802 that normally follows the Jones' exciter. A few tests were carried out using a 30-metre crystal and tuning both the Cathode and plate-tank circuits of the first triod to the fundamental. Neither of these would quite reach the actual frequency, so it could not be ascertained for certain whether the crystal would stand up to the strain, but no damage was done with the crystal current up at about 120 m.a., and at that the output on 10 metres was sufficient to drive a 10. It is hoped that by next month the tests will have been carried out with 80 metre crystals for 20-metre output, where the circuit will be of use to a far greater number. In the meantime the circuit is quite safe to use with L2C2 tuned to the second harmonic.

The operation and tuning of this unit is very simple. However, as with

exciters of a similar nature, one must not expect vast anode current dips when tuning to resonance. Here we have three tuned circuits with the common D.C. supply, and when one circuit is resonated it automatically supplies excitation to the following



Circuit Constants for Howden Exciter Unit.

- LI.—7 m.c. Cathode coil, 15 turns of 16-gauge, 2-inch diameter.
- L2.—14 m.c. plate coil, 10 turns of 16-gauge, 2-inch diameter.
- L3.—28 m.c. plate coil, 4 turns of 16-gauge, 2-inch diameter.
- Winding in each case is spaced one wire diameter.
- C1, C2, C3.—11-15 plate midget condensers.
- C4.—100 mm.f.d., mica fixed.
- C5.—0.01 m.f.d. Cathode by-pass, fixed.
- C6.—0.002 m.f.d. mica anode by-pass, fixed.
- R.F.C.—Wound with 34-gauge D.S.C., 3 inches long and 3/8th diameter. Winding over full length.

stage, indicated by a rise in anode current. Thus the total current depends on the actual condition of each of the circuits.

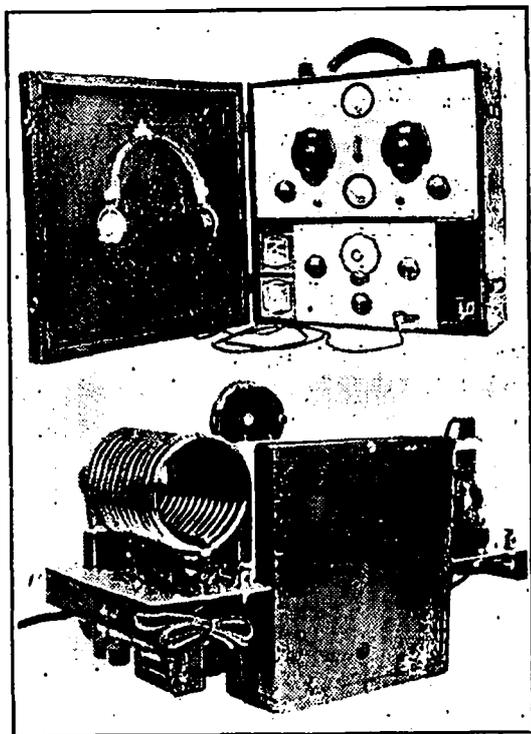
Probably the best indication of output at any frequency is the good old pea lamp shorted across a turn of wire. The first circuit to be tuned is, of course, the crystal fundamental Cathode circuit. Roughly speaking, the anode current will rise from 15-20 milliamps to around 60, when the

(Continued on page 9.)

A 5 Watt Portable Outfit

By Ivan Hodder (VK3RH).

This portable outfit was designed originally for bush-fire co-operation work, and was to be operated by VK3HL and myself reporting back from the seat of a fire to VK3HM or VK3HQ, who, in turn, advised the local officer by telephone of the progress or otherwise of the blaze. In this way reinforcements could be ob-



tained when necessary, or volunteers could be stopped when the danger period was past, thus improving the efficiency of the brigade and cutting down "wild-goose chases" to a minimum.

The operating distance would never exceed 20 miles, and a very low-powered rig would have filled the bill, but as our danger period existed for only a few months each year, it was decided to build an outfit which would embrace "ham" uses as well. To that end plug-in coils were used in the transmitter and band switching in the receiver, and provision made for operation in the 20, 40 and 80-metre bands.

Recognising that stability of signal was of primary importance in a portable rig, where operating conditions are not always what could be desired, crystal control was adopted as essential. Then, in order to obtain efficient output upon the higher frequencies, a 38 tube, used as a tri-tet C.O., followed by a 42 as P.A., was decided upon. However, if I was about to build this rig again, I would undoubtedly take advantage of later-produced tubes and use a 6A6 as C.O.-doubler, followed by a 79 as P.A., with the elements in parallel. The latter tube wired in this manner will give greater output than a 42.

Fone is achieved by the Telefunken method, via an A415 tube and a Strom.-Carl. mike.

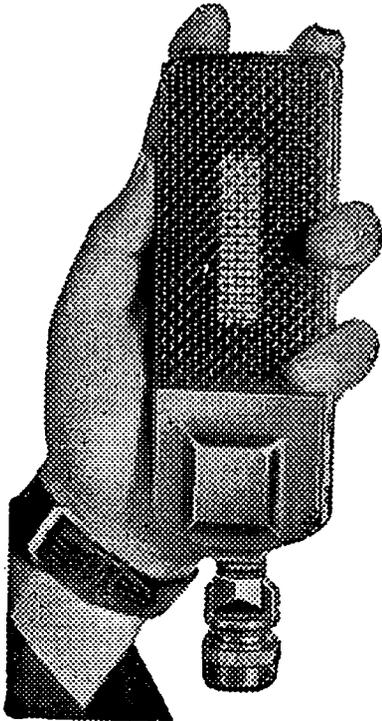
Instead of keeping the outfit in the flea-power class by using batteries for plate supply, it was decided to use a car radio "B" eliminator, and run it and the tube heaters from the 6-volt car battery. The topography of this district enables a car to go any place that a fire will, and so one of my problems was easily solved. But *not* so easy! All the rotary type eliminators were far too bulky to be built into the same case as the gear, and I was in a bit of a jamb until I came across the "Eclipse" "B" Eliminator. This is the dual vibrator type, and through the kind agency of VK3ZX one was specially fixed up for me. It takes up very little space, delivers 250 volts at 35 mills., and has never given a moment's trouble.

So much for the general design of the transmitter. I do not propose to accompany my remarks with a circuit diagram, for this is quite conventional, and therefore known to all you fellows. However, the mechanical construction will probably interest most of you, and so I have taken photos. to illustrate this article. You will note that the carrying case is a "junk" job which may be picked up nowadays for a few "bob" at "Uncle's." Two stand-

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4125	1 1/4	3/-	966J	1in.	1/6
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We have small supplies of this carbon in stock, of the Polished Granule Type which we can sell to Amateurs only at 12/6 an ounce nett.

off insulators are fitted on top to take the aerial and earth leads—although the latter is superfluous, as the car chassis is sufficiently good for the purpose.

The transmitter and power supply are built as a unit and occupies the upper storey, while underneath are the receiver and its plate supply, and on the lower right the key. This space also houses the mike and the power flex and plug, the latter being plugged into a socket on the instrument panel of the car.

Glancing at the front panel of the transmitter, the two vernier dials handle the .0001 m.f.d. C.O. and the P.A. tank tuning condensers. The knob on the lower left is responsible for the Cathode tank tuning, and the capacity is .0002 m.f.d. On the lower right is the band-changing switch, which is built on anti-capacity lines and merely throws a .00025 m.f.d. fixed condenser across the P.A. tank coil, thus permitting operation upon 40 and 80 metres with the same tank coil. Not so hot from the viewpoint of the high L/C fiend, but a Q5R5 signal at 200 miles in daylight, with the aerial 6 feet above ground, is sufficient answer to that. The D.P.D.T. switch in the centre of the panel in the up position throws the antenna on to the receiver and switches on the receiver filaments. When in the down position the antenna is thrown to the transmitter and the "B" eliminator is energised.

The left-hand "Yaxley" switch throws on the heater juice for the transmitter tubes, and the right-hand switch controls either C.W. or fone. It is a D.P.D.T. "Yaxley," and changes the P.A. grid-leak from a fixed value of 10,000 ohms to the Telefunken modulator tube, and also switches on the filament supply for this tube. A 4½-volt "C" battery is used for the purpose. The bias supply of 9 volts for the modulator is also located inside the case.

The two metres are below plate mills, and above R.F. output, and were incorporated as they happened to be on hand, the milliammeter being much the handier of the two.

The panel is of aluminium with a mottle finish, and this method of

finishing the surface gives the outfit rather a distinguished appearance. At a later date I shall go into the matter of how best to obtain this effect.

Transferring now to the rear view of the transmitter, the C.O. and plug-in crystal holder will be seen at the right. Nearer the front panel is the shielded Cathode coil, and to its left the C.O. tank tuning condenser. At the rear of the sub-panel is the H.T. supply, and its dimensions show how this type of eliminator lends itself to portable construction. It is clamped into position by metal strips. Behind it may be seen the send-receive switch and modulator tube, while further to the left is the C.O. tank tuning condenser, tank coil and the 42 tube. The coil is of the plug-in type, to facilitate band changing. Since the neutralising capacity has to stay put, a compression type was used and found quite satisfactory.

Under the sub-panel are located the C.O. tank coil, switches, mike transformer, wiring, etc., and an illustration of these is hardly necessary.

The C.O. pulls 10 mills., and the P.A. about double this current, which indicates an input of around 5 watts.

At the moment the antenna is a voltage-fed affair 133 feet long, and as space did not permit a coupling coil to be employed, it is clipped direct to the P.A. tank. However, a matched impedance antenna circuit on the lines described in "R9" for January, 1935, is to be installed to keep my conscience clear so far as the "R1" is concerned.

Keying is effected in the Cathode of the P.A., and no difficulty was found in getting the outfit to perk in the beginning, and I, therefore, have no "snags" to comment upon.

So much for the goes-outer"—now for the "comes-inter."

This is a three-tube outfit, using the two-volt series—a B262, 30 and 22A. The R.F. tube is untuned, and is merely employed to decouple the detection tube from the voltage-fed aerial, thus avoiding "holes" in tuning. It is impedance coupled to the aerial, using an R.F. choke, thus reducing

(Continued on page 9.)

Some Practical Details on the 6P6

The 6P6 low-power Penthode recently marketed by the A.W. Valve Co. is of particular interest to "hams," and for some weeks I have been using this tube in different positions in a normal C.C. rig, and the results may be of use to some who wonder whether or not it will fill the bill in their case.

First of all, it functions exceedingly well as a C.O., and can be used with safety to the crystal in a straight Penthode circuit with all the voltage that the tube itself will stand. It is rated at 450 volts on the plate, with 200 on the screen. Most valves with such a rating will function even better when operated at about 600 volts with the screen limited to some 150 volts or so, but here was where I first found trouble. As soon as the 500-volt mark is passed a series of internal sparks are observed between the various elements. They do not appear to damage the tube at all, but one can be quite sure that, were they permitted to continue for any length of time, it would soon go west. The internal screening is fairly complete, so that if used as a tri-tet there is relatively little strain on the crystal. The best output from it as a C.O. was about 8 watts, with 15 watts input. This was with 500 volts on the plate, 30,000 ohm. screen-dropping resistor, 60 volts neg. on the control grid through a R.F. choke and 30 volts neg. on the suppressor.

It is designed primarily as a buffer tube, and naturally best fits in this position. The 802 was the forerunner in this position, and for high-power work still stands alone, as it continues quite normally with 800 volts on the plate, while the 6P6 at this voltage goes mad. For normal power work (up to 500 volts), however, they can be changed without noticeable difference, and the price makes the 6P6 a much better bet. When used as a buffer the 6P6 should be biased with about 100 volts. When 500 is put on the plate, though, with a screen-dropping resistor of higher than 20,000 ohms, it can safely be lowered to 60 volts.

Much the same can be said of it as regards its operation as a frequency doubler in a Penthode circuit. It is just as good as an 802 up to 500 volts, but for powers over that the safest plan is to tie the three grids together and use it as a Triode. This overcomes the sparking between them, though even then high bias must be used to prevent a breakdown. Several stations are employing them as power amplifiers for 'phone work on the higher bands with good effect, and the suppressor grid modulation behaves very well. However, on the ten and five-metre bands, trouble is likely to occur unless special precautions are taken to prevent feed-back. A by-pass condenser from the suppressor to the

CONSTANTS FOR 6P6 TRANSMITTER.

- R1.—50,000 ohm., 1 watt.
- R2.—Depending on voltage used.
- R3.—30,000 ohm., 5 watt.
- R4.—20,000 ohm., 5 watt or higher.
- R5.—Voltage divider across small eliminator.
- C1.—100 mm.f.d.
- C2.—100 mm.f.d.
- C3.—0.1 m.f.d.
- C4.—.002 m.f.d.
- C5.—0.0001 m.f.d.
- C6.—0.002 m.f.d.
- C7.—2-4 m.f.d.
- S.W.1 'Phone.—C.W. Switch.

cathode of .0001 m.f.d. right at the valve socket and an R.F.C. in both leads from the modulation transformer at its terminals kept the R.F. out of the speech amplifier even on five metres. The tune is very easy to modulate on its suppressor, and a single 42 will be too much unless tied well back with the gain control.

Almost any valve will work as a buffer on the higher bands where the capacity of the neutralising condenser does not matter, but when a buffer is required on ten or five metres the 6P6

comes into its own. With very hay-wire precautions against external inductive coupling, no trace of self-oscillation was noticed, though with higher power in stages where space is limited shielding will be found worth while. Very little drive is required to excite this tube, and it was found possible to get a couple of watts' output on five metres with it when it was driven as a final frequency doubler driven by a 6A6 and a 40-metre crystal. This was perhaps the hardest job it could be required to do, so it was not to be wondered at that it was hardly driven hard enough to permit of heavy modulation on this band.

Taken all in all, it seems to be about the most satisfactory valve that can be used for moderate power buffers and doublers, and though what I have said seems to concern its faults, it behaved so well in all other normal cases that I have taken them for granted.

(Continued on page 4.)

crystal jumps into oscillation. Tuning L2 will produce a slight dip in current when the second harmonic is approached, but immediately rising when properly in resonance. The same procedure is observed when tuning L3. In the end the total cathode current will be around 60-70 mills. with 350 volts input. It is recommended that link coupling be used to attach to the next stage.

(Continued on page 7.)

cross-modulation from B.C. stations, often experienced when resistance coupling is used.

The detector is coupled via the usual R.F. transformer method, but a slight change from convention is made by

using the primary winding also as a reaction coil. The R.F. from the plate of the detector is fed through it via a fixed .0001 condenser, and reaction control is obtained by means of potentiometer control of the plate voltage. If you haven't already tried this stunt, I can certainly recommend it, as it behaves exactly like the conventional three-coil arrangement, but saves space and time by eliminating the third coil. When using a screen-grid tube reaction is best obtained by varying the screen voltage.

Glancing at the receiver, the reaction control knob will be seen on the right. Beneath the tuning dial is the wave-change switch. The tuning capacity used gives a coverage of about 30 to 60 degrees on the different bands. The knob on the left throws the receiver over from the normal aerial to the loop aerial built into the lid of the case. This is of considerable advantage in the event of Q.R.M. from a near-by transmitter blocking the detector grid when using the long aerial. The enclosed aerial is used only as an open-ended loop, of course.

Plate voltage for the receiver is obtained from two 31.5-volt "C" batteries, and adequate enough to give really good signal strength on all VK and ZL stations, and W's trickle through at R5.

The possession of such a portable outfit opens up all sorts of avenues for interesting experiments and field days, in addition to providing for emergency purposes. In our particular case it has apparently had a very noticeable moral effect, for since the completion of the job there hasn't been a fire of any sort in the district!

To those of you who may decide to build an outfit along the same lines, I'll say, "Good fun!"

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Accurate grinding to .03 per cent. 3.5 M.C., 20/-; 7 M.C., 30/-
100 K.C. Xtals. 465 K.C. Xtal "Gates. Prices on application

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Floating Broadcaster

MISS EILEEN FOLEY, ANNOUNCER.

Miss Eileen Foley, radio announcer, of Station 9MI, on the McIlwraith, McEacharn liner "Kanimbla," starts upon her career as officer in charge of the first floating broadcaster with the assurance that she has already given pleasure to a vast audience of listeners throughout Australia, Great Britain, the Continent of Europe and the world at large.

Miss Foley broadcast from the "Kanimbla" while the vessel was in European waters. Reports showed that reception was excellent. Since her return to Australia she has received scores of letters from every State in the Commonwealth. This is the result, mainly, of the broadcast which was relayed through the National stations when the "Kanimbla" was a few hundred miles from Melbourne. All Miss Foley's correspondents state that reception was excellent, and that the programme radiated from the "Kanimbla" was excellently chosen and well produced.

Miss Foley was due to give a special broadcast from the "Kanimbla" when the ship was between Sydney and Melbourne on the evening of 11th June. This was to have been relayed through 3LO, Melbourne, during the children's session. The McIlwraith, McEacharn Co. has not decided at the moment of writing precisely how often broadcasts will be made from the ship, but Miss Foley herself has now had a broad experience in radio, which will assist the programme materially. She has visited Germany, and broadcast by invitation from the Rundfunkhaus, at Berlin, where the German National programme originates. She also made several broadcasts for the British Broadcasting Corporation in England. In Berlin she was impressed with a map of Australia, dotted with coloured pins, showing places all over the Commonwealth from which letters have been written notifying reception of Germany's long-distance broadcasts. The broadcasting equipment of the "Kanimbla" was designed and manufactured by Amalgamated Wireless (A'sia) Ltd.

Correspondence

Mt. Lawley, W.A.

(To the Editor.)

Sir,—Received reply to-day to my "ham" advertisement inserted in April "Amateur Radio," and would like to record my appreciation. Did not like to hope too much, as W.A. is a long step, but "Amateur Radio" came through. Show this to your advertisers! Many thanks.—Es 73.

D. GROGAN.

[This should bring in some "ham" advertisements, we hope.—Editor.]

Cowra.

(To the Editor.)

Sir,—Being covered with shame, arising from the reading of your May Editorial, although I am not qualified to write a large article, I enclose herewith a par. which may be of interest and of use to the fraternity, hoping that it will serve to shift a little of the opprobrium from the VK2 gang. Seriously, though, I do think that the journal is worthy of all the support that the "hams" in all States can give it, and I assure you that if anything comes under my notice which is worth making into a par. I will send it along. Wishing the journal every success.—Yours, etc.,

H. CARRUTHERS (VK2PF).

[Thanks! Your type of article is always welcome; also your cheering remarks.—Editor.]

Murraydale.

(To the Editor.)

Sir,—Many of us will hang our heads after reading your Editorial this month. Congratulations thereon, and may it bring the interstate response it deserves.

As technical articles don't pour in, might I suggest more station descriptions, with a careful description of any special gear, etc.? Such, to my mind, make interesting and useful reading. Most "hams" don't rush the limelight, but if dope cannot be obtained by fair means let foul be used. If the idea is of any use, I'll undertake to write up such station descriptions as are available.—Yours, etc.,

J. RICH. PHILLIPS.

[Thanks! We will be glad to receive descriptions.—Editor.]

“Sticky-Beaking” as an Introduction to the “Ham” Game

(By ZL-156.)

Some day I hope to build a radio transmitter and qualify for an amateur's licence to operate it.

In the meantime I am getting a whale of a lot of fun and improving my education no end by poking a nosey-parker “sticky-beak” into every nook and cranny of the ether.

From the angle of a listener's point of view, I am gradually learning to distinguish the finer points of amateur radio transmission. I think I must also be getting wise to some points that are not so fine. Hi!

One can sense the day, possibly not far off, when he will get drawn, willy-nilly, into something approaching a real obsession for the mechanical side of radio. One of the things I have already learned, however, is that transmitting efficiency and successful radio communication, both local and D.X., depends on something further than a well-designed and carefully-constructed rig.

During the past few months I have noted with surprise that fellows who have built up with the most meticulous care the very last word in radio rigs sometimes discount this very fine initial advantage quite heavily by a careless and at times slovenly, enunciation of their call, and by a disregard of the need for a positive identification of same.

In general, “sticky-beaking” has taught me that there is much more in this amateur radio transmitting than meets the casual eye, and it has definitely impressed me with the idea that, while the main interest of amateur transmitters is always likely to radiate round the “rig” (and quite rightly so), there is a real need to devote thought and attention to the art of transmitting technique.

The purpose of this chin-chin is to remind “hams” of a few things that

they know ever so much better than I do, but which seem to get overlooked in spite of being so obvious.

The majority of “hams” announce the first letter of their call quite distinctly. Usually the second letter of the call gets a rough spin. The voice is dropped to a mumble and the second letter, well, takes pot luck, so to speak. “Hams” know, yet so often in practice forget, that when a letter is uttered carelessly and without further identification, it is often quite impossible, even in local communications, to distinguish B from C, D, E, G, P, T, or V.

It was interesting a week or two ago to hear a call from W6CNE. This “ham” gave his call very carefully and deliberately to start off with. Then he identified it by C, as in California; N, as in Nebraska; E, as in England. Not seeming to be satisfied with that, he added “Dar-di-dar-di, dar-di, di” (CNE in Morse sigs.). It greatly tickled me, but it was sound technique. Occasionally I hear a VK give his call in the usual way and then tap it out on the key. That also is good. Then some “hams” coin a distinctive identification mark of their own, such as the familiar ZL-1DC—“One Direct Current.” Where that form of identification is adopted, care needs to be taken that words are chosen that can readily be picked up at a distance.

Now, the reproduction of speech by mechanical means calls for special speech technique. Very few folks realize that. How many, for instance, out of all the thousands who regularly use the ordinary telephone get 100 per cent. reproduction of their speech? Very few. Almost everybody, when they speak over the 'phone, as when they speak into a mike, sub-consciously raise the strength of their voice above normal, and in the same act also raise the pitch of the voice! And usually the

greater the distance one is trying to reach, the louder one is inclined to shout and the higher the pitch of the voice is raised. That's bad technique. It results, as often as not, in a confused jangle of sound.

My experience as a "sticky-beak" leads me very definitely to the conclusion that ordinary standards of elocution do not apply in radio, and particularly in D.X. radio. I find that the smaller one keeps his range of speech frequencies the better his speech is likely to get over. The narrower his fluctuations in strength or voice, the better the results. The smaller the variations in pace of speech, the better. A medium pace, a medium power, and the middle of the voice register, seem to suit radio transmission best.

I was very deeply interested in some argument that followed a recent "ham" contest in Auckland. It was hotly contended that the speech of the declared winner of the contest was monotonous, flacid and almost entirely lacking in warmth and vivacity, all of which criticism was reasonably fair. But those very factors helped to make what was unquestionably the most effective speech transmission in the contest.

Personally, I would be extremely sorry to hear anything in the nature of unnatural or affected speech. There is no occasion for any "ham" to ape an Oxford Don or an intoning church prelate. There is no occasion for any "ham" to sink his personality or try to smother the little personal idiosyncrasies that endear him to brother "hams." Not a bit. On the other hand, are we not wise if we try to keep clearly in mind that there are certain rules and laws by which the "ham" game seems to be irrevocably governed, and if we each, in his or her own peculiar, personal way, do our best to observe these, we may reach the highest and best the game has to offer?

One could say much more, but this has been a fair over, and I had better QRT. So take it away, boys. It's yours.

EXPERIMENTAL RADIO STATION, VK2WI.

Members of the Wireless Institute of Australia (N.S.W. Division), and especially country members, are reminded that their official station (VK2WI) has commenced a bi-weekly broadcast under the management of VK2BJ, and may be heard each Wednesday, commencing 1930 EST on 3,580 KC, and on Sundays at 1,100 on an approximate frequency of 7,160 KC.

If you would be posted as to the latest information concerning the activities of your Division, listen in for the latest news bulletins supplied by your publicity officer.

Reports on reception are desired, in order to obtain a reasonably accurate estimate of the value and effective coverage of these broadcasts as affecting members in particular. Will you please co-operate by addressing your reports to Experimental Radio Station VK2WI, Box 1734 JJ, G.P.O., Sydney?

Suggestions for extending this service to give the greatest possible benefit to country members are also invited and will receive due consideration by the Council.

.....

We note that 7PA has given up writing the VK7 notes. He was one of the best correspondents. We'll miss him.

Thanks a lot, O.M., for your constant attention to duty. Sometimes you must have cursed the Magazine Committee, so we propose to take this opportunity to thank you and your successor (7JB), together with all other correspondents who do and keep doing their jobs.

We wish we could write you personally, but this month's Editorial conveys the position. We have a living to earn, like other people, and time is far too short.—73, Editor.

All copy must be in hand by the 18th of the month preceding publication.—Thanks! Editor.

• • SUPPORT YOUR ADVERTISERS

Yes, 3RX; I Remember!

(By VK2NO.)

The six-inch spark from a kite antenna that nearly scuppered me in 1911.

My rotary gap that could be heard better aurally than etherically.

When we used Sterling one-inch coils and unprotected gaps in 'planes during the Big Scrap.

When Melba sang from Chelmsford through my loose-coupler-galena-three-"note magnifier"-tin horn on 2,000 odd metres in 1920.

When Paul Godley came over to GB with a Grebe RX and logged Yanks "around 200." So did several G's with less pretentious gear!

The freezing, shivery, thrilling nights of the first Trans-Atlantics with tearing R.A.C. slgs. from F8AB, U1MO, U1XAM, C1DD, G2NM, G2KF, PCII, and others.

When Cecil Goyder (G2SZ) landed Frank Bell (Z4AA) and wouldn't believe he was a Maorilander until Frank cabled conformation.

The way A3BQ and A2CM used to romp into London on "Eighty-Five" in '24.

When Phil. Nolan burnt the ether trails with 2YI, and his call was a Mecca for Yanks.

The terrific racket from A2BK's "sink" and the despair of BCL's for miles around the Harbour.

Those 32-metre days, when QRM was unknown—almost!

When one had to coax the gang from 32 to "twenty."

The all-day D.X. with Europe around "twenty" in 1926-7.

The way A2DY put it all over us on "twenty" with his lone 201 "A" against our T250's in parallel.

When I could draw 200MA from the neighbour's fowl fence with the key pressed.

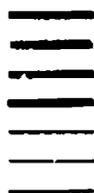
When Navy personnel came over to a "ham" station to find out why a handful of watts could reach Europe and 10 KW couldn't.

The affair at Wyndham, W.A., when a "ham" station saved the Commonwealth a pile of cash in a protracted search for a lost 'plane.

The time the op. on H.M.A.S. — asked OA2 to telephone a Navy station and say they couldn't hear 'em in the Solomons. The subsequent TFC through the said "ham" and the court-martial the op. nearly went through.

A thousand and one pleasant memories of "ham" radio. The "young squirts" that have come and gone, and those that have stayed. I may be getting into the old-timer category, but I have the good sense to stick to this finest of all games. It's never devoid of thrills and is yet only an infant.

Act Quickly!



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28 M.C. Notes

(From VK4.)

During the past few weeks most 10-metre stations in all continents have complained of poor conditions.

The equinox periods are undoubtedly the best for 10-metre communication over all distances.

Mid-winter and mid-summer conditions are such that signals are audible over comparatively small areas at continually varying distances from the transmitter. Signals from medium distances are most consistent, and those travelling north and south are audible for the longest periods. This means that VK signals are lobbing either in mid-ocean or in sparsely-populated districts.

Conditions prevailing at present have caused most stations to reduce activity; consequently operators get discouraged and use the band at weekends only for short periods.

Ten metres is one of the bands where stations should keep on the air as much as possible, in preference to listening. At times, when one station commences with a CQ, it is the signal for others hearing him to do likewise; whereas, if nothing is heard, the operators either switch off their receivers, and in some cases say the band is dead, or tune to a lower frequency.

VK stations using beam antennae are still working a few W's and J's, but other continents are rarely heard. During June all continents except, perhaps, Africa were contacted, which is much more than could be done in June last year, and, no doubt, is due to the increase in the number of efficient stations active on ten.

PAOAPX, who requires only VK for WAC 10, advises that he is listening every Sunday 0800 to 1000 GMT, using a sensitive receiver.

Europeans and Northern Africans should be at their peak during October, and VK stations are urged to try and contact as many as possible, in preference to working U.S.A. stations only.

High power is not necessary, but a suitable antenna is desirable.

The multiwave horizontal Hertz is directional, and will give good radiation in four directions at small angles from the line of the antenna. Following are a few stations who have successfully contacted VK's on 28 M.C., using medium inputs:—G5BP (10 watts), VU2AU (6 w.), J3CR (10 w.), ZL3CU (7 w.), F8CNP (12 w.), OH7NC (20 w.), VU2BL (10 w.). Most of the Europeans worked use between 25 and 100 watts input by distance.

R.A.C. sigs. from F8AB, U1MO, C1DD, G2NM, G2KF, PCII, and others.

The rather doubtful contact the long way round between W8CMP and VK4EI, which was reported last year, turned out to be the above-mentioned F8CNP, who was using 12 watts input to a self-excited rig.

Our representative called at the sign of The A. H. Gibson (Electrical) Co. Pty. Ltd., 23 Hardware-street, Melbourne, during the month, and had the pleasure of meeting Mr. Seabridge, head of the radio department. The firm are agents for the Paton Electrical Instrument Co. of Ashfield, Sydney. This concern manufactures a wide range of radio and electrical testing instruments, meters, dials, voltmeters, generators, and all the other gadgets dear to the heart of the Ham. Further issues of "Amateur Radio" will give particulars.

In our June issue appeared an advertisement from Radio Ltd., of Los Angeles, U.S.A., quoting a special price for a subscription to "Radio," and a copy of the "Radio Handbook," and referring local readers to McGill's Agency, of Melbourne. The latter firm desire us to state that the prices quoted in the advertisement cannot apply to local conditions, the suggestion in the advertisement in question of a "current equivalent" implying rate of exchange, which brings the price to that charged by McGill's in the ordinary way. Readers may rely as usual on getting full value and service at McGill's.

Federal and Victorian Q.S.L. Bureau

By VK3RJ (Federal QSL Manager).

Copies of the new Melbourne metropolitan traffic code are available on application to this bureau.

Melbourne "hams" were again pleased to meet and renew acquaintance with Roger Greene (VR1AM), of Ocean Island. Roger and Mrs. Greene spent their furlough in their native land, and report all well. With A.C. now on tap, Roger plans increased activity on his return to Ocean Island.

Roumanian short - wave amateurs have founded their national society, styled the "AARUS." All amateurs of that country are members, and the chief office - bearers are:—President, YR5AS (Dr. Savopol); Secretary, YR5EV (M. Niculesco). The QSL manager is M. Cantuniari (YR5VC), whose QRA is: Str Matei Basarab, No. 3, Bis Bucharest IV, Roumania.

The station signing VK3PI and giving fictitious addresses in Mel-

bourne suburbs is a pirate. The real VK3PI (Mr. L. Pearson) only secured his ticket a few weeks ago, and has not yet commenced activity. When he starts up, Mr. Pearson's fist will distinguish him from the bogus station.

Cards are on hand at the bureau, 23 Landale-street, Box Hill, for the following VK3's:—3AC, AD, AN, AP, BH, BL, BS, CA, DS, EF, ER, ES, FB, FM, FN, FQ, GB, GF, GJ, GM, GX, GW, GY, HN, HY, JA, KV, LS, LY, MK, NG, NT, OI, PC, PH, PS, QJ, RE, RM, RW, TW, UJ, WD, WH, WZ, XA, ZB, ZK, ZL, ZW, Messrs. Dynan, Hampton, Peters, Grimwood, Nye.

"Matelot" Gordon Macleod, ex-VK3ZZ, and more recently VK2RU, is back again in Victoria, and is now VK3ZZ again. Gordon, who is in the "King's Navee," is active and is located at Crib Point.

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VK3 STAGES A 56 M.C. FIELD DAY.

Sunday, 7th June, the date picked for the big open air event, opened up in the most pessimistic way possible, in that it looked like a wash-out for the participants as far as the weather was concerned. However, having got the word "go" from 3XL on 200 metres, the gangs set forth to the predetermined localities. Those who entered into the spirit of the day in the bush were:—VK3DH, MR, KQ, UK, UH, OF, HF, ML, YP, and those who worked from the "fireside" were VK3BQ, PL, TH, WY, HK, CR, RS.

Sites chosen ranged from 10 to 50 miles from VIM, scattered in all directions. The balloons, or rather aerials, strode forth into the atmosphere around 11 a.m. Right from the start the band seemed loaded with signals, and it was some time before certain stations established contact owing to the QRM. The majority of signals were reported R6-8 all the day, and under QRM-free conditions all stations on the air could quite easily have worked one another. It follows without saying that the day was a huge success. The next field day will require stations to go away on the Saturday night, so that they can get far enough apart by Sunday morning.

The contest that was run in conjunction with the event was probably won by 3KQ, who certainly put out a fat signal from Macedon. Until the next key punchers' meeting nobody will know who actually won, but KQ contacted 3QF at Arthur's Seat. 3ML, at Kinglake East, worked the same station, but was beaten for the record by a few miles. 3DH, at Frankston, was also heard at Kinglake, and it is worth noting that DH used flea power and a quarter-wave aerial on the chassis of the car, with the frame acting as the other half of the dipole. Power supplies ranged from motor generators, vibrator units to "B" batteries. 3ML used 240 volts of "Diamond" heavy-duty "B's," which stood up very well against the strain of some 50 milliamps average drain current. This form of supply was essential owing to the Class "B" modulation system employed. The

(Continued on cover 3.)

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W. G. Ryan, Secretary, VK2TI, Box 1734JJ, 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, Carlton.

ZONE 4 (Hunter River and Coalfields)—
S. Grimmett, VK2ZW, 161 Tudor Street, Hamilton.

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

ZONE 2 (2HV).

2WQ.—Not much time for D.X., so ragchews on 40 over week-ends. Crystal mike, speech amp. 57, 56. 2A5 and pair of 2A5's Class AB as modulators. 47 C.O. on 7007 K.C., 46 buffer, doubler and 210 P.A. take care of the R.F. Bob is a newcomer to Werris Creek and is late of Manly. RX6 tube super.

2NF.—Has left Werris Creek, and is now QRL at Eveleigh. So long, Jack, and the best of D.X. at your new QRA!

2RV.—Has nice superhet. RX 56, 57, Q58, 58, 2B7, 59, 59, 523. Whew! With an 11-inch dynamic speaker. This certainly sounds ft. 47, C.O. 46 fd., and parallel 46 in P.A. With 300 volts on all stages put nicer sigs. into KA, J, etc. Frequency, 7,236 K.C. Name, Son. Nice chap, too. 2ZP seems to be preparing for the long winter sleep, and is—as usual—QRT. Rig is still Hartley 210, and the second of is still the cause of the inactivity.

2UR, 2WT, 2JF.—All seem to be QRT.

2ON.—First of Lindsay sec. of Bob AF3 EC ox., 59 buffer doubler, 46 P.A. P.M.G. mike, 227 sp. amp., 45 series modulator. Voltage-fed Hertz antenna input, 2½ watts. Spends most time on 80 and 20 M.X.

Toddy, of Tamworth, has not been down on 40 or 20, so must be on 80 or QRT.

2KO, of Temora, turned out to be Jack Early, the well-known second of old 2CR.

2XD, also of Tamworth, has been heard on 40 M.X., with FB TA calling CQ, D.X. What luck, Ken.? No news of 2GU or 2DD to hand this month.

2ZX.—Makes witty (?) remarks on the B.C. band, and grinds out nice (?) recordings. Spare time, if any, is spent on 40.

2HC/BE, 2KN, 2KR and 2XQ.—All seem to be on 80, as no signs heard on the higher frequencies.

2HV.—25 Watts, C.C., 7,001 K.C. Spends most time on 20 metres D.X.-ing, with occasionally ragchews on 40 fone. 47 CO 46, 46, 210, 210, 210 P.A. All six stages are used on both bands. Half-way Zepp. and several types of matched impedance antenna are used. Double - choke Heising modulation, with pair of 250's Hal. mike; 57, 56, 56 speech amp. 2X's tube super and two-tube EC, 58, 56, W.A.C. Thirty-six countries. Now you know as much about 2HV as I do myself, and that doesn't say much. Hi!

ZONE NOTES.—VK2IG.

Conditions generally on all bands have undergone rather complete changes. D.X. on 40H, and nil on

20 M.X. excepting few W's during the afternoons. At night on 20 no sigs. heard at all, but plenty of WJ, X, etc., on 40 until the early hours of the a.m. Ten metres also not T0 hot. The boys here all been visiting each other. That's the fb "ham" spirit, O.M.'s!

OJ.—Been to Sydney and visited AP, where with old YI (Harry) he heard his own station! IG and Herb. Marshall, ops. at OJ's, and very fb gx on fone on 40 X.

QE.—QRL work, and not heard of very much.

QD.—Unlucky to have back attack of mumps, but getting better again. Now FB, O.B.!

VK.—QSO-ing more YL's than D.X. Hi! Kept poor IG out of bed trying to get D.X. one evening.

IG.—Not on so often. Shack's too darn cold. Shack is a couple of walls minus. Hi!

I hear old ZLIDV is very sick. The gang here hopes he will soon be O.K. and on the air again. Good luck, O.M.

ZONE NOTES FOR NORTH COAST.

ZONE 3.

Well, boys, here's the first notes from new Z.O. (VK2NY).

Conditions on all bands appear to be changing.

80 M.X. very quiet except for few VK's and 2 L's.

40 M.X. also quiet; at night the little D.X. to be heard. 2NY recently heard W3 at 9.30 a.m. Still plenty of W fones on 20, with W6ITH predominating.

2NY still living in hopes of hearing and working European for 10 M.X. W.A.C., though hasn't been on 10 for a month.

Now some dope on the gang:—

2CJ.—Gets out well with his 67-foot vent ant. Recently got R7 report on his.

40 M.X.—Fine for W5 F.B. 2AO rebuilding, and hopes to be on soon with C.C.

2GM (late of Grafton, now of Bankstown).—Also rebuilding. Has new Phelps' ant., which he says is the goods.

22M.—Recently QSO'd 2CW, 8.30 p.m.-3 a.m. Some QSO! He has also been on 20 M.X., and got R9 for IKE. of W9RUK.

2NY.—Off the air rebuilding, but working night and day to get back on. Hi!

Believe 2QI got spliced. F.B. and congratulations! Keith, hope to hear you on the air now.

252.—Still continues to ragchew on 80 M.X. when local "B" Class station QRM permits.

Nothing has been heard of the other Richmond River boys. The OT (Frank Kimpton) has been bitten again, and will be on with three-letter call.

Guess that's all for now. So 73 to all.

NORTH SHORE ZONE.

2AE very quiet during the past few months; Dave must be building something special. 2ACJ is a new Ham in Artarmon, Mr. George Rutter, and his rig, to begin with, is a '59 in electron-coupled ckt, the QRI being a nice T9 Xtal note. His next door neighbour, Mr. George Fenton, expects to receive his call within a week, so there should be plenty of QSO's between these two. 2BJ conducts the official broadcasts from W.I.A.'s station, VK2WI, every Wednesday night on 80 m. from 7.30 p.m. and every Sunday on 40 m. at 11 a.m.

2DR has an ideal YL second op., who is very interested in the technical and building side of Ham radio. Don also has a few watt-hour meters for sale at 1/- a time; these contain a handy gadget that could be used for counting turns. 2FV makes contact now and again; still listening for your fone, Jack. 2HA has procured a bug key to improve his fist (?). Ned's lil 2nd op. caused his signal to modulate 500 per cent. the other night when Ned decided that she had chewed enough paint off the corner of his receiver.

2HG has a YL announcer who sounds fairly proficient. 2HL wants all the North Shore boys to get interested in 5 mx. 2HY still heard on 20 occasionally. 2HZ still QRL preparing for the Exhibition. Guess its success will not be due to Bill's lack of support! 2LD contacts the Yanks on 40 with ease. 2LZ has some good gear for the Exhibition. W6AHZ, speaking from W6FQY, was asking after 2LZ, and would be pleased to QSO him on 20 again.

2NN has improved his fone and gets his pup Peter to bark CQ for him. 2NV has not yet oiled up his P.A., although he has the modulators perking well. 2PV has been QRL with Uni. study, but finds some time to work some DX once in a while. 2QF had portable fone working from Newport

Amateur Radio

and put out some good stuff. 2SS is still on self excited and apparently finds it better than Xtal. 2SV again heard on fone from Roseville. 2VE not been on for some time except from 2AJC, when heard working 2VN in Mosman. 2VN's harmonic can be heard on 20 unless he is down there in person. 2VP apparently has not yet found a cure for his clix. 2YA puts speed on his QSO's by using a bug key.

NORTH SUBURBAN RADIO CLUB.

The above club is now in regular working order and anticipates extending its activities in the near future. Our thanks are due to the willing workers who have made this possible, especially to VK2HL, VG, GD, NN, VE and BJ.

Although scarcely in existence three months, we have already made our mark in the competitive field, with three cups to the credit of our members. We take this opportunity of thanking Zero Beat for providing the opportunity.

Our constitution has been ratified, and applications for membership in one of three grades, viz., full, ordinary and associate, are now invited, and may be addressed to temporary headquarters, 1 Bowan Street, Chatswood.

Full membership is open only to licensed amateurs resident on the North Shore who are prepared to accept responsibility and service; ordinary membership to those licensed amateurs who, unable to assume responsibility, are prepared to part with the princely sum of 10/- per annum, payable quarterly; and associate membership to short wave enthusiasts who desire assistance towards qualifying for elevation to Ham rank and are prepared to contribute an annual fee of 5/-, plus initial registration of 2/6, towards the cost of accommodation essential to this service.

LAKEMBA RADIO CLUB—VK2LR.

(Affiliated with W.I.A.)

(By 2DL.)

The outstanding event of the month was the Amateur Radio Exhibition organised by the W.I.A., at which the above club occupied a stall. Exhibits of interest entered by club members included a large rack and panel transmitter by 2OW, condenser microphones by 2CY and 2XM, 5-metre transmitter and receiver by 2EH and

2OD, a "bug" by 2PX, also a 1920 model receiver used by Harold in "the good old days," together with various other apparatus of interest. The back of the stall was decorated with a map of the world surrounded by QSL cards from various countries, with the club's call sign directly above in large, glittering, silver letters. The cards created a great deal of interest, as most of them were selected, including one from the Graf Zeppelin (QSOed by 2PX), and one from FM8IH! It is understood that the latter is regarded as a very rare specimen! The official opening by Mr. F. E. Hardy, from America, was an outstanding success, and indications are that future exhibitions will be even better.

NEWCASTLE CLUB—2RF.

(Affiliated with W.I.A.)

Congratulations to "Dave" Davies, who is now 2BZ. The locals all hope to QSO often, Dave, and wish you the best of luck. A 2-stage e.c. rig. is the first transmitter.

UF going in for Class B modn. Must be getting ready to blow KB off the air at the latter's new and adjacent QRA. Incidentally Allan is still in U.S.A. and having an fb time by all reports.

FN will be on the air at his new QRA at Orange, having at last found a shack. The gang look forward a lot to chewing the rag with Geoff again.

OE getting out fb. to W and VE on 40 mx. using a single 45 TNT.

The quarterly DX test for the Electronic Communications Cup is on again, and half way through RF is leading MT, with UF in third place. Despite the winter condx. some good dx. has been worked by the competitors, including VE, X, PJ, FB8, FA8, U, OZ and VS1.

Eight associate members are being prepared for their tickets, and are all enthusiastic, so it should not be long before the local QRM gets a bit thicker.

The P. and L. Wireless Supplies Pty. Ltd. are now comfortably installed in their new establishment a few doors further along Hardware-street. The shop, workshop and window are spacious and well equipped, and Hams can even more than before rely on service. Mr. Aarons is on the job continually; Mr. Johns is on a business tour of Europe in search of fresh inspirations.

Victorian Division

PHONE SECTION NOTES.

(By VK3DH).

The Phone Section meeting for May was held at the Institute rooms on the last Tuesday, 25th of the month, as usual. Present were XL, BY, SB, RI, OY, PG, HF, EL, JR, OV, FL, KE, JB, GK, FW, HK, PA, LM, GY, TM, TH, DH, and Messrs. Kerley, Lahiff, O. Davies and 3JQ from Geelong.

Some months ago 3OV gave notice of motion that he intended to attempt to have changed the motion on the books which said that the Allocations Committee be composed of members not actively engaged in transmissions on the 200 mx. band. Owing to the cutting out of all general business on the meeting night following this notice (the day of the death of His Majesty King George V.), somehow this had been forgotten. However, OV again brought up the question on May 26th,

and when the motion was put to the meeting, it was carried.

Later SB moved and OY seconded that the Allocations Committee be composed of four members. Nominations were Messrs. Kerley, Lahiff, O. Davies, 3BY, FW, RI, JB, TH and AM, so the question to be decided at the June meeting is which quartette of this party will form the new year's Allocations Committee,

The usual business of the meeting for May was proceeded with and allocations fixed according to order of merit, which system has proved very effective, since nobody has anyone but themselves to blame if they don't receive the allocation desired.

3HF reports that after running marathon transmissions for four consecutive week-ends, Harry and Graham are feeling rather tired, and have decided to suspend the all-night stunt for a while. I might explain that they started at 0000 Sunday and continued until 1000 hours. This, for most people who are likely to listen at these un-



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earthly hours, really means all of Saturday night.

3FW contemplates the installation of a couple of "beam" tubes as modulators, the output of which combination is rated at 60 watts of audio frequency power with .6 per cent. total distortion (?) in class A.B.1. I expect Bill will not need any power input to the modulated amplifier at all then—he will be able to use rectified A.F. voltage instead.

3RI are having a considerable amount of fun with "long lines" in their studio equipment, we heard.

3LM is experimenting with a ribbon microphone. (It was explained to us by a certain broadcast engineer that this is a "species of velocity microphone.") Some of the boys will readily remember this.

A suggestion was received from the Key Section that, should we have any trouble with our crystals not being sufficiently active, we should try those obtainable in small boxes labelled, "Worth a guinea a box!" If you do not know this story, read "Amateur Radio" for June—again!

We heard 3OY using a dynamic microphone which performs excellently, considering that it was originally designed for use at the other end of the amplifier.

3FL has been putting on some very good programmes lately. Good work, O.M.! (Copyright 3OF.)

A number of the good and loyal phone gang exercised their lungs at the 5-metre field day on Sunday last (June 7th), and all voted it an F.B. day.

3TH got himself into trouble by using up a large slice of the 4,000 k.c. available, when he played "canned music" to the chaps "on location."

Note the Ten Commandments for 5-metre stations.—(1) On no account play canned music on a field day. (2 to 10, inclusive) Don't use that antiquated expression "Hi!"

NOTES FROM U.H.F. SECTION.

(By VK3DH.)

The formation of this section really took place on Tuesday, May 19th. However, since a new section had at that time not officially been recognised by the Council, all work and decisions were just of a tentative nature. Among those present on this occasion were DD, JO, VH, KQ, LK, UR, CR, HZ, PL, TH, DH, Messrs. Joubert, J. Davies, O. Davies and VH, Junr.

Tentative nominations for office-bearers were.—Chairman, CR, TH, Mr. O. Davies; secretary, DH; technical advisers, KQ, DH. Of the above, TH was elected as chairman; secretary, DH; technical advisers, KQ, DH.

Another meeting of the U.H.F. Section was held on Tuesday, June 16th. (Ask TH how to pronounce U.H.F.!) Present at the second meeting were VH, KQ, HF, CR, JZ, XK, VX, HZ, JO, PW, JJ, OF, QR, TH, DH, Messrs. J. Davies, O. Davies, Kneale, Stan King, Denys Ayres, Colin Harvey and VH, Junr.

General business included the booking of 3KQ (Mr. Gilbert Miles) for a lecture-demonstration on 56 m.c. receivers and all their angles. This will definitely be something you should not miss—KQ is the "5-metre super het. king." July 21st is the occasion of the next meeting of the U.H.F. "fiends," when KQ will be heard.

On Sunday, June 7, a quite successful 5-metre field day was held. We have to thank 3ZC (Mr. Tutton), 3TH (Mr. G. F. Thompson), and the secretary of the Key Section, 3YO (Mr. Woodward) for their work in organising the details in connection with portable permits, locations, and times of transmission, and also a competition. First prize is to go to the station which scores the highest total mileage, counting the distance from any station to the one being contacted, and taking into consideration only the first QSO. There is also to be a contest for the greatest number of contacts for the day—from 1100 hours to 1600 hours.

Well, now, how the day went! All those who took part whom I have met since voted the day an F.B. one, and they mostly ask when the next one will take place. The weather did not appear very promising on the Saturday evening of that week-end, as rain was falling till fairly late. However, on Sunday morning the prospect of a fine day was heralded by a frosty morning.

A number of the "portables" came on the air quite a while before 11.00 a.m. 3KQ, 3VH and VH, Jr., were on the job somewhere about 10.00 a.m., I believe, so they must have started with the lark.

In most cases the various parties kept their "skeds" with the locations as per arrangement. Portable gear in use, in most cases, comprised super-regenerative receivers and motor-

generator or vibrator-powered transmitters from accumulators.

KQ, UK and DH were exceptions in the receiver line, as superheterodynes were employed, but transmitters were the usual modulated oscillator type + single-button microphone and audio oscillator for code.

Powers ranged from 25 watts to 2.3 watts input for the portable stations, and, in the cases of UR, BQ, WY, CR, TH and DD, who operated from their home locations, powers were of a generally higher value.

From remarks passed by a number of the operators it seems generally accepted that power input is about one of the least important factors in work under "field day" conditions, where locations of transmitters are almost ideal.

The general opinion is that we might concentrate more on directive antennas for future experiments.

On the competition side of the day, 3RS, located at Shepparton, was a much-sought-after "catch," but nobody succeeded, although several parties state that they heard RS.

The longest contact for the day (as far as I know, since the logs have not been checked) was from 3KQ-3VH, located at Macedon, to 3OF at Arthur's Seat, Dromana. This contact was quite satisfactory in every way—good sigs. at both ends; but, contrary to the usually accepted theory, 3KQ-VH used a current-fed vertical antenna (2 half waves in phase + reflectors), and 3OF used a plain dipole strung horizontally. Incidentally the signals at our location (3JO-DH Frankston) from 3OF were very weak, yet at the same instant sigs. at KQ-VH from OF were strong; also that of DH at KQ-VH was R 6-7. There were probably a number of other cases similar to this about which someone else can enlighten us. One of the points that struck us very noticeably at Frankston was the general high sig. level of nearly all stations heard—of 21 heard 20 were over R5.

Well, here's to the next time!

SHORT WAVE GROUP NOTES.

Due to pressure of personal business, the Secretary has not been able to write up the Section Notes of late.

Our past President has just recovered from a serious operation, and the new scribe joins with the gang in wishing him the best of health.

Now for some back dates.

March 11.—3XJ gave an interesting address on audio amplifiers (pne and main). This was followed by a working bee which repaired all broken furniture. (All sections pse note.)

March 25.—Mr. Davies gave a lecture on measuring instruments and their kindred uses.

April 8.—3JO gave the gang some pointers on the construction of 56 m.c. RX's.

April 22.—Produced Institute history. 56 m.c. sigs. from 3DH were heard in the Institute rooms per 3JO's RX's.

May 13.—Mr. Davies gave a short talk on 56 m.c. antenna and construction of same.

May 27.—Mr. Ayne brought in his 56 m.c. RX, which was promptly aligned and adjusted by 3JO.

June 7.—Our esteemed Chairman, 3JO, accompanied by Mr. Davies, joined 3DH at Frankston for the field day, and succeeded in working five stations, including a DX QSO of 65 miles with 3KQ at Mt. Macedon.

June 10.—Further Institute history. 3WI on 5 metres. 3JO brought in his field day gear and, calling 3WI, worked 3DH and 3PL. 3OF and 3VH also reported sigs. R7-8 QSA5. But the RX in use could not raise these latter two.

Well, gang, this brings the notes right up to the minute. If this display of progress in the Group doesn't stir yr blood then u r dead. O.K., boys, bring along yr friends to our next meeting and be in the fun.

NORTHERN DISTRICT NOTES.

(By 3KR and 3TL.)

New ops at key—sri, new scribes taking up pen.

3OR has his new mansion at Lake Meran nearly finished. Vy fb, too. Rig at present haywire during operations. Expect another rig when he moves into new shack. What with looking after ba-bas and building, Murray vy QRL, but manages to get on air occasionally.

3KI grows fb oranges at Lake Boga. Ask any visiting Ham! John is close to township and has AC supply. Puts out a hefty sig. wid his RK20.

3ZK (Zebra King) sells collars, ties, and the like in his spare time. Don't hr Jimmy much on 80 nw. He is wkg DX fone on 40 and 20. Used to boast he possessed champion haywire rig, but we believe he has tidied it up a bit. Sez he once built a neat rack and panel Xmtr, but the blessed thing re-

fused to work, so he wrecked it and reverted to haywire.

3CE (Roy), after toiling all day preparing for cropping Mallee farm at Berriwillock when it rains, plays round with a new 6A6 CO, and gets a lot of fun wkg DX on 20.

3NN (Herb) vq QRL growing wheat and wool at Yanac, but his fb 80 m. fone can usually be hrd on Sunday mornings.

3HX (Tom) is putting out a nice fone sig from his shack at Charlton nw.

3MK (Tubby) is the op at 3MA Broadcasting Stn at Mildura. When not too QRL his fb fone sigs can be picked up on 80 or 40.

3PX is a new Ham. Harry plays round with a portable from a camp 22 miles from Mildura during week-ends.

3WN lives at Sea Lake. John's fb 80 m. fone can be hrd on Sunday mornings when he wks the Northern gang.

3HL and 3HM (Allan and Mrs. Hutchings) hv a large station at Callawadda. They both put in spare time wkg 10 m. DX.

3KR sells the Kerang public BC Rxs during the day, operates the talkies 2 or 3 nights a week, but finds time to work the world on 20 and 10. Has WAC fone and WAC 10, and is now after WAC 10 fone. Ken has 2 Xmtrs. One he keeps on 80 for local ragchews. He powers his rig with a DC jenny from the town supply.

3TL, also QRA Kerang, makes wills, defends Hams and others pinched by speed cops, or w/ put u under the Farmers' Debts Adjustment Act. Has a fb multi-stage rig which puts out wicked fone and CW sigs on all bands. Power obtained from overloaded rotary converter. Has made WAC in vq short period and is nw chasing WAC fone.

WESTERN DISTRICT NOTES.

(By 3OW.)

Power supply problems have lately been occupying the attention of 3OW and 3HG, due to the ageing of the engines driving the battery charging generators. At the former the trouble has been overcome by coupling the generator to the 4 h.p. farm engine in place of the smaller engine used previously. 3HG has an automobile engine, with which he intends driving a larger generator, when this has been obtained. He is finding it hard to keep his batteries charged at present, and, like the writer, spends little time on the air.

Most of the VK's seem to have forsaken the 3.5 m.c. band, which, although patchy, is quite workable. A 3.5 m.c. report from Europe was recently received by 3HG.

3PG has again had his aerial wrecked by the wind, and has not been heard for some weeks. Put up a steel mast, om!

The only event by 3OW worth mentioning for the month was putting phone over to a Yank on 20 m.c.—for the first time.

3JE is still in the district, but is now stationed at Casterton.

Queensland Division

Nothing of a momentous nature has happened in VK4 since the last notes were supplied. The Division's affairs generally, council meetings, T.D.S. and student sections are all running smoothly.

Quite a number of VK4's have received their W.I.A. membership certificates, and judging by the remarks passed, most of the certificates will be framed and displayed in the shacks where they belong.

The last general meeting was well attended and proved to be one of the liveliest held for some time. A motion moved by 4GK terminated in a special meeting being called of all VK4 transmitting men to discuss the unity and organisation of transmitting amateurs in Queensland. As the meeting is for all VK4's, and not W.I.A. members alone, a big attendance is expected.

The latter portion of the evening was devoted to an instructive lecture on the design of "superhets" for amateur use by Mr. J. Heine, VK4JX. Interest was added to the lecture by the fact that 4JX was able to demonstrate salient features of design on his own RX which he brought along.

At the next general meeting it is hoped that members will have the functioning and uses of a modern oscillograph demonstrated to them by a member of Messrs. J. B. Chandler and Co.

GENERAL HAM DOINGS.

On general ham doings this month there is little to report. Inactivity is in evidence at most shacks. The only really active ones seem to be 4HR, 4JX and 4UR. The last-named has invested in a new power transformer

and added another stage to his Xtal rig. Jack's investment has yielded returns in the form of more DX and better R reports.

Over 150 QSO's with the W's on 20 m.x. fone in three weeks gives an idea of the rate at which 4JX is working the "Yanks" with his new fone rig. (He did the same in VK3 and put us all to shame.—Editor.)

4HR is still confining his activities to 20 m.x. "Herr Schultz" and D4 sound familiar.

4AP is learning to play bridge whilst waiting for VK2LZ to get his 56 m.c. CW rig on the go. Alf has his "super" going on "five," but is dubious about the sensitivity due to the low noise level at a noisy QRA.

4EI is still conspicuous by his absence on 14 and 7 m.c. What about some news, Roy, om?

It looks as if very little will be heard of 4BB until the Fisk Trophy Contest.

Superhet receivers are gradually coming into favour in VK4. 4KH has built three in the last three months. 4HR, 4GK, 4VJ, 4ER and 4AP are all using "supers" and find results satisfactory.

4JU has worked over 40 prefixes on 14 m.c. in the last few months.

33,000 volt lines debar 4FB from hearing any DX, and for that reason Fred's doing are confined mostly to fone.

4EL, the QRP record-breaker, is on the job again. Eric is now in VIB and up to his old tricks with a 45 on a TNT.

A Xtal gate filter looks like being the latest addition to 4GK's RX. Contest men, please note!

4AW is eagerly awaiting the next 56 m.c. field day to try out his new high-power motor generator.

Our traffic officer, 4WT, is still stale for want of work. What about some news for these notes via 4WT, country members?

4LE is perplexed. Every EC oscillator George builds refuses to function. Expert assistance would be appreciated.

4OL and 4UL don't find much time to get on the air. Institute duties keep both busy.

4HA, 4FE, 4RG, 4DB, 4BS, 4FN and 4WA keep 7 m.c. lively with their fone QSO's.

4VJ has built up one of Jimmy Lamb's noise-silencer units.

Both 4RY and 4JB have worked new prefixes during the last few weeks.

Of country members' doings there is nothing to relate. The blame is on the heads of the country members themselves. Break the silence, om's. Pass the dope on via our traffic officer, 4WT. You'll find Bill on 7 m.c. on Monday, Wednesday and Friday evenings from 8 p.m. till 10 p.m.

South Australian Division |

(By VK5KL.)

Two very fine lectures have been presented in the last month. On May 20th Mr. Manuel's (5RT) subject was "Crystal Filters as Applied to S.S. Superhets," and on May 27th Mr. Barbier (5MD) gave an account of his holiday to Sydney, via Melbourne, and back. Both these lectures were much appreciated by all attending the meetings. Mr. Heath (5ZX) has got together a large band of workers who are watching the 40-metre band, recording all commercial stations operating there in readiness for the Cairo Convention. The students' section this year is being catered for more than before, and in the capable hands of Mr. Gill White the lectures are progressing very well.

HAM CHATTER.

On Saturday, 30th May, Ivor Stafford (3XB) and 3AH took Adelaide by storm and arrived in town to sit for the second-class exam. The only regret is that I missed the chance of meeting both, as they had been waiting for about two hours and had just left when I arrived home. Trust both you chaps were impressed by the gear in the shack.

Another interstate visitor is Gordon Kempton (2CI), who is at present in via. Gordon has great ideas on antennas, and also DX on 5 metres. Obtained an 860 while at VK6MO. Also saw a 100-watt permit he has obtained. Whew!

Condx are quiet in VK5 and rebuilding is the order of the day.

5WJ on 20 m.x. fone. Hrd W6ITH QSO him. Kept R6 also 5RT es 5MZ audible at W6ITH.

5CR hrd on 40 m.x. fone at nite. Experiencing QRM frm 5DC tho.

5BD QSO'ed an ON just before mid-nite on 40. FB wrk, Don.

5LL has uses for bed-railing. Take a look at his antenna pole and see for yourself.

5ZC back on 20 m.x. Gess 10 m.x. has gone quiet.

5MV getting out well on 40 m.x. fone.

5RE puts a FB sig. into via, also 5IV on 50. Ron Dennell (5IV) will be visiting via soon.

5SU QRL Air Force skeds. Malcom and myself, accompanied by YL's, attended Miss Radio party. Arrived home 2.30 a.m. What a nite! Wow!

5GP has to QRT during B.C.L. hrs. Puts abt a amp. into the crystal set next door. Hi!

The Jones' supers are becoming popular. Gess the chaps will need them in the Oct. DX contest.

VK2 talk abt putting sanctions on VK3. By all accounts VK2 have a chap who has a stronger claim for the title of "Hay Wire King," than that of a chap in VK5. No, boys, I won't mention names. Let the cap fit.

Western Australian Division

(Per Radio VK3ML.)

The annual general meeting was held on 11th June, and the following were elected for Council for the 1936-7 period: — VK6CB, VK6CX, VK6FG, VK6RL, VK6JG, VK6WS, VK6GM, VK6WH, VK6KO and VK6MW. Outlining the year's activities, the President, VK6CB, revealed success in all branches of the organisation. Membership, finance, students' classes and social activities were treated. The cup for the highest average points during field days was won by VK6BB. At the annual dinner the cup presented by the West Australian Newspapers for the best all-round performance for the year will be presented. The winner will remain unknown until the night of the dinner, but VK6SA will receive an award.

A local contest is in progress, the pride for which is one year of QST, donated by 2CC. Conditions include a power limit of 10 watts and use of 7 m.c. band only. VK6CP looks like heading the list so far.

14 m.c. has been pretty good lately until darkness falls. 7 m.c. is punk. 3.5 m.c. is fair, but the usual winter gang on this frequency has not got going yet. Commercial interference on 7 m.c. is getting deplorable, and if the offenders were using the international

morse code we might be able to identify them.

This Division decided to abandon official support of our only magazine link with other Divisions, and the above notes have been compiled unofficially and forwarded by a ham who realises the difficulties of and the stupendous work put in by the magazine committee to keep "Amateur Radio" going and who appreciates all that has been done by this committee.

The W.I.A. (West Australian Division) dinner took place in the Stirling Institute, Perth, on June 18th, and proved a huge success, with an attendance of 43, including the senior radio inspector, Mr. George Scott. One YL, namely, Ruth, provided excellent music when required. The proceedings opened with a great dinner, followed by a talkie show, and then a competition of oscillator building, which 6SA won in six and a half minutes, which is reckoned to be a record. Presentation of cups, which were won by 6BB and 6SA, followed amidst great acclamation. The proceedings were so enjoyable that time was not noticed until some of the gang had to run to catch the last trams at 2330 hours!

Tasmanian Division

(By 7PA.)

This Division has just completed another financial year, and the 11th annual general meeting and dinner were held on Saturday, June 6th, when a good muster of members made the functions a success, a number of Northern members attending. The year just ended has been reasonably successful, although a considerable loss was experienced in writing off bad debts amounting to nearly £20, when a number of names were removed from the register as unfinancial. This matter and others will be dealt with in full later, as a full report, it is hoped, will be prepared for this magazine at an early date.

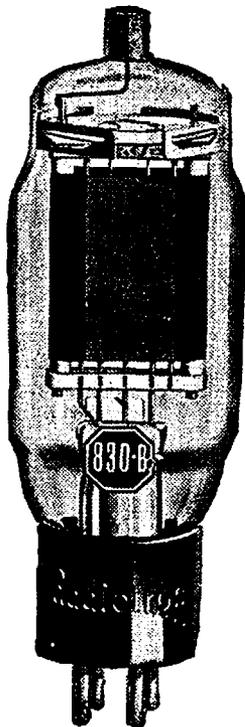
Certain members have been at variance with the Division for some time past, and this came to a head at the end of the year by the receipt of four resignations from old members.

There is every hope of seeing a much improved condition during the next year. The Executive has a programme in hand which is expected to go a long way towards boosting things up. The personnel of the Executive

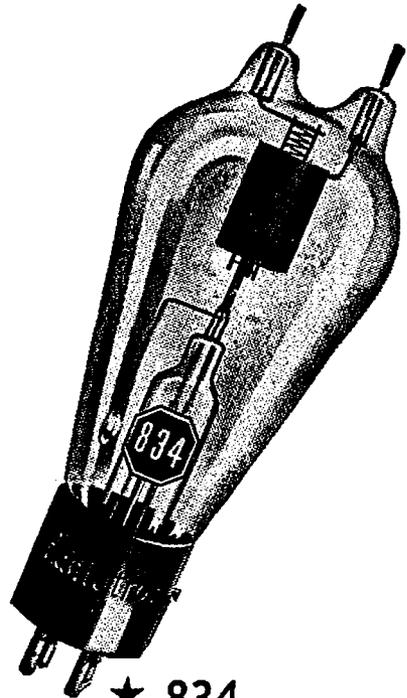
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will be substantially the same for the ensuing year.

I have very little to offer this month in the way of jottings, as things here are pretty quiet at present. 20 metres in daytime is fair at times, but it, and 40 metres, too, are very quiet on most occasions after early evening. No early morning listening has been done here for some weeks, but nothing very exciting was heard when tried. The weather is against it, too—the temperature gets too low these early a.m.'s! It is proposed to have a listen again soon and risk freezing.

After somewhere in the vicinity of two years contributing these notes, my first issue being the report of the annual dinner, 1934, and having to scratch round for something to make reading on most occasions, with few hurts or growls, fortunately, I hope to be relieved of the responsibility from this issue, as I feel I am due for a spell. I have endeavoured at all times to occupy our space to the best advantage, and to the interest of all with what was available, and I wish my successor, who I believe is to be 7JB, an energetic and active, to say nothing of being a well-known member, the best of luck, and ask members to be more generous with information suitable for this column in the future. There should be plenty to be had if sufficient co-operation could be induced. Au revoir!

(See note elsewhere.—Editor.)

NOTES FOR VK7.

(By 7JB.)

The annual general meeting of the Tasmanian Division of the W.I.A. was held in the club rooms on 6th June. A fair gathering of members, including 7BQ, 7LZ, 7AB, 7CJ and 7RK from the North, were present. After the business and election of officers was concluded the gathering retired to the Ship Hotel for the annual dinner. For the first time in the history of VK7 two lady members (Miss J. I. Crowder, VK7YL, and Miss M. Cantrell) were present at the dinner. The Council for 1936-37 consists of Messrs. W. T. Hooker (7JH), president; H. M. Moorhouse, hon. secretary; A. E. Allen (7PA), J. C. Batchler (7JB), D. Fisher (7AB), N. Gillham, C. Johnston (7AR), F. Medhurst (7AH), C. Parish (7CP) and K. Valentine (7KV).

MEMBERS' ACTIVITIES.

Ladies first! 7YL started with two-stage Xtal rig (53-245). QSO several VK's and a W, but high-power bug biting, so rebuilding to a three-stage, using 53-46-210 P.A., also PP 2A3's Husing modulation. Say, Joy, was that your foto in the "Women's Realm" with all the pretties? Hi!

7KV stuck on 28 m.c. Only needs Europe for W.A.C. on 10. Fb, Keith. Will be first W.A.C. 28 m.c. if successful in landing one. 7JB needs South America, Europe and Africa, being next in the running, hi!

7HJ working quite a few W's and VE's in between times. Shift work and Tech. classes make consistent operation impossible.

7PA also getting a fair share of the DX. Worked a CM the other day. A bit lower, Peter, for S. America and W.A.C.

Wonders never cease! 7NC is on the air again. Ya don't sa! Five-stage Xtal with 210's and watts all over the place. Managed to blow one 210 with only 1200 volts on the poor thing. Can't understand it, Nev, om! Hi!

7CL, a new ham in Hobart, tried electron-coupled rig, but the note was a bit too rough, so changed to three-stage Xtal with much better results.

7JB potters around with 20-metre fone. Plenty of Yanks and W.A.C. fone twice. Didn't know there were so many B.C.L.'s in America (also neighbourhood).

7AB seems to be amongst the DX, judging by cards coming thru the bureau. Forwarded W.A.C. cards for approval by Council. Fb, Doug, om.

7LZ doing some fine DX with QRP rig on 7 and 14 m.c.

7RK working a few Yanks to break the monotony of VK's es ZL's. Sa, Ron (7RC), make your last dot a little more pronounced, as 7RK is receiving quite a lot of D.E. cards lately, hi!

7BQ amuses the B.C.L.'s in Launceston with canned music on 200 metres. Seems to be interested in 10 metres lately. Thinking abt giving it a try, Len?

7AM dreaming of 852's, hi! Challenged 7JB to a speed test with motor bikes. (Nuthin doin, sez I.)

Where, oh, where is 7RC these days? Hrd it was a YL. Missed u in the A.R.R.L. Test, Ron.

7XL also very quiet. Don't say power QRM has got you, George.

R.A.A.F. Wireless Reserve Notes

Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

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

Third District, Victoria—Pilot Officer V. E. Marshall, 3 Myrtle Avenue, Kew (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—S. J. Madden, Dundas Road, Maylands (VK6MN).

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

FEDERAL NOTES.

Membership of the Reserve has been steadily increasing of late, and in some districts it will be necessary to demand special qualifications of applicants, as the number undergoing training will be more than a District Commander can handle. The appointment of qualified instructors in R.A.A.F. procedure has greatly facilitated the District Commanders, and permits them to attend to the administrative and organisation sides with less worry on the mind.

Instead of staging a contest this year, as contests really prove nothing as to a members' ability, it is proposed to organise an efficiency test under service conditions. It should prove very interesting, as members will be grouped into various types of squadrons, such as seaplane, bomber, fighter and reconnaissance, each with its own special duty. The type of traffic will be consistent with the duty of the squadron on "active" service. It should give members an insight into what work they would have to perform in cases of national emergency.

The Reserve Bulletin, which is issued to members quarterly, has been delayed this period owing to excessive work in the Department, but should be posted before these notes are read. To "hams" outside the Reserve this Bulletin is one containing articles on procedure and all matters pertaining to Reserve training, as well as many pages of interesting material on the functions and operations of an

Air Force, etc. It helps to bind the members together, with one common idea and line of thought. Amateurs keen on operating and desirous of offering loyal support to their country will find much of interest in the R.A.A.F. Reserve.

(6th DISTRICT).

The adoption of the 7635 KC channel for daylight work has been a success, and consequently attendances of watches have improved. The presence of the two Wapiti aircraft in this district has not increased activities so far. The "Flying Doctor Station," at Port Hedland, is being used by the operator with the aircraft for communication and contact direct with the East. Conditions render interstate traffic handling very trying, but 5A2 is a sticker and supplies the missing link. 6A1 was reluctantly transferred to an inactive section owing to certain duties preventing watch keeping. 6A2 holds the highest percentage of watches attended. 6A3 has been very consistent. 6A4 is struggling to get a new rig going. 6A5 is also rebuilding and moving to a new area. 6A6 is also consistent. 6B1 had his aerial blown down twice during a gale. Two further applications have been received, whilst two more are expected next week.

3rd DISTRICT NOTES.

(By VK3UK-3ZI.)

The first leg of the reorganisation scheme is now in successful operation with the starting up of regular work in the new Training Section. 3C3 has taken over the job of in-

(Continued on page 16.)

structor, and is making a wonderful job of it. The Section is equipped with its crystals and is fully manned. In fact, we have the pleasure to relate that stations are hanking up waiting for a vacancy in the Training Section to occur. As soon as the period of training has been covered by the present members of the Section they will be transferred to our main Section and another six will take their place.

We have to welcome prospective new members—VK3CE, Berriwillock; VK3WN, Sea Lake; VK3PX, Mil-dura; VK3JM, Fitzroy; and the return to our active ranks of VK3NY.

3BI is back in Melbourne again, and will be back on the job before the end of the month. During his journeying through Victoria he has gained a number of new members for VMC. That is the spirit that makes us so proud of our "Show." A member's first thought is always of how he can help his district. The last trip made by a Reserve man in Victoria was by 3A6, and he, too, was responsible for new members. The enthusiasm that is theirs and is held by all members is infectious, and soon pervades the new members also.

3B2 was very active during the recent 56 M.C. field day. Keith and 3D3 were going to Donna Buang, but a last-minute transport hitch forced them to work from home.

3C4 has his "sticks" erected at the new home, and will shortly be back on the air again.

3C5 has been experimenting with various antennae with a view to finding the one most suited to his location.

3C6 has done a great job in connection with the field day. He was, unfortunately, unable to take part himself.

3D4, from reports, will soon be installed in his new home.

3D5 has been experimenting with click filters.

3F1 puts a husky signal into Melbourne on schedules.

3F2 has a fist that sounds like "tape." It is a treat to hear him and 3F9 handling their traffic.

3F3 had the misfortune to blow his TB 04/10 P.A. tube just prior to his first Reserve schedule. He is replacing it with an 801.

3F4 and 3F5 are having trouble curing BCL QRM.

Class "A" Heising and Class BC grid modulator oscillators favoured by some of the portable stations used one of the other forms.

Two stations, 3UK and 3ML, report hearing 3RS at Shepparton. However, 3RS tried all day to hear one of us without success. A contact over this distance would have certainly made the record in VK3.

Details of the gear used by the various stations are not to hand, but from reports the average station employed about 200 volts into some sort of push-pull oscillator, either with resonant tubes or coil and condenser combinations. Power doesn't seem to be of great importance on field days as long as what-one-has is put into the aerial. The most consistent signals appear to have come from stations using matched impedance and array aerials.

This account is very scratchy and incomplete, but space is the main item to be considered, so we will keep it till the next field day, when you can come along and see for yourself. That will probably be in August next.

[See U.H.F. Section notes for further VK3 activities.—Editor.]

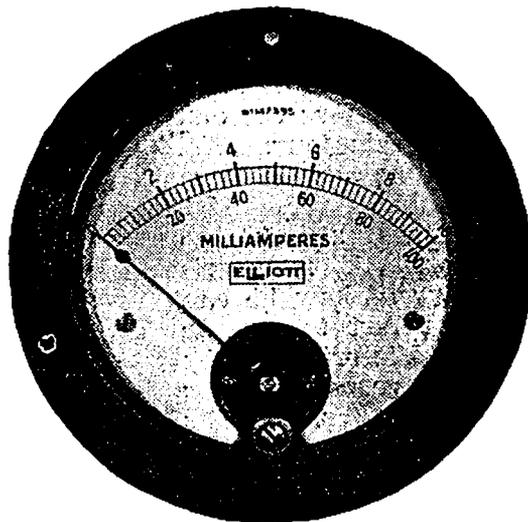
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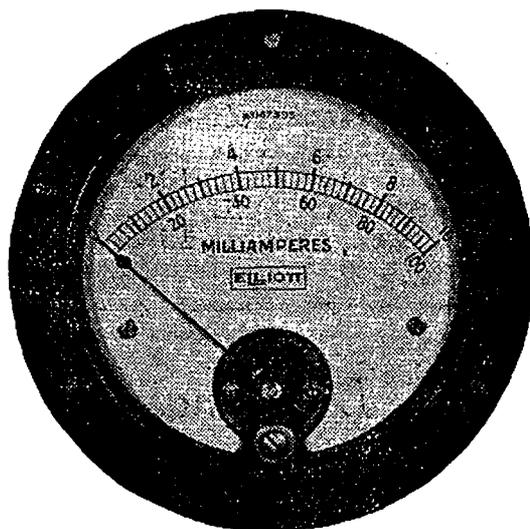
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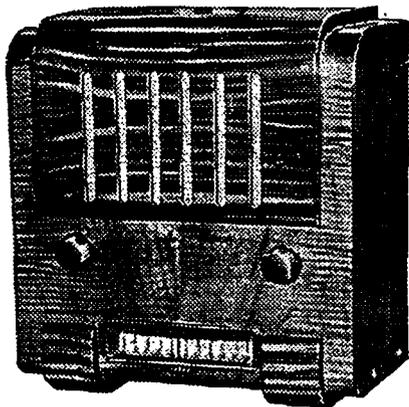
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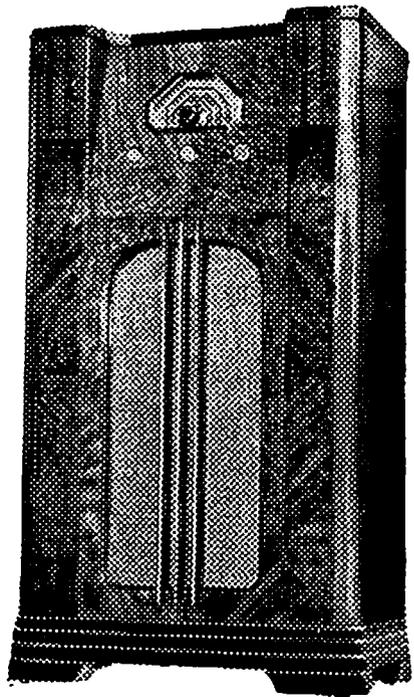
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Editorial

In view of the receipt by all amateurs this month of the Radio Inspector's Department circular on the 'phone question, a brief comment on the subject seems timely.

In the first place, the circular itself and the matter it contains show the happy spirit of friendly co-operation that exists between the Department and the amateurs of Australia. We, individually and as a body, can count ourselves extremely fortunate that the powers-that-be here have such a sympathetic understanding and appreciation of amateur radio.

This restrictive scheme has one aim and object alone—assisting the Australian amateur by organised regulation to get the maximum usefulness out of his very, very small band of frequencies. Some of us, perhaps somewhat selfishly, perhaps unthinkingly, have been occupying a great deal more than our share of these narrow bands, and the results of the new scheme will be, in plain language, "the greatest good for the majority." None of us like restriction at any time or of any kind, but no intelligent amateur could cavil at any of the new items listed. They are surely to be looked at more as a regulation of operating than as an actual restriction.

What sane amateur will not be delighted to know that the activities of the few who would aimlessly play record after record on the 7 and 14 M.C. bands at D.X. periods, to the annoyance of hundreds of his fellow hams, will now be curtailed? Can anyone have any criticisms of Item B that asserts that a 'phone transmitter must be properly controlled and also have a modulation system that

really IS worthy of the name? Some amateurs seemed to have a complex that a microphone placed anywhere in a transmitter could be capable of putting out 'phone. Again, we all know how many C.W. channels even a low-powered 'phone occupies, so there is no need to belabor the point; the regulation is merely logical.

The spirit of co-operation, that is the basis of our amateur code, will make new hams realise how necessary it is that they "cut their teeth" of experience on low power. Thus the item regarding a probationary period for new licensees is in their own as well as the old hams' interests.

We have just spoken of a "spirit of co-operation." Could we wish for a more perfect example than in the appointment of a Vigilance Committee in each State for the new scheme? No hard-binding law, with no latitude here, but a committee appointed to administer the regulations in accordance with the best traditions of our hobby. A first offence brings a warning, not the irrevocable machinery of the law. We have been given these regulations after months of careful consideration, in which we have been given every opportunity to make comments and suggestions. They are going to be enforced with the interests of the amateur in mind.

It is of interest to note that this subject has been on the agenda of our Federal Convention for some years, and at last our efforts have been rewarded. We have been offered the hand of friendly co-operation. As amateurs we accept it in the spirit with which it is given, and in return pledge our whole-hearted support of our Vigilance Committee.

Technical Article Competition

The donation of the Council of the N.S.W. Division for a Technical Article Competition came at a most opportune time. Some months ago we made a special request for such contributions, and the result was most pleasing. However, strange as it seems, the enthusiastic movement lasted only a few months, and the technical bag once again has dropped back. The appeal, we are sure, was not in vain, and there are many contributions that have not come along because of the feeling "Why not put off to-day what you can do to-

morrow?" on the part of many budding authors. Then, again, many may be at a loss to find a subject to deal with, thinking, perhaps, that one in mind would not be of general interest.

We are all amateurs that publish and read this magazine, not Doctors of Science nor highbrow mathematicians, and therefore realise that any contribution would be "as one ham to another." How much interest does one take on visiting a shack, taking note of the multitude of variations in design and lay-out? That is what we want on paper. Failing a constructional article, why not something of the station description type? Send them along and give us a lead, fellows. **AND KEEP IT UP!**

A Useful Transformer

(By A. Pritchard, VK3CP.)

The Ferranti OPMIC output transformer is designed for PP input, having a centre tapped primary. This transformer has the ratios 1:1, and step down 1.6:1, 2.7:1. By connecting the marked secondary as the primary, and there seems no difference regarding efficiency or quality, 14 different combinations can be used. With

the class BC RF final amp. and grid bias modulation, by connecting this transformer the many possible ways, the best combination is sure to be found. Using the 1:½/½ ratio should be ideal for the driver to class B grids. I have listed the 14 different combinations possible.

No.	Ratio.	Plate Current Through (Marked).	Used for Sec.
1	1:1	Prim	1:1 ratio Sec.
2	1:2	½ of Prim	1:1 ratio Sec.
3	2:1	S, 1:1 ratio	½ of Prim (tap).
4	1:½/½	S, 1:1 ratio	Prim with centre tap.
5	1.6:1	Prim	1.6 ratio Sec.
6	1:1.6	1.6 ratio Sec.	Prim.
7	.8:1	½ of Prim (tap)	1.6 ratio Sec.
8	1:.8	1.6 ratio Sec.	½ of Prim (tap).
9	1:.8/.8	1.6 ratio Sec.	Prim with tap.
10	2.7:1	Prim	2.7 ratio Sec.
11	1:2.7	2.7 ratio Sec.	Prim.
12	1.35:1	½ of Prim	2.7 ratio Sec.
13	1:1.35	2.7 ratio Sec.	½ of Prim (tap).
14	1:1.35/1.35	2.7 ratio Sec.	Prim with tap.

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Putting the 804 to Work

(By VK3ML, Tech. Ed.)

The 804 transmitting valve is one of the new series announced by the A.W. Valve Co. Ltd. It is a screened grid tube, possessing as well a third grid or suppressor grid, which helps to overcome the several disadvantages of the pure screened grid tube. At the same time modulation of the suppressor grid offers an easy and economical method of carrier modulation, per medium of a very simple modulation stage employing one tube.

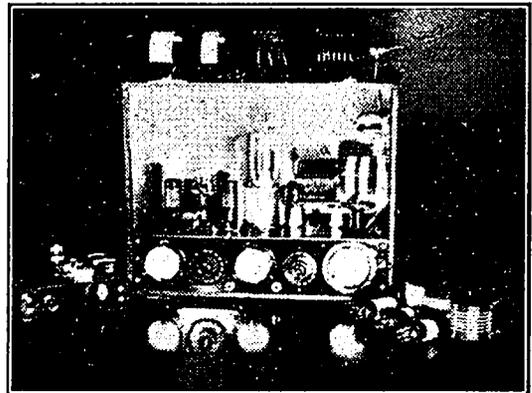
A tube of the same group that is well known to amateurs is the RK 20. Several outfits have been described in overseas journals using this tube in the layout, but so far nothing has appeared in "Amateur Radio." Having completed the rig depicted here, the writer thought that some practical notes on 804 type transmitter construction would be of value to a few of our many hundred hams.

Outlining the layout in conjunction with the circuit diagram, it will be seen that fundamentally it consists of a 6A6 crystal oscillator. First amplifier tube provides the necessary excitation on 160, 80, 40 and 20 metres to drive the 804 to 50 or more watts. The drive for each particular band will be taken off the plates of the 6A6, depending on the fundamental of the crystal. When frequency doubling the second triode section of the 6A6 is tuned to the harmonic of the crystal, and the 804 gets its drive right off the plate of this unit. Being un-neutralised, the second triode unit cannot be tuned to the fundamental of the crystal, and when the power amplifier is to work at the crystal frequency, a change of grid connection must be made to the plate of the first triode section. The second unit lies idle. S.W.1 is the switch referred to, and changes the grid of the 804 from plate coils 1 to 2 as desired.

Penthode transmitting tubes are noted for their low excitation requirements for C.W. operation, as well as a very small audio wattage for phone work. However, it should be borne

in mind that they demand practically as much excitation for PHONE work as any triode, that is, for the production of quality phone. Another feature to be noted is the high output impedance necessary for linear suppressor grid modulation.

Bearing these two primary requirements for penthode operation in mind, it was decided to have an excess RF drive for C.W. work, but sufficient for phone operation when required; hence the 6A6 oscillator was chosen to provide some 3-5 watts on all bands. High output impedance for the 804 was arranged by the use of low C in the plate tank circuit.

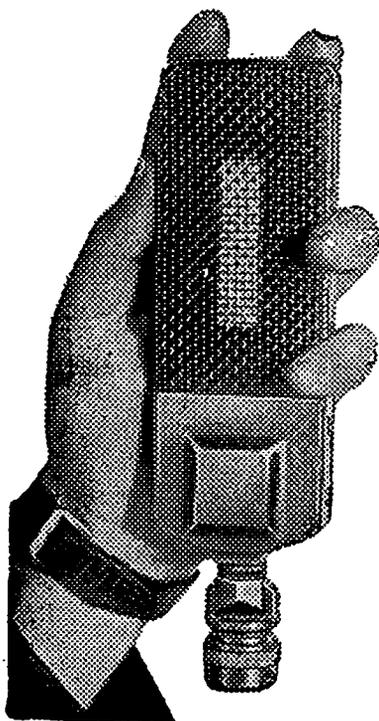


So much so for the general layout of the rig. Better operation will always result, of course, by employing two power packs instead of a common one. Voltage of 300 for the screened grid of the 804 is obtained from a series dropping resistor in the 1250 volt supply. The CO plates and the suppressor grid positive (C.W.) supplies are all taken from the voltage divider across the 300-350 volt power unit. The two triodes receive their supply via the common milliammeter (0-100 mills). The suppressor grid functions from 30 to 50 volts positive bias on C.W. However, S.W.2 changes this grid over to 40 volts negative via the modulation transformer (Radiokes class B output) when used for phone. It is better that this supply be obtained from a unit of good regulation

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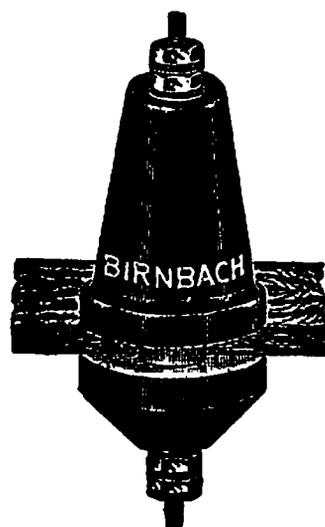
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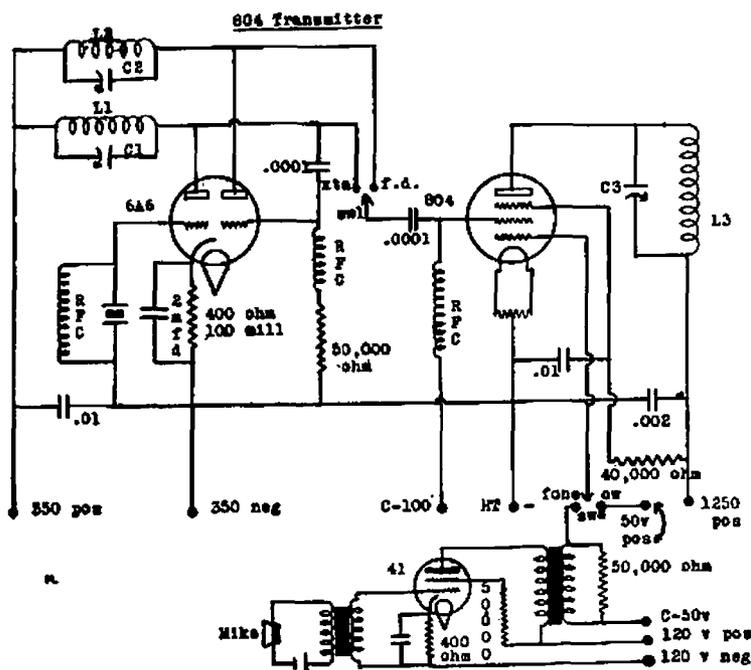
We have small supplies of this carbon in stock, of the Polished Granule Type which we can sell to Amateurs only at 12/6 an ounce nett:

such as B batteries. In this particular outfit a 40-volt tapping is taken off the main 120-volt C bias supply for the control grid of the 804, the positive of which is common to both grid returns.

Keying is performed in the cathode circuit of the 6A6 and permits a handy break-in medium as well as clickless keying. The key is put in circuit in this case via the phone jack and plug on the front panel. The second jack takes the modulator output and is connected to one arm of S.W.2 on the "fone" side.

As the circuit is quite conventional, further description would be super-

fluous. The 41 amplifier was more than sufficient to completely modulate the carrier. The 50,000 ohm resistor across the modulation transformer is for providing a load to the 41 tube which would otherwise work into one of infinite impedance owing to the wide voltage swing on the suppressor grid. As a suppressor grid modulated amplifier with the constants given here 21 watts of quality phone are easily obtained. To fully realise the advantage of the suppressor grid tube, it is essential that attention be paid to careful screening. A shield around the base and between the exciter stage and the power amplifier, as per photo., proved sufficient in the writer's case.



fluous, and interested readers are referred to one of the voluminous handbooks for further details.

The whole of this unit slides out from the wooden carrying case after disconnecting the wires from the aerial tuning condensers mounted on the side of the case. Power connections are all soldered to a power socket at the rear and which protrudes sufficiently for a cable plug to be inserted.

The small modulation unit to the left of the case is comprised of nothing more than that shown in the circuit diagram, with the exception of a volume control across the microphone transformer. It was found that with a single button mike the output of this

Circuit Constants.

- C1.—23 plate midget variable condenser.
- C2.—23 plate midget variable condenser.
- C3.—.00012 mfd. transmitting condenser.

Coil Data.

- Band, 1.75m.c. — L1, 45 turns 18 guage; L2, untuned; L3, 32 turns 18 guage.
- Band, 3.5m.c. — L1, 35 turns 18 guage; L2, untuned.

Coil Data.

It is possible to have quite a combination of coils and crystals with the exciter. For instance, the 1.75m.c. crystal can be used on that band as

The Relay Rack

(By W. M. Moore, VK2HZ.)

The two main objections raised to the construction of steel relay racks seem to be, firstly, the financial aspect, and secondly, mechanical problems. The following, it is hoped, will clarify the latter, and to a degree lighten the former:—

The rack described in overseas journals as the standard relay rack has obtained its name from the fact that the sizes of this rack have been adopted as standard by the various telegraph and telephone companies throughout America.

The construction of such a rack in Australia, adhering strictly to all sizes, not only is a waste of time and money, but is practically impossible owing to the fact that suitable channel is not rolled out here. 4lb. channel is specified, but 5.6lb. is the lightest rolled. The channel not only is much heavier, but the flanges are also wider.

The majority of the sizes can be adhered to, but other factors can be varied to suit the purse of the builder.

The advantages of such a rack for the mounting of radio apparatus are very numerous, and up to date it is the best all-round method advanced, and is within the reach of the average amateur.

The cost of such a rack can be kept around £2, depending on the price at which the steel can be bought.

The following materials are required:—2 pieces 6in. x 4in angle, 20 in. long; 2 pieces 3in. x 1½in. channel, 72in. long; 2 pieces 2in. x ½in. flat iron, 20in. long; 6 4½in. x ½in. black bolts.

The method of assembly can be seen from the sketch. The 4in. side of the angle is bolted to the channel upright with two bolts at either end, the 6in. sides being in contact with the floor. The top of the rack is held with two bolts and one piece of the 2in. x ½in. flat iron bolted to either side of the channel.

The usual practice is to weld the assembly together. This method is rather costly, so bolts were substituted, and when they are suitably tightened they serve the purpose well, and also allow the rack to be pulled down in cases of a change of QRA, etc. 1/32in. clearance, i.e. 13/32in. drill for all bolt holes, provides ample allowance for any slight inaccuracies in the marking or drilling. The exact position of these holes can be well left to the discretion of the builder.

well as for 3.5m.c. and 7m.c. A 3.5 m.c. crystal can be employed for the next three bands, and if no more than second harmonic operation is desired, a 7m.c. crystal may be used for 14 m.c. Three crystals were used in this outfit. Thus it is only necessary to give the data on coils to cover all the bands, and the combination used can be left to the reader. All exciter coils are wound on Marquis formers and the PA plate, and aerial coils on 3in. formers. All aerial and exciter coils are wound with 18 guage D.S.C. wire, as well as the 1.75 and 3.5m.c. P.A. plate coils. The 7 and 14m.c. 804 coils are made from ½in. copper tube. C1 and C2 are 23 plate midgets, and C2 .00015 mfd.

Band, 1.75m.c.—L1, 45 turns; L3, 35 turns; L4, 35 turns.

Band, 3.5m.c.—L1, 35 turns; L3, 26 turns; L4, 25 turns.

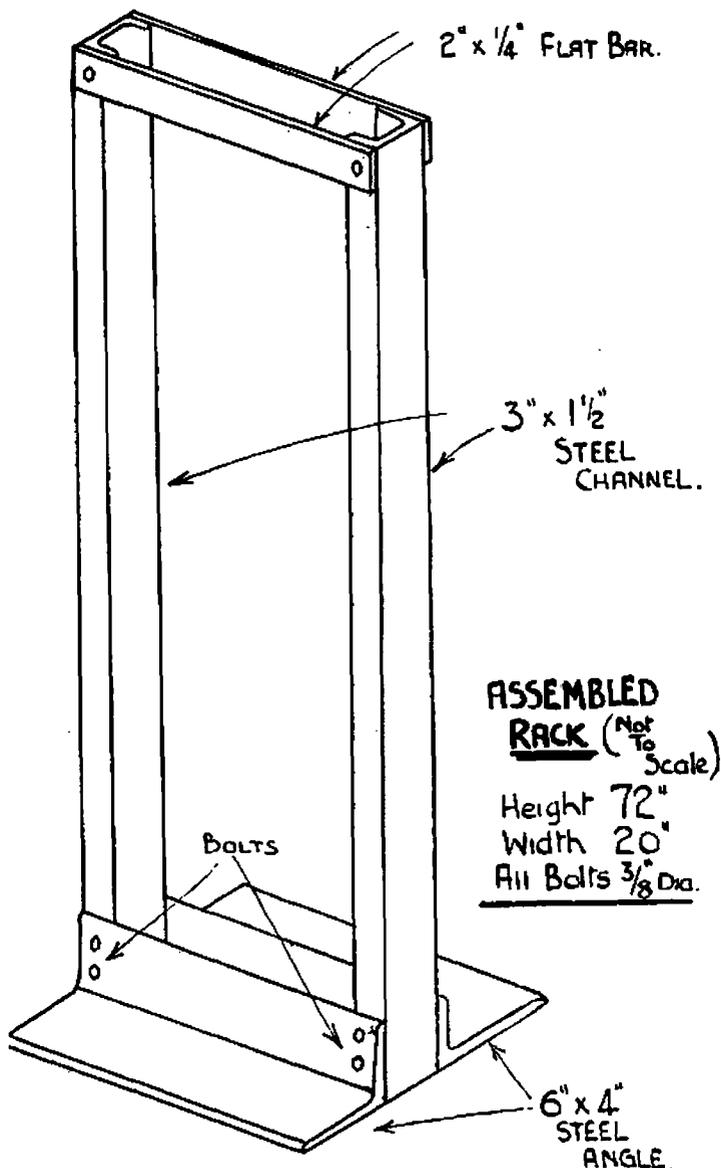
Band, 7m.c.—L1, 15 turns; L3, 12 turns; L4, 10 turns.

Band, 14m.c.—L1, 15 turns; L2, 8 turns; L3, 7 turns; L4, 6 turns.

As remarked above, the coil at L2 depends on the fundamental of the crystal used. When the 804 is hooked on to the first triode section any of the spare coils may be plugged into L2 to complete the circuit, but a slight increase in output is obtained if this circuit is tuned to the second harmonic and takes some of the load off the second triode plate.

Amateur Radio

The building of such a rack, including the accurate marking off of all holes, will present no difficulty to anyone with a slight mechanical training, but in the event of any uncertainty it might be as well to call in one of the boys who has spent some time as an engineer, and it should only take him an hour to mark the holes off.



The materials can be bought from any steel merchants at a cost of 25/- to 30/-. The steel will be cut to the required length, and should need no further machining. To make sure, add a rider to the order stating you want the steel cut to the exact lengths.

The first procedure is to mark the $\frac{13}{32}$ in. holes off at the bottom and top of the rack. If a power drill is available to take up to a $\frac{13}{32}$ in. drill, the holes can be drilled at home; if not, the materials can be taken to the local mechanical engineer, and he

should drill the holes for 5/-. Going back to the power drill, most engineering firms have a portable electric one, and a word in the right direction can often borrow it for a week-end.

The black bolts can be purchased at most large ironmongers. They will do as well as bright bolts after a clean up with a file, and will save a few shillings.

The rack can be then assembled, and the front chalked in preparation for the marking of the holes for the set screws that hold the panels. This portion of the building is perhaps the most intricate as it takes a little juggling to get all the panels interchangeable. One way out is to cut a panel of the height you will be using out of three-ply or light metal, and mark and drill it with holes suitable for the holding. This panel can be then accepted as standard. The face of the rack can be marked in panels of the decided height, and then the panel can be used as a template to mark the panels off, and so all panels should be interchangeable one way anyway. The drilling can be done either with the borrowed drill, or again resort to the local engineer, who will charge about 7/6 for the job.

The width of the rack is 20in., and panels can be made that width, or 19 $\frac{1}{2}$ in., which adds slightly to the appearance.

The materials for the panel can be either bakelite or metal. The ones in question are slightly unusual, being made of Tilux, an asbestos material used for the facing of bathrooms. It and similar materials are available in various colours and effects, some yellow and blue; but those not being so suitable, a light grey was chosen. Tilux can be worked reasonably well, and is quite a fair insulator on DC, but on RF its value is not known. Anyway, all parts can be mounted away and extensions used for condensers, etc. It is only 7/6 a square yard. $\frac{5}{16}$ in. nickel-plated set screws can be used to hold the panels in place. The holes in front are drilled $\frac{1}{4}$ in., which is tapping size for $\frac{5}{16}$ in. screws. The panel holes in the rack are then tapped.

The sub-panels can be held by four bolts to the front panels, and if the

(Continued on page 16.)

Are YOU a Member of the W.I.A.? If not; Why not?

Article Contest

The Council of the N.S.W. Division has generously donated a prize of one guinea to the Magazine Committee as an award for the most outstanding technical article received from members of the W.I.A. by 31st October, 1936.

Conditions are that any article received from members must be accompanied by circuit diagrams and photos. (if available). Entries may be of constructional, theoretical or practical nature, and the Editors will be the sole judges.

Now, gang, have a look at that transmitter, receiver or piece of laboratory apparatus, write it up, and win that £1/1/-.

King's Birthday Congratulations

To W.I.A. (Vic. Div.) via G6WY, ZL4BQ, VK2QV, VK3ET.

His Majesty the King—Radio Society of Great Britain, in reply to loyal greetings from W.I.A.

"I am commanded by H.M. the King to convey to your Council of Executive of Incorporated Radio Society of Great Britain, His Majesty's sincere thanks for the congratulations addressed to him on the occasion of his birthday.

"The King also appreciates the many loyal greetings from Radio Amateurs in all parts of the Empire, which were transmitted in your letter of June 13.

(Signed) "Sir Godfrey Thomas."



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Radio Amateur Handbook 1936 !!!

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Noise Rejection in Simple Receivers

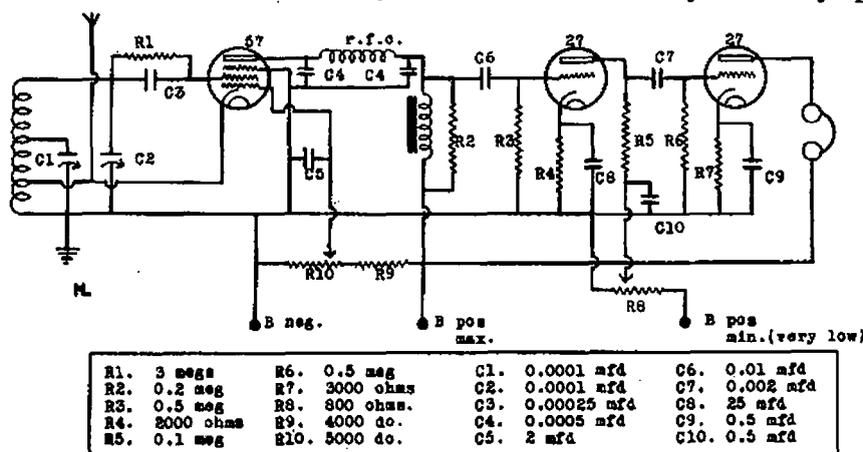
(By VK3MK.)

Undoubtedly the most annoying feature of reception in districts where electric power is available is **QRM** from electrical appliances.

As the writer lives very close to the centre of a city that has just completed a change-over from D.C. to A.C., and is therefore the home of very

zero, and an extra stage of audio added to bring the volume back to normal.

The practical results here—one type of QRM was R7 and is now R2; on 3.5 m.c. where the harmonic of a B class station two blocks away is generally R9 for a very healthy piece of ham



numerous "universal" electric motors for driving fans, drink mixers, and other comforts in its hot climate, receiving DX and frequently VK and ZL signals was often a problem, as the receiver used was only a two-tuber. At quiet periods this receiver was ample because of the lack of QRM from QRO locals, there being none.

In a very recent issue of "QST" there appeared an article on "Output Limiters" by W3LW. This described a very simple system of noise reduction—merely reducing the output to a very low value. The effect of this is to decrease the noise to the same level as the signal. As electrical noise generally has a very peaked wave form, it will be found that when the noise peaks cannot increase to any marked degree above the signal electrically, they are almost inaudible. This effect depends, of course, on the wave form of the noise.

The circuit of the remodelled receiver is shown in the accompanying diagram. It is the "Simple Receiver" of the "Handbook," with the first audio plate adjustable down to almost

band, it is now possible to receive R4 C.W. sigs up to the edge of the carrier of the harmonic. Ordinary QRN is also reduced, and another very definite advantage, here, at least, is that where it was advisable to cut the receiver out when sending—for comfort's sake—it is now possible to leave it tuned to station being worked—at its most sensitive position.

It certainly is a simple and inexpensive idea, and there is one VK ham at least who is glad he tried it.

TRANSMISSION SCHEDULES. AUGUST, 1936.

VK2ME.		
Sydney Time.	GMT.	
Sundays, 3 p.m. - 5 p.m.		0500-0700
Sundays, 7.30 p.m.-11.30 p.m.		0930-1330
Mondays, 1.30 a.m.- 3.30 a.m.		1530-1730
VK3ME.		
Melbourne Time	GMT.	
Nightly, Monday to Saturday (inclusive)	7 p.m.-10 p.m.	0900-1200

The 1936 W.I.A. Fisk Trophy

The fifth contest for the Fisk Trophy will be run during the middle of September. The Fisk Trophy was originally donated by Mr. Fisk, of A.W.A., and is the subject of contests between the various State Divisions of the Wireless Institute of Australia.

Victoria and Queensland Divisions have both won the contest twice, and if either wins they will hold the trophy for good.

The forthcoming contest is of an Interstate nature and is similar to the contest of last year, which proved such a success. The system of bonuses has been retained with one addition, a 500-point bonus for an interstate contact on 5 metres and adds even more interest in the test.

The scoring may be a trifle complicated, so a formula has been arranged which should clear up any misunderstanding.

The grand total score equals:—

$(A \times B) \text{ plus } (50C \text{ plus } 20D \text{ plus } 20E \text{ plus } 30F \text{ plus } 100G \text{ plus } 500H).$

Where A equals number of contacts.

B equals number of States worked.

C equals number of States contacted on 160 MX.

D equals number of States contacted on 80 MX.

E equals number of States contacted on 40 MX.

F equals number of States contacted on 20 MX.

G equals number of States contacted on 10 MX.

H equals number of States contacted on 5 MX.

The above formula will give the score claimed by any station in the contest.

Rules are as follow:—

No. 1. The contest is open to all licensed amateurs, but only members of the Wireless Institute are eligible for either prizes or point score in the Fisk Trophy.

No. 2. The times of the contest are as follow:—From 1400 Eastern Standard Time, Saturday, 12th September, till 2359 E.S.T., Sunday, 13th September, and again from 1400 E.S.T., Saturday, 19th September, till 2359 E.S.T., Sunday, 20th September.

No. 3. The test is of a contact nature, and with each contact a 10-letter cypher must be exchanged before a point is scored.

No. 4. Stations with which an entrant can work are stations in Australia and New Guinea, outside the competitor's own State. When such a station is contacted and cypher exchanged, one point is scored. No exchange, no points scored.

No. 5. Any station can be contacted once on each band each weekend.

No. 6. States are as follow:—VK2, VK3, VK4, VK5, VK6, VK7, VK8 and 9 combined.

No. 7. Licensed power must not be exceeded and infringements of the P.M.G.'s regulations may mean disqualification.

No. 8. One point is scored for each cypher exchanged. The total points are then multiplied by the number of States worked (as defined in Rule 6).

No. 9. Bonuses will be added to the score after multiplying (Rule 8). The bonuses are as follow:—

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.

(Continued on page 14)

VK-ZL 80-metre Telephony Contest

The N.Z.A.R.T. in view of the many DX contests operating these days, organised an 80-metre Telephony Contest for their members, and the W.I.A. is co-operating to make it an Australasian affair. The contest is quite a novel one, and the manner of scoring points is quite unusual.

The following are the complete rules:—

1. All entrants must be financial members of either the N.Z.A.R.T. (Inc.) or the W.I.A.
2. The contest shall be by means of amateur radio telephony transmissions on the 80-metre band only.
3. There shall be two sections of the contest (1) Transmitting; (2) Listening.

TRANSMITTING SECTION.

4. The contest will commence at midnight, Saturday, 15th August, 1936 (New Zealand Standard Time), and finish at midnight, Sunday, 30th August, 1936 (New Zealand Standard Time).
5. Seven days' operation only will be allowed. The days of operation need not necessarily be on consecutive days. To come on the air calling for the contest or to send a question as provided for in Rule 6, is sufficient in either case to establish operation for that day.
6. During the course of each two-way transmission (QSO), each station will exchange QSA, R, reports, answer a question asked by a previous station contacted and ask a question of the station being worked. Questions asked and answered shall appertain to radio and in both cases shall consist of a sentence of between eight (8) and twelve (12) words.

(Example: VK9ZZ has worked ZL4PX and is now working ZL1TR. ZL4PX asked the question: "Do you prefer crystal control to master oscillator control?" VK9ZZ gives ZL1TR

his QSA, R, report and tells ZL1TR, "My answer is 'I prefer crystal control for my station.' My question is 'How many tubes in your transmitter and receiver?'" ZL1TR has to answer the question asked in his next QSO, and then ask his question of the station being worked. In his next QSO, VK9ZZ will answer the question asked him by ZL1TR). The same question cannot be asked twice by the same station.

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 Government regulations.

12. The points to be allotted for each QSO shall be as follow:—

North Island ZL station contacting a South Island ZL station (and vice-versa)	5 pts.
ZL station (any district) contacting VK2 station	12 pts.
VK3 station	14 pts.
VK4 station	16 pts.
VK5 station	18 pts.
VK6 station	24 pts.
VK7 station	10 pts.

and vice-versa for VK stations, i.e., a VK2 scores 12 for each ZL contact, and a VK3, 14, etc.

13. A log shall be submitted showing the operator's name, call-sign, location, date and time of each QSO, station QSOed, QSA, R, reports, question answered, question asked, and points claimed. Logs from New Zealand entrants must reach N.Z.A.R.T. (Inc.), Box 489, Wellington, N.Z. not later than 30th September, 1936. Logs from Australian entrants must reach Federal Headquarters, W.I.A., Box 2127L, G.P.O., Sydney, N.S.W., not later than 23rd September, 1936.

14. Prizes will be awarded to the winning two stations in New Zealand by the N.Z.A.R.T. The W.I.A. will award two prizes to the winning stations in Australia.

15. The decision of the Contest Committee in all matters shall be final.

LISTENING SECTION.

16. Rules 1, 2, 4, 5, 8, 9, 10, 13, 14 and 15 of the preceding section shall apply to the listening section, substituting as applicable "Listening" and "heard" for the words "calling," "worked," "QSOed" and "contacting."

17. A listening entrant's log shall contain the following information:— Operator's name, location and licensing district number, date and time of each QSO heard from each station, QSA, R. reports, question answered and question asked by each station heard, and points claimed (as detailed in the following Rule). (Also see Rule 19.)

18. Points will be allowed for each individual station heard competing in the contest on the same scale as detailed in Rule 12, substituting for the word "contacting," the word "hearing."

19. To each log must be attached a declaration that the entrant is a financial member of his national society, that he is the only one to work the station the log of which has been submitted, and that he only operated his station in the contest for seven days and did not come on the air with the intention of entering into the contest on any of the remaining days.

As it is proposed to use the logs submitted for statistical purposes when finished with for the purposes of the contest, it is urgently requested that all entrants, in both sections, make general remarks on QRN, QSB,

and any other factors that will assist the person collaborating the data for the Zodiacal and Aurora Section of the Astronomical Society.

(Continued from page 12)

The sum of bonuses plus those points scored as in Rule 8 will constitute the grand total score.

No. 10. The cypher to be exchanged consists of ten letters, the first five being 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", i.e., XYZAB—AAAAA.

No. 11. All logs must reach the Federal Executive, Box 2127L, G.P.O., Sydney, N.S.W., by the 30th October. The logs must contain (a) Time, date, and call-sign of each station worked; (b) Cypher sent and received at each contact; (c) Points claimed, contact points and bonus points.

No. 12. The Fisk Trophy will be awarded to W.I.A., State Division, whose points total of the leading three stations is the greatest. If less than three stations enter in any State, the sum of the scores will represent their State's total.

No. 13. The decision of the Federal Headquarters Executive of the W.I.A. will be final and binding in all matters.

The new council and office-bearers of the Victorian Division consists of Mr. W. R. Gronow, President; Mr. R. A. C. Anderson, Secretary; Mr. J. Marsland, Treasurer; Mr. E. Kilborne, Assistant Treasurer; and Messrs. G. Thompson, R. Dalton, I. Morgan, M. R. Campbell, C. Woodward, and H. Stevens, Councillors.

QUARTZ CRYSTALS

Every Crystal tested to 50 watts input to Penthode Crystal Oscillator
Accurate grinding to .03 per cent. 3.5 M.C., 20/-; 7 M.C., 30/-
100 K.C. Xtals. 465 K.C. Xtal "Gates. Prices on application

PROMPT DELIVERIES

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Federal and Victorian QSL Bureau

Conducted by VK3RJ, Federal QSL
Manager.

"Radio Universul," the organ of the newly - formed Roumanian Society, A.A.R.U.S., is an attractive and well-illustrated journal, containing many new features. The average ham's knowledge of the Slav tongue is, unfortunately, extremely limited.

George Every, VK3GE, ex VK7GE, is now located at Franklin Barracks, Portsea.

Copies of the new Metropolitan Traffic Code are available on application to the Bureau. W.I.A. traffic managers should find it helpful.

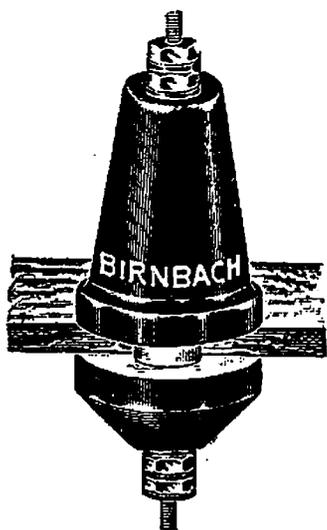
The long-awaited regulations by the Radio Branch have at last been promulgated and distributed to all hams. It is hoped they will be rigidly enforced and thereby banish "canned music" from the 7 and 14 m.c. bands for all time. The prohibition of the use of fone on any band by new hams during their probationary period of

six months is a splendid idea.

Stations are exhorted to support the DASD Jubilee Dx Contest arranged to take place during the five week-ends of August. As DASD members were the strongest supporters of our Centenary and VK Dx contests of 1934 and 1935, it is fitting that we should reciprocate. Full details of the contest appear in the June "Amateur Radio."

Cards for the following VK3 stations are on hand. Send a stamped envelope to the Bureau: 23 Landale-street, Box Hill. VK3AD, AP, AT, BL, BS, CA, CK, CM, DS, EF, ER, ES, FB, FM, FN, FQ, GA, GB, GF, GJ, GW, GY, HN, HO, HY, IL, IT, JZ, KA, KI, KV, KY, LG, LS, LY, MK, MX, NA, NG, NJ, NR, OI, OU, OX, PA, PC, PS, RE, RM, RQ, RW, SB, SP, TE, TW, TZ, UJ, VL, WX, WH, WZ, XA, XU, YF, YL, ZB, ZK, ZL, ZO, ZW, Peters, Hampton, Nye, Sebire.

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At our Price no Ham would be without them.

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35T; 50T; 150T**

**National Transmitting
Equipment**

Accredited Australian Agents for
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Newcastle**

The N.S.W. Amateur Radio Exhibition

The Amateur Exhibition, sponsored by the W.I.A. and held in Sydney during the week, 15th to 20th June, was a tremendous success in every way, and the results must be very beneficial to prestige of the amateur in N.S.W. To describe fully the exhibition and its functions would take too many pages of the magazine. So the highlights will be just mentioned briefly, together with the prize-winners.

Open 15th June from Hartford by Mr. F. E. Handy, of the A.R.R.L., introduced by Mr. E. T. Fisk, of A.W.A. Opening great success, F. E. Handy's voice, QSA5 via W2XAF. 23 stands, 13 trades, 5 affiliated radio clubs. Television display created great interest. £80 worth of prizes. American two-way telephony, QSO's from hall via VK2WI. 600 in attendance at opening. Show creates splash in daily press. 5MX telephone. P.M.G.'s exhibit on Interference received with acclamation. A. G. Hull, recently returned from America, lectured on Television. Over 3,000 attended during week.

TRADE STALLS.

Members of trade adhered practically without exception to the limiting of exhibits to apparatus for the experimenters, with the result that the stands were of exceptional interest to the amateur and it was really surprising the amount of gear available which the average experimenter had never seen. Price's Radio Service, A. W. Valve Co., Ducon Condenser Pty. Ltd., Colville Wireless Equipment Co., Oxford Radio, Amplion Ltd., Noyes Bros., R. C. S. Radio, Philips Lamps, J. B. Martin and Paton Electric all showed apparatus of value to the "Ham."

COMPETITIONS.

The judging of the competitions was conducted by sectional judges during the exhibition and the results are as follow:—

Best stall of the Radio Club affiliated with Wireless Institute of Australia, "Wireless Weekly" Cup—Zero Beat Radio Club; special mention, Lakemba Radio Club.

Best Piece of Apparatus on Club Stalls—1, W. G. Ryan, VK2TI (Transmitter); 2, C. Preston Smith, VK2QK (Super. Het.); 3, J. Fairweather VK2FV (Amplifier); 4, A. Gibbons VK2BT (Oscilloscope).

OPEN COMPETITIONS.

Transmitter — B. Dimmock, VK2OW; 2, W. J. Ryan, VK2TI; 3, C. Wilkins, VK2WQ.

Receiver—1, B. Dale, VK2XX; 2, P. Adams, VK2JX; 3, R. Cohen, VK2TF.

Portable Station — 1, J. Cowan (Adamstown), VK2ZC; 2, A. J. Brown, VK2IK; 3, R. Corthorn, VK2VG.

U.H.F. Receiver—1, B. Smith, VK2IV.

U.I.F. Transmitter—1, M. Lusby, VK2WN; 2, B. Smith, VK2IV; 3 (tie), K. J. Burnett, VK2BJ, and E. Hodgkins, VK2EH.

Piece of Apparatus—1, C. Bischoff, VK2LZ; 2, D. Millen, VK2DU; 3, B. Dukes, VK2WD; 4, J. Parris (Deniliquin), VK2DN.

SPECIAL PRIZES.

Television Display—G. Wells, Esq.

Novelty Special—North Suburban Radio Club.

Distance—R. Ross, VK2IG (Albury).

The above complete the prize list at the exhibition. The Wireless Institute of Australia appreciates the co-operation afforded it in making the exhibition an unqualified success.

(Continued from page 9)

apparatus is very heavy a light supporting angle can be mounted at the back of the channel uprights to take the weight of the protruding sub-panel.

The whole assembly can be given a coat of Duco or Dynamel of colour to suit. It is always advisable to clean the steel well, removing all rust and as much mill scale as possible before painting.

The construction of such a rack will give the amateur something of a permanent nature around which rigs can be built for years to come.

The 1936 Australian-New Zealand International DX Contest

Promoted by South Australian Division Wireless Institute of Australia, under supervision of the Federal Executive and with assistance and co-operation of the New Zealand Association of Radio Transmitters.

Rules Manager: Mr. G. B. Ragless, VK5GR.

There will be three contests:—

- (a) Open Section.
- (b) Handicap Section.
- (c) Receiving Section.

1. The W.I.A. Contest Committee will be the sole judges and all rulings and interpretations will be binding in the case of any dispute.

2. The nature of the contest requires contacts between the World and VK - ZL.

3. The contest is open to all licensed transmitting and receiving stations in any part of the world. Unlicensed, ship and expedition stations are not permitted to enter. Financial members of the W.I.A. and N.Z.A.R.L. only will be eligible for awards in VK—ZL.

4. Only one licensed operator is permitted to operate any particular station. Should two or more operators operate at the same station, each will be considered a competitor and must enter under his own call sign, and submit in his log contacts established by him. This debar persons entering who have no amateur licence.

5. All amateur frequency bands may be used.

6. 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, signal reports exchanged, and points claimed for each Q.S.O. Signal reports must include strength, tone, readability. Note: No serial numbers are to be exchanged.

7. The contest will be held from 1200 GMT, October 3rd, to 1400 GMT, Sun-

day, October 4th, and will be continued between the same times on each of the four (4) following week-ends, October 10th and 11th; 17th and 18th; 24th and 25th; and 31st and November 1st, 1936.

8. Scoring for VK—ZL Contest:— Twelve points will be scored for the first contact with a station in a country other than VK—ZL. Eleven points for the second, ten for the third, and so on, until the twelfth, which will score one point. The first twelve contacts with a particular country will score 78 points. Each additional contact after the twelfth will score 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 two countries twelve or more (as above) contacts will be permitted with stations having the following prefixes: G2, G5, G6, and W1, 2, 3, 4, 5, 6, 7, 8, 9. The points scored by contacts in the above manner will be added together and multiplied by the number of countries worked, which will give the final score, except in the handicap section, where the grand total will be divided by the input (PA to Aerial in Watts) which will give the final score.

9. Scoring by competitors beyond VK—ZL: Twelve points will be scored for the first contact with a VK—ZL prefix zone, eleven for the second, ten for the third, and so on, to the twelfth contact, which will count one point. The first twelve contacts with a particular prefix zone will therefore score 78 points. Each additional contact after the twelfth will count one point. This will apply to each VK—ZL prefix zone worked. The points scored in the above manner will be added, and the total multiplied by the number of VK—ZL prefix zones worked, which will give the final score. The prefix zones are VK2, 3, 4, 5, 6, 7, 8, 9, and ZL1, 2, 3, 4.

10. Only one contact with a specific station on each of the bands will be permitted to count during the whole of the contest except on the 28 m.c. bands, where one contact each week-end will be permitted to count.

11. All VK—ZL stations entering in the handicap section must state their desire to do so and give the power input to valve feeding the aerial. Input in the handicap section must not exceed 25 watts.

12. Entries from VK stations must reach the W.I.A. Contest Committee, Box 284-D, G.P.O., Adelaide, not later than December 1st. All overseas logs must reach the same QRA not later than December 31st, 1936. Entries from ZL stations must be sent to the N.Z.A.R.L., Box 489, G.P.O., Wellington, N.Z., not later than November 25th, 1936.

RECEIVING CONTEST.

1. The general rules for the receiving contest are the same as for the transmitting contests, and is open for any short wave listener in the world except New Zealand, where only members of the N.Z.A.R.L. can compete in receiving.

2. Only one operator is permitted and only one receiver can be used.

3. The dates, times, scoring of points and logging of stations, one band for the duration of the contest, are the same as for the transmitting contests. Note: Reception of 28 m.c. stations will be permitted to count for once on a week-end, and not once only for the duration of the contest.

4. To score points the Call sign of the station being called and the readability, strength, and tone of the calling station must be entered in the log, together with band, date and time. Logging of CQ on test calls will not count. Note: Overseas stations must be logged when either calling ZL or VK stations by Australian or New Zealand listeners. Overseas listening stations must log VK—ZL stations when they are calling overseas stations.

5. Australian and New Zealand stations will count their score as Rule No. 8 of transmitting contests.

6. Overseas listening stations will count their score as per Rule No. 9 of the transmitting contests.

7. Entries must be sent as per Rule No. 12 of the transmitting contests.

AWARDS.

Attractive certificates will be awarded to the station returning the highest total in each country and to the highest scorer in each of the G and W prefix zone districts and Canadian districts in the transmitting (open) and receiving sections.

A trophy will be presented to the highest total made by a contestant in the Commonwealth and a trophy to the highest total made in each of the other five leading States.

A trophy will be presented for the highest score for the Commonwealth in the receiving and handicap transmitting sections.

Certificates of performance will be awarded with each trophy.

Certificates or special prizes may be awarded at the recommendation of the Awards Committee.

Awards for New Zealand participants will appear in the official organ of the N.Z.A.R.T.

The Council of the South Australian Division of the Institute desire to thank the following for donations to the prize list:—A. G. Healing & Co. Ltd., Oliver J. Nilsen, J. Cawthron, D. Glanis, and R. Parasiers.

COMMENTS ON RULES.

Rule 3.—Competitors must be financial members of their State Division of the W.I.A. at the time of the contest to be eligible to receive an award.

Rule 8.—Each W and G prefix district will not constitute a separate multiplier (country). Contacts with all of the prefix districts of these two countries will only constitute a multiplier of two.

Rule 11.—Competitors in the handicap section must state their desire to enter in the section when forwarding reports at the end of the contest and cannot receive a prize in the open section.

Divisional Notes

N.S.W. Division

W. G. Ryan, Secretary, VK2TI, Box 1734JJ, 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, Carlton.

ZONE 4 (Hunter River and Coalfields)—

S. Grimmett, VK2ZW, 161 Tudor Street, Hamilton.

ZONE 5 (South Coast and South-West)—

R. Ross, VK2IG, 673 David Street, Albury.

ZONE NOTES FROM THE NORTH COAST.

2AO back on air, has nice C.C. note now. 2CJ under R.I.'s ban and unable to operate during B.C. hours. Hard luck, Bill! 2ZM still continues to have marathon QSO's on 80m.x. each Saturday night. Takes all the week to recuperate. Hi! Reported that 2WS is staging a "come back." 2GM putting out an f.b. from new QRA. 2UU has sig. that sounds like a kilowatt. A listener reported hearing 2NY calling "Sick Yow" (C.Q.). (Listener probably in China. Hi!). Conditions on 80m.x. appears to be good now, judging by all the duplex. 40m.x. quiet at night, except for little dx; 20m.x. still holding up for W contacts on fone, as plenty Europeans in a.m.

NEWCASTLE NOTES.

(By VK2RF.)

The influx of associate members has been so great that a special class is now held every Thursday night for coaching. Code practice and lectures are held under the guidance of transmitting members.

TY worked a K6, his first DX.

Dave, BZ, has settled down at his new QRA, and has no trouble in raising Yanx on 40m.x.

OE is also getting out well on this band, and has worked several VE's.

Congratulations to ZC, whose portable station won first prize at the

Amateur Exhibition. Jim demonstrated the transmitter, which is a 25-watt c.c. job, and quite a few club members would gladly have exchanged their best rig for this "portable" outfit.

The unusual 20m.x. condx. experienced in the early winter have fallen away and this band is now acting more like itself in previous years.

The half-yearly 12-hour club DX contest will probably be held during the second week of August, in conjunction with a contest for club receiving stations.

CS is regularly on the broadcast band with his fone, and is thinking of installing a new mike to improve speech quality. Reports on his transmissions have been received from New Zealand.

NORTH SHORE.

2ACJ and 2ACL both work ZL on 80, using one-stage crystal rigs, and find that the signals get over quite well. 2ACF, of Longueville, has had to shift his QRA to Northbridge, but hopes to be back on the air as soon as possible. 2BJ continues to broadcast the W.I.A. news sessions on Wednesday nights on 80 and Sunday mornings on 40, with that much-admired methodical and patient spirit that only Keith possesses. Regardless of the unending QRM, VK2WI still carries on. As anticipated, 2DR staged a "come-back," having grown tired of his newly-acquired hobby, or, perhaps, has combined the two.

2DU!! Whereabouts are you now, Dud? 2FV has gone to Queensland for vacation, taking with him portable crystal transmitter and receiver. 2GD is quiet around Roseville, must be QRL with work. 2HA will shortly have his rig rebuilt and incorporating a 6P6 as suppressor grid modulated buffer with a ten as linear amplifier. 2HL will shortly be on 5m.x. and wants all the boys to rally round. 2BJ, 2NN, 2VG, 2VP, 2ACJ, 2ACL, have promised to start up in order to compete in the coming W/VK 5-metre contest. All Hams on the North Shore or anywhere are requested to give this band a trial and, if possible, to get

in touch with any of the above. 2HZ's familiar fist heard on 80 during the month, so guess the exhibition must be over. 2IP works the Yanks on 40 at night with a pure crystal T9 note which would be f.b. for fone.

2LA heard again on 40 pretty strongly on this side; must be back in the old district again by the sound of his sig. 2LD has a beautiful modulated r.a.c. crystal signal near the high frequency end of the band now. 2NN, in Roseville, did quite a lot of c.w. QSO during his sick leave. 2NV is building broadcast receivers. 2PV makes his ten work plenty when he is on, but that is not very often. 2QF is not heard very often from Crow's Nest, but is on from Manly with a portable sometimes. 2SS's T9SE sig. has developed a decided chirp and dropped in tone to T7 on several occasions, thus losing much of its previous prestige. 2VE, although QRL with work, manages a little Telefunken on 80 at nights. 2VI has perfect T9 sig. in the middle of 40 and can find plenty of Yanks. 2VL is another very fine sig. for SE, and compares favourably

with 2SS's old note; Yanks are also easy to Jim. 2VN also puts out a T9 crystal sig. now-a-days; must be the call of fone that makes the boys pure! 2VP, having a bad backwave, substituted his link coupling for capacity coupling and cured the trouble, but since found out that the lack of a common earth on his rig was the trouble so back went the link coupling and all was O.K. 2XC back on the air again after some time and puts out the familiar sig. on both 40 and 20. 2YA went to Gosford for a couple of weeks teaching and took a portable with him, but could only work Sydney during the daylight; sigs. faded out at night on 40. Unfortunately the rig was only on that band.

THE NORTH SUBURBAN RADIO CLUB, CHATSWOOD.

(Affiliated with the W.I.A.)

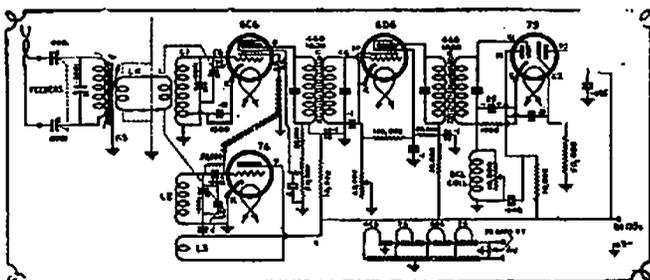
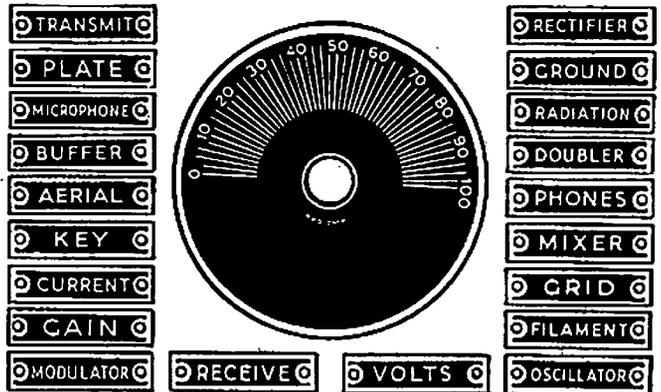
The membership of this comparatively new club has been increasing every week since the Amateur Exhibition and promises to be of fair dimensions if the present rate of applications for membership continues. Four

For all AMATEUR GEAR

Transmitter Name Plates
as Illustrated 4d each

Metal Condenser Scales
as Illustrated 2 3/4" diam 1/6 each

NAME PLATES



WRITE FOR SPECIAL HAM LIST!

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Published in the Sydney Bulletin

Complete Kit of Parts including Valves & Power Pack
£12/7/6

(D. G. McINTYRE), 5 & 6 Angel Place, Sydney.

prizes were won by its members on the Club stand in the recent Amateur Exhibition. The club transmitter, which will consist of 53 crystal oscillator, 46 buffer and 210 final, will shortly be completed and operating. The whole rig is built up on a six-foot steel rack and panel housing, power supply, etc.

Meetings are held at the Soldiers' Memorial Hall, Chatswood, every second Tuesday for all members, and every other Tuesday at No. 1 Bowen-street, Chatswood, for the Ham members. All are welcome, and if there are any intending members, please get in touch with the President, VK2BJ, or the Secretary, VK2VG.

This club was initially intended for a Ham club only, but owing to the lack of co-operation from the North Shore Hams in general, it was decided by the enthusiastic few who initiated the venture that short-wave interests be catered for and S.W.L.'s be asked to join the gathering, together with anyone else desiring the knowledge of short wave radio.

ZONE 5 NOTES.

SOUTH COAST AND RIVERINA.

VK2IG.

Conditions are very poor on all bands, and very few contacts, either DX or local, can be made. 2OJ—completely remodelled with tail-light globes ad lib. 2QE—Busted his bike and 2IG repaired it; he is not on much, but has confirmation from EI.

2EU is trying Telephony.

2QD had the mumps, but O.K. with the transmitter in bits.

2VK believes in co-operation. Here's how:—He borrows OJ's advice, IG's neon and QE fixes the receiver, puts a book on the key, and dashes down to UE's to listen to it.

2IG pulled the rig to bits and spring-cleaned, but it doesn't work natural any more.

How about some of you other chaps in this zone dropping me a little dope?

THE JULY MEETING.

The July meeting of the N.S.W. Division was held at the Y.M.C.A. on the 16th.

The Senior Radio Inspector, Mr. W. T. S. Crawford, was in attendance to present the £80 worth of prizes won by amateurs at the Radio Exhibi-

tion. Mr. Crawford expressed the fact that he was very pleased with result and usefulness of the exhibition, and offered to the Institute a trophy for competition amongst amateurs and to be awarded to the best all-round operator.

VK2JU, Mr. J. Moyle, was elected to the Council in place of VK2MY, Mr. J. Macgregor, who recently resigned.

LAKEMBA RADIO CLUB, VK2LR.

(Affiliated with the W.I.A.)

(By 2DL.)

Owing to increase in membership the above club has once again found it necessary to move to larger premises, situated at The Sunrise Hall, Canterbury-road, Canterbury (near the railway station). The total membership is about 70, over half of whom hold transmitting licences.

The month of August will be a "Come back to five" month, when about eight members will be holding regular schedules on five metres. The five-metre group in particular request interstate amateurs to get into touch with them with regard to conducting tests on five metres. The ultra-high frequency receiver being used by 2OD is of special interest, as harmonics from country amateur stations operating on the higher wave bands have been heard.

VK2ABT, Joe Buchanan, from Yerrinbool, N.S.W., certainly displays great enthusiasm; when being nominated as a prospective new member, he asked to be excused from attending the fortnightly meetings, because, having to motor-cycle for 50 miles, he would only be able to attend monthly!

Morse code classes are still being conducted by 2OW on Thursdays and intermediate Tuesdays, and by 2RL on 41.1 metres, Sundays, 9 to 9.40 p.m. It is anticipated that the club's transmitting strength will be added to very shortly, as several members sat for the last A.O.P.C. exam.

Short wave supers are becoming quite popular with club members. The districts from Marrickville to Bankstown are now quite congested, and such receivers appear to be the only practical way of overcoming interference. In these parts, the "ham" without a super is as bad off as a BCL with a crystal set.

All enquiries relative to club matters will receive the immediate attention of the Hon. Secretary.

Victorian Division

VICTORIAN KEY SECTION NOTES.

(By R. Were, 3DP.)

At the July meeting the annual election of officers was held. The nominees for chairman were 3MR, the retiring chairman, and 3OC. The voting for each being equal, and the chairman having the casting vote, 3OC was elected. Just too bad, Roy!

3DP was elected secretary.

The work of the retiring chairman and secretary was much appreciated by the members, it being their first time in office.

To create some interested at our meetings, it was suggested that those who are having trouble with their rigs, etc., put their troubles to the meeting in an attempt to have them solved. If the question is of sufficient interest, that someone offer to answer same in the form of a lecturette at the following meeting. So roll along, chaps, and have your worries solved. All hams have their little troubles. If you don't then your rig is not perking. Hi!

This Section is to hold a local contest in conjunction with the D ASD contest, scoring to be one point for each D contact. Have a smack at it, chaps, for the D's have always supported our contests very solidly. Also don't forget that the prize for the winner is a 7m.c. xtal that really perks, donated by 3BQ.

SOME NEWS OF THE MONTH.

3MR.—Gone fone. Wked a couple of YL's and can't keep away from it, hi! This month's tall story:—Snow was QSO VK2- (Ex ZL?) on c.w. After having reached about 5(0) W perhaps, the VK2 suddenly dropped to 10 W. Per. and said, "Sorry, OM, but have lost my dot contact."

3OC.—When Ray keys on 7m.c. the lights in the house play naughty tricks. Try cutting down the K. watts, Ray.

3ZF had similar trouble. When Eric started the howling started by a couple next door. Their light was flashing on and off in their bedroom. Hi!

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3YO.—Poor man! Should be some cheap junk for sale soon, as Claude has taken on golf. Swap you a brassie for your SSS, om?

3VU.—QRA abt 100 yds. from 3MR. Boy, what fun! Hi!

3XQ and 3KC.—Don't hear much of these chaps of late. Suppose it's YL's agn.

3WE.—Congrats., Willie, on wkg the first QRR traffic in VK. 3WE and 3FL handled traffic for a few days during the recent floods in Gippsland, when all other communication was down. Good work, om's.

3TU.—Another ham in the limelight. He was QSO VK8GF, of Granites, who was wanting the flying doctor urgently for an injured miner. Some fast work by 3TU and the doc. was soon on his way. Hams are very handy at times, I guess.

3CX left his log home for the Etopia test so that 3DP could win. Thanks, Allan, I'll lend you those chokes when I get 'em.

3UK building new xmitters—one for 80 and 40m.x. and another for 20 and 10m.x. What do you do with your old ones, om?

Well, guess that's all at present, so, fellers, if you have got any dope, don't forget to shoot along. Always appreciated.

SHORT WAVE SECTION NOTES.

July 8th was the annual meeting of the group, and although a large number turned up, a great many of the old faces were missing.

The election of office-bearers resulted as follows:—President, Mr. G. Manning, 3XJ; Vice-President, Mr. H. Stevens, 3JO; Secretary, Mr. O. Davies.

3DH paid us a visit and gave a very instructive address on 56m.c. superhets. This was followed by a demonstration and QSO with 3CR.

Now that the group are firmly established on 56m.c. it is intended to start another round of visits to places of general interest (power-houses, studios, etc.). So roll up and get the dope on our activities.

Heard the other day that 3JH was going in for a system of modulation any day now. That so, Bob?

3XJ still putting out canned music, etc. Good sigs, o.m.

3WQ, not much heard of you, old man. What's doing?

3RQ also not very noisy of late. Come up and see us some time!

3JO putting 56m.c. sigs. all over Melbourne; R9 at that, too.

As there is a definite possibility that 56m.c. sigs. are travelling much further than we yet know, the group have arranged a system of reporting. Members hearing 56m.c. stations are asked to keep an accurate log, noting variations in strength when changes are made at the transmitting end. Then, if they will forward a copy to the group secretary (732 Dandenong-road, Murrumbeena, S.E.9), he will plot field strength maps for the individual transmitters.

The Secretary wants to hear from all the missing members. Shoot in notes of your doings to him and he will pass them on.

WESTERN DISTRICT NOTES.

(By VK3HG.)

News is very scarce this month, all stations seemingly inactive. Even 3NQ has failed to send along his monthly report lately. An old timer in 3GA, of Curdie's Vale, is active again on 7m.c., putting out a nice signal with self-excited rig. He is only six miles from 3JA, who recently moved to the bush. The latter has still to make his debut on the air from his new QRA. 3PG, who recently received his W.A.C. certificate, has not been heard for over a month. I've an idea there's a YL behind this inactivity, Norm.!

3TA and second operator called in on 3OW and 3HG recently on their way through this district. He is still putting over his excellent 250-metre transmissions, which are of really high quality. Is rather interested in five-metre work. 3DX has B-class strength and quality on 243 metres every Sunday. We are sorry to hear "the ham Mother," 3HM, has not been very well lately, and wish her a speedy recovery to health and strength.

3OW works patches of DX, but is generally inactive. 3HG mainly on 3.5m.c. with the locals and ZL's. This band is becoming increasingly popular with the 'phone men, and the C.W. man is hard put to it to find a clear spot. Why not use 160 metres? It is quite as good as 80 for local work and no QRM.

MALLEE NOTES.

(By VK3ZK-VK3HX.)

As there have been no notes from this district for some time, it was decided by the gang to forward these notes.

Conditions on all bands for some time have not been so hot, but a big improvement is expected soon.

It would not be amiss here to mention that one of the most popular stations from this district is on the air again from Omeo, and, not satisfied with a little QRR work, is getting a fair share of QSO8's.

These notes this month were written in a hurry, so something might be missing.

3EP.—Ted has AC now, and is putting a hefty sig. out on 80mx. Hasn't much luck on 7mc. Training XYL for ticket, hi!

3ZK gone xtal, and is building a new rig. Line-up 6A6 Jones exciter, 45 buffer link coupled to 801 in final, input 25 watts. We should hear you, Jim!

3CE.—Working DX on higher frequencies. Going to cover the ceiling wid Yank cards, hi, hi! Heard on 80 mx. Sundays.

3WN. — Gone xtal, but having trouble. Has a 2A5 for CO tube. Nice CW sig here.

3HN.—Haven't heard much of Mac lately.

3HR.—A new ham in Sea Lake, by name Charlie Roberts. Busy getting permanent rig going. Has a rotary converter.

3AI.—Frank is more or less inactive at the moment. Busy selling BCL sets, hi!

3LH.—At the moment keeping 3SH on the air.

3KR.—Inactive at the moment, waiting for AC mains.

3TL.—Hasn't been heard for some time; no doubt giving a good account of himself on HF.

3OR.—Still inactive waiting for his new super de luxe shack, hi!

3CG makes a big noise here on CW es putting over very nice fone.

3PX, of Mildura, was worked here lately.

3MK, also of Mildura, spends most of his time on 7mc. CW. Heard sometimes on 3.5m.c. fone.

3NN.—Herb does a lot of listening on 14mc. Heard 3.5 m.c. fone on Sundays.

3HX.—Mostly on 3.5m.c. as yet. Has now a rotary converter es is building

a new rig. 53 Jones exciter link coupled to 6P6 final suppressor grid modulated.

Some time ago we had the pleasure of a visit from 3XJ. George spent a week-end in Charlton. Took him on the Saturday to visit Mr. W. Sones, where George made a presentation to "Bill" of an 8-inch globe of the world from the Short Wave Group. Being present, I can assure the Group of Bill's delight with the gift. On the Sunday George 3HX es second op (3AI and second op were unable to go) went to Berriwillock to visit 3CE. On arriving there we were met by 3CE and the gang from Sea Lake, 3WN, 3HN, 3HR and a second op. After spending an FB afternoon the gang were entertained to tea by Mrs. McNally and OM. On Monday morning George departed for Swan Hill, where, according to accounts, that town was well and duly painted a bright red. Hi! Hi!

NORTHERN DISTRICT NOTES.

(By 3KR and 3TL.)

Northern District notes vy short this month. Both these scribes temporarily off the air, getting ready for coming change-over of town supply to AC. Then will they make a disturbance in the ether!

3OR also off the air for the present, moving into his new mansion. Has vy comfortable shack provided—"shack" (s) sri—control room. Contemplates building entirely new rig. Impressed with 3TL's new 5-tube super. Suggests he builds him one like it, hi!

3KI also has build new 5-tube super. Had trouble wid it at first, motor-boating. Now claims it is better than 3TL's, which the latter won't admit. A challenge issued.

3KR also has the 5-tube super complex, and has the gear ready. Sri to scrap his useful, though unselective, "detector and two audios," which have made him famous for DX, but sez he can't work wid it while 3TL is Xmtg.

3TL sez "same to u!"

3CE and 3NN start up the usual Sunday morning sked of the Northern gang on 80 fone on Sunday mornings, and 3HX and 3WN and one or two others usually come in.

Hrd 3ZK on 80m. fone again. Really FB. Has been in doctor's hands. Nothing serious, but vy painful. Hpe ur alright again, Jimmy!

South Australian Division

(By VK5KL.)

The general meeting on 17th June was well attended, and Mr. Gray (5SU) lectured on "Elementary Television." Following the meeting an auction sale was held of the remaining gear of the late Mr. Roberts (VK5WR), Mr. Launse Dean acting as auctioneer. Transmitters' meeting on 24th June. Although not a large attendance, great interest was taken in the lecture and demonstration of silver-plating xtals by Mr. G. Kempton (VK2CI). Many ideas are forthcoming for raising funds to provide trophies for the coming DX contest.

HAM NOTES AT RANDOM.

5SU managed to bid highest for a 50-watter. When?

5MK was anxious to get a 59 for tritet to drive his RK20. How about a xtal, Jack?

5MV managed two 46's. How long before u burn the plates out of these, George? 25 watts, hi!

5MD has a new xtal. Just too bad it's on top of mine, Doc.

5LG.—No word, and he was going to do great things at Wyalla. Must be married life!

5ZC has 5-metre super and xtal-controlled perk.

5BD bought a car and found it to be 5RP's old one. Building 5-metre gear in it.

5KD, now at Port Adelaide Police Barracks, would welcome 5-metre skeds. Come on, boys!

5HG still has a sig that sounds as old as ham radio itself.

5GP.—Hear he is home in bed again. Must be getting a habit, Graham.

5LP still re-building. Laurie has started work agn. FB, OM.

5XB seems to be getting out well.

5AF is now one of the Glenelg gang.

5IV, of Berri, hopes to be in VIA soon.

5JH heard grinding out records on 40 at nite. Turning BCL entertaining, Vic?

5TX worked 10 countries in a fortnight on 40. Not bad for 3 watts. Jim still holds pride of VK5's QRP king.

Now the 200-metre band is closed, gess 40 metres will become the publicity band. Guess will have to wave a Wouff-Hong over anyone who starts thinking they are commercial.

Well, here's hoping for the best!

Western Australian Division

It was a pleasure to see old 6RX back in Perth for a few days, after an absence of 20 months in New Guinea with airways there as operator at Wan. Stan. looked well, and enjoyed the surprise party some of the gang gave him.

6CB has been re-elected to the chair for the ensuing year, and 6GM takes over the easy job vacated by 6WS owing to pressure of business.

The local Bulletin issued monthly is now in the capable hands of two students, Mr. Longley and Mr. Wile, both going up for tickets next examination.

Too short a visit was had from 6JE during the month. Jim could not stop long enough in Perth to have a look at some shacks.

6MW has moved Q.R.A. and is putting up new 67-ft. sticks. At time of writing these notes one stick is up. If you want to know what the three are for, then ask Bill.

Fairish bit of 'phone going around just now, and Sunday is popular on 40 in daytime and 80 at night, when some good rag chews are conducted between country and city members. Conditions are really quiet for D.X. after dark, and thus they turn to 'phone. Even 80 metres has gone wonky, with QSB. in patches.

RESERVE NOTES.

Watches are being kept more regularly by the members here now, and we have to welcome 6A4 on the air. Stan. has overcome the power difficulty by installing a generator.

Conditions for interstate traffic skeds are poor, and 6B1, at Kalgoorlie, has been brought into service as a link.

The VME gang put over a nice signal Sunday mornings on 7,634 kcs. here, and can be heard every week-end.

6A3 has been too busy to keep watches last three weeks.

6A2 is rebuilding P.A., and discarded 46 tubes for a 210 variety. During course of rebuilding, 6Z1 had to take his watch.

6A5 is regular and keeps VIN busy.

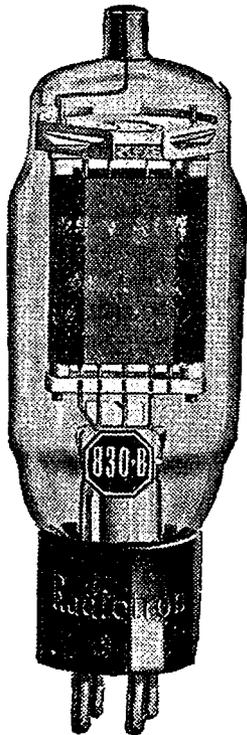
6A6 will have fellow member close handy shortly when 6M2 gets his call.

(Continued on page 28)

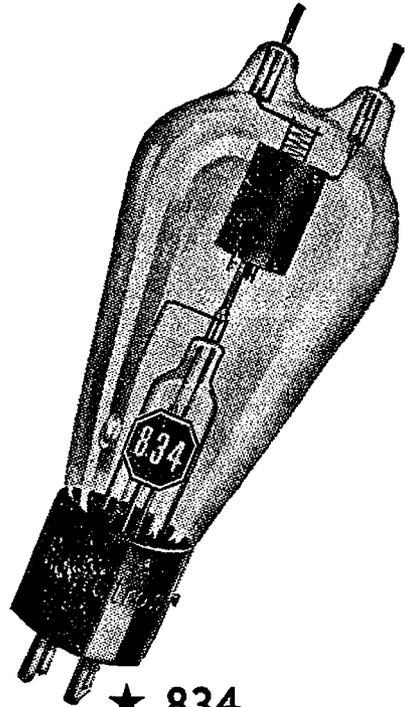
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V3.6

R.A.A.F. Wireless Reserve Notes

Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

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

Third District, Victoria—Pilot Officer V. E. Marshall, 3 Myrtle Avenue, Kew (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—S. J. Madden, Dundas Road, Maylands (VK6MN).

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

3rd DISTRICT NOTES.

(By VK3UK-3Z1.)

The main item of interest this month is the excellent work being done in the training section. The members are all very enthusiastic, and under the enthusiastic leadership and instruction of 3F9 are showing wonderful progress. In addition to the usual Sunday schedule they are running a mid-week one on Wednesday nights, and many of our regular members are making a special point of listening to the section in order to help solve some knotty points in their own procedure.

3BI is back on the air again with a new transmitter.

3B2 and 3B3, the old stalwarts of VMC2, are on as regularly as ever.

3B4 has been re-building his gear, and sometimes finds it difficult to keep a schedule with only part of the job finished.

3B5 has unfortunately had to resign owing to pressure of work. We are sorry to lose Bill.

3CI is back on the job again, and VMC3 are delighted to have him.

3C6 on crystal after many experiments with CO's. John had the nerve-rendering experience of having put his Reserve crystal into a match box, and then learning that the family had thrown the box away. However, the million to one shot came off, as a search through the rubbish tin brought it to light again.

3D3 is back on the job, and from the way he handles his traffic Doug. has lost none of his prowess on the key.

3D4 will be in his new home by the time this is in print, and will be on again.

3E6 has been transferred to Hershams for a while, and although he will not be taking any portable gear with him, he will work some schedules from 3B3's shack.

3F4 has gone to Tasmania for a while, but hopes to take a receiver with him so that he can follow the Training Section schedules.

3Z1 has finished the first unit of the new transmitter. Line-up on Reserve frequency will be 53-10-50T. The broadcast had to be put out, using accumulators and a genemotor last Sunday, as the power was turned off.

Hamadvertisers! Note This

(To the Editor.)

Sir,—Received reply to-day to my "ham" advertisement inserted in April "Amateur Radio," and would like to record my appreciation. Did not like to hope too much, as W.A. is a long step, but "Amateur Radio" came through. Show this to your advertisers! Many thanks.—Es 73.

D. GROGAN.
Mt. Lawley, W.A.

(Continued from page 25)

6FL and 6RK waiting for finalization of enrolment also.

So VMF is looking up at last, with hopes of two sections very shortly. The mid-week watch on 3,817 has proved a washout owing to uncertain conditions lately—one week R6-7 signals and the next R1-3—which is not too happy a situation.

The gang here are sorry the proposed race to VME will not include this district. It should take the form of a Round-Australia Race, and give us some work to do over here.

Tasmanian Division

(By VK7JB.)

The usual monthly meeting was held at the club-rooms on Tuesday, July , with a fair attendance. After the general business concluded VK7JB delivered a lecture on "Operating Procedure," mainly for the benefit of the new and expectant hams. The Council met on 14th instant to deal mostly with re-allocation of 200-metre frequencies to avoid heterodyning B class stations in VK5 and 6 on late night sessions. After a lengthy discussion no definite plan was arrived at, so a sub-committee has been formed to discuss the matter with the Deputy Radio Inspector.

MEMBERS' DOINGS.

7YL.—Now on 40-metre fone, with PP 2A3's modulating 210 in final of 3-stage xtal. Latest experiments are with wave-traps for BCL's, hi! Got a habit of blowing electrolytics up, too, I believe.

7CL.—Another new one, also on fone. Tried grid modx, with rather painful results, and was supplanted with Heising using 45'PP with much better results. Got a YL second op, I believe, Merv. Hi!

7JH re-built his rig. Three-stage electron coupled osc. for 20 and 40m.x. Haven't hrd it yet, but understand he has chased the R.A.C. bug out of it. Fb, Jack, om.

7PA, I believe, has reduced R.C.A. stocks to the extent of two 800's, two 801's and three 866's! Guess I'll have to put in a xtal filter after all. Also applied for 100-watt permit. Don't tell me any more.

7KV amusing himself on 5 metres, but finding things quiet down there, except for a few harmonics of the locals on 40m.x. ND.

7LJ on 200 metres, and getting reports from interstate on late afternoon sessions.

7NC has a new receiver (or is it a deceiver, Nev.?), 5-tube super with regen. det. Found fone QRM too solid for det. and one.

7CT, a new ham located at Rokeby, is on 80m.x. with a 201A powered from a Genemotor. FB location, but no power.

7JA, another new one, hasn't started yet, but hopes to be on the air shortly with QRP.

7JB re-building amplifiers and modulator units to suit crystal pick-ups. Plenty of empty Aspro packets laying about the shack. Received 165 cards in one Yank mail.

7AB when last heard of was chasing bugs out of his speech amp. and modulators.

7AM.—Haven't hrd u lately, Les. What is it—YL, motor bike, or both?

7HY heard regularly down here with nice xtal note.

7RK.—Very quiet lately, Ray. Have been looking up the marriages and deaths in the papers, hi!

7LZ interested in 200 metres again, I believe. Will help 7BQ to amuse the B.C.L.'s in Launceston.

7KR, a new Northern ham, heard on 40 metres with a N.D.C. note. A trifle wobbly, om!

7RC and 7XL heard last Sunday a.m. with R. MAX fone down here. Found a clear spot on 200mx. yet, Ron? I believe u are tickled to death with B.C.L. reports, George.

Special Note to S.W. Listeners.—If you require a QSL card from a report, please enclose a twopenny stamp to cover return postage.

Well, chaps, time is short this month, and sorry if I have left you out, but c u next month.

The magazine committee takes pleasure in announcing that a prize of £1/1/- is to be donated by the N.S.W. Division as a prize for the best technical article received for publication in "Amateur Radio" up to 31st October, 1936. Send in your technical articles, o.m.'s, and make this contest a competitive affair. Thanks, o.m.'s.

TALKS TO U.S.A.

Mr. O. E. Cooper, of 51 Glenview-street, Paddington, N.S.W., a well-known Sydney radio experimenter (2CP), has been remarkably successful in establishing communication with "hams" in the United States. During the past month, operating on the 20-metres band, he has "worked" no fewer than 17, holding two-way telephone conversations in each case. Mr. Cooper uses the new Amalgamated Wireless Valve Company's 6P6 transmitting valve, which was designed and developed in Australia at the Company's works, and released about three months ago.

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Hamads

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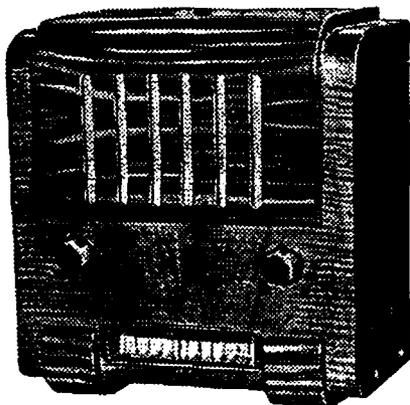
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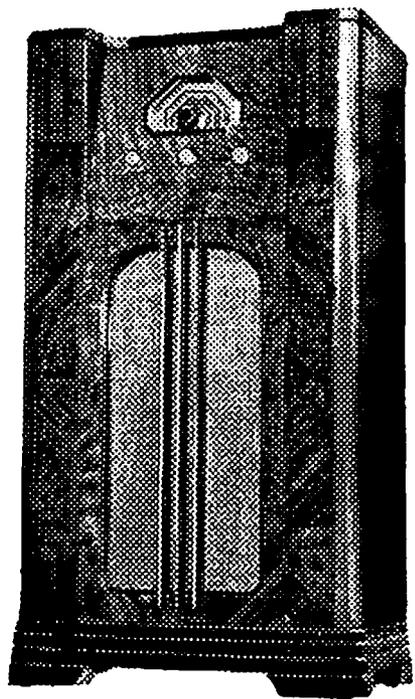
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V. MARSHALL (VK3UK) and C. SERLE (VK3RX).

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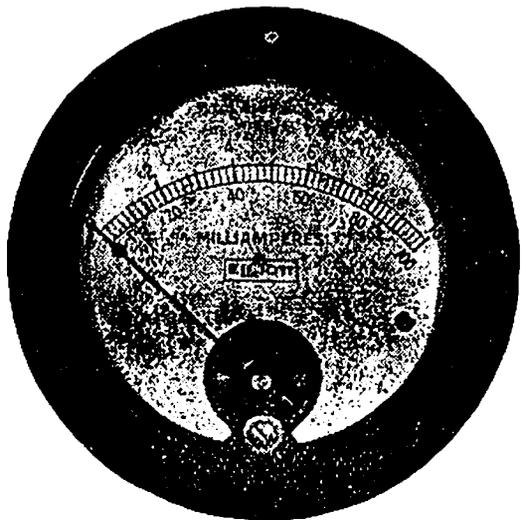
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Editorial

We must brush aside many of the subjects listed for the editorial this month in favour of the restrictions brought into force by the P.M.G. on 1st September.

The word "restriction" is a hard word, and does not completely fill the bill when discussing the facts of the circular we all received some month or so ago. One could look upon it as being an attempt to improve the amateur's "code," without enforcing too great hardships. No unselfish and clear-thinking ham can regard the rules as being anything but for the good of the game. No law made yet has ever suited every man, and, naturally, some few will feel their style cramped. However, we must all admit that it is high time that the air be cleaned up of poor signals and bad operating. Even the selfish and rotten operator must himself feel annoyed at times when someone of the same standing causes needless QRM.

The W.I.A. has played no small part in bringing about this "clean-up," and did so because its members have been demanding something of the kind ever since Federal Conventions were first staged. Those of us who remember the annual agenda papers circulated to all Divisions prior to the convention, know only too well that "phone on 40 metres," "poor operating," and such like, were always listed, showing that the Institute has always been "for and behalf of the Amateur."

Now, in this direction we have succeeded, and every ham in VK will benefit by the co-operation between the P.M.G. and the W.I.A. Surely this speaks for the great asset of having a united body to speak for the amateur, but, to what extent does the non-member appreciate the work done for him? The W.I.A. has been an philanthropic institute for a fair number of hams to an extent that perhaps many are apt to overlook. It is rather hard to imagine that there still exist a few that ask what does the advantage of W.I.A.

membership offer them? One does not have to look much further than the International DX contests, organised field days, QSL bureaux, or the W.I.A.'s share in the Cairo affair, to realise that there are many hams enjoying privileges that do not rightly belong to them, because they are not members of the body that represents the amateur of Australia. Such a position is not exactly fair to members of the W.I.A. and affiliated societies who have to carry their own troubles as well as those of the rest of the Commonwealth. It is for the present members to bring such facts before any non-member that they happen to contact, and point out the reasons why they should support the Institute. There are many small gangs of chaps who work together on some particular section of amateur radio without realising perhaps that the W.I.A. caters for all sections in its organisation. A case such as those was noted only the other day during a QSO, when a certain ham told a member that he and four others were working together on 56 mc, and were looking for stations in other areas to contact. On explaining that the W.I.A. had an Ultra High Frequency group already formed on well organised lines, this ham immediately became interested, and accepted the invitation to attend the next meeting of the U.H.F. section. That may mean the enrolment of four new members.

Publicity is something that takes up a tremendous amount of time, and for the moment the executives have their hands full in other directions, and it is therefore for the individual member to help rope in the non-members. If every present member managed to introduce just one new face each it would obviously mean that every ham in VK plus dozens of S/W people would be a M.W.I.A. Talk it over with your neighbour OM, and if he is an outsider it is up to YOU to make him W.I.A. conscious.

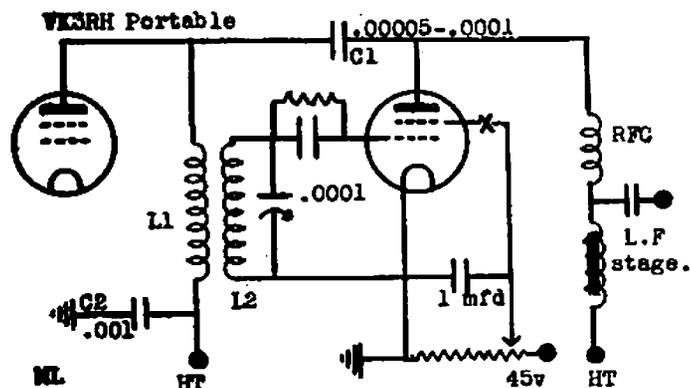
VK3RH'S Portable

(By VK3ML, Technical Editor.)

The write-up of VK3RH's portable station in the July issue has proved of great interest to many a ham, and further information has been sought regarding a few of the constructional points. We prevailed on Ivan Ho'der to supply same, together with circuits, and here they are.

Fig. 1 clearly shows the unusual method of coupling the RF stage to the detector. The system has been

The main object is to design L2 so that the correct amount of RF transfer is obtained, and also that the reaction effect should be smooth. The coil data shown is only a rough guide, for circumstances will alter cases, but in the majority of sets built by 3RH the ratio of primary to secondary turns has been similar to those shown. Another point that will require a bit of cut and try



tried at a few other stations since July, and has proved most effective. Probably one main advantage is that it requires only a four-pin former for the detector coil. Coil L1 acts as an RF transfer to L2 in the usual way, while feed-back from the detector is obtained via the coupling capacity C1, and the RF is by-passed

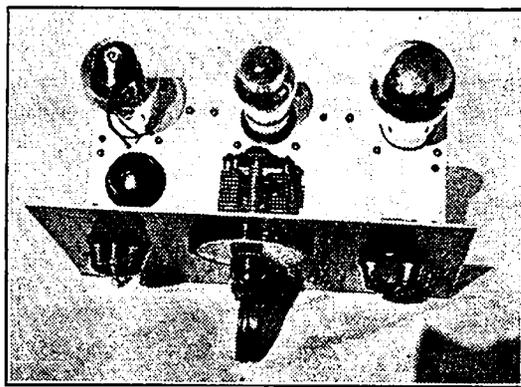
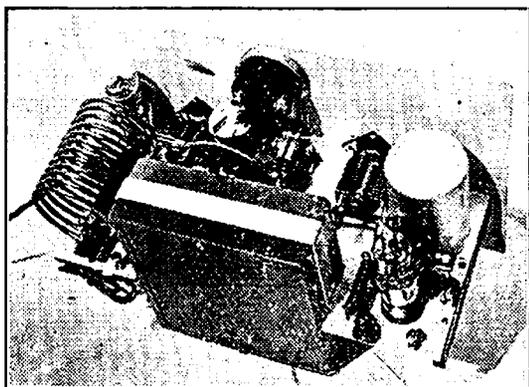
COIL DATA

All windings on Marquis formers: 24 S.W.G. Wire.

	L1	L2
7mc	6 turns	21 turns; tapped at 5 turns for bandspread
3.5mc	13 turns	23 turns untapped

system is the size of the feed-back condenser C1. If this is too big oscillation will come in with a flop, and if not large enough then no reaction will take place. It is suggested that a .0001 mfd variable midget condenser be installed to locate the optimum capacity.

If grid leak detection is being used



by C2 in the usual way. The fact that L2 is doing two jobs does not in any way appear to introduce undesirable effects, and the circuit behaves as if a separate tickler coil was in use.

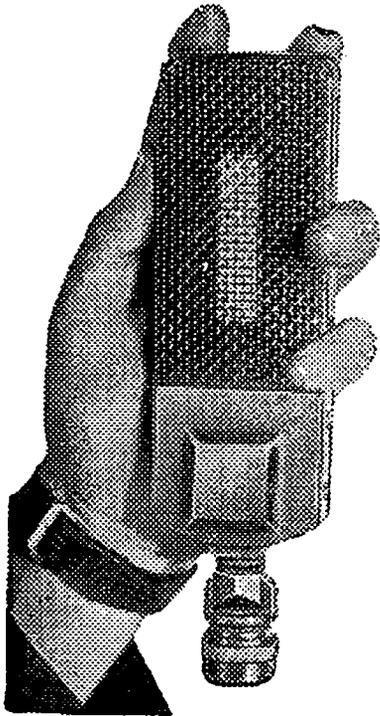
the resistor will not be very critical, and a 5 megohm leak should suffice, in conjunction with a grid condenser of .0001 mfd.

Feed back is obtained in the screen of the tube using a 25,000 or 50,000

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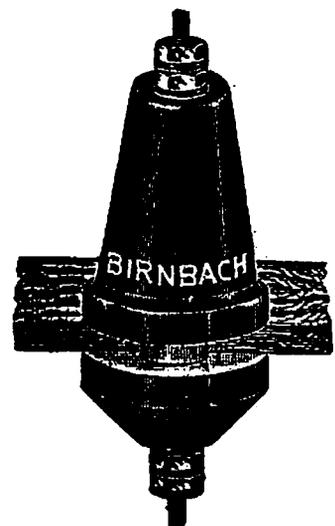


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Radiotron 6L6 Beam Tetrode Amplifier

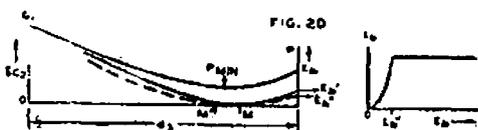
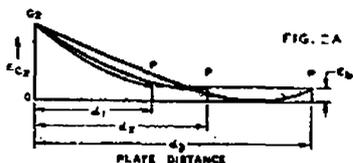
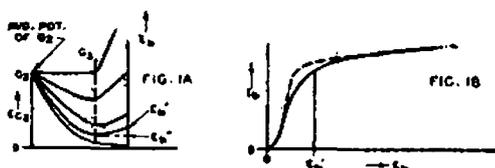
Radiotron 6L6 is a new type of tetrode intended for use in the power output stage of an A.F. amplifier. Unlike most earlier double grid valves, the 6L6 does not exhibit any secondary emission effects at low plate and control grid voltages; its characteristics, therefore, resemble those of the usual power output pentodes. Some unique features of the 6L6 are high power

the usual tetrode should not swing below the screen voltage if the output is to be substantially free from distortion. A zero potential suppressor grid (G3), positioned between screen (G2) and plate (P), serves to prevent the loss of plate current due to secondary emission. Hence, in a pentode, the plate voltage (E) can be made less than the screen voltage (Eg2) without appreciable secondary emission effects.

The manner in which a suppressor prevents secondary emission loss in plate current can be explained by Fig. 1A. When the suppressor is connected to the cathode, the potential of the suppressor wires is zero, and the potential of the spaces between the wires is positive by an amount depending upon the geometry of the valve and the applied voltages. The effect is, therefore, to reduce the potential at all points between the screen and plate. Fig. 1A shows the approximate potential distribution between the screen and plate of a pentode for various plate voltages. When E_b is greater than a certain critical value (E_{b1}) a potential minimum is formed in the vicinity of the suppressor. When the difference between the plate voltage and the potential at the suppressor ($E_{b1} - E_{b11}$) is great enough, secondary electrons from the plate are not attracted to the screen, but return to the plate. Consequently, for all values of E_b greater than E_{b1} , there is no appreciable loss in plate current due to secondary emission. Under these conditions the plate current is nearly independent of plate voltage.

Fig. 1B shows the plate characteristic of a typical pentode. The knee between E_b and E_{b1} is rounded, due mostly to the non-uniformity of the field around G3, giving no definite value of E_{b1} , where the plate current begins to become independent of plate voltage.

There are several other factors which govern the sharpness of the knee, such as the shapes, sizes and



output, high efficiency, and high power sensitivity.

THE PENTODE SUPPRESSOR GRID.

When the plate voltage of the usual tetrode is less than the screen voltage, an appreciable number of secondary electrons which are emitted from the plate because of bombardment by primary electrons are attracted to the screen; the plate current, therefore, is greatly reduced. For this reason the plate voltage of

uniformity of the grids and cathode. Much of the distortion of the field occurs at the grid side rods. The ideal curve (dotted in Fig. 1B) would

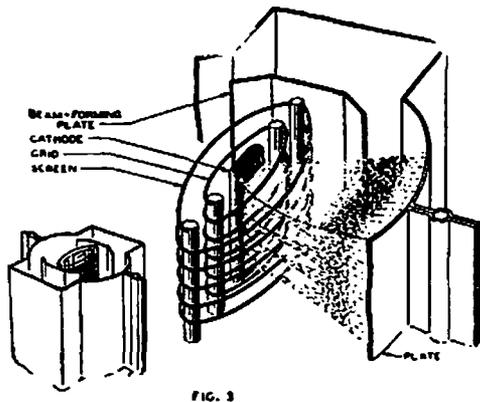


FIG. 3
SKETCH SHOWING FORMATION BY GRID WIRES OF BEAM SHEETS

have a greater usable range of plate voltage, with reduced third-harmonic distortion.

The 6L6 dispenses with a physical suppressor in order to reduce secondary emission effects. Suppression is obtained by creating a potential minimum between G2 and plate by space charge effects. The electron stream to the plate is confined to a beam whose electrons have nearly uniform path lengths and velocities. Such a design results in a plate characteristic that has a relatively sharp knee at low plate voltage.

THE VIRTUAL CATHODE.

If we had a valve in which each electron traversed the same distance in the same time on its journey from cathode to plate, many of the pentode difficulties could be obviated. Consider such a tetrode. Apply a voltage to its screen, and a lower voltage to its plate. Shifting the plate further from the screen under those conditions gives a set of potential grade curves as in Fig 2A. After a distance D1, there is found to be a point of minimum potential between screen and plate, which tends to repel secondary electrons, preventing their passage to the screen.

In simpler words, the cloud of electrons set free by bombardment of the plate has been served out beyond the reach of the screen grid's positive field. If, then, the plate voltage is increased, the cloud extends further inward towards the grid, but owing to the increased intensity of the plate's positive field, it is not suffi-

ciently negative to set up a current from plate to screen, but simply retards the normal flow of plate current, making it practically independent of plate voltage. Below the critical voltage, at distances of either D1 or D2 (Figs. 2B, 2C), the cloud is not present in any large extent, its electrons being drawn to the screen grid, by its positive potential. Thus there is a sharp falling off of plate current at a critical voltage, after which a negative current may flow. By increasing the distance to D3 (Fig. 2D) it is found that a region of minimum potential, M1, M, P min, exists for all values of plate potential, and that the cloud of electrons is always present, even at very low values of plate potential. Thus the field between the plate and screen has a region of low potential which effectively prevents the production of further secondary electrons, in much the same way as the suppressor of a pentode. The resulting tetrode, however, has a much sharper knee at Eb1, in Fig. 2D, than has a pentode.

The cloud of electrons near the positively charged plate is, in effect, a virtual cathode, the position of which is changed by varying the control grid voltage or the plate potential. With the correct screen to plate distances, the potential of P min can be made just enough to suppress secondary emission effects. The plate then acts as a diode plate, which reaches a saturation current when its potential reaches Eb1, after which there remains an almost constant potential grade between the virtual cathode and plate.

If the screen voltage is reduced, or the control grid voltage made more negative, the density of the cloud of electrons becomes less, and the diode saturates at a lower value of plate voltage. The voltage at which the knee occurs depends either on the screen voltage or the control grid bias.

RADIOTRON 6L6.

To simulate the ideal conditions of the hypothetical valve discussed above, the electron streams must be focussed into some form of parallel "beams." In the 6L6, this has been done by carefully winding the two grids with the same pitch, and even more carefully aligning them so that each turn of the screen grid lies

Amateur Radio

exactly outside that of the control grid, along a line perpendicular to the cathode.

in the 6L6, two side plates, called "beam-forming plates," have been placed at the sides of the grids in the

TABLE 1
SUMMARY OF OPERATING CONDITIONS FOR THE 6L6

Condition	SINGLE-VALE OPERATION										PUSH-PULL OPERATION									
	No.1		No.2		No.3		No.4		No.5		No.6		No.7		No.8		No.9		No.10	
Class of Operation*	A ₁		A ₂		A ₃		A ₄		A ₅		A ₆		AB ₁		AB ₂		AB ₃		AB ₄	
Kind of Bias	Fixed	Self	Fixed	Self	Fixed	Self	Fixed	Self	Fixed	Self	Fixed	Self	Fixed	Self	Fixed	Self	Fixed	Self	Fixed	Self
Heater Volts*	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Plate Volts	375	375	200	200	300	300	250	250	375	250	250	400	400	400	400	400	400	400	400	400
Screen Volts	125	125	200	200	200	200	250	250	250	250	250	250	250	300	300	300	250	250	300	300
O-C Grid Volts*	-0	-0*	-11.5	-11*	-12.5	-11.5*	-14	-13.5*	-17.5	-16	-16*	-20	-19*	-25	-23.5*	-20	-25	-25	-20	-25
Peak A-F Grid Volts	8	8.5	11.5	11.5	12.5	12.5	14	14	17.5	16	16*	20	19*	25	23.5*	20	25	25	20	25
Zero-Big. D-C Plate Current (Ma.)	24	24	52	55	48	51	72	75	57	120	120	88	95	102	112	88	102	102	88	102
Max.-Big. D-C Plate Current (Ma.)	26	24.3	57	56	55	54.5	79	78	57	140	130	124	110	152	128	108	128	108	128	230
Zero-Big. D-C Screen Current (Ma.)	0.7	0.7	3.5	4.2	2.5	3	5	5.4	2.5	10	10	4	4.6	6	7	4	6	6	4	6
Max.-Big. D-C Screen Current (Ma.)	2	1.8	5.7	5.6	4.7	4.6	7.3	7.2	6	16	15	12	10.8	17	16	13	13	13	13	20
Load Resistance (Ohm)	14000	14000	3000	3000	4500	4500	2500	2500	4000	5000*	5000*	8500*	8500*	6800*	6600*	8000*	8000*	3800*	3800*	3800*
Distortion - Total %	9	9	9	9	11	11	10	10	14.5	2	2	2	2	2	2	2	2	2	2	2
- 2nd Har. %	8	8	8.7	8.7	10.7	10.7	9.7	9.7	11.5	-	-	-	-	-	-	-	-	-	-	-
- 3rd Har. %	4	4	2.5	2.5	2.5	2.5	2.5	2.5	4.2	2	2	2	2	2	2	2	2	2	2	2
Max.-Signal Power Output (Watts)	4.2	4	4	4	6.6	6.5	6.5	6.5	11.5	14.5	13.8	26.5	24	34	32	40.8	40.8	60.6	60.6	60.6
Power Sensitivity (Milliwatts/volt*)	131	111	60.6	60.6	83.3	83.3	66	66	75.1	28.4	21.8	33.1	25	27.2	18.7	24.8	24.8	18.8	18.8	18.8
Efficiency (%)	42	42.8	32	37.5	37.3	37.7	30	30.6	43.2	37.2	38.3	50	52	51.6	58	56.6	56.6	51.2	51.2	51.2
Peak Grid-Input Power (mW.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180*	360*	360*
Beam Resistor (Ohm)	-	368	-	165	-	220	-	170	-	-	125	-	100	-	200	-	-	-	-	-

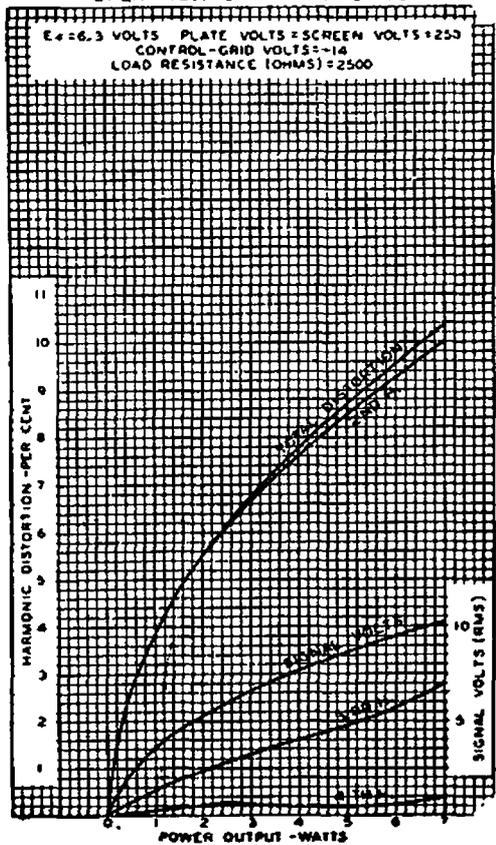
* Operating (1) indicated that grid current flows out (line during any part of input voltage cycle). Operating (2) indicated that grid current flows during some part of input voltage cycle.
 * Grid-to-cathode impedance of 1000 and output resistance, plate-circuit characteristic data are based on 25. In practice, plate-circuit characteristic, screen-grid regulation, and grid-bias regulation should be not greater than 0.5, 0.5, and 3% respectively.
 * An output of 80 watts can be obtained at the grid-current point of Condition 6.
 * An output of 80 watts can be obtained at the grid-current point of Condition 6.

* When the 6L6 is operated at anode voltages, the heater voltage should not exceed 7.5 V.
 * Maximum resistance to the grid circuit should not exceed 0.1 megohm for zero-bias operation and 0.5 megohm for self-bias operation.
 * Grid to plate.
 * Screen to plate.
 * Screen to plate should be separate or isolated this screen to the grid of the 6L6 in the circuit. The effective resistance per grid circuit of the Class AB circuit should be kept below 500 ohms and the effective impedance of the signal circuit (screening) should not exceed 700 ohms.

In pentode valves, the grid side rods do much to disturb the field near the plate. To overcome such effects

plane of the virtual cathode, as shown in Fig. 3. Being held at cathode potential, these plates effectively screen the plate from the field of the side rods of the screen grid, and deflect the "beams" into paths very nearly perpendicular to the axis of the cathode after passing the screen. Fig. 3 illustrates the combined effect.

OPERATION CHARACTERISTICS



It must be noted that the screen current is greatly reduced, as few electrons flying from the cathode are caught by its field. A saving of overall power input thus results, and the efficiency is high. The careful design of the valve generally, coupled with the large cathode, has given a very high value of mutual conductance—4300 micromhos, at 175 volts screen and a negative control grid bias of 12.5, and 250 volts plate potential. The sensitivity for this reason is very high, and only small grid swings are necessary for high output under most conditions.

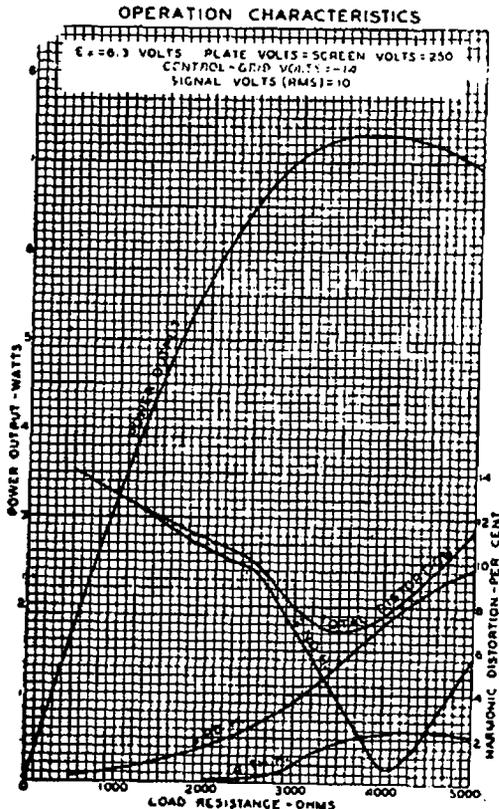
While the overall distortion for a given output is less with Radiotron 6L6 than a single 42 type pentode, at higher outputs, which would seriously overload the latter valve, the predominant harmonic produced by the 6L6 is the second. When used in push-pull this can be nullified, and far

greater outputs at low distortion are possible when the valve is operating along its optimum load line.

OPERATION OF RADIOTRON 6L6.

In Table I are given a number of operating conditions, both for single valve and push-pull.

Conditions Nos. 1, 2, 6 and 7 are those most likely to be used by receiver manufacturers, who must necessarily consider the required



power input to plate. The power supply is most generally the limiting factor.

Condition 6, giving 14.5 watts output with 2 per cent. distortion, and with a grid swing of 32 volts peak, should prove of service in any large receiver. Where fidelity is required, there must always be a reserve of output power. Radiotron 6L6 offers a method of obtaining that without resorting to abnormally high voltages.

The other conditions, Nos. 3, 4, 5, the maker of P.A. equipment or 8, 9, 10, should prove very useful to cinema sound equipment.

NEW ADVERTISER!

The careful attention of readers is directed to the advertisement in this issue of the P. and L. Wireless Supplies Pty. Ltd. of 31 Hardware St. Melbourne. This enterprising firm can satisfy all Ham's requirements, and invite you to write them for a price list. So—its up to you!

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Ham Radio in 2036 — (A Prophecy)

(R. Glassop, VK2RF.)

Jim leant back in his shack chair, removed his cans and massaged his ears gently to restore circulation. He felt very pleased with himself, by which you might guess the rig had been getting on to his satisfaction. A glance at his log would have confirmed your judgment. Six QSO's, including four continents, not to mention a new country, all worked within two hours, was the tale it told. What ham with a license dating back only three months would not have felt equally pleased?

A clock struck in the next room with a single reverberating stroke. Jim gave a start at this intimation that the time was 1 a.m., and only then began to realise how sleepy he felt.

A fire was still smouldering in the comfortably warm shack, and Jim settled a bit lower in the chair, half closed his eyes, and let his thoughts roam unhindered. And, as anyone can guess, he was thinking about how good he was at working DX.

"Not such a bad effort," he thought, "with all reports T8 or 9 and at least R6. These electron-coupled oscillators can push out a good note if you go about it in the right way. Wonderful the advances made in the game the last few years. I suppose if a fellow had worked that string I got to-night about fifteen years ago they'd have thought him a marvel; but when you look at it that way, I suppose that I'd open my eyes if I could see a ham station of the future. Say a hundred years from now. A hundred years—a hundred years."

"A hundred years," a voice was saying, as Jim opened his eyes, "that's how long you've been asleep. You've been here in the ham section of the museum all this time. I'm the caretaker, and just noticed you stirring as I was locking up for the night."

"I can hardly believe it," said Jim, "is it really 2036."

"Yes," 2036," said the caretaker. "What a change you'll notice. They'll be asking you to give your impres-

sions at one of the television stations in no time."

"So television is here at last," exclaimed Jim.

"Yes," the caretaker chuckled, "we don't have newspapers now. We see events as they happen all over the world. But I suppose the first thing you want to see is a ham shack."

"You bet," cried Jim enthusiastically; "you must have elaborate shacks now. Where's the nearest ham?"

"Oh, I'm a ham," remarked the caretaker, though Jim noticed that the way he said it did not appear to suggest much pride in his ham status. "I'm VK2XFG8K2."

"What a long call!" said Jim. "What's the idea?"

"Well, there are two million licenses in Australia now, so it's necessary."

"Holy smoke. How do you get through the QRM?"

"There isn't any QRM now. Our automatic receivers can copy through any interference."

"Well, that's a help. Now where's your shack. I'm anxious to see it."

"It's on the 251st floor of this building. We used to be a lot higher, but the missus used to get nervous at the height."

"Cripes, what a skyscraper! By the way, I notice the human race hasn't changed much. All I can see different about you is that your mouth is larger, ears are flatter, and the fingers of your right hand are stumper."

"Yes, that's the effect of a few generations of hams," replied VK2, etc. (we'll call him that for short). Big mouth from talking into mikes; flat ears, from wearing cans; stumpy fingers, from pounding brass. However, since there's been no need to do these things we're getting back to normal."

"What!" screamed Jim, "no talking into mikes, no listening, no brass pounding. How can you possibly QSO?"

"Oh, things are much easier now. Here's the shack. Come in and see for yourself."

Jim entered, prepared to see almost anything. He would not have been surprised to see twenty large relay racks end on end, tubes four feet high, and a receiver with fifty tubes. Instead, he could scarcely repress an exclamation of disappointment at the meagre amount of gear in the room. All there was, and there could be nothing hidden, was a closed box-like affair about four feet long, two feet high and two feet deep, and a panel a yard square, covered with push-buttons, each labelled.

"Everything is in the one unit now," said VK2, etc.; "it's all automatic, and controlled from this panel."

"I see," said Jim. "How different from my old rig. Now how about some technical details? Tube line-up and all that kind of thing."

"As a matter of fact, I don't know what's inside the box. It's sealed down, and can only be opened by an Amateur Station Service man, in the employ of the World Government."

"What!" howled Jim, "you didn't build it? You don't even know what's inside it?"

"No, of course I don't. You see, any form of experimenting is forbidden now. Years ago it was realised that there wasn't much left to discover, so all experimenting is now left to the Radio Development Department of the World Government. When anyone wants a ham licence he applies, pays the fee of 2/-, and the Government sends him a rig, with a pamphlet on how to work it."

Visions of hard swotting of theory, countless hours spent copying code, the A.O.P.C., 30/- fee, and the building up of his gear flew through Jim's mind. How easy it was to be a ham now. Too easy, in fact. Couldn't be so much fun in it now, he ruminated.

"When I was on the air," said Jim, "we used to get a lot of fun out of building things, having them go wrong and fixing them."

"Yes, it must have been fun," replied VK2, etc., rather enviously, "but what we've never had we'll never miss. Like to see me have a QSO?"

"Go ahead, and you might explain things to me as you go along, like a good fellow."

"Oh, there's nothing much in it. Here's how it works. As we came through the door we broke an electron beam, and that switched things on. Now, who do you want to work?"

"Cripes, is it as easy as that working anyone you want? Well, see if you can raise an EA."

"Yes, we can raise any country at any time of the day these times. Well, to raise an EA, all I do is to press this button labelled CQ, and this one EA. You'll notice that there's a button for every country, in alphabetical order. The pressing of these buttons causes an automatic CQ EA call to go out in a narrow beam straight at Spain. The box contains the antenna, by the way. The outside affairs used to get mixed up with auto. Pressing the EA button automatically points the transmitting and receiving antennas at EA."

He pressed the buttons. "The call is going out now with a thousand kilos behind it. It lasts about 15 seconds, and the transmitter automatically switches over to the receiver as it signs "K" at the end of the call. See that light that just switched on at the bottom of the panel? That means an EA station has answered. The receiver swings around the band until it finds a station calling us. Now you'll notice the light has gone out; that means he's over and we're getting back to him. By pulling the switch we give him an over."

"Very snappy," Jim remarked, flabbergasted at the ease with which everything worked. "What do you—I mean the transmitter—say to him?"

"Oh, just 'Gn om es tnx fer call—vy psd to QSO. Ur sigs hr T9 QSA5 R9 (by the way, all reports are T9 QSA5 R9 now) pse QRK? pse QSL—QRU 73 cuagn gn!'"

"Well," said Jim grimly, "I notice that rubber stamp QSO's haven't changed."

"Of course," explained VK2, etc., "by pressing this button marked 'Ragchew' we would give him a report on the weather and condx. A barometer inside the box does that. But since we were able to control the weather and make it the same everywhere it's hardly worth while. Besides, if I prolong the QSO for

Are YOU a Member of the W.I.A.? If not; Why not?

more than two minutes the other fellow may be annoyed."

"I see, just like that, eh?" Jim was beginning to feel annoyed at the easy way modern ham radio worked.

"Yes, there's nothing to get worried about now. By pulling this tray out of the box we find a slip which has printed on it all the other fellow said. Of course, it's the same as we said to him, so that in the rare case of any QRM we'll know what he said. In fact, I hardly ever bother to read it. By the way, as the transmitter signed sk at the end of the QSO, it automatically printed a QSL card, stamped it, and shot it down a chute to the mail box. The EA will get it by the high-speed plane to-morrow morning. Now, what do you think of the way we do things,

old man? Don't you wish you'd had a shack like this?"

"Not a bit of it," yelled Jim, "I wouldn't swop you for a thousand pounds. Millions of hams, practically free licenses, no technical knowledge, no building up, no operating, any DX any time; why, you're not a ham at all!"

"What!" yelled VK2, etc. "How dare you insult me? I'll teach you. Take that: and that: and that." He struck Jim on the head with his fist, in a frenzy of rage.

Jim opened his eyes. He was in his own shack, and his brother was standing beside him playfully tapping him on the head with a dud 45. "Cripes," said Jim, "I've never appreciated this station as much as I do now. Three cheers for 1936!"



QST & A.R.R.L.

One year to QST (12 issues) and membership in the American Radio Relay League, with membership diploma, all for 19/6. No waiting for the usual three months Your Magazines begin to arrive by return post upon receipt of your remittance.

RADIO—R/9

These two magazines are now combined and the result is a work no "ham" or experimenter can afford to be without. January, February and March issues all sold; we have cabled America for more. Rush 2/- and 3d postage for April issue.

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Are you Guilty?

"A few circuit details on how to make a first-class 'Lid.'"

(By "Old Hombre.")

When the thought of blasting nilly-willy into this amateur radio business first settles on the grey matter, treat it as being just a kids' hobby, with no material importance attached; it is just an alternative to keeping white mice or goldfish or something. Before any reasonable amount of technical knowledge has been acquired, slap together a few junk shop parts, with a laborious wire-to-wire following of one of those typical overseas magazine's diagrams, showing a frightful contraption dubbed "How to Make a TNT, and Talks to Hams in Timbuctoo." A license? Don't even think about that! The Radio Inspectors won't mind. The regulations are only a joke, and printed as a mere matter of form. Never mind about monitors or anything like that, and the kind of juice inflicted on the plate of that doubtful triode, picked up from a box full at a bob each, won't matter. Raw A.C. will do on the plate, and anyway—it will make some kind of a noise, won't it? Look through the call-sign lists and pick out one that sounds nice; the chap it belongs to will be quite indifferent. Or if this is not original enough, think up a rattling good "buckshee" call of your own. It will "fetch" the gang, as they will be anxious to know just who the new mysterious station is. But, of course, you won't tell 'em that, but just sign off hurriedly when asked for your QRA. Use the BCL aerial against ground (zepps and things like that attract attention), and put in several hours with the key screwed down, swishing about the band to attract attention. You will! When you start to CQ, remember that it is entirely de trop to call CQ less than at least 80 times; the call-sign need only be a badly-sent travesty, signed once, at the bitter end. Telephony? Of course. Loop modulation is so easy. Get a skinderviken mike button, or make one up with two pocket lamp carbons. Connect this to

a turn or two of thin wobbly wire, jammed right up against the tank. It will modulate—somehow, and some other similar genius is sure to report on your good quality. After a few months (or years) of this kind of thing, during which you have waded through regular changes of call-sign, you may have acquired enough knowledge to bring your light from under the bushel, and give your valued services authoritatively to the amateur world by sitting for a ticket. Whilst awaiting the result of the exam., don't lost heart, but keep on the air; you will be so popular with the gang by now, and they would hate to miss you. Having struggled somehow (God knows how) through theory and Morse, you reach the day when you are asked for thirty boh in exchange for a dinkum call-sign. But now, you have decided to put filtered supply on the old TNT, but, of course, this is only in practice, not in effect. So you get a bigger and better power tranny, a cheap 40 ma choke, and a string of small paper condensers in series. Now there is some R.F. to play with. The valve plate glows red reassuringly. That the small 1-watt grid leak gets smoking hot matters little also. An imposing zepp can now go up, with dowel stick spreaders. Oh, no, don't worry about paraffin-waxing them. Jam the aerial coupling coil up hard, so that the plate mills dip in the tank at two well-separated peaks. Pick either one. The frequency might jump about as the slack feeders swing about in the wind, but someone will be sure to hear you. Forget about telegraphy. You are now a licensed experimenter, and that means that all you are expected to do is to use telephony any time and all the time. Gramophone records? Of course. Other hams love listening to "recordings" for hours on end, and will willingly sit back and forget about their DX contests to give you

(Continued on cover 3.)

Federal and Victorian QSL Bureau

Log forms for the recent German contest may be had on application to the bureau. Reports should reach the D.A.S.D. by November 30.

3GA, late of Mernda, is now located at Curdievale, some half-mile distant from 3JA.

The Broadcasting Department of A.W.A. solicit reports from listeners on the reception of the new short-wave broadcast station VPD2, which has just been installed at Suva, Fiji. VPD2 operates on 31.45 metres from 8.30 p.m. to 10 p.m., E.S.T. Reports, which will be acknowledged, should be addressed: Station VPD2, Amalgamated Wireless Ltd., 47 York-street, Sydney.

Entrants (transmitters and listeners) in the VK-ZL 80-metre Telephony Contest, 1936, are reminded that logs must reach F.H.Q., W.I.A., Box 2127 L., Sydney, by September 23. The contest was staged during August.

Do not forget the interesting Fisk Contest, to be run during September. Rules appeared in August "Amateur Radio." All participants in last year's contest enthused over the enjoyment they derived, and this year's contest is much on the same lines. An added interest is the bonus for interstate contests on 56 MC, and the fact that, should either VK3 or VK4 win, they retain the Fisk shield for all time.

Cards are on hand at this bureau for the following VK3 stations. Prompt despatch is assured on receipt of the usual stamped envelope:—3AD, AP, BF, BS, BL, BX, CA, CK, CM, CW, DG, DQ, DS, DZ, EO, ES, ET, EZ, FM, FN, FQ, FZ, GJ, GM, GT, HB, HE, HO, HY, IL, IT, JK, JZ, JW, KG, KI, KM, KV, LG, LS, LX, LY, MX, NR, OI, OX, PA, PG, PH, PS, QO, QP, QX, RM, RQ, RW, SB, SP,

TE, TW, TZ, UF, UJ, VL, WD, WE, XB, XU, XK, YF, YL, ZB, ZL, ZC, ZO, ZW, Freeman, Dinan, Hampton, Sebire, Nye.

Spring cleaning is in the air, and all unclaimed cards will not see Christmas, 1936.

FIVE-METRE TRANSMISSION.

The following schedules will be kept by ZL3GD or ZL3XB on five metres:—

The transmissions will be from Mayfield, New Zealand, and will consist of a wave modulated at about 250 cycles per second, of the form "VVVVVVV de ZL3GD (or ZL3XB), repeated throughout the transmissions.

The antenna, which is very directional, will be placed in a large number of directions during each transmission, and the directions will also be transmitted.

Overseas amateurs and listeners are asked to listen throughout the transmissions on 60 megacycles, and to report any reception to Amateur Radio, ZL3GD, Mayfield, New Zealand. Even if not received, ZL3GD will be pleased to hear from anyone who listens during these schedules.

The times are as follow:—0000-0200; 0600-0800, and 1000-1200 GMT on September 5 and 19 and October 3, 17 and 31.

In addition to the above schedules, instantaneous spark transmissions will be directed towards the moon on September 2, at about 1200 GMT, in an attempt to demonstrate the possibility of reflections being obtained from its surface. Such waves would not, however be receivable on an ordinary receiver, but it is hoped to be able to receive these lunar reflections in New Zealand on a special receiver now under construction.

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Accurate grinding to .03 per cent. 3.5 M.C., 20/-; 7 M.C., 30/-
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Divisional Notes

N.S.W. Division

W. G. Ryan, Secretary, VK2TI, Box 1734JJ, 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, Carlton.

ZONE 4 (Hunter River and Coalfields)—

S. Grimmitt, VK2ZW, 161 Tudor Street, Hamilton.

ZONE 5 (South Coast and South-West)—

Messrs. F. M. Goyen and R. H. W. Power, late President and Secretary respectively of the New South Wales Division, were created life members of the W.I.A., as a gesture to show how much they were appreciated when working for the Institute.

The senior radio inspector, Mr. W. T. S. Crawford, presented all the prizes won at the exhibition at the July meeting.

The latest addition to the Council in New South Wales is Mr. John Moyle, who is well known as a radio journalist and an enthusiastic amateur.

The new regulations seem generally well received in New South Wales, but at the time of writing no meeting of the Institute has been held since the issuing of the amendments, so general discussion should be fierce at next meeting.

The rise in subscriptions in New South Wales has not had an adverse affect on members, for at the moment the membership is higher than for the corresponding period last year.

WHO IS THE BEST ALL-ROUND AMATEUR OPERATOR IN N.S.W.?

The above will be the subject of a competition for the W. T. S. Crawford trophy. The trophy has been presented by Mr. W. T. S. Crawford, senior radio inspector in New South Wales, to the Institute for competition amongst all amateurs in New South Wales, to decide who is the best all-round operator.

While all the arrangements have not been finalised, the following is a brief outline of the intended competition:—

OPERATING TEST.

Five-minute test at 20 words per minute, including two messages as per P.M.G.'s Handbook, two minutes duration; press for three minutes.

Candidates must hold current experimental licenses. No professional telegraphists eligible. These would include present and ex-P.O. and Railway telegraphists, R.N., R.A.N., Cable, Ship Shore Station, Police, etc., operators.

In receiving, correctness, legibility and setting out to be aimed at.

In transmitting, formation, spacing and freedom from breaks would count.

A separate test will also be held to decide who is the fastest amateur operator in New South Wales.

The W.I.A. will be circularising all amateurs on the above and other matters.

ZONE NO. 3 NOTES.

The 80 MX VK-2L fone contest creating a lot of interest, as all the fone boys getting their gear perking in anticipation.

Conditions here not so good for D.A.S.D. contest. Too much VK and W QRM on 20 MX.

VK2ABD still continues to ragchew with W6BKY and other W's on 20 MX fone.

VK6HT puts in a solid 40 MX fone slg. and is very popular.

VK2CJ takes his TX. Ant. off to work 2NY duplex, and avoid B.C.L. qrm. Hi!

VK2AO has new rig. 53—2A5-210 is the line up—and has T9 slg.

VK2GM has again changed gra. Now at Wallsend.

VK2ZM bemoans the fact that he doesn't get time to have a qso.

Not much this time, so 73 to all from 2NY.

ZONE No. 4 NOTES.

The Maitland gang at present are not very active. Most of the chaps

have gone or are going commercial, and are cleaning up their first-class commercial tickets.

A field day is being arranged in the coalfields district under the guidance of NARE, and with the help of Mr. Dixon, of Maitland, and it is hoped that interest in "Ham" work will be revived by this means.

Another new "Ham" has made his bow to the world in general, in the person of Mr. Davies (VK2BZ). He had trouble with his first rig, a 5) Trilete pushing a 45, so dished the 59 and now gives the 45 a man's size job to do with 800 volts on the plate T.N.T. The result is 6 Yanks on his first two nights. This lad bids fair to be a top notcher, and we wish him luck.

2TY.—Bob hest calls and works his share of DX, and has plans of showing the BEL'S some entertainment on 200.

2CS (one Swain of old-time fame) is completing a new 200 MX rig, which promises to show points to the commercials. He "B" Class modulates a 210, and the quality is reputed to be very good.

Geoff. Young (2FN), who has moved to Orange, sent post haste for his gear the other day, so we expect to hear him on soon.

The new regulations have received general approval here, and offer a means of removing a good deal of friction which has existed lately owing to indiscriminate use of international band for musical programmes. All "Hams" in Zone 4 are requested to write 2ZW, who is anxious to have up-to-date news of their doings.

ZONE NO. 5 NOTES.

(By VK2IG.)

Things quiet on all hands at present except for the D.A.S.D. test. On 20 X quite a few Europeans heard especially during the afternoons, but fairly hard to raise.

OJ has new rig going nicely on all bands and fb fone. R-6 or so in G.

QO now building up his new rig and looks like 3LO. Hi! Frame will stand a strain of about ten tons.

QE on 20 during afternoons. Good Europeans, but reports not so hot yet.

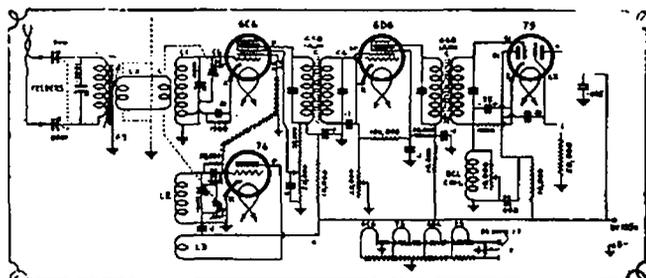
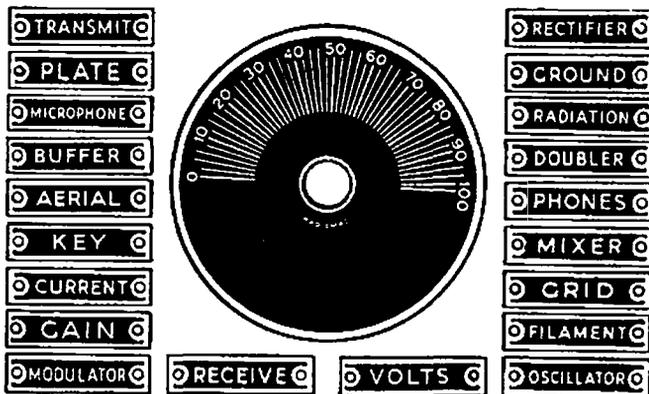
EU.—Don't hear much of him lately, but fone not bad; poor percentage

For all AMATEUR GEAR

Transmitter Name Plates
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Complete Kit of Parts including Valves & Power Pack £12/7/6

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modulation, though.

YW often heard on fone; very fb usually. Trying new mike, but appears to have echo effect.

VK.—Very grl service work and not on much. Very disgusted, as can't get W.A.C. on half a watt!

I.G. not on a great deal as rig gg haywire. Qso'd D4ARR about three weeks ago (before test, when he was gsa SR7-8). FB indeed.

Time scarce here just now, so till next month 73, O.M's. —IG.

NEWCASTLE NOTES.

(By 2RF.)

HAMFEST ARRANGED.

The club has decided to repeat the hamfest held last year, when 80 were present, on the 26th and 27th September next. As those present last year were unanimously of the opinion that it was one of the best week-ends they had known, the Newcastle lads have jammed their thinking caps on hard to provide an even better show this year. More details a little later.

A debate recently held between ZW, for metal tubes, and RF, against, was awarded to the latter, and some interesting points were revealed.

Code and theory classes are held every Thursday night for the benefit of associate members, and attendances show a great interest in the "ham" game in this district.

THE NORTH SUBURBAN RADIO CLUB, CHATSWOOD.

Owing to the natural growth, the above club has found it advisable to shift its QRA to larger quarters, and now houses a fine club room on the top floor of K. W. Guest's building, on the corner of Brown-street and Pacific Highway, Chatswood. Only after the club's membership has reached 200 will it be necessary to again look for more quarters. "Hams" are especially catered for, and there are still quite a number on the North Shore who have still not joined up. So what about it? For full particulars apply to the Hon Secretary (VK2VG) or the President (VK2BJ), or, better still, attend one of the meetings at the new H.Q. mentioned above, on any Tuesday night from 8 p.m. and onwards, where visitors will be greatly welcomed. For guidance to the stranger, the club's location is situated on the corner of the first street past Victoria-avenue,

Chatswood, along the Pacific Highway, on the left in the northerly direction, and only three minutes' walk from Chatswood railway station.

The admissions of 2CS on the BC baud are now well established, and several other locals will probably be heard there soon.

The transmission of 2CS on the BC tronic Communication DX Cup, with MT in second place and UF third. The cup was competed for on a point score basis over the past three months.

Interest at present centres in the coming hamfest to be held by this club on 26th and 27th September. A special committee is hard at work arranging details, in order to live up to the reputation gained last year. An fb week-end is promised to all who attend. Good support is being received from the trade in the way of prize donations.

A special contest for receiving members is being held in conjunction with the half-yearly contest for the DX Cup, and should test the ability of the associate members.

ZW is nearing the end of his long rebuilding job, and soon hopes to have the exciter unit, consisting of 6P6's, on the air.

BZ is on 40 and 20, consistently rag-chewing and DX.

LAKEMBA RADIO CLUB VK2LR...

(Affiliated with the W.I.A.)

(By 2DL.)

Since moving to larger premises situated at the Sunrise Hall, near Canterbury railway station, the attendance at general meetings of the club has shown a marked increase. In order to celebrate the moving to new rooms, coffee, cakes and sandwiches were served at the meeting of 4th August.

This month we will have a little "scandal" by way of variety. 2KS, 2WB and 2TQ are very seldom heard on the air these sunny Sundays. The reason may be briefly summarised—hiking, National Park, YL's. 2OW celebrated his 21st birthday recently. A surprise party was arranged, at which many of the local boys attended. The younger "Hams" spent most of the time talking radio and telling funny stories, while the older ones, such as 2IC and 2LW, played poker and bridge! 2MH is having trouble in eliminating QRM from local BC

crystal sets. Shipboard romance leads to engagement! Bill Picknell's wedding comes off at the end of October. Best wishes, Bill. Very little is heard of 2FD since the addition of a further junior op. 2EH is working quite a lot on 5 MX; says he dreams 5 MX, DX, and wakes up with the hiss of super-regenerative receivers reverberating in his ear drums. 2OD and Les. Taylor, between arranging amplifiers for parties, dramatic societies, etc., spend much time experimenting on 5 MX equipment.

A club contest will be conducted while the D.A.S.D. contest is being run, the prize being a silver cup, which was generously donated by Mr. E. Waddle (VK2UU), of Nimbin, N.S.W. Enquiries relative to club the Hon. Secretary, Mr. G. Brown, 308 Canterbury-road, Hurlstone Terminus. matters will receive the attention of 14 MC still remains the best DX

DX RESUME FOR N.S.W. DURING JUNE, JULY, AUGUST

(By L. Meyers—VK2KS).

band, and plenty of real DX is coming through. Conditions appear to be changing, and our American friends are not so solid as they were a few months back. Quite a number of VK's are taking advantage of the favourable conditions and running up a nice pile of DX fone contacts.

Early morn DX is coming through nicely on 14 MC, but most European stations appear to operate on the high frequency end of the band. Few VK's are heard on of a morning—perhaps skip accounts for that—and it is quite a pleasure to work some real DX without the usual VK qrm. South Americans come through some mornings at S5 to 6. Have heard PY, LU, CE, CX and CM at various times, but they didn't stay long, generally between 7.45 a.m. and 8.30 a.m. This morning I heard LU5RG at S5 and CM2LO at S4. Also heard all continents between 7.30 a.m. and 8 a.m. SUICH was coming through nicely S7; he has a nice fist of the bug. He also comes through during the afternoon on fone about 2 to 3 p.m. and puts in a fine signal. Another African (FB8AB) was coming through at 10 p.m. the other night S6, but I never heard him qso any VK's, though plenty called him. A surprise last Sunday was U9MF on about 14,380 KC at midday; he was a

solid S7. HAF8C, HAF2C and HAF3D are consistent on 14 MC, the latter being on H.F. end of band.

Europeans come through early afternoon, but are dropping off. SPICM comes through around 2 p.m.; also D4TKP, who has a fine crystal sig. G2BY is anxious to qso VK stations on fone. He uses a WE4212D in single choke Heising, and has a nice fone sig. The Japs. are improving in strength, and are getting back to the strength they were about Christmas time.

American fones are dropping off, though some of the highest-power West Coast stations still romp through around the R9 mark. W6ITH appears to be the best, and his 2KW certainly makes a hole in the band. Old W6GRL was putting through nice R8 fone today. FK8AA is consistent. Every Sunday morning, 8 a.m., he is on SE in the centre of the band with RAC S8 sigs. He is also on 7 MC with three-stage crystal. D3CFH and D3DLC are located in Germany, and D3CFH is usually heard on about 14,350 KC with a RAC S6-8 sig. Two more countries which seldom come through—one represented by ES2D and LY1J—have been coming through about 7 a.m. LY1J has a freq. on both ends of the band, while ES2D is found about 14320 KC. VR2FF, who is seldom heard nowadays, was coming through to-day at S7.

7 MC seems to be improving lately, and the Yanks are beginning to come through better; also quite a number of XU's are heard on during the night-time about 9 p.m.

Early morning DX is patchy, and some mornings there is not a sig. on the band. Usually there are a few Japs and PK's coming through.

JULY AND AUGUST.

Generally DX conditions have been changing during the past months. 7 MC has been improving, whilst the Europeans on 14 MC have been coming through extremely well during the mornings. On 14 MC the afternoon DX has been dropping off, both European and American stations being weaker. The best W fones appear to be W6ITH, W6BKY, W6AM and W6LLQ. XE2AH puts in a fine fone sig.; he is often R9 to MAX. After 7 p.m. there is not much doing, though around 9 p.m. a few East

Coast W's come through nicely. Occasionally KAIME and KAIK are heard on fone, and they come through very nicely. Europeans are very scarce during the afternoon, but from about 7 a.m. till 10 a.m. they just roll in. European fones are coming through. The best heard were G5ML, R7 to 8, and G6RL, R7.

Also heard others, but I could not understand their lingo. Hi! At about 9 a.m. South Americans came through nicely. This morn PY2QD and PY2MO were a good R8. I was quite surprised. Have not been able to hear any Africans except EA8AO, about a week ago, at 7 a.m. Conditions of a morning seem ideal for DX work. For three mornings I could not hear any VK sigs. except VK2AS, about three miles away, but I could hear the DX calling VX stations. It is certainly fh with no grm. On T Mc conditions have been improving steadily, and the W's are coming through during the evenings quite solid. After 11 p.m. the Japs. often reach R8, with a good sprinkling of XU's. The best XU's are XU8HW, XU8RR and XU8UM. XU8RR has a habit of signing as VU8RR. Early morning DX, though, is not so good, being very patchy, and the Europeans do not compare with 14 MC. On MC there is quite a bit of unusual DX around. CP3ANE is poking through at R5 quite consistently. OZ2B, on 14,002 KC, is on nearly every morning at 7.30 a.m. YM4AA occasionally, LU8EN at R5 to 6, lots of G's, PAO's, etc. The D's are getting as common as G's these days; perhaps they are getting ready for their DX contest. Heard from FTJDY the other day an interesting piece of news. I have often wondered why there were two prefixes for Noumea—FT and FK8. There are only two "hams" in Noumea—FK8AA and FTJDY. It appears that FK8AA, who used to be FTTCGV, had to torment the French authorities to get his call, so while he was waiting he used FTTCGV. He waited about five years and he got FK8AA. About 12 months ago FTJDY wanted to get his license, so he wrote to France, and he is expecting his call back soon—about five years' time—so in the meantime he is using one of his own — FTJDY — FY because FK8AA used it; J and D are his initials, and T his YL's initial! They don't have to sit for any examination

either. Guess all the Joeys will be moving to Noumea. Hi!

I would appreciate it very much if any "ham" would shoot along any DX news he may gather or any DX news he has heard or worked and I'll put it in the notes. Well, guess that's about the lot at the moment, so cheerio and DX till next month.

NORTH SHORE ZONE.

2ACJ will be shortly going QRO with a 10 in the final. 2ACL is consistent on 80, with push-pull crystal oscillator. 2BJ had trouble with speech amplifier, but has now pulled out most of the bugs. 2DR had downward mod., with transformer coupling. Go back to choke, Don! 2FV's antenna came down, further delaying his comeback. 2HA is rebuilding with rack and panel, and will use 59, 6P6 and 210. 2HL has completed his new rig, but wants to make 5 MX his rendezvous for the next few months. 2HY has trouble with BCL QRM; the higher the frequency the worse the QRM. 2HZ is rebuilding with rack and panel, which will house 6A6, 6A6, 6P6/6P6, 830B. His temporary rig at present is 47-210 on 80, with grid bias mod. 2IP has trouble with joeys, which spoil his QRI. 2LD is now on top of the 40 band with clickless keying, due to the effective keying filter. 2LZ was busy with the German contest, working plenty of D's on 20. 2NN finds his way down to 20 through various channels other than the correct ones (long grid returns, etc.). 2PV still manages a QSO on 40 amongst the din. 2SS will now go on crystal, since his S.E. has run away from him. 2SV is quiet in Roseville. 2VE is QRL work. 2VI keeps Chatswood going on 40. 2VL is also QRL. 2VN considers a 60-foot stick as an advantage. 2VP shifted his QRA, but cannot come on now, as there is no place for an antenna. Harder problems have been solved, George! 2VQ is making a good score in the German contest; he prefers the single-wire matched impedance to the doublet at the moment. 2XC is heard once in a while. 2YA has become engaged. An auction sale will take place as usual. 2YC still complains about QSL card recipients. It soon won't be fashionable to QSL Jim, so you can expect a slack time shortly.

Victorian Division

VICTORIAN KEY SECTION NOTES.

(R. Were. VK3DP.)

At the August meeting the attendance was much larger than usual. Several members had questions to put before the meeting on troubles and worries in their rigs. Mr. Cunningham's problem in particular caused some very interesting rag-chewing. 3XZ, after scribbling all over the blackboard, finally solved the problem. It was very interesting indeed, and proved that most hams do not know how electrical instruments operate. 3BQ's problem was left over till the September meeting, as the members were too exhausted.

On the 6th September the Oofs (U.H.F. Section) are staging a 56M/c Field Day, and have been challenged by this Section. Both Sections have some very keen fellers amongst them, so it should be a very interesting day.

The amount of QRM prevalent during the last couple of week-ends shows that the D.A.S.D. Test is being well supported by the VK lads. Condx on 7M/c are not so hot, so 14M/c is getting most of the work. The ZL's seem to be working the D's and Europe, ans like a man with no arms.

The VK-ZL contest aroused a great deal of interest, although it was unfortunate that at the beginning conditions were not at all good, heavy qrm spoiling the enjoyment of the contestants.

Now for some doings:—

3CE.—Roy is not doing much at the moment, mostly on Sunday sheds. Built a new RX, and had a lot of trouble getting it to perk.

3WN.—Jack reckons that everyone picked his xtal freq., hi! He's got 'em beat, anyway, 'cause he has a SE osc. as well.

3HN.—Mac has moved into a new shack and is on Cw, as he has not been able to get fone going yet.

3HR.—Busily engaged building an A.C. rig, consisting of 2 2A5's osc. and a 6P6 as suppressor grid modulated PA input?

3NN.—"Herb" is putting a very nice sig. out now, es is contemplating building another xmitter, having one

for 3.5 mc and the other for 7 and 14 mc. F.B., Herb.

3LH.—Back in Merbein, putting out a hefty carrier, wid very poor modulation.

3EP.—Ted has changed his 47 OO for a 46, es says it beats the 47. Gave the ZL contest a go.

3AI still more or less inactive.

3CH and 3PY haven't been heard of since (as 3WE would put it) "Adam was a pup." Hi!

3ZK has a new name, "Stripey Jimmie," hi! Busted his xtal, and went SE for contest. Very Q?L. Jimmie's proverbs.

"Something's bound to happen."

"We'll try anything once."

"You're telling me."

3HX also very Q?L, and is playing round with power trannys, etc.

There will be one or two new hams on the air up this way soon. Roth Jones, of Bendigo, Jock Speer, of Corop; George Downing, of Stanhope, sat; but don't know if he passed. Tom Speer sat but failed, but you cannot keep a good man down, so he's having another go.

7YL created a sensation on the 80mx band one night, when she called CQ. Half the 80mx boys called her, but the lucky man 7JB. Do it again, Joy, so as we can sit back and listen to the boys calling. HI, hi!

These notes appear to be rather lengthy, and we hope the Editor is in a good mood, so 73's gang.

NOTES FROM U.H.F. SECTION MEETING AUGUST 18, 1936.

(By VK3DH.)

The meeting of this section took place at the usual W.I.A. address on Tuesday, August 18.

Present were:—TH (chairman), QR, KQ, VHD, Junr., OT, XM, UR, CR, LK, DH, and Messrs. G. Davies, D. Ayres and C. Harvey.

XM and OT paid us the honour of a visit and were suitably introduced by KQ, then suitably welcomed by all present. We would like to see you some more, O.M's.!

The subject of "Superregenerative Receiver Interference" was brought up by KQ, and a few suggestions were put forth. An explanation of the trouble may be a help here. At the present time the position is such that very frequently communication between two

Box Hill. Ray's ant. down for third time this year.

3Rx shifted QRA again. Trying to beat the landlord. He has no time for radio, as he is rushing a new YL. Nice work, om, if you can get enough of it.

3BQ still hoping to build new xmitter.

3NY too busy chasing unfinancial members to get on the air. The W.I.A. is your Institute. Do your bit by paying your sub. and let NY get on the air.

3XZ scrapped zepp feeders for Radio all-band single-wire feed ant.

3UK building two new transmitters. First working on 80 and 40, second on 20 and 10. Tube line up for each. 53—TBO4/10—5OT. Change to any band by flicking one switch.

3CX has new 40ft. pole—may work some DX soon. CC tritet will be heard soon on 14 and 28M/c. Tube line up. 59—801—242A. Has very crook note at present!

3OC, the recently married one, has been trying to stop RF from lighting up the neighbour's bedroom. Has a new ant. on his mind, and says the house looks like a set-up for the man on the flying trapeze.

3DP won two RF chokes in the last contest, and found that someone had swiped 'em.

3YP works 3CX on 10 and 20.

3KE gets on the air when not trying to find new QRA (?) of financial members, so they will get their "AMATEUR RADIO."

3DF-3TU built new xmitter 59 regen. tritet, 802, 45's push-pull, but can't get 802 to double to ten with the drive from the 59 quadrupling.

South Australian Division

(By VK5KL.)

General meeting, July 15th, was nearly an all-night sitting, due to the lengthy discussion on the new regulations which have been received. A delegate has been sent to the RI to get a clean-up on some points not quite clear. When at last Mr. Buckerfield held the floor, he rose to the very high standard of all of his lectures, and explained very plainly "Methods of Applying Regeneration to Amateur Receivers." The DX contest is well in hand, and should be a success befitting for such as South Australia's Centenary.

HAM SCANDAL.

5HR was QSO, Bill, es he tells me he was gng to dance to see his 2nd op. (a male); oh yeah, tell us another one, do! Bill's genemotor and small rig sure gets out. was QSO 3ZK one nite on 80 mx, es I believe Jimmy has been osculating sum of the YLS in Swan Hill. Take care, now.

Took a visit to 5LJ's wid 5HD; just arrived when 5PN came along (making out he was reading the A.C. supply meters. Quite a hamfest. What! 5KO has a 16-tube super Hammond-Pro. or sum Yankee job. No wonder he can hear sum dx on ten. 5HW from his home in the hills still works dx; never hear you here, Harry (you old fox).

5HM is a new chappie to swell the qrm at Cowandilla. No wonder 5MK's looking downhearted; his RKZO is just a wee bit flat, Jock, es then 5BM comes on with his spark days QRI wid abt 2 amps. in the sky, just to QSO 5BC, who is about 3 miles away. Hi! 5CR is using 59-electron coupled osc, but wud swear it was xtal, F.B. Charlie. 5FM's rig luks nice now wid a meter in every stage, doing well in DJDC test, too. 5MZ has forsaken VK5 for VK2, where he will study for commercial ticket. Gud luck, Jack, es take care of urself 5JC also in Sydney.

5WK is using 9-tube super xtal filter; shudn't get any QRM now, Nobby. O.B.

5OJ.—Here's a new chappie to QSO. QRA, 5 Dudley Avenue, Prospect.

5LD still persevering wid Telefunken modulation. 5ZY is on 5 metres.

5RD promises to have a xtal rig going on this bnd soon. F.B., Don.

5ZX busy rebuilding.

5ZL hasn't been on much yet, having trouble wid power supply.

5KG.—Get on nw agn, when qrm from local motor body firm is off. Have had the pleasure of testing out a 6P6 as tritet osc. es works very F.B.; also am trying a new tritet circuit, which saves us xtal; gess this will be all the rage sn.

"Hams, broadly speaking, are divisible into three classes: the key men, fone hounds, and gramo. grinders."—Item extracted from pertinent remarks of one peeved OT at a recent VK4 meeting of hams.

Tasmanian Division

(By VK7JB.)

The August meeting was held on the 4th inst. at the club rooms. Owing to the cold and wet weather, the attendance was poor, which was rather disappointing in view of the very interesting lecture delivered by Mr. G. Larsen on "Heising Modulation." All present appreciated the lecture, and should benefit from same. The Council are at present faced with the problem of nominating six members for the Vigilance Committee to keep an eye on the naughty boys. The applications at present are conspicuous by their absence. Only four applicants up to date seems like the old "guilty conscience" is showing up.

Two more members have obtained their A.O.P.C. in the July sitting, namely, Messrs. T. Allen and D. Hildyard, the former being the Junior op. and brother of 7PA. Wish you luck, boys. More QRM. Hi!

MEMBERS' SCANDAL

Our lady op. first (apologies, Keith) 7YL struck trouble with xtal oscillator, and after nearly ruining a perfectly good xtal in a 53 exciter, has changed to a 2A5 pentode oscillator, working quite a few VK3's, 5's and 7's on fone. A bug is being installed for C.W., so look out for strange noises, and don't be alarmed if you hear some new VK7 calls, boys. Hi!

7CT doing well on QRP self-excited rig, even if it is only rebuilding every now and again.

Make up your mind, Terry ob, I want a qso hi. Understand you are going to put xtal control on 7BJ's mo 'bike om. 7CL on fone es c.w. Mostly former hi. Making room for an 800 and a pair of 866 rectifiers, so gess the dx contest in Oct. will be well represented in VIH. Who is the Y.L. op. Merv.?

7KV.—Adding extra doubler for 5mx, so as there will be no argument as to off freq. location. Reckon it's that extra 500 points in the Flak contest, Keith.

7PA regularly heard on the 200 mx band on Sundays. Not so active on S.W. lately, QRL grinding xtals and installing 800's. Wow!

7JH working W's and VE's on 20 mx with three stage E.C. rig. Changing to xtal again shortly.

7LJ heard on 40mx fone recently. F.B as usual.

At long last the "Queen Mary" is afloat. Our sec., "Chum" Moorhouse, informs me that his 7-tube super has at last condescended to behave like a lady, hi!

7JB still busy, getting ready for Fisk and October DX contest. Sa, boys, we want to pull the Fisk trophy off this year, what sa?

Cards are still coming for 7BB, our mystery station. Same can be had by application of "licensee."

7CK heard and QSO'd recently on 40MX. Glad to hear you back again, Poley om. Using water-driven generator for power, and every time the cow goes for a drink the power drops .5 of a watt, hi!

7RC on 40mx fone, using RK20 in three-stage xtal rig, with suppressor grid modulation. Takes a great delight in talking 7XL down.

7XL heard for last time last Sunday a.m. Going to VK3, I believe. Sorry to lose you for Fisk Contest, George.

7AM.—No news. What's in the wind, Les, 852's?

7RK.—Putting a nice hefty TG sig. down here. What about some fone, Ray om? 7YL wants a QSO, hi!

7AB.—On 80mx fone. Can't understand how you boys get away with fone on 80mx. Guess the BCL's are more amiable up there.

7LZ.—DX quiet, judging by the last batch of cards, Col. Condx punk here also.

I understand the northern gang are contemplating a club room for social activities, fb. We will come up es see you sometime.

7BQ heard on 40mx cw. Hope to QSO soon, Len om. Haven't had the pleasure as yet.

Well, that's about the lot for this month, boys. In conclusion, I may state that I hope to have notes concerning 7WI for next month. The transmitter is at present being rebuilt by Mr. T. Hopkins (3 stage xtal). Sec. "Chum" Moorhouse threatens to disturb plenty of ether with it. So until next month, 73's.

are, having no mushy background of cars, dairies, refrigerators, etc., to work through.

3B4 has not finished rebuilding his transmitter yet.

3B6 is hard at work on a new receiver. From a reliable authority, we hear it is a beauty, too.

3C1 mixing his golf with radio. At present golf seems to have the upper hand. We had the pleasure of a yarn to him on his recent week in Melbourne.

3C4 has quite settled down in his new home now. He is rebuilding his transmitter. The 53 C.O. and also the P.A. are finished, but he is having a little difficulty with his buffer.

3C5 is also rebuilding. He has invested in one of the new 804's.

3D3 is "harnessing the winds of heaven," and has his propeller hitched to a husky generator.

3D6 is making a grand job of S/L VMC4. VMC1 will have to look out or their position as crack section will be threatened.

3D4 is back again, having finally got settled into his new shack. His return will help to strengthen VMC4 forces.

3F9 has had the bad luck to have another bout of 'flu. 3Z1 put out the B/C from 3F9 when up there recently. It was a refreshing change to be able to copy all VMC signals without having to "fight through" the mush of local QRM.

They say troubles come in threes. 3Z1 disputes this, and here is the reason why. In one week he had two punctures, one smash and one very

near go when the steering jammed. In the previous week he was stopped by the police patrol for driving without a decent tail light. (It was O.K. when 3Z2 and 3Z1 left the K.P. meeting. Hi!) For thrills, why, take up Radio?

4th DISTRICT NOTES.

Fairly good use of the 3.5 MC band of frequencies has been made in VMD, but with the approach of summer and static those in the north will rely on 7 MC frequencies for communication with the remainder of their section. In some localities 3.5 MC is renowned for its bad type of line noises and mush, which at times hinders good contact. We are looking forward to further frequencies being allocated in the 7 MC band to provide more suitable channels of communication during the summer.

4B1 can occasionally contact 4Z1 direct, but most times 4B1 is worked through 4A5, who contacts both stations with ease. A channel exists between north-west and Melbourne via 4B1, 5A2 and 1A1. This is an important link, and could be made good use of when occasion demands.

4Z2 and 4B5 have private watches handling test traffic and general procedure discussions; likewise 4A5 and 4A2. 4A6 has returned to the active list and is using 59, 45 and P.P. 2105 to advantage. 4A4 is off for the moment busy with work. 4B3, we learn, has just gained an "A" Class Pilot's License, and we wish to congratulate him. A new reservist is VK4AM, of Rockhampton, a coastal town in the north.

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(Continued from page 14)

tion method doesn't do for a pickup, so you put in some form of grid modulation and a stage or so of gain. Now you are able to show the broadcasting stations just how they should behave. Camping on 40, with excursions to 20 (always when the DX peaks are best), you run long sessions, not forgetting the studio chimes, and calls to admiring SWL's here, there and everywhere. When making announcements, it shows the hall-mark of good breeding to have a noise background, at a high level, of chattering flappers, who come at intervals to the mike and yell endearing terms to boy friends surrounding the other guy's shack. The boy friends, too, they don't know a thing about ham radio, and like to be paid the honour of being invited to "broadcast." A nice noisy broadcast receiver in the next room, with the door wide open, adds to the general atmosphere. Don't forget to emulate the wise guys. Show that you are a knowing fellow, and secretly are an old hand at this radio game, by passing frequently such remarks as "That's the dope on that," "It's yours, son, take it away." Never use plain English when changing over to receiver, but use the clever staccato "Kay OM." And remember, that the acme of good phone operation is always typified by a continual interpolation of the words "High, high!" It is so commonplace to just laugh naturally about anything. If the time should come, as it will, in answer to a lengthy phone CQ, somebody answers you snappily on the key, just ignore him. This guy doesn't know enough about the game to be using anything so retrograde as Morse communication in these days. If he should have you more or less cornered (there is nobody else on the band, and you couldn't possibly miss him), go back with a plain admission. That station calling me on the key. Sorry I can't read you. Forgotten that stuff long ago." So many do it, and it makes quite an impression. I could go on for hours, but by now you will be immensely popular with the gang, and won't need any further instruction. The rest can safely be left to the Department—and the new Vigilance Committees!

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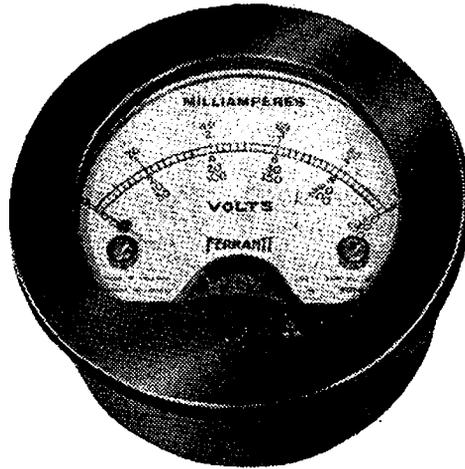
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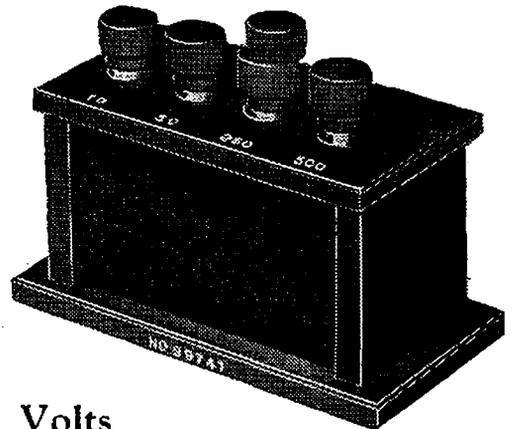
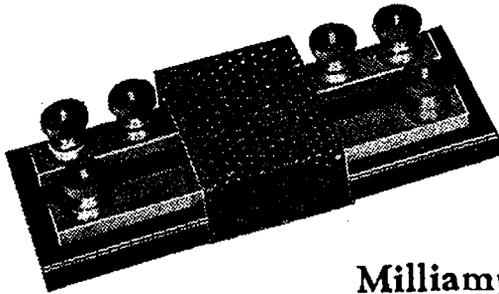
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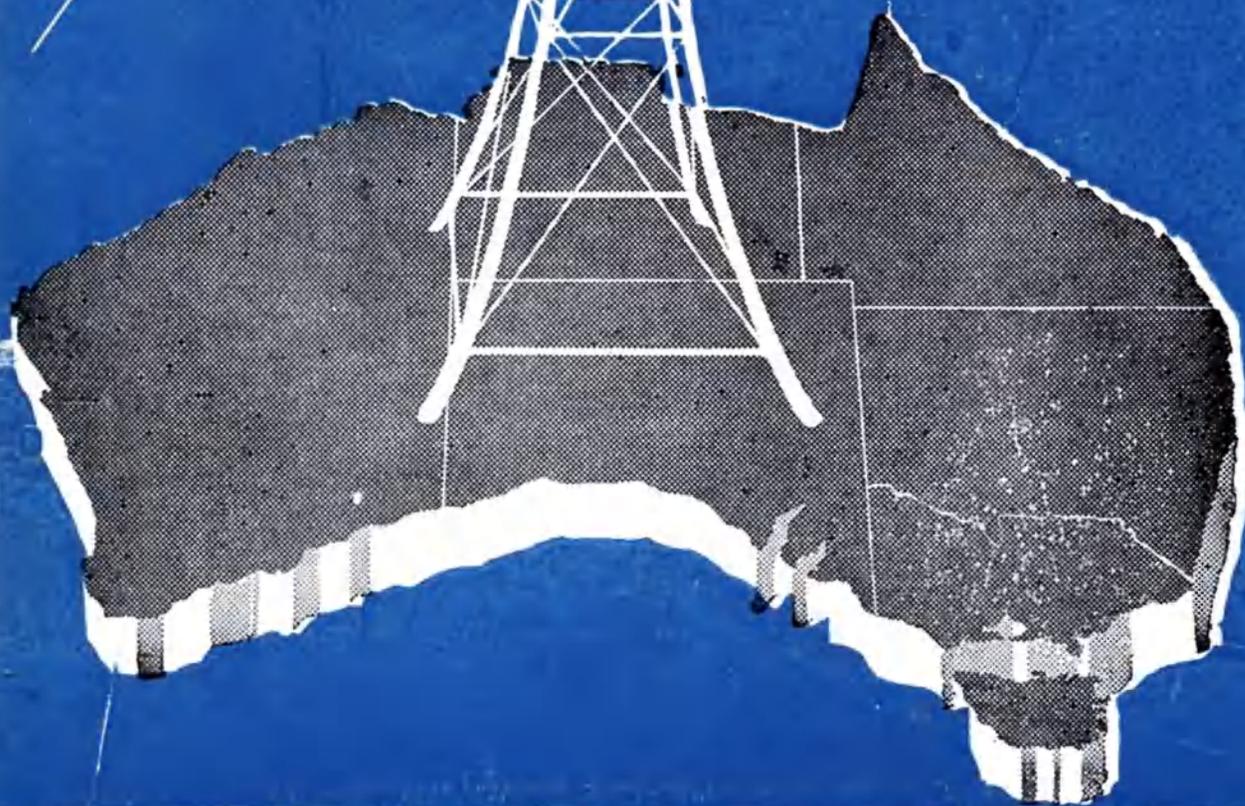
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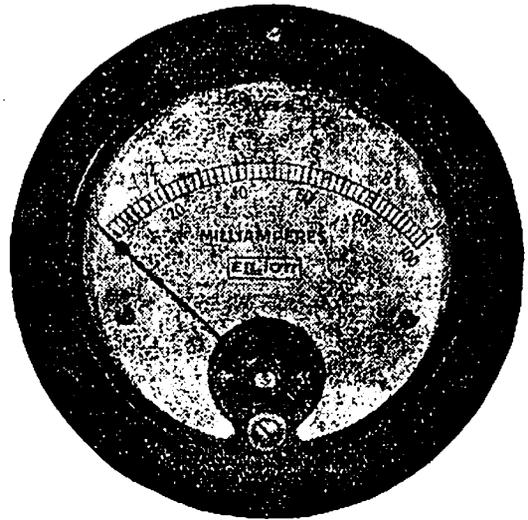
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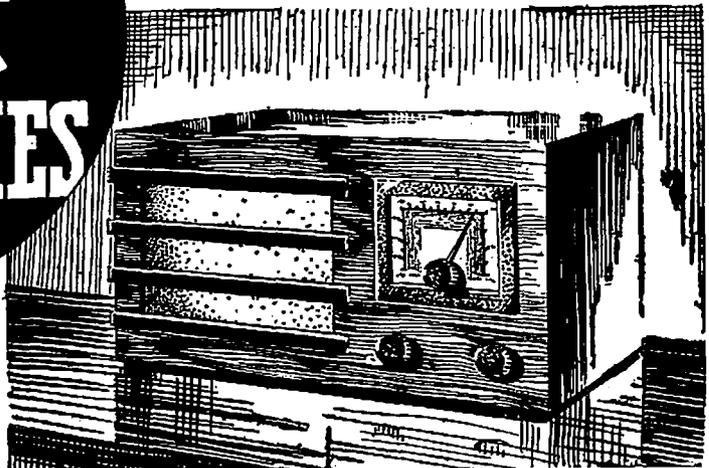
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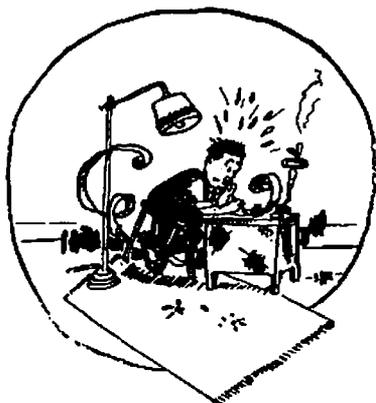
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Editorial



A problem that is receiving the mature consideration of National Amateur Bodies throughout the world, is that of the subdivision of the 7MC Amateur band into channels which would be of greatest value to the Experimenter.

The proposal was originated by a member of the Society of the I.A.R.U., and presented in the December, 1935, Calendar and is briefly as follows. The proposal concerns the ever growing problem of international QRM on the 7MC band. This interference is bad enough when it results from the conflict of Code Stations, but when the problem includes also Telephony Stations complications are more pronounced.

The position is most serious in Europe where many nations allow their Amateur Stations to wander haphazardly around the Amateur bands.

The actual subdivision was as follows: 7000 to 7200 KC all communication within a given continent, 7200 to 7250 KC for stations other than in Europe and North America desiring contacts with the mentioned continents. 7250 to 7300 KC for Europeans desiring to contact stations of other continents.

At that stage in Australia, proposals of the variation of the regulations to more or less cover the trouble was being fostered so it seemed superfluous to comment. However, in a more recent calendar of the Union the reactions of some 16 National Amateur Radio Bodies were published, and by far the majority of these are in favour of some subdivision either by agreement, or by variation of the International Regulations, at the forthcoming Cairo Conference. To sum the reactions recommendation would read as follows:

1. Either a subdivision as proposed, or the abolition of 7MC Telephony.
2. Insist on Frequency Stability.
3. Make greater use of the 7200-7300 KC band.

Happily we in Australia do not have to put up with the atrocious signals that often originate from Europe, but if this proposal is made and the amendment to the regulations adopted, then we will have to fall in line, when we have to a degree cured our troubles by the recent variations to the regulations.

The problem does not only centre on the greater number of stations coming on the air each year, but changes to supposed mediums that effect skip distance and conditions.

A few years ago on the 7MC band one was reasonably sure of having distance contacts at night, without the bedlam created by Interstate, and semi local stations, but not so to-day, when stations from all over the Commonwealth break through at practically equal signal strength during most evenings of the year. This would of course be more pronounced in Europe with so many countries in such a small area. Something must be done and something will be done if the majority of Amateurs in the world have their way, but the most feasible way seems to be in the effective controlling of stations throughout Europe where the trouble centres, and to the next issue of the I.A.R.U. Calendar must we look for that solution.

The VK2JX Super

(By Peter H. Adams)

In designing a new receiver the following requirements were laid down. It was decided that the ideal amateur receiver should have:—

1. High Sensitivity
2. Low Noise Level
3. High Selectivity
4. Good stability

As well as the above it should have single control tuning, and band changing should be as simple as possible. Finally, the desired performance should be obtained at the lowest possible cost. By this, it is not meant that each tube should be made to do three jobs. If the one tube could be made to do three jobs as well as three tubes would, well and good, but this rarely happens in practice.

Requirement No. 3, high selectivity, definitely rules out the TRF or autodyne job. When it comes to weak signal selectivity, the autodyne can hold its own with the super, but the selectivity of the autodyne falls to a very low order when dealing with a strong interfering signal. With a TRF receiver used until recently by the writer the signals from a 100 watt station, half a mile away, spread over approximately half the 14 mc band (200 kc). Using the super to be described in this article this station spreads at the most 20 kc.

The next question to be decided was whether an RF stage should be used ahead of the converter tube. Now a well designed RF stage can be made to have a stage gain at 14 mc of about 20. This can be increased considerably by the use of regeneration, but a limit is reached when the stage oscillates. Regeneration can instead be applied to the converter tube, but not to both. In either case there are three sharply tuned circuits to be kept in line, and if either one is out of alignment much of the gain is lost.

Now without an R.F. stage but with regeneration applied to the converter tube very high sensitivity can be obtained just before the point of oscillation; with an R.F. stage ahead of the converter the tendency towards oscillation is greater, due to stray coupling between the RF stage and converter, and consequently oscillation commences before the maximum gain due to regeneration in the converter is reached.

From the above it will be seen that unless very careful design and extensive shielding is employed it is doubtful if much or any extra sensitivity can be obtained from the addition of an R.F. stage to a regenerative first detector. Furthermore, the idea of having three separate box shields, one for each tuned circuit makes band changing extremely cumbersome.

OSCILLATOR COUPLING

Having decided to eliminate the R.F. stage the next point to be decided was oscillator coupling. As first made up the oscillator was a 56 tube in a cathode tap Hartley circuit with the "hot" end of the grid coil connected to the suppressor of the 57 converter tube. Of course, a 6L7 tube could have been used as a converter and on paper it looks a better tube for the job. However, my own experience with metal tubes in the commercial field has left me with little confidence in them, and it was decided to play safe and stick to glass.

Whilst coupling with the hot end of the oscillator coil gave fair results, there was considerable "pulling" between the two circuits and bringing the converter grid circuit into recordance with the signal caused detuning in the oscillator circuit. Numerous coupling schemes were tried in an effort to overcome this trouble and the arrangement finally adopted consisted of coupling

directly from the cathode tap on the oscillator coil to the suppressor of the converter. This produces only very slight detuning and results also in smoother control of regeneration.

REGENERATION

Regeneration is controlled by varying the screen voltage on the 57 tube. This appears to be a much more sensible method than the more generally used, but extremely crude, system of short circuiting a small coil coupled to the earth end of the grid coil by a variable resistance. This latter method must produce detuning as well as introducing unnecessary losses.

I.F. AMPLIFIER

The next point to be decided was whether the I.F. amplifier should have one or two stages, iron or air coils, and at what frequency it should operate. Now, in a superhet the major portion of the inherent set noise arises in the first detector; therefore, in order to get a high signal-noise ratio it is desirable to get as much gain at the signal frequency as possible and keep the I.F. gain reasonably low. Hence all the gain required can be obtained with one I.F. stage and furthermore it is not necessary to resort to regeneration in the I.F. stage or second detector.

However, regeneration in the I.F. stage can increase selectivity, but it has the great disadvantage of increasing the I.F. gain at the point of maximum selectivity to a figure that is altogether too high. As an alternative regeneration may be applied to the second detector. This has one advantage; it permits the beat oscillator to be omitted. At the same time it has a serious disadvantage. Suppose the I.F. transformers are aligned at a frequency of, say, 460 kc with the second detector just below oscillation. Then, in order to receive a C.W. signal the second detector is put into oscillation and to produce a 1000 cycle beat the H.F. oscillator must be so tuned as to produce an intermediate frequency of 459 on the 461 k.c. Either of these signals is 1 kc away from the frequency to which the I.F. transformers are tuned and consequently the full selectivity of the I.F. stage

is not realised. Actually, a receiver such as this would, with good intermediates, amplify an interfering signal 1 kc on one side of the wanted signal more than the desired signal itself.

On the other hand, the receiver with a regenerative second detector could be aligned with the second detector in oscillation. In this way the grid circuit of the second intermediate could be tuned either 1 kc higher or lower than the intermediate frequency. This would be desirable for C.W. reception, but when used for phone work the second intermediate would be out of alignment. Hence a separate beat oscillator would appear desirable in every way.

The intermediate frequency chosen was 252.5 kc. It has been found in laboratory tests that with air core coils at this frequency it is possible to obtain slightly more selectivity than with iron core coils at 460 kc.

However, I.F. transformers for this frequency are likely to be difficult to obtain, and there is no reason why well designed iron core 460 kc transformers should not give as good results. However, some decoupling may have to be added to ensure stability at this frequency.

SECOND DETECTOR

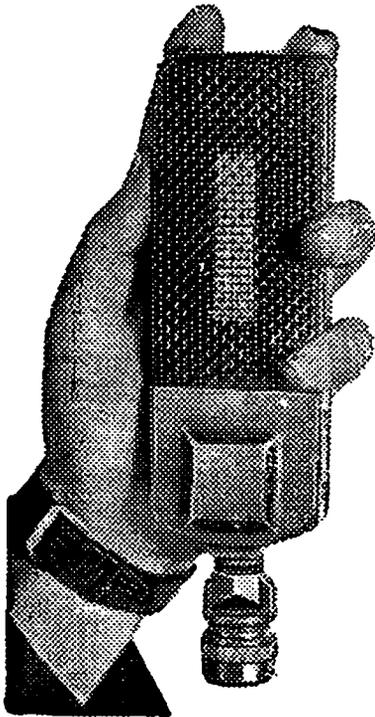
It is well-known that a diode detector adds serious damping to a tuned circuit and it has been claimed that one I.F. stage feeding a bias detector gives as much selectivity as two I.F. stages feeding a diode. A bias detector was therefore decided upon, and in performance this receiver bears out this statement.

For the second detector and audio tube a 53 is used. At first the circuit used by Jones was tried. This was fairly satisfactory, but not as good as might be expected on weak C.W. signals. No doubt, this is due to the fact that both sections of the tube have the same bias, and as one section should be biased almost to cut off and the other should operate as a normal Class A amplifier, it is obvious that the operating conditions are incorrect with this arrangement.

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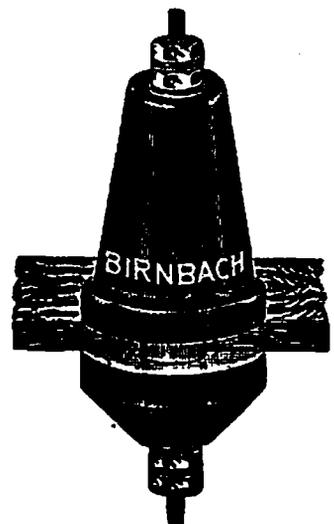
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The circuit finally adopted gave much better results. It will be seen that a 300 ohm resistor is placed between B— and earth and separate bias voltages for earth section of the tube are tapped off from this resistor. With this arrangement switching on the beat oscillator can be made actually to increase the sensitivity instead of decreasing it as usually happens.

BEAT OSCILLATOR

The beat oscillator is a 58 tube in a cathode tap Hartley circuit. The coil used consists of 500 turns honeycomb wound on a ½-inch wooden dowel tapped at 100 turns from the earth end. This is tuned by an intermediate trimmer shunted by a 3-plate midget to provide panel control of the beat note. Coupling to the second detector is fairly weak, yet strong enough to heterodyne a strong local signal. Strong beat oscillator coupling reduced sensitivity on weak signals. The oscillator used is electron coupled, the output being taken off across a 5000 ohm resistor in the plate circuit of the 58 and fed to the grid of the second detector through a very small condenser formed by twisting a piece of hook up wire once around the grid lead. The B.O. is provided with an on-off switch on the panel.

STABILITY

So far no mention has been made of stability which for an amateur receiver is of almost as much importance as sensitivity. It should be possible with a good receiver to hold a signal for half an hour at a time, if necessary, without touching the controls, and it should also be possible to lift the receiver bodily an inch or so off the table and then drop it without the oscillator frequency shifting.

This can only be achieved by rigid mechanical construction and wiring, especially in the high frequency end. In this receiver the chassis and front panel are 16 gauge steel Cadmium plated for good electrical conductivity and sprayed Newcastle grey on the outside. This together with black control knobs and escutcheon produce a pleasing and business-like appearance.

(Continued on Page 13.)

The Antenna Problem

Many useful articles have appeared in this magazine in regard to antennae, and the following is submitted in the hope that it will be of use to some.

It is often rather difficult for a ham to erect a full wave antenna, when he desires to do so, owing to lack of space. Because of this he struggles along with a half-wave antenna with the thought uppermost in his mind that if he had a full-wave antenna he could do much greater things.

Then there is the chap with his antenna running in a certain direction which has certain directional effects radiating better to some parts of the globe than to others and he wants to reach those other parts. As he has not the room to erect another antenna or to swing his whole antenna around or to put up reflectors he has to go without.

Now all these troubles are definitely over at last. The reason is in the following:—

The antenna to be operated upon is a Zeppelin type with quarter or three-quarter wave feeders and is a full wave long. Half way along the flat top erect a post or a chimney and at this point turn your antenna at an angle of 90 degrees, shifting your end pole to the new position.

Thus you have a half wave running, say, North and South, and in addition a half wave running East and West radiating all over the globe (you hope). The antenna is not broken in the middle, but runs straight through.

Alternatively, if you already have a half wave antenna up and no room to continue straight along for another half wave try tacking the extra half wave on at right angles and watch how much better your signals go places.

As I had, at one time, difficulty in getting a full wave in a certain space the above was tried and worked very efficiently. I understand 4JU and others are already using this system with success. — VK3CX.

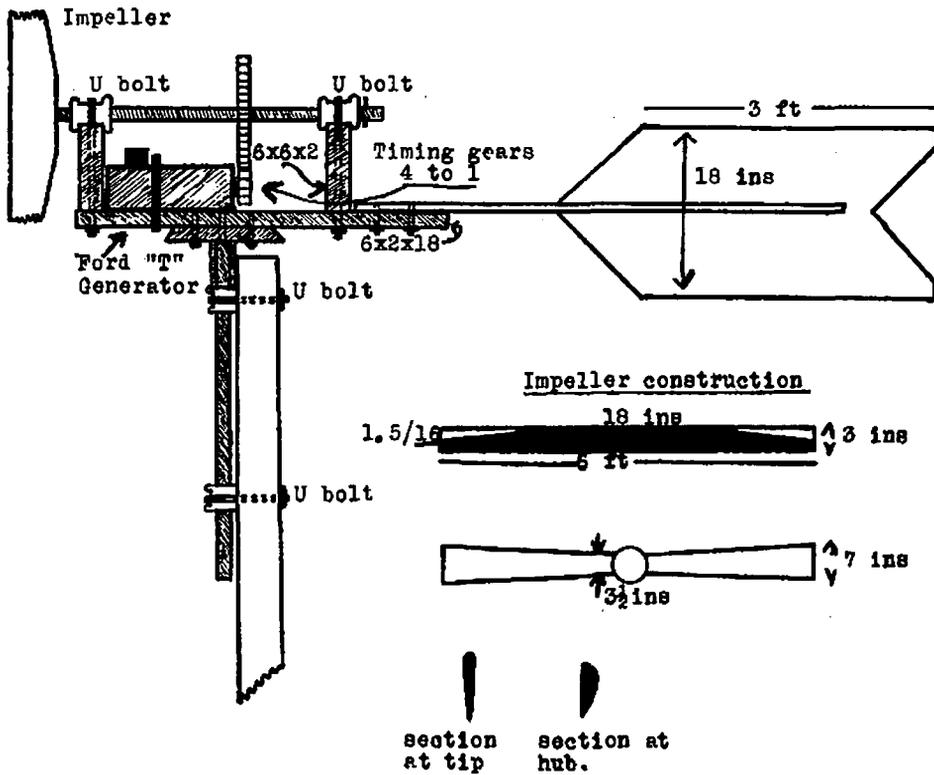
Wind Driven Generator at VK3CE

By R. McNally

The idea of getting power from the wind is, as we all know, far from new, but there are, perhaps, some who are not quite clear on how to set about getting it, and it is with that in view that I am setting out here the results of my experiments along these lines.

The mill in use here now was constructed from junk found in the farm wrecking department; of course

Then the base for the "works," consisting of a piece of 6in. x 2in. hardwood, 18in. long, was bolted on top of the bevel cog by means of 4½in. bolts, but this is not done until the rest of the mill is constructed and the point of balance of the whole assembly is found. Next, two pieces of 6in. x 2in. x 6in. hardwood were cut to form the mounting support of the impeller shaft.



everyone who may want to duplicate this mill may not live on a farm, but once the idea is shown, no doubt they will be able to modify the main construction to suit the gear on hand.

First of all a piece of 1-inch shafting three (3) feet long, with a bevel cog screwed to its end was dug out, and this, together with its bearings, made the turntable; the bearings were secured to a (6) six-foot length of 4in. x 4in. hardwood by means of U clamp bolts of 3-8in. thickness.

This shaft is a piece of 7-8in. steel also from a wrecked farm machine, and its bearings are let into the top of mounting blocks just enough to let them sit snugly when held down by the U clamp bolts which also fix the blocks to the base plate.

The base plate is hollowed out just enough for the gennie to sit firmly in place when held by a hoop iron clamp which passes completely around base and gennie, a wing nut was put on the bolt of this clamp to allow quick and easy removal of gennie for adjustments, etc.

On looking through the local garage junk heap a pair of timing gears were found that gave a gear ratio of almost 4 to 1; this method of drive is used in preference to belt or chain, for there is less wear than with chain, and in my opinion the friction of gear drive is not as great as the pull of a V type belt in its pulleys.

The large wheel is fixed to the impeller shaft and the small one on gennie shaft; then small shavings were taken of the end blocks until the correct meshing of the gears was obtained.

The tail is made from short length of light angle iron (or $\frac{1}{2}$ pipe could be used) to which is bolted the tail piece, cut from flat iron; the tail has not been hinged yet, but I am going to do so, so the constructor can please himself whether he does it at first or later, but if it is hinged it would save climbing up the stand to tie the prop when not in use.

Now this brings us to the most important part, namely, the impeller and success or failure will depend entirely on this piece of work; the construction is not difficult, but a great deal of care should be taken and the time will be well repaid.

It is carved from a piece of Kuirie pine, or other soft wood, but must be free from knots, otherwise carving will become difficult; it is 6ft. in length and 7in. wide; it is first roughed out as shown in sketch, and then the carving proper is done with a draw knife, and finished with rasp and glass paper.

The main points to remember are that the front of the blades are straight, that is, when the impeller is placed on a flat surface face down, it must rest all the way along; the back is tapered, the leading edges are rounded off and the trailing edge is sharp, the blade makes an angle of 42 deg. at the hub and 15 deg. at the tip.

If carefully carved not a great deal of balancing will be required, but it was done here by drilling a hole on the "light side," and adding shot until the point of balance was secured. It is very important, how-

ever, that proper balance be obtained, otherwise, apart from vibration of the whole assembly, the revs of the impeller will be considerably reduced.

This impeller, by the way, is capable of about 500 revs per minute in a strong wind. It appears to have plenty of power and, when gears can be obtained, about a 5 to 1 drive is going to be tried, but a higher gear ratio than 5 or 6 is not desirable; in fact, if gear ratio is overdone the thing would be a complete failure, with the gearing used now, which is a little less than 4 to 1, the mill charges up to 10-12 amps in a strong wind, but sometimes there is a breeze sufficient to drive it just to the point of cutting in, and to try to overcome this the higher ratio will be tried.

The 4in. x 4in. was bolted to a pole about 15ft. long, and this was stayed with three others of similar length. The current was taken from the gennie by means of a length of double flex which is allowed to hang in a loop and it has seldom had to be unwound.

I have found this little job very handy for keeping the filament batteries of my transmitters and receiver charged, and there is usually sufficient wind at least one day per week to give a charging rate of from 4 to 6 amps.

In conclusion, I would be only too pleased to assist anyone building a similar mill should they meet with any difficulties.

BRAINSTORM FOR "AMATEUR RADIO."

Why not use an immersion heater as tank inductance in 5 MX unity coupled circuit? The element to be the grid coil, the copper heater the plate coil, and the connection will make an admirable coil socket, with terminals complete. It would be only necessary to shorten the two "legs" of the heater to obtain correct inductance, and the nickel-plated unit is complete.—2DR.

"Amateur Radio." — The YL who wanted to know if a watt hour meter was a clock.—VK2YA.

Station Description

After waiting for a real wet Sunday, 3SU and 3DP started off to give 3VW, Geoff. Stobie, of Bell Street, Heidelberg, the once over.

After much engine trouble and several spills on the muddy roads, we finally reached the shack looking like drowned RF bugs. Calling CQ on the wall, we were hailed in the usual ham manner by 3RV, one of the Preston fone fans. Stumbling over junk, etc., we found ourselves gazing at the works open-mouthed. Geoff. was busily engaged with R.A.A.F. Reserve skeds, so 3RV gave us the low-down. The rig was a breadboard type 2a5 E.C. to 46 P.A. Rx is a

two-toob job with A415 and A409. The ant. is a half-wave 7M/c.

VW started up in July, 1934, and has worked some fb DX in 41 countries. W.A.C.-W.B.E. He is also a fone (?) fiend, using single-choke Heising wid a mod. 250, and pair 227's for speech amp. Being a section leader for the Reserve, he is kept very busy on Sundays.

As time was wearing on and we had waited in vain for VW to turn it on, we rescued our mobikes from the mud and returned back to civilisation, quite happy, but wetter than ever.



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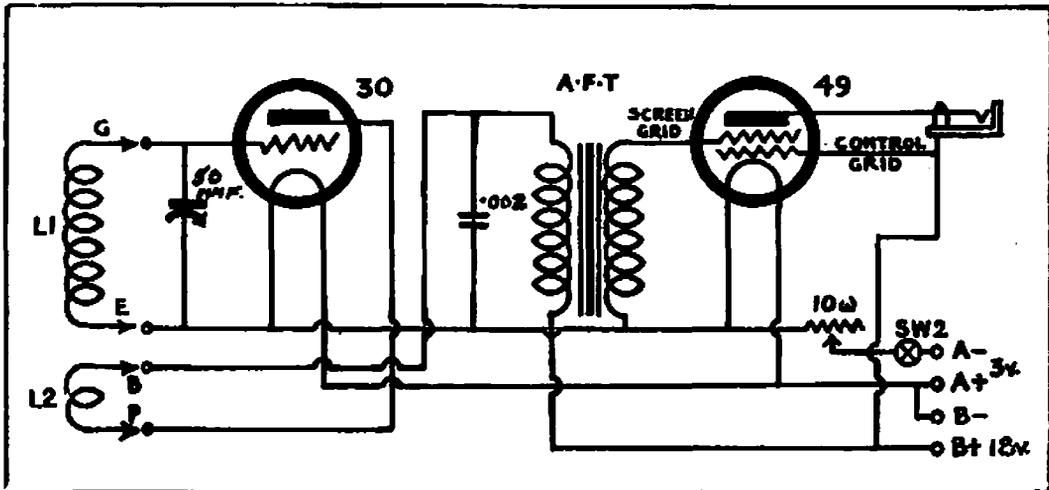


An Economical Monitor

(By Don B. Knock—VK2NO)

Even though we may spurn the possibility of using a self-excited rig in these days of high efficiency crystal oscillators, or comparatively stable electron coupled affairs, there is no question that the ham shack minus a monitor is like a politician bereft of speech. The monitor can tell a good story, and if it is a well-designed monitor, and not just slapped together, it can often tell a faithful and probably unexpected story! Monitors are really simple

have to be ordered specially. If the circuit arrangement is such that the particular triode calls for around 90 volts on the plate for reasonable operation, two normal sized 45 volt blocks, plus the two 1½ volt cells for A supply (assuming a 2 volt valve) take some getting into anything but a fair sized screening box. The problem then is, what can we do to make a useful monitor that will perform on next to nothing in the way of plate voltage? "A" sup-



things. Nothing more or less than an oscillator plus a pair of headphones. They have been described in countless publications ever since Ross Hull started his "1929 High C" campaign. The idea calls merely for a triode tube, L and C to cover the desired range, A supply, phones, and B supply. The whole outfit goes into a metal box for screening, and if it is to be used to check the fundamental sig. from a medium or QRO transmitter, this screening must be quite complete, if one wishes to have the convenience of usage in close proximity to the transmitter. There is no obstacle to doing this, but at the same time it must be remembered that we have to get everything into this box. There are quite small 45 volt B blocks obtainable from such people as Ever Ready, but there are not usually a standard line, and

ply is not so much of a problem, for quite small cells will suffice here for some time. The writer was reminded of the once popular double grid valve of long ago, typified in the old Philips A141. This valve would do a good job as detector or audio amplifier with as low as 4½ volts on the plate, and two of them made a rather surprising det. and one step regenerative receiver. There was, however, the snag of filament current, looked at in the light of present day types. The Valve Co. charts were consulted for something of a double grid nature in which similar use could be made of the space charge, and, behold, the type 49. This is a Class B (two valves) type, similar to the 46, but for a 2 volt battery supply. Current drain is .12 ampere. Here was a possibility; but two such valves, one as oscillator and

one as audio meant 2 volts at .24 ampere, getting into the greedy class. So the ever faithful 30 was called to the rescue, and the result is the monitor outlined. Experimentation showed that the 49 used with extra grid and control grid reversed makes a good space charge audio amplifier even with as low as 9 volts on the plate. As a simple oscillator, the 30 performs (at low frequencies, 1500 to 550 KC) with the same voltage on the plate, if the value of the plate coil for feed-back is increased in inductive value appropriately. With 18 volts on the plate it oscillates merrily with plate coils having only a slightly larger value than normal. Here we are then; a monitor calling for only 18 volts of B battery (from two 9 volt C batteries) and two small $1\frac{1}{2}$ volt cells. The whole goes into a remarkably small metal box, and one doesn't have to fish for a weak signal from a very QRP transmitter; because of the audio gain. The two valves take less filament juice than a single 19 used similarly, with the added advantage of the small plate supply. The diagram is self explanatory, and coils are used as in the A.R.R.L. Handbook for a monitor using 50 mfd tuning capacity, but with one or two more plate turns to ensure oscillation. The writer has also built up a small portable receiver on these lines, with plug-in coils, covering from around 15 to 600 metres, and with a reasonable antenna, it pulls in American phones on "20" quite easily. If the idea is applied to a receiver, the AFT should have a high ratio, and the .002 mfd fixed condenser be replaced by a .0025 mfd variable for reaction control. A .00014 mfd condenser is then used for tuning, and an R.F. choke included in series with the 30 plate as usual. By using a combination filament jack, the filament battery switch can be dispensed with, and the 10 ohm rheostat can be substituted for a 5 ohm fixed resistor. The suggested monitor is the outcome of such a receiver, and apart from this the value of such an arrangement for a pocket receiver for field days will be apparent.—

Federal and Victorian QSL Bureau

VK3RJ Federal QSL Manager

W9LW advises that she met VK3AL. Alf, VK3AL, must have sneaked off very quietly.

Wanted by this Bureau, the QRA of SX3A. Anyone supply please?

Listeners are enquiring as to whether prizes in the receiving section of the forthcoming VK-ZL DX contest are restricted to members of the W.I.A. Some doubt also exists as to what governs the number of countries. Could Java and Sumatra be classed as two separate countries?

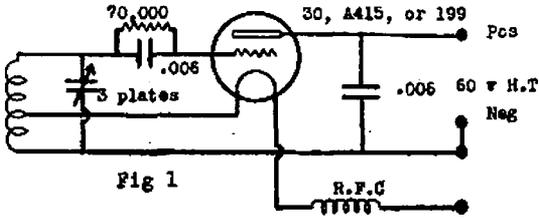
Small things have far-reaching consequences, and Victoria's chances of annexing Fisk Trophy were materially reduced by nothing more than a bottle of ale. The heat of the contest caused writer to become parched, and on the first Saturday evening of the test it was decided to keep things cool by topping off a couple of bottles of "home brew." The first bottle was excellent, but the second exploded during the opening ceremony, drenching the transmitter, receiver, power gear, and the QSL manager. Result, VK3RJ off air until the following week-end, when gear only so so. Some brew!!

3HK and 3YK located at One Tree Hill during the five metre field day recently conducted by the "POOFS"; think they heard a VK7. The call sign sounded like VK7LY. 3HK has the exact time logged and would be glad to hear from any VK7 who was on five MX that Sunday.

Cards are on hand at the Bureau, 23 Landale St., Box Hill, for the following VK3's:—AD, AP, AT, AX, BL, BS, BX, CA, CK, CM, CW, DG, DK, DS, DQ, DZ, EO, ES, ET, FG, FM, FN, FQ, FZ, GJ, GM, GT, HB, HE, IL, JK, JW, JZ, KG, KM, KV, LK, LQ, LS, LY, MX, NA, NG, NR, NT, OI, OP, OX, OZ, PA, PG, PH, PS, QO, QP, QX, QZ, RM, RN, RW, RZ, SP, SU, TE, TG, TO, TW, UJ, VL, WC, WD, WH, WX, XK, XU, YF, YL, YW, ZK, ZL, ZO, ZW.—Dinan Hampton Freeman.

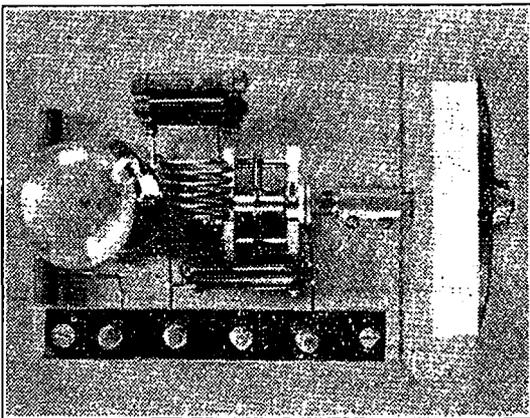
A FIVE METRE MODULATED OSCILLATOR

The comparison of receiver performances on 56 mc is rather hard to judge when tests are made by listening to transmitting stations. We know that conditions vary, and that slight alterations to a transmitter can cause changes in signal strength in one way or the other, so that to check performances over the air might prove misleading. The



oscillator depicted in the photograph and diagrammatically drawn in Fig. 1 is electron coupled and self modulated. Such a test instrument is easy to make and well worth making.

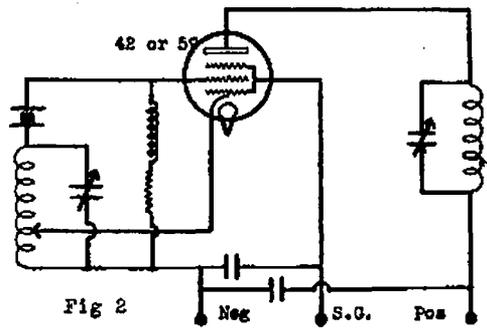
The combination of the grid leak and condenser values given interrupts the oscillations into 300 cycle groups. A high tension supply of 60 to 120 volts may be used according to the strength of signal required. At 120 volts the plate current is about 2 mills. The filament



tap for the electron coupling is made at about $2\frac{1}{2}$ turns up from the earth end. Naturally the R.F.C. must be wound with wire of sufficient gauge to pass the filament current without loss; 20 gauge is used in this oscillator and there are 30 turns on the $\frac{1}{2}$ in. former. The baseboard measures 6 in. x 4 in. x $\frac{1}{2}$ in., and the panel 4 in. x 4 in.—VK3ML.

FLEXIBILITY WITH CRYSTAL CONTROL

The one bugbear of using CC when a stock of spare crystals is not kept is the lack of flexibility in frequency variation. Although not the writer's idea, this tip may be of use to those chaps using Tri-tet crystal oscillators and at times experience bad QRM. As may be seen in Fig. 2, the only difference to a Tri-tet circuit is the fact that the cathode is taken to a



tap on the oscillator grid coil just as in the case of an electron coupled oscillator circuit. This allows one to shift the frequency of the oscillator but still maintain the note and stability of CC. The circuit has been fully tried out and is worth using.—VK5KL.

The 3WG-3UK-3ML five metre field day party claims to have been the most powerful station yet taken out into the bush. The actual and measured power in the transmission line was 2.984 Kw. Yeah, four big "drafties," representing 746 watts each, ambled up and got tangled in the 100ft. feeder!

(Continued from Page 7.)

The above discussion of the design features of the receiver have of necessity been more or less general. However, the concluding half of this article, appearing in next month's issue, will cover full constructional details, together with the circuit diagram and photographs. Figures for actual measured sensitivity and selectivity will also be given.

De Mortuis Nil Nisi

Down the shorter metres, where we
parked our jugs and tweeters,
And showed the scoffing theorist
what we'd found,
With a little two-valve "blooper" (no
screen grid, hence no super),
A gang was born that made DX go
round.
There the Yank, 500 cycle, thought
8000 miles a trifle,
To the "Aussie, "way down under,"
'neath the Line;
And we, with fingers itching, set their
Baldwin fones a-twitching,
Till one and all agreed our game
was fine.
What cared we for the jamping, when
the Yankee syncs. were slamming
CQ into our tuner, broad and
strong?
A man could always copy, few
punchers' fists were sloppy,
Sure 50 million key men were not
wrong.
Then a chiel by name of Heising, a
novel scheme devising,
Disbursed ideas to speak across the
sky;
So our little 2-tube "blopper," the
screen-grid and the super,
Were "hotted" up to give "this
fone a fly."
B.C. listeners grabbed the story how
fone in all its glory
Was used by hams—the key had
lone its dash—
So, in shorter wave migration, they
sought for more elation,
To come, the records show us,
quite a crash.

But when crystal perked for Taylor
—the rumpus, Holy Whaler—
The trader cashed in on it PDQ.
Gone the big wide open spaces, gone
the happy smiling faces,
Gone in side-band slush the sigs.
we used to "chew."
"Ouz by bodulation?" was heard at
every station,
And rare the foreign signal that
happened to come through;
Soon amongst recruits arriving a sec-
tion was heard striving,
The broadcast station technique to
attain.
Our Morse was lost in crooners, irre-
spective of our tuners,
We reached below and raised the
power again.
I could amplify this story—the censor
frowns no gory
Story may ensoil this tale.
So I'll hie to twenty metres, leave 40
to these bleaters.
Ah! Grand! she motes! The meter
hops its scale.
But, Hell! There's music surging; I
can hear its edges splurging;
Am I off band? The growler tells
no tale.
I scratch a match and ponder, scan
my cards pegged over yonder,
And hold the "gain" until this "off
band" signs;
The tobacco smoke ascending scrolls
a most Baltasar ending—
Yap-yap, Yap-yap, another gramo.
grinds.

—Dummy Aerial DX.

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Five MX Field Day

Getting off with a flying start in glorious weather the third Vic. 5 mx field day kept going with a whiz. 3DH, HF, HK-YK, KQ-VH, ML-UK-WG, OF-JJ, PL-PW, UH and UR went on location, while 3BQ, HZ, LG, OT, WX, WY, XA, XM and XJ through lack of portability and time remained at their home locations.

3KQ at Mt. Macedon to 3HZ at Caulfield was the first qso of the day. After that they followed thick and fast. It sounded like 40 mx gone mad. 3ML pushed out a fat R max sig from Wallan to Arthur's Seat and thus proved that hearing 3MR on the first field day was no mere fluke. Sensation was caused when 3KQ and 3PL were both heard calling 3RS. It proved a false alarm. They were only calling him on spec.

3UH at Gisborne claimed that he heard no one and that no one heard

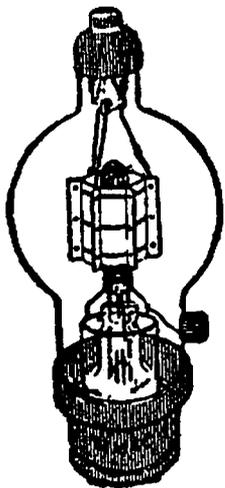
him, but 3OF at Arthur's seat heard him at R8. This has since been checked up with the logs and proved OK. 3UR at the You-Yangs and 3KQ did not qso all day, although not so far apart. Evidently there was some hill in between them. Despite a broken down car and a broke down receiver 3DH made up for 1st time when hen got going from Mt. Dandenong. Heard three stations calling him at once. The beam at 3UR raised his signal level from R3 to R max at 30F.

3HK put out a good signal all day from One Tree Hill, while consistently strong phone came from 3PW. 3HF at Diggers Rest put in much time at duplex work.

3OF at Arthur's Seat encountered a steady fade in all signals up to about 1 p.m. R8 to R4 over 30
(Continued on Page 17.)

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Correspondence

Box 123, Swan Hill, 15/8/36.

Editor of "Amateur Radio."

Dear Sir,—The following was received by me from ZL3BK, of NZART Publicity Department, for September issue:—

ZLICD rendered valuable assistance in getting the message through O.K.

I am, yours faithfully,
Jim Stevens, VK3ZK.

To the Editor of "Amateur Radio,"
Melbourne, and also South African
Publicity Department, per
Australian - South African
Schedules.

Re special 5-metre transmissions.

The following schedules will be kept by ZL3GD or ZL3XB on 5 metres.

The transmissions will be from Mayfield, N.Z., and will consist of a wave modulated at about 250 cycles per second.

The call VVV VVV de ZL3GD repeated throughout transmissions.

The antenna, which is very directional, will be placed in a large number of directions during each transmission, and the direction will also be transmitted.

Overseas amateurs and listeners are asked to listen throughout the transmission on 60 megacycles, and to repeat any reception to Radio RL3GD, Mayfield, New Zealand.

Even if not received, ZL3GD will be pleased to hear from anyone who listens during these schedules.

The times are as follows:—

From 0000 to 0200, also 0600 to 0800, and 1000 to 1200 GMT, on September 5th and 19th; also October 3rd, 17th and 31st.

In addition to the above schedules, instantaneous spark transmissions will be directed towards the moon on September 2nd at about 1200 GMT, in an attempt to demonstrate the possibilities of reflections being obtained from its surface.

Such waves would not, however, be receivable on an ordinary receiver, but it is hoped to be able to receive these lunar reflections in New Zealand on a special receiver now under construction.

This transmission may be accompanied by an ICW one of the above form, using the call sign ZL3XB, and also directed towards the moon. So if anyone has the moon shining during that schedule they are asked to listen. It may even turn out that reflections are heard overseas, and not in New Zealand.

(Signed) ZL3BK,
NZART Publicity Department.

The Editor, "Amateur Radio."

Dear Sir,—Through the medium of your columns, I wish to bring a future important matter before all members of the W.I.A. interested in the practical value of amateur emergency communication.

Many will no doubt read in the daily press of the organisation of the 1938 "Round Australia Motor Contest." This contest is one of great importance to Australia, and will attract widespread interest throughout the world. After many preliminaries had been discussed, the writer was asked to join the organising committee to advise on the possibilities and importance of emergency radio communication. At a meeting held in Sydney on 6/8/36, the suggestion was made by the writer that Australian radio amateurs could be of great value during this contest, if even in a supplementary manner to existing commercial services, including the Australian Inland Mission. The route to be taken through the Northern Territory and North-Western Australia includes many stretches where tracks are not of the best, and communities very scattered. Specially equipped mobile truck stations operating on amateur frequencies would be vitally important in these areas. In view of the many

considerations, the meeting decided to approach the Department for permission for amateur co-operation during this contest. Should such permission be forthcoming, I feel sure that the organisation of some useful emergency communication scheme would be an excellent opportunity for the W.I.A. to demonstrate to the Commonwealth that there are within our ranks first-class telegraphists who can do a good job when needed. Although the organisation of this contest is only in the embryo stage, and 1938 is yet a long way off, it is never too early to start planning. May I suggest that all members of the W.I.A., who would be interested and willing to offer their personal services, time on the air, or even equipment in a mobile capacity, if the opportunity arises, drop me a line or give me a call at any time in the near future? It must be understood that, so far, everything is at the suggestion stage. Amateur co-operation may not be considered necessary officially, but if it is, then I hope that all W.I.A. members will realise the importance of showing the world that they are just as useful for emergency organisation as amateurs in U.S.A. are in the eyes of their Government.

Yours faithfully,

Don. B. Knock, VK2NO.
Vice-President N.S.W. Division,
W.I.A.

TRANSMISSION SCHEDULES

OCTOBER, 1936

VK2ME

Sundays—

Sydney Time	GMT.
3.30 p.m.- 5.30 p.m.	0530-0730
7.30 p.m.-11.30 p.m.	0930-1330

Mondays—

12.30 a.m.- 2.30 a.m.	1430-1630
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VK3ME

Nightly Monday to Saturday (inclusive)—

Melbourne Time	GMT.
7 p.m.-10 p.m.	0900-1200

REPORTS RECEIVED

Stations worked and their strength.

3KQ, Mt. Macedon, 15 QSO's.—
HZ9, OT9, XA9, XJ5, HK5, OF5,
HF8, BQ6, ML8, PL8, LG8, DH3,
WX7, XM7, WY7.

3HF, Diggers Rest, 12 QSO's.—
HK, XA, KQ, HZ, ML, PL, OF, WR,
UR, WY, XM, PW.

3ML, Wallan, QSO, 9.—HK8, KQ8,
HF8, HK7, OF9, PL6, PW6, XA4,
OT4, DH8.

3DH, Mt. Dandenong, QSO, 9.—
KQ8, PW7, OF8, HF8, HZ8, WY8,
OT8, XM8, ML8.

3HK, One Tree Hill, QSO, 12.—
KQ4, HZ5, HF5, UR8, OT7, OF4,
ML5, BQ3, PW4, LG5, WX4, WY3.

3OF, Artur's Seat, QSO, 10.—KQ5,
HK7, UR9, ML6, HF4, DH7, OT9,
XM8, HZ7, PL9. Heard XA5, WX8,
WY3, XJ3, UH8.

3XA, Hawthorn East, QSO, 7.—
KQ9, HF5, WY8, UR8, PW5, ML5,
HK4.

Through the week 3ML reported hearing a station that he thought to be a VK5 at 1720 E.S.T. on the field day. 3HK reports hearing a station at 1457 the same day that he read as VK7LY at R3QSA3. The phone was very distorted and made it very hard to follow. Did anyone else hear these? If so let us know. It seems as if 5mx dx is coming fast. Also who were the other unidentifiable stations that were heard by both 3KQ and 3ML? We may find out next field day.

(Continued from Page 15.)

second periods. AT about 2 p.m. all signals reached their lowest level, not one signal being heard over R6. From then on all picked up till they reached their peak strength shortly after 4 p.m., when they all roared in at maximum strength.

3BQ with crystal control and 3LG were not on for long. The other home stations put the day in and were generally very good. The station that was missed the most belonged to the man who made the music go round and around on the last field day. 3XA reports 3KQ as having the most consistent signal and also that fading was bad on all DX stations.

Divisional Notes

N.S.W. Division

W. G. Ryan, Secretary, VK2TI, Box 1734JJ, 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, Carlton.

ZONE 4 (Hunter River and Coalfields)—

S. Grimmatt, VK2ZW, 161 Tudor Street, Hamilton.

ZONE 5 (South Coast and South-West)—

NORTH SHORE ZONE

2ACJ builds a new rig on an average of one a week. 2ACL worked J2NO on 40 using a 53 C.O. and 45 P.A., his total of countries worked now stands at 3, having caught up with his cobber, 2ACJ. 2BJ transmits on dual waves of 40 and 5. 2DR introduced his friend 4AG to all the North Shore boys during that ham's short stay in VIS last September. 2DU has been in hospital, but has now been repaired and is perking in the final stage OK. 2FV has just about completed his new Super and will soon be back on without QRM troubles. 2GD is only heard occasionally from Roseville. 2HA cannot get a 6P6 from anywhere as supplies seem to have been exhausted. 2HO plays quite a lot of tennis and is neglecting his Ham Radio. 2HL continues to listen on 5 metres regularly and sometimes has the fortune to work somebody. 2HY finds the European DX coming in again on 20. 2HZ missed hearing VK8SC on 40 on 12th September last when that Ham who is 2QL called hm. 2IP enjoyed the Hamfest held by the Zero Beat R.C. recently. 2JU and 2OG work on 20 mx fone together, but sometimes

complain to the other of overmod. QRM even when both are using Supers. 2LZ has joeys either side of his carrier when on CW on 20 to the extent of about ten KC. 2NN can't get a simple 5 mx receiver to go. However, the transmitter shows plenty of RF in the tank ckt, but on what freq.? is another problem for Bev. 2NV plays golf with 2FV and SWL's. The QRI at 2SS sounds unmistakably like Xtal. 2VE is QRL Tec, but hopes to get going properly soon. 2VL renders a CQ on 40 occasionally. 2VN has a 60ft. pole over his Xmtr now. 2VP has shifted his QRA several times during the past few months. 2VQ finds good DX on 20 coming in now. 2WW's fist sounds pretty good and should aid him in his 1st class tkt. 2YA has now no time for Ham Radio, but will find his way back as soon as the new novelty has worn off. 2YC is now on 40 going flat out for the Fisk Trophy which must come to N.S.W. this year.

NEWCASTLE, VK2RG

Congrats to BZ, who collected the Silverthorne-Fairhall DX cup, after only a couple of months on the air. Dave recently clicked FB8 for his first African, and has now worked 8 countries.

OE has been transferred to Yass, and, being a Fisheries' Inspector, we presume that the mortality rate among the small fish at Yass will now rapidly decline.

A special beano was held when Allen Fairhall, KB, returned to the fold after a 3 months' tour of U.S.A. Allen gave a most interesting talk on his travels, and perhaps the highlight was the case of a W6, who was expecting a visit from the R/I, so dropped his input from 11 kw. to 5.

TY rebuilding, also ZW. What, still?

Old club member FX, Frank Cross, made a welcome reappearance at a recent club meeting. The lads are contemplating starting a crime wave so that Frank will be transferred to the district to keep them in order.

Amateur Radio

LAKEMBA RADIO CLUB—VK2LR (Affiliated with the W.I.A.)

(By 2DL)

At a meeting of the above Club held at the Sunrise Hall, Canterbury, some discussions took place on 5 mx conditions. VK2EH made an appeal to members to assist to do some really useful experimental work by going down to five. It was mentioned that during the month both 2OD and 2EH heard VK4DE on the 5 mx band, while 2JE is reported to have heard a ZL. It has not yet been revealed whether these were harmonics, but those concerned are awaiting verification of their reports. It is understood that 2JE has gone up the North Coast of N.S.W. in order to conduct tests from high mountain peaks, with beam aerials directed on ZL, Sydney and Brisbane.

The club is to have a moving picture night, when Mr. Jack Peckman is to bring along a projector with several thousand feet of film. Mr. Burnett, 2BJ, is also to deliver a lecture on "Frequency Stabilizers."

2EH and 2CY recently had a visit from VK5MZ and VK2YE. It is understood that 5MZ is visiting Sydney with a view to obtaining a commercial license, while 2YE is an ex VK5.

The club's QSL officer, 2QP, requested members when making out QSL cards for dispatch, to make sure that various strange call letters actually exist. As an example he quoted H20, for which station (?) he had received a card!

THE NORTH SUBURBAN RADIO CLUB, CHATSWOOD (Affiliated with W.I.A.)

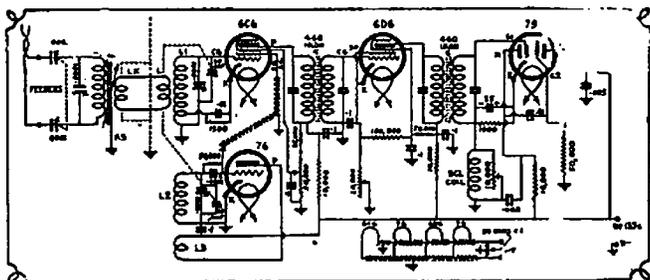
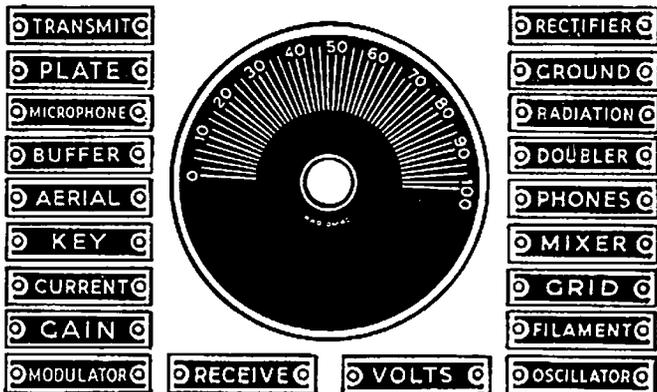
The licenced call of this Club is VK2ADF, and will shortly be transmitting from its Headquarters at the corner Brown St. and Pacific Highway, Chatswood. The Xmtr consists of 53 CO, 46 Bfr, 10 PA. The antenna being a Marconi on a 40ft. stick. The number of Hams in the Club is 12 and much interest is taken by them. Appreciation is extended to these chaps for the time and work given by them in helping to bring the Club up to the present

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standard. It is expected that two carloads of Ham members will represent this Club at the coming Newcastle Hamfest on 27th, 28th September, and it is hoped that they will bring back a fair share of the fine prizes to be contested there. 2ACJ is to be specially thanked for his fine effort in donating an excellent receiver to the Club. Other Hams have shown similar actions of generous donations.

MANLY RADIO CLUB (Affiliated with the W.I.A.)

Everyone will be pleased to know that the old club is on the air again and going well. Quite a good lot of fone contacts were accomplished lately with the new rig. Getting ready for 20 meters again, chasing DX.

Our membership is gradually increasing and expect more will be rolling up as the summer season gets around. Here's a chance for any country ham to become a life honorary member of our club; just drop us a line and we'll include your name on our membership, and when you come to Manly (by the sea) look for our board on the wharf, and we'll give you the right royal welcome; so don't be shy, you fellows.

VK2ON, on holidays at Tamworth, has been in constant touch with the Club.

2QK got a good prize for his super at the W.I.A. Exhibition. Some super, too.

2IP has been round lately. What's up, Jeff?

2QF now works a 3 letter call (portable) as well. Expect some good work from you, George.

We were asked how we enjoyed "Zero's" Dinner. Need you ask? And then there's this Newcastle Fest in the offing. Oh, Boy!

Another couple of hams expected from our ranks next exam. Good luck, Keith and Jim.

Meetings, Mondays, 8 p.m. Now come along. Letters to 87 Darley Road, Manly.

NOTES FROM THE BARRIER

Well, boys, the Mag. has been asking for "dope," so here's a few notes on the doings of the hams of the Silver City. First of all, I'd like to mention that the ham population

is rapidly increasing here in B.H. Three of the boys got their tickets at the last exam., ?? oms. Broken Hill now boasts 7 active ham stations and 2 waiting for call signs. Well, now for the news—

2HX.—Eddie has taken unto himself a YF; congrats. and best of luck Back on the ham bands once more after an absence of a couple of mths. Has been wrkg sum 20MX DX on both fone and C.W. Ed vy psed wid the 6P6.

2DQ.—Dud still plodding along, tho not had much ?? at ZJ. Been on 40MX fone a bit. Says he will hve to swap his T.R.F. for a super now the new hams are starting up. Me thinks so, too, om, hi!

2ZJ.—Been on 20MX wrkg a bit of DX lately. Plenty Yanks abt at nite, but nothing much else. OZ3J was QSO'd abt 4 p.m. one day. First European QSO hr—only want a South American fer WAC now, hi!

2ABP.—The Radio Club xntr on 40MX fone each wk-end. Uses input of only 4 watts on fone, but gets sum fb repts. R8 fm a VK6 is best so far.

2ACD.—Ron not going properly yet, waiting on a super. Was hrd on 40MX testing fone one nite. Vy ft Ron.

2ADC.—Rodger Wreford is the latest addition to the ranks. Using T.N.T. rig wid 5 watts input and vy nice T8 sig. Best of luck om. Give him a shout wen you hr him, boys.

Well, I gess that's the lot fer nw, so 73 is cul.

Victorian Division

VICTORIAN KEY SECTION NOTES (VK3DP)

At the September meeting of this Section at which 40 were present most interest seemed to be centred on the DASD test results. The scoring has been very high by all accounts, but I think our DX friend, 3MR, is well in the running for the VK award. Well, here's hoping, Snow. Logs for the local DASD test were handed to the Chairman and to the Judges. It was won by 3MR with 1545 points; 3OC second, 360 points, and 3CZ third with 319 points. Another Xtal for 3MR's col-

lection.

It is pleasing to note that 3MR won this year's ARRL Contest with 66,842 points. Also he was placed second in the senior and junior sections of the recent BERU test. VK incidentally won every section of this test, which says a great deal for VK hams.

There was much discussion on the restrictions to be enforced by the Valve Manufacturers' Association concerning discounts to hams. The Council Representative was asked to bring the matter before the Council for immediate consideration and action.

The Council Representative reported that the Vigilance Committee had been appointed and were already very active. They intend to enforce the regulations strictly on methods of operating, etc. So keep your eyes open for the blue cards.

At long last 3WI is on the air and has commenced operation as previously arranged.

Arrangements have been made for Mr. Gibbs of the R.A.A.F., who was a member of the Air Force rescue party which rescued Lincoln Ellsworth at the South Pole this year. A good attendance is expected as the lecture should prove most interesting.

SOME NEWS OF THE MONTH

3RX has just changed his QRA for the second time in six weeks, and is now near 3CZ. He hopes to be on the air again soon.

3XD grinding tourmaline, but no luck yet.

3QY now 3YR once more.

3BQ still hoping to build new Xmitter.

3DF-3TU building a new ten M/c exciter, 59-2a5-802.

3OJ "has gone and done it"—married last Saturday in Tasmania—3JO was the best man.

3YK building wind driven genny wid batts and dynamotor for QRQ, active only RAAFWR skeds.

3CX hooked two new countries, E.1 and FT for G7. Looking for three more for the 100. Is afraid he will get bluey for crook note!

3UX shifted QRA from Rly. overhead network es hopes to be going strong agn in a couple of weeks.

3OC undecided whether to join

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the Fire Brigade or stick to ham radio. Hi!!

3DP's new full wave 40 metre ant gets out all right, but blew down four times in the gale on Sunday!

3ZW hrd on 7M/c. after a long absence. Welcome!

3XP-3DQ hrd working some FB DX lately.

3UH.—Still working W3QT every nite. What's the big idea, om?

SHORT WAVE GROUP NOTES

(By O. Davies)

The gang have already visited 3AW and 3DB and now a visit to the TSMV "KANIMBLA" is being arranged. So roll up and get the information on our activities.

3XJ made a surprise appearance on 56m/c. on the Field-day. Considering that the Xmitter was only built on the previous night results were excellent. 3KQ at Mt. Macedon being the first QSO.

3MQ also built a 56m/c. Rx and had some DX on the field-day.

3JO and 3OJ have been over to VK7 for a couple of weeks, so they missed all the good fun. Just before they left us for VK7 they had the bad luck to have the 56m/c. Beam antenna blown down in a gale. Stiff luck O.M.S.

3JH has not yet installed that system of MODULATION of which we have heard so much. What about it, Old Man?

3RQ is not so noisy of late. What about 56m/c., Charlie?

The next meeting of the Gang falls on 28th OCTOBER. Roll up and hear what we are doing.

If you have any ideas or DX notes send them in to the Sec., or better still come in to the meetings and tell them to us yourself.

A further Field-day is mooted for about November 8th. So come along to the next meeting and help to put the Group in on DX.

MALLEE NOTES

(3ZK-3HX)

Well, gang,, we hope you have all fully recovered from the sleepless nights put in during the ZL contest, hi.

Conditions on all bands have been rather good, for some time, 14 mc appears to be coming into its own again and we can see some

activity on that band. 7 mc band conditions don't seem to be just what they could be, Qrm is of course the order of the day, and there is no doubt that the restriction of canned music has relieved the worst of the qrm during dx hours. 3.5 mc has been enjoying good conditions as evidenced by the number of stations appearing on that band, even a couple of W6's were heard on fone.

The highlights of the month were first the visits of Roy 51V and Auntie Ivy to most of the shacks in the north, 3WN, 3ZK, the gang at Kerang and 3EP, en route for VIM, where they were heard from the voice of the "Muddy Maribyrnong."

The second event was the visit of Ted, 3EP to 3HX, where of course a pow-wow was held, 3A1 contributing to the general qrm, hi. As is usual when one ham visits another nothing would "perk" and condx were had, but we hope Ted enjoyed his visit.

The forthcoming debate, "The merits and de-merits between commercial and amateur built transmitters," is causing some comment among the gang. VK's 3WE and 3XJ are to take the amateur side of the question and ZL's, 3BK and 4CM are to look after the other side, and should be very interesting to listen to.

The doings:—

3WN.—Jack is putting out some nice fone now, and we understand that he has invested in a generator, QRO Jack?

3HN has moved into a new shack, and as yet has not got fone going. Has been on 7mc cw.

3HR.—Charlie is still qrp as he has not got his converter going yet. Fone not so hot but mostly' qsa5.

3CE.—Roy is only heard on Sunday morning skeds and sometimes Sunday afternoon. Is having trouble with house lighting batteries giving up ghost, and its a case of light no radio, radio no light hi. hi. Has a new RX.

3AI.—Frank is still on 7mc and works a few, between selling BCL receivers.

3EP.—Has decided to build a new RX, and TRF, too. Auntie Jess threatens to run the rig when OM is away, but Ted says he wont show

FIVE MX. NOTES

U.H.F. Group)

(By VK3OF)

her how, Auntie Jess reckons she is going to get that ticket. Shades of family QRM ? ?

3OR heard back on fone, which was a little on the rough side, but no doubt Murray will soon clean it up.

3TL and 3KR are both inactive es are rebuilding for the AC and will probably by the time this is printed be back on the air.

3FF a new one, by name Jock Speer, made a debut, wid a qrp rig on 80mw cw and was heard here q5r7-8 t9 FB Jock.

3BG.—Another new one, by name Roth Jones, has by this time made his debut.

3ZK.—Has been re-named the "Mountain goat" 'cause he got a Xtal that jumped from peak to peak hi. Anyway I suppose by this time he has got the new rig, he's threatened to build for some time.

3HX will have by this time have changed over to ac, as Tom is only waiting on a couple of 6P6's.

WESTERN DISTRICT NOTES

(By 3HG)

3NK is now active on crystal control on 3.5 and 7 M.C. with a very nice signal. 3GQ and 3KX going strong on 14 M.C. according to the DX heard calling them, although details of their activities are not available. 3NG was heard to put out a belated CQ a week or so ago, but no QSO, even though several stations answered. 3XB, now located near Rupanyup, has a very nice note, but it is marred by a broad and strong backwave. 3BW is another old timer who can still be heard on 14 M.C. 3GR has put in a welcome re-appearance after several years off the air. He has completely rebuilt his rig.

3OR, while visiting this district recently on his way to 3HG when he was held up by the heavy floods. His Lancia had to be towed through "a raging torrent about thirty yards wide !!"

Of the locals 3OW is working considerable DX, including putting R6 phone to G. 3PG is back on the job again and again getting out well. 3HG has been bitten by the DX bug, the best effort so far being a two-way phone contact with CX1cc. Conditions on 14 M.C. are very good and 28 M.C. is also looking up.

That lusty youngster the U.H.F. group of the Vic. branch has made rapid strides. Formed only a few months ago in response to the demand for some means of co-ordinating the scattered activities on five mx., this group has already to its credit one very successful field day, with another being arranged. This apart from the successful participation in the second 5mx. field day organised by the key section.

With an active membership of about 30 amateurs scattered around Melbourne, good work is being performed in the investigation of the vagaries of this band, investigations that are being accompanied all the time by continuous improvement all round in station design antenna construction and the like.

With gear the trend is towards more stable transmitters and more selective receivers. Either one needs the other. With the great increase in activity interference became rife from super-regen. receivers and so they have in most cases been replaced by the simple non-radiating four tube resistance coupled super het. More interest has been taken in modulators, while a great deal of work has been performed in the design and construction of the more effective types of antennas for use on the higher frequencies.

"Get together" or meeting nights are held on the first Saturday night and the third Tuesday night each month.

Early realising that the Tuesday night meeting must necessarily be taken up with reports and general discussion, technical meetings have been arranged for the first Saturday night of each month.

The first technical meeting held on the 5th September was attended by about 25 members, who spent 3 hours solving each other's problems, especial interest being taken in the noted polarisation of 5mx radiations which have occurred on different occasions making horizontal antennas necessary for the reception of signals at maximum strength that have been emitted from a vertical antenna. Directional arrays, their

effectiveness and their adaptability for portable work were also discussed.

On behalf of the Key section VK3ML, ably supported by VK3UK presented to VK3KQ the pair of 2A3's donated by Mr. Falkenberg of Byaduk as prize for a competition run in conjunction with the second five mx field day. On this field day 3KQ proved his undoubted superiority by working every station heard. He also covered the greatest mileage.

Gil Miles, of 3KQ, spoke in thanks and then promptly presented one of his new tubes to 30F in recognition of the fact that they were associated in the establishment of a Vic. distance record of 70 miles.

In conclusion 3TH introduced 3XA ex 7XL to the members.

At the meeting held on Tuesday, September 15th, interest centred on the results of the field day held on September 6th. Reports were received from those members who took part. 3KQ was once again declared outright winner.

Voting it a grand day members asked enthusiastically for another. After discussion it was set down for November 8th, hail, rain or snow. It was decided that serious and pre-determined tests be carried out this time especially in attempts to Qso stations in other States.

Harry Fuller, 3HF, was appointed to keep a record of all field day activities and of all technical discussions and lectures. 3JO was instructed to communicate with 7AB re tests for the next field day.

Before the conclusion 3Ny spoke on the necessity of members paying their subs., while Bob Cunningham, 3ML, gave a short lecture about a small compact modulated oscillator, a really necessary piece of gear in a five mx station.

After discussing the projected use of 3WI when A.C. had been installed the meeting concluded.

28 AND 56 MC. SECTION

(Conducted by VK3JJ)

During the winter months the only DX stations heard on 28mc. were a few W and J's, and there were very few VK stations active to work with them. An improvement was noticed early in September, and W signals increased greatly

in strength, making contacts much easier. Europeans are also starting to come through again, the best being OH7NF and D4ARR, who sometimes reach R4/5 in the early evenings. If conditions follow on similar to last year it should be possible to hold QSO's with Europeans nightly within two or three weeks.

The only African heard since the Winter was Z31H, but his signals were very weak and remained audible for only half an hour. During March and April the South Africans were at good strength for between three and five hours each Sunday, so there is plenty of room for improvement during the next month or two. W6D10 and W6GRX are very consistent and about the strongest W's, and they seem to be working plenty VK's and ZL's. J3FK has been putting through a good signal each week-end, but seems to be the only Asian ham at present active on ten.

The most active VK3's on 28mc. now are 3CP, 3YP, 3XP and 3WY. The former is doing very fine work, and now has worked five continents on 'phone. He is also experimenting with directional antenna systems. 3WY's signal has an RAC Xtal tone and seems to be getting out quite well. 3ZC was active during the Fisk contest, but did not seem to be getting many contacts.

3BQ and 3BD are working on the 56mc. DX question, and have succeeded in hearing the harmonics of one or two distant stations operating on lower frequencies. Interstate work should be possible at peak periods on 56mc. for the next two or three years, particularly in the Summer months, and a few fairly powerful CW stations in each State are needed to produce the results. Two way working over 500 to 1500 miles was quite common in U.S.A. during their past Summer, and they usually found signal strengths best in the early evening, between 6 and 8 p.m. Beam antennas will be helpful, for during the last 56mc. field day the addition of a directional array over the 75 mile course between 3KQ and 30F was all that was needed to lift signals from R4 to R9. Further details of the experiments carried out on the field day are contained in the notes of the U.H.F. Section.

Queensland Division

By Vic Eddy

OM Static is beginning to load his artillery for the coming fray, and habitues of the longer waves of the ham band are beginning to cast eyes on the 20 metre band. Whether it be that the seasons have been changing, or whether we have conquered distance with our sensitised receivers is moot, and somewhat foreign to the purposes of this synopsis of Bananaland comings and goings.

Scribe was given a pleasant task of moving a vote of thanks to Old-timer, Bob Littler, of the technical staff of J. B. Chandler & Co., what time the genial Bob lectured us on his tour of the W's recently. Questioned re the use of 5 metres he stated that he did not observe much doing there on the occasions that he rode in radio-equipped cars. But he hands it to their aircraft. So do we, up here where distance IS DX, and where our large towns are an overnight journey apart per rail. At long last something is to be done re beacons and radio for the sky-riders, though scribe would remark that the crash of a gent in the ministry, in a rainstorm at Beaudesert 'cos the pilot could not see Archerfield does not appear to have galvanised anyone to action. VK4 is well on its way to a record year. Mention was previously made of a reshuffle in this Dist. We hope that the troubles are over, and that internicene 'yikes' are finished with. A new student class will start shortly; we have zoned the State, we have decided that 4WI will not waft a signal over the ham bands. Apropos that last — country hams please note that as we are a gang that gets no pecuniary reward for hamming, and that we have to earn our living we could not possibly have a station on the air here, laying down r9 sigs. in Camooweal or Cooktown or Cudgen every time that they in their capriciousness cared to listen. As a corollary, why do not they make use of the local traffic man, 4WT, to pass me the oil re their doings? I'm like a London bus, for the two ham sheets I supply.

AW has a super on 5 metres and his Xtal mitter is under observation

there. His co-mate and brother down there in radio exile, 4RY, are on the job. Latter checks on AW for hours on end with an e.c. oscillator type rx, and says that with xtal mitter there is no need to disturb the bats in his belfry by listening to the annoying super-regen hiss of the usual rx which blind custom has seemingly prescribed as the goods for 5 metres. Has anyone ever tried filtering out the sound of the super-regen hiss in the audio end of a rx? Pears to me, from a superficial point of view that something could be done in the audio end. Any controversy? If so, shoot. (It has been tried.—Ed.). JX, AP, HR, KH are down on 20 metres. Any comments are superfluous.

Two new members came along the last general meeting. They were 4NR and LI. Latter has a big modern station in the making. Took a casual spin o'er the dials the other night, being mildly curious to see how the boys were abiding the new regs. There was a big local, volume control wide, 'raking' a youth anent the behavior of his station. It struck me that such observations were indelicate and inappropriate, and it was satisfactory to learn at the meeting of the gang later in the week that the Avenging Angels had helicoptered over the diatribe also. When, oh when, will hams and would-be hams learn that John and Jean P. spend a lot of time down on the ham bands nowadays, and come along to the ham, very often to the one they 'canned' with the RI, on the off-chance that he may 'sling a few tips' about shortwave work.

Next meeting Mr. H. Tilse, lately returned from J, will tell the boys about it. He has an excellent collection of photos and slides. The boys fixed up 80 metres xtal fones for the Aero Club's Pageant (somebody a lineal descendant of one W. Raleigh it would appear), disqualified a YL pilot for cutting. Highlight of the effort was a duplex loudspeaker 5 metre workout between the officials' car and the broadcast station stand. They are timing the two motor cycle speed trials the same way on coming week-ends. Well, tempus fugit as the aviators' wrist-watch observed. See you fellows from the cabbage-

patch on the Fisk Trophy. That trophy will look well in VK4 for keeps.

South Australian Division

By VK5KL

During August two very interesting lectures were given in the W.I.A. rooms. On Aug. 19th members of the Adelaide University gave a demonstration of a Photophone. This showed the transmission of audio on a beam of light, amplified, then reproduced again. August 26th, Mr. Barber (5MV) lectured on "Paraphrase in Audio Amplifiers." The Institute also exhibited a 5 metre short-line control oscillator and a multi-vibrator in the University exhibition.

HAM NOTES

5LF.—One of the old-timers came to a institute meeting. Len is getting back on the air again.

5CM.—Is hrd on the air again.

5WP.—Bill has sold most of his gear to buy that "Wedding ring." Best luck.

5DQ.—Was also present at the last meeting.

5GW.—Has transferred to Narracourt, so won't see much of him nw; made a big score in the D.J.D.C. contest.

5RX.—Was also doing well, but went to a party which left its trademark next day. Hi!

3BQ.—Arrived in V.I.A. and was rushed around seeing things by 5DA es. 5BY.

5FM.—Now member of the vigilance committee. Pete was tickled pink when he first hrd 5CF at the Hummicks.

5FBX.—Visited W.I.A. and voiced the opinion of several country hams

5JT.—Better known as op. at VKZ is staying at Burnside holidaying; has a 19 tube super 25 watts audio output. Don't need a Xmitter hi!!

5A1.—Has not trouble to QSO W's on fone.

5JC.—Keeps him company.

5CR.—Has nice fone, also 8 tube super.

5TR.—Has been on a bit.

5ZX.—Still rebuilding his perk.

5MD.—Doc is making a 5 metre transceiver.

5MK.—Hrd u on 40 at the Hummicks, Jack; must be getting out.

5LL.—Has increased power. QSO ed a K6; also VK6 on fone F.B. Luke.

5TX.—Hrd on 80 metre fone.

5LB.—Also on 80, m'nd the BCL'S Lionel.

5LD.—Hrd in D.J.D.C. How did u do Launse? Well, chaps, by time this is printed the 1936 Fisk trophy contest will be over. May the best State win.—73's, Clarry.

VK5 SHOOTS THE WORKS ON FIVE METRES

By VK5KL

Sunday, Sept. 6th, 1936, dawned a beautiful clear day, and the stage was set for a few of VK5's 5 metre enthusiasts to go into action and show the community that this band was not dead in this State. Mr. Bowman (5FM) had offered to provide transport to the South Hummicks near Pt. Wakefield, where on a high rise Mt. Lofty can be seen easily. Accompanied by Mr. Lloyd (5HD) and Mr. Castle (5KL), Mrs Bowman and 5KL's YL, the party left town at approximately 9.20 a.m. for the long tour. Meanwhile Mr. Farmer (5GF) journeyed to Mt. Lofty. erected his gear and 4 element beam to while away the time kept contact with suburban stations, 5WI, 5ZY, 5BY and 5KD, Pt. Adelaide, was also active. 5GF's gear consisted of P.P. T.N.T. 201A's telefunken Modulation Pwr supplied from a vibrating reed arrangement and super regen Receiver.

The party, arriving at the Hummicks, picked a suitable position and got going to get the gear in action. A attempt was made to contact on 40 with 5W1 first, but failed. Too much time was lost doing this, so as soon as the 8 element beam was erected, not marred by the fact 5FM got covered in bull ants, the 5 metre gear was connected up. The receiver being first to get going sum listening was done, but nothing hrd. The transmitter was next, and after a few tests, when no R.F. could be got and to make matters worse the milliamp meter had been left behind, a call was given. Changing to the receiver instantly 5GFX was heard calling us (his sigs R8-9) and coming through like a ton of ash cans. 5KLX's sigs. were only

Amateur Radio

R 3-4 at the other end, changing to the Pickard antenna for transmitting which we were using for receiving our sigs were still R4 says a lot for the beam antenna. Hi!

Keeping QSO with 5GF the other stns. were looked for, but nothing could be heard of them. The contact took place at 1.55 p.m. and so, as the hour was getting late, also 5GF's sigs. weaker, the gear was packed up and the long journey made home again with all thoroughly satisfied that the trip had been worth while. H.T. was supplied from a genemotor working off the 6 volt car battery plus 120 volt "B" batts. The transmitter was P.P. T.N.T. 201A's 77 sp amp 38 modulator super regen receiver. The airline distance works out to be 75 miles, quite a step from 10 miles, the old record for a QSO in VK5, but, hark, ye! VK's move is in the wind and before the year is out VK5 will be claiming the Australian record.

To cap up this tremendous effort news comes through that two VK3's and one VK2 hrd a unknown stn. at approx. 5.35 p.m. E.S.T. This checks up with the time that 5WI was on QSO 5ZY. Another news flash, 5LR of Renmark has been heard in Broken Hill. Boys, we are going places and if a interstate contact doesn't take place this summer then the Gods are unfair.

Tasmanian Division

By VK7JB

The monthly meeting of this division was held in the club rooms on the 1st Sept. inst. The attendance was a marked improvement over the majority of previous monthly meetings, which was very encouraging in view of the very interesting lecture delivered by Mr. Barker (Western Electric engineer, VK7). The lecturer dealt with his experiences during the war and after with radio.

Mr. Barker was sparks on the Shackleton Relief Expedition Ship and afterwards operator on several land stations in South and North America. An endeavor is being made to form a Cairo Survey Committee to report on the doings of commercial stations with a view of

widening the Amateur Bands. The vigilance committee for VK7 has been appointed and consists of Mr. E. J. G. Bowden, D.R.I., Messrs. Hooker, 7JH, and Moorhouse (W.I.A.) and Mr. C. Walch, 7CW as the independent member.

All VK7 stations are now crystal controlled on 200 metres as the outcome of the new regulations concerning QRM with VK5-6 "B" class stations.

MEMBER'S ACTIVITIES.

7YL, QRL, building 8 toob all wave receiver for Sorell State School. Vy fb job, too, believe me. Finds time to work on 40 mx fone, Sunday a.m.'s. Believe me 80 mx fone caused a riot among the B.C.L's. Joy hi! 7KV. Busy in Fisk Contest and to date has worked all States on 20-40-80-160 and VK6 on ten. Has induced 7YL down to 5MX to keep him company. 'Ware of Bing Crosby, Keith. Hi!

7JH.—Has enlarged his shack and can now take down the One Way Traffic sign, or was it One Man Capacity, Jack? Taking a passing interest in Fisk Test, between shifts.

7PA.—Quiet on S.W. lately. Installing QRO Bottles for Oct. Contest, I gess. Hrd regularly on 200 mx.

7CL.—For enthusiasm in Ham Radio, I gess I'll hand you the first prize, Merv. Carted all his gear, including modulators, up to Launceston while on 2 weeks' vacation.

7CT.—"The Voice of the Bush" pegging away on 80 mx, C.W. and grid modx. Has a bet on with 7YL as to who makes W.A.C. first. 7BJ Operator at 7ZL now. Has also acquired a new Mo' Bike, and has now discarded his crash helmet. Careful, Joe!

7DH.—A new ham hopes to be on the air shortly as soon as the licence arrives.

7LJ and 7CW.—Hrd regularly on 200 mx.

7JB.—Active in Fisk Test when Power QRM permits; also preparing for DX contest in Oct. Am offering a dud 210 for a recipe on incubator elimination (gelignite barred).

Our Sec., "Chum" Moorhouse has
(Continued on cover 3.)

R.A.A.F. Wireless Reserve Notes

Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

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

Third District, Victoria—Pilot Officer V. E. Marshall, 3 Myrtle Avenue, Kew (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—S. J. Madden, Dundas Road, Maylands (VK6MN).

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

FEDERAL NOTES

It has always been the aim at H.Q. to make the Reserve notes in "Amateur Radio" as free from the official aspect as possible and to use the medium, which is common to all members, as a place where general activity and personalities may be discussed. Many, however, seem to be reluctant to send in monthly notes to their D/C for no other reason than the want of energy apparently. Maybe it is hard to think of something of interest to send along, but, what a small task that is compared with the effort that a District Commander must put in to write the notes for his whole District.

Some time ago certain honorary awards were made for traffic handling for a District, Section and individual. The only reason why they have been dropped is because members were not sending in their traf-

fic returns. No instruction was given for this cessation and, strictly speaking, the figures should still be forwarded monthly. It will be left to reservists and D/Cs to display their interest in these awards and next month will show the results of this appeal.

It is intended to publish one or more photographs monthly of Reservists together with notes dealing with their history and general ham activities along the lines of the "Hamdom" page in QST. The invitation is open to all members to forward this material as soon as convenient. Photographs should be as near to quarter plate size as possible and preferably of the operator seated at the operating table. Remember, this is not a station description matter, and the man behind the key is the main object. Glossy prints with well developed detail make the best blocks.

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(Continued from Page 27.)

Queen "Lizzey" perking O.K. now es receiving 7JB R9 Plus hi!

7AB.—Also representing VK7 in Fisk Test, working on all bands from 10 to 160 mx. Why not 5 mx Doug? Only 200 miles of water to VK3!

7AM.—No news.

7CJ and 7KR.—Very active judging by the pile of cards received here for despatch. Hear your fone (40mx) down here regularly,

7LZ working plenty of W's on 40 mx.

7JW and BQ mostly on 200 metre fone, but hrd 7BQ on 40 mx fone recently. Vy fb es R9 down here, Len, altho ur xtal has a bad habit of double spotting.

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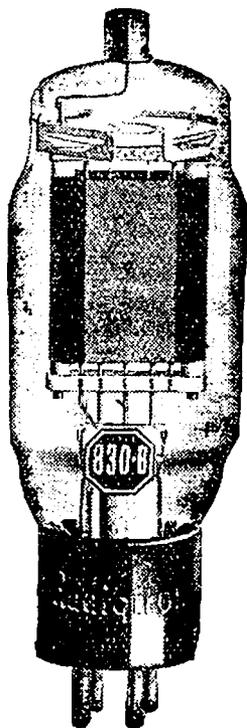
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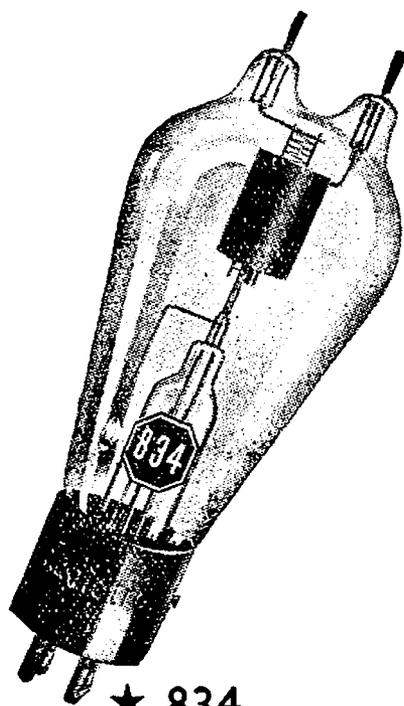
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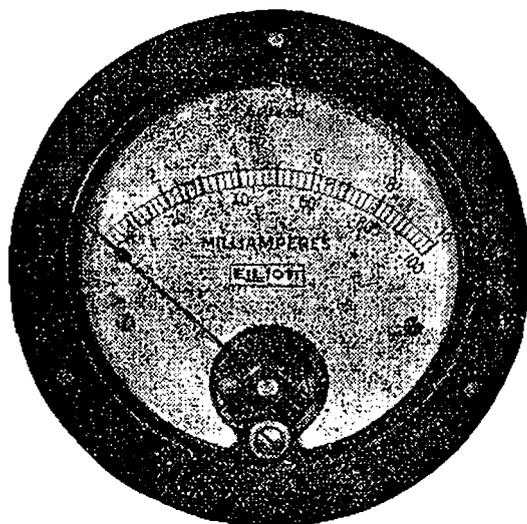
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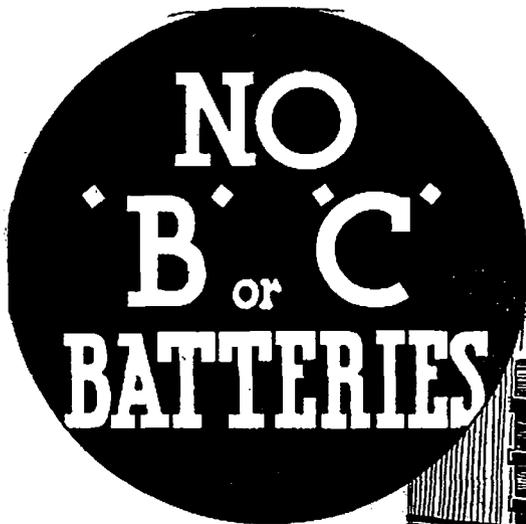
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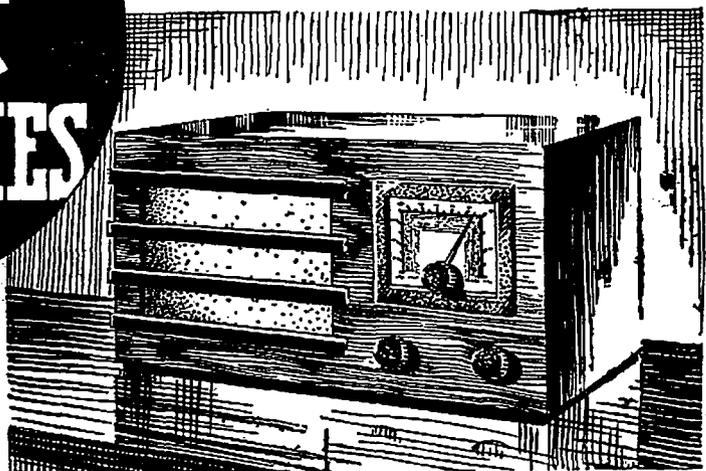
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Editorial

Possibly every subscriber to Amateur Radio has had some criticism to make of it at one time or another, and largely as a result of the friendly, helpful advice of many, the standard has been improved in many ways. However, one complaint—one that is probably more numerous voiced than any other, is the matter of late delivery each month. Whilst realising the importance of the matter, we must confess that it does not appear quite as serious as is sometimes made out. QST, Radio, and T. & R., are not "stale news" when received many weeks after publication, and Amateur Radio contains very little topical matter excepting Divisional Notes. Even of these it is somewhat difficult of understanding, for we assume that it is of the same breath-taking interest to know two weeks hence as now that "3XXX has blown his crystal," or that "3YYY has a new YL." Don't misunderstand us; we do not condone the matter in the slightest degree, and the Magazine Committee, through a complete and careful examination of all aspects of the problem this week, have re-organised some sections with a view to overcoming this difficulty once and for all. Our aim is to get Amateur Radio out during the first few days of the month, and the Committee will do all in its power to achieve this. However, there are various variable factors that can mitigate against success in this direction, the most important of which is the arrival of copy by the due date—the 18th of the month. This is of paramount importance. It must be remembered, too, that this Magazine takes a great deal of time and effort to publish, and—an equally important factor—each of the Committee has his livelihood

to earn. During a busy period one's job must come first, so if you, as a subscriber, don't agree with some feature or aspect of your Magazine, then we ask, firstly, your indulgence, because this job is an amateur one, and, secondly, your constructive criticism.

Such a letter of criticism appears in our Correspondence section of this issue, and whilst we do not agree with the remarks of the writer, we realise his is a sincere attempt to alter something with which he is not in agreement. It is the matter contained in this Editorial page that our correspondent disapproves of, so a word of the Editors' attitude to this page would be timely. The Editorial of a publication is the forum where the Editors can state their ideas and thoughts in the same way as the Correspondence page is the place where a reader may express his or her views. Our attitude to this page has always been that any matter that needs voicing will be given prominence without fear or favor. Whilst not deliberately looking for contentious subjects, if one needs discussing we will not avoid it. Your Magazine Committee are all Amateurs, with the same desire as yourself to see the Wireless Institute and Ham Radio progress. Our views may not always coincide with your own, which is as it should be in a live body like ours. Honest disagreement and criticism is a proof of healthy, enthusiastic activity, therefore we thank our correspondent for his letter, and naturally won't take the obvious advantage of answering his criticism here.

Remember this, every subscriber has the same right to express his opinions in this Magazine as the Editors, sincerity being the only requirement and space the only limitation.

The VK2JX Super

By Peter H. Adams

PART 2

Having discussed the technical considerations underlying the design of the receiver it now remains to describe it in the practical form.

The circuit is shown in fig. 1. The photograph gives a good general idea of the layout.

A drum dial is used to allow a symmetrical and convenient arrangement of converter and oscillator circuits. Five plate midget condensers are used for tuning and no attempt is made to get 100 per cent. band spread. However, there is no reason why those who must have band spread should not use any of the usual systems. Of course if 23 plate padding or band-setting condensers are used less turns must be used on the higher frequency coils. With the arrangement used the 14 mc. band is spread over 15 degrees, and the 7 mc band over about 30 degrees. It will be seen that a large knob is used to drive the dial and tuning is accomplished by slowly rotating this knob with the tips of the fingers resting on the top edge. By this means fine tuning is comparatively easy and at the same time the band may be covered in a few seconds if desired. However, the question of bandspread is largely a matter of personal preference. The receiver was designed mainly for high sensitivity on the 14 mc. band and it was deemed preferable to avoid sacrificing sensitivity due to a low L/C ratio, brought about by large padding capacities, and also the losses that extra condensers in the tuned circuits would introduce. Isolantite insulated tuning condensers and coil sockets are used in the RF end to minimise losses, and coils are wound on high grade $1\frac{1}{2}$ inch diameter moulded bakelite former. Grooves were turned in the former to hold the spacing permanent. All wiring in the tuned circuits is short and direct tinned copper bus-wire. Although the chassis is cadmium plated, and sprayed only on the top, the additional precaution is taken of running a heavy bus-wire around the underside of the

chassis earthing all I.F. transformer cans and valve shields. All by-pass condensers are also earthed to this bus-wire. It might be mentioned in passing that if Radiokes isolantite midget condensers are used it is essential to fit a solid wiping contact to bear on the back end of the spindle as contact through the bearing itself is very poor and prone to be erratic.

A three plate midget is connected in parallel with the converter tuning condenser to allow this circuit to be tracked accurately with the oscillator.

However, by judicious pruning of the coils it is not at all difficult to make them track across each band and then this condenser, once set, need not be touched again. The receiver is arranged to work from a doublet aerial, but has since been used with a single wire feed matched impedance Jones antenna with almost identical results. In the case of any other type than a doublet, one aerial terminal should be earthed to the chassis and the aerial connected to the other one. The power supply for the receiver delivers 250 volts and is filtered with two alleged 30 Henry chokes and three four-microfarad condensers. The receiver is quite hum free.

Testing and Alignment.

It is doubtful whether any ham would build a receiver identical with the set described. It is much more likely that some of the ideas incorporated in it would be combined with other ideas of the builder's own. However, the following alignment procedure should apply in most cases.

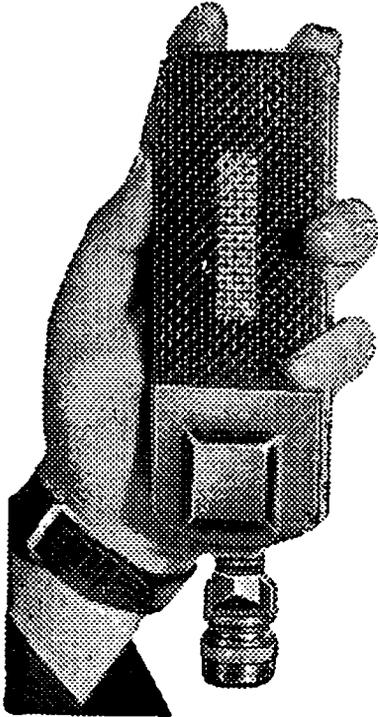
The set should first be connected to the power supply and the clip on the voltage divider and the two clips on the main bias resistor set to the voltages shown in the circuit.

To align the intermediates a signal generator or service oscillator is almost

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Reduction of Car QRM

By I. Patterson, VK3YP.

As the years roll by, and we have been slowly pushed, gladly or otherwise, to higher and higher frequencies, the battle with our oldest enemy, man-made electrical interference, has been steadily increasing.

Unfortunately, now that the 14, 28, and 56 M.C. bands have become three of our most valued possessions, so has the rapid growth of the use of automobiles increased to such an extent that this source of unpleasantness has reached an alarming proportion, and is no

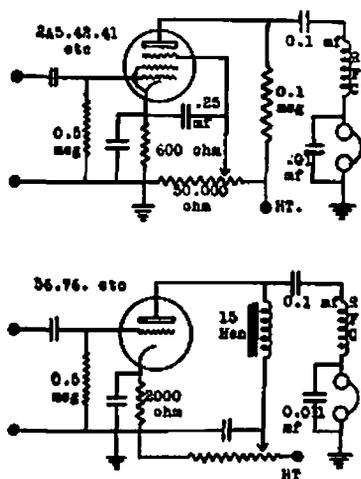
it. When we go back a few years to the time when a UV199 or such-like (equivalent) was our standard of excellence, we find our audio output to the head-set or speaker limited to around .02 of a watt.

Assuming that we now have an audio output capability of .1 watt to our phones, and that it is generally accepted that approximately .01 watt or 1-milliwatt power output represents a good, healthy signal, we can readily understand that the peaks of automobile or other interference, which easily reach (peaks?) of .1 watt, not only tend to drown out our previously comfortable signal, but cause the ear diaphragms some exceedingly uncomfortable moments.

Now, if the audio power output can be varied at will from approximately 1 milliwatt, or even less, to the maximum available, we can limit this output to accommodate the desired signal, and at the same time hold the strength of the interference to a point no louder than the desired signal.

The wave form of the majority of interference consists of high amplitude peaks, while there are a number of comparatively quiet troughs in between, which, however, pass more or less unnoticed until such time as these peaks are lopped off to the level of the required reception, and it is then that the desired signal becomes apparent, and much more readily understandable. This same fact holds good on rapidly fading signals, and we find the stronger peaks ironed out and the signal appears to be practically steady, unless, of course, the fading is so severe that the signal is falling below audibility.

When, however, the strength of the received signal exceeds the limited audio output capabilities already set by the control, distortion becomes apparent. As far as the C.W. man is concerned, this occur-



doubt one reason for the spasmodic appearance and disappearance on the 38 M.C. band of stations other than the old regulars.

Happy indeed is the amateur who can enjoy a pleasant contact unaccompanied by crashing static or a machine-gun-like background which threatens to overcome all but the loudest signals.

The modern receiver has improved to such an extent that the available audio output in any typical amateur superheterodyne or T.R.F. is of the order of .08 to 1 or 2 watts.

This also has done nothing to lessen our problem, and, on the contrary, has definitely accentuated

rence is of little importance, but for the reception of telephony a slightly higher output setting than the desired signal level should be used; in any case, slightly distorted telephony reception is preferable to that which is marred by disturbing interference. No attempt has been made to match the phones to the audio tube, and a little experimentation in this direction might well repay the super high-fidelity telephony man.

In the case of a pentode output tube, type 2A5, 41, or 42, the output is limited by control of the screen potential by the 50,000 ohm potentiometer. The triode tube, type 56, 76, etc., has its output controlled by varying the plate voltage in the same manner.

Here, at 3YP, when the screen voltage on the 42 audio tube is swung to zero, signals hitherto unheard in the roar of unceasing automobile traffic, vacuum cleaners, and occa-

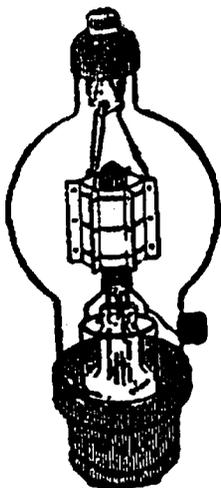
sional power leaks, appear as if by magic, while signals which were around R7, and well-nigh unreadable, stand out of the background and the operator relaxes and enjoys many a pleasant QSO.

When, on the now-a-days infrequent occasions, the operator happens to be on the air very late at night, or in the early morning hours, when all self-respecting automobiles are parked in dark corners, or safely garaged, the limiter becomes a joy to handle, the hiss of the B.F.C. is cut down so much as to be inaudible, and signals of the R2 to R3 variety become QSA5.

In conclusion, thanks are due to H. A. Robinson, W3LW, for the original write-up on this subject, and it is to be hoped that anyone incorporating the device in their own receiver will find it as beneficial as I have done.

.....
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A Visit to VK6MO

(By VK2CI.)

The township of Watheroo is situated about 150 miles north of Perth and about half-way to Geraldton, and the road leading thereto must be the worst in Australia, the car at times just about disappearing from sight in the potholes!

The Carnegie Magnetic Observatory is about 15 miles west of Watheroo (i.e., toward the coast), and a more lonely and desolate qra would be hard to imagine, just scrub-covered sandhills as far as the eye can see.

On arrival I was amazed to see the number of buildings there were, and wondered if they had used some sky hooks to get them there, as it did not seem possible that such a quantity of material had been transported over the narrow winding sand track I had just traversed! I received a very warm welcome from Mr. Green (who does the magnetic observations), and was shown around.

There is a very fine home (completely wire-screened against flies and mosquitoes), beautifully furnished, piano n'everything, a golf course, tennis court, windmills, several wells (to ensure plenty of water during drought periods), and a very fine generating plant, one of the units being a 10 k.w. direct-coupled outfit (6 cyl. motor).

It so happened that the day I arrived was Mr. Seaton's busy day, and he was doing what he calls "a run," i.e., a series of ionosphere measurements; so to keep me out of mischief until he had a little time, he put on the FBXA for me, and everything seemed to be R9 on itt!

The shack is just about a "ham's" paradise, nice open fireplace, operating table de luxe, and a comfy chair; but I believe it gets a bit hot in the middle of summer!

The transmitter is on the right as one enters the shack, and is used for both ionosphere measurements and communication. It consists of a 210 c.o., a pair of 865's buffers, and a pair of 860's in the final amp.

During ionosphere measurements the master oscillator is pulsed 90

times a second, each pulse (or dot) being of a duration of 1/10,000 part of a second (just about licks that "bug" of yours, 3EG.Hi!").

A frequency of say 3000 k.c. is set up and 90 pulses are sent out, then the frequency is changed. This happens every 30 seconds, gradually going up in 200 k.c. steps.

The pulser is a tuning fork controlled converter, giving 110 V. 60 cycle, and accurate to within 0.01 per cent.

An oscillograph is also run from the same source, so that the pulse as seen on the screen appears to stand still.

While these signals were being transmitted I watched on the oscillograph screen, the "echoes" coming back to earth from the "F" region. Quite a thrill, I assure you. The fading effect due to the rise and fall of this layer was also very noticeable.

The receiver is directly across the room from the transmitter, and is a 22-valve superheterodyne! It has a sensitivity of $\frac{1}{4}$ micro volt per meter, and is capable of an output of 10 watts undistorted. It has a continuous frequency range of from 500 to 32,000 k.c. by changing coils. The output is fed directly into the oscillograph element.

There is also a monitor attached which can be used for tuning and adjustment. It, however, does not have 10 watts audio output, but makes an awful racket in the comparatively small room, so was not put on. The pulses are sent out and received in the receivers both before and after they are reflected from the ionosphere.

The directly received pulse is termed the "ground pulse," and the other is called "the echo." The time difference between the pulse sent out and the echo is measured directly on the oscillograph screen in terms of "equivalent height," which is recorded on the log sheets. This data is later plotted as frequency Vs. "virtual height" graphs, and the later

reductions taken from these graphs.

I was rather surprised to note the speed and precision with which Mrs. Seaton with a fine mapping pen does these graphs, and the great interest he got out of noting at what frequency the ionosphere was penetrated. These graphs are sent to Washington, D.C., and compared with others done in the other Carnegie observatories.

As the frequency is changed and measurements are made in the region of the ionosphere, it is found that first one and then another of these "regions" is penetrated. First the "E" layer is penetrated. This lies at a height of about 100KM above the earth. This layer is usually penetrated at around 3000 to 5000 k.c. during the day-time. This "E" layer does not exist to any appreciable extent at night. The next region encountered is the "F" region, which is in two parts (F1 and F2) in the day-time, merging to form one region at night-time. It is from this "F" region that most of the D.X. is reflected, hence is responsible for most of our grief and sudden surprises in the way of unexpected fadeouts and sudden bursts of extra good D.X. on some frequency or other. Its "critical" or penetrating frequency (i.e., when signals go right through it at a point directly overhead) varies over wide limits; at times during the early morning hours it may be penetrated at as low as 3500 k.c., whereas during some daylight conditions frequencies of 13,000 k.c. are not high enough to penetrate it. For this reason the ionosphere will support transmission at frequencies higher than the "critical" frequency as measured with a recorder, due to the refraction of the wave over long distances.

For communication a C.O. is switched in to take the place of the variable freq. oscillator. Several freqs. can be used in the 7 MC and 14 MC bands. The receiver, as mentioned previously, is an FBXA, and has a pre-selector, as other-

wise a certain amount of 600 meter "mush" gets into the I.F.'s.

The antennae are horizontal doublets for transmitting a vertical $\frac{1}{2}$ with counterpoise, and a horizontal Rhombic beam for receiving. This is aimed at Washington, D.C. Some work has also been done on 56 M.C.

I had a good look at the fb rack and panel construction of the transmitter (the Carnegie Laboratory build all their own experimental equipment), and as there was 4000 volts on the final amp., refrained from trying a lead pencil on the tank coil to see if there was much R.F.! Hi!

They also have a freq. meter and monitor, accurate to 1 K.C., so any one q.s.o.'s VK6MD can always be sure of an accurate check.

There is also a separate oscillograph (so called oscilloscope), which can be used to check modulation, etc. It is also used to tune up the I.F.'s in the FBXA, as, due to the wide range of temperatures here throughout the year, they get a bit out of line. (I believe the HRO's have automatic temperature compensators.)

On account of the sunspot activity, Mr. Seaton says that we may expect good D.C. conditions for the next two years.

After having a final look round and managing to collect a qsl card which was owing to me (yes, it must be the last in stock, hi! hi!), and feeling rather dry after doing so much talking, we went over to the house and had several cups of excellent tea, prepared by Mrs. Green. (These Americans do drink tea sometimes!) I also met the rest of the gang and had a good "chinwag."

As the sun was creeping toward the horizon, I decided it was time I was on my way, so with "good-byes" all round and a final SK on the horn, I departed, taking with me memories of real hospitality.

In concluding, I wish to take this opportunity of thanking Mr. S. L. Seaton for his co-operation and technical data, and also everyone who made my visit so interesting and enjoyable.

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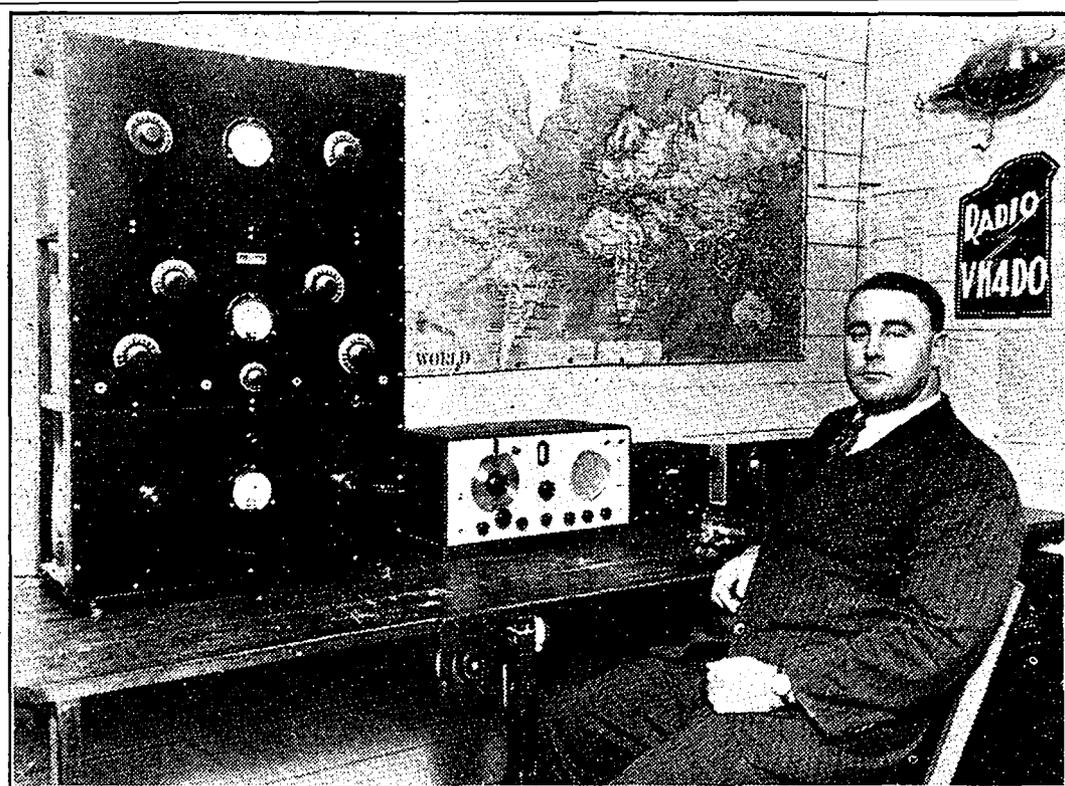
Station Description

RADIO VK4DO.

Harold L. Hobler.

Radio VK4DO was one of the first licensed stations in Queensland, and transmitted 240 metre broadcasts first in 1923, being also the first licensed receiving station in Rockhampton after the Great War. From 1923 to the present time it has never been off the air

1936 Hallicrafters Super Skyriider with crystal filter, especially brought out from Chicago. Next is a Gross Monitor, which keeps a check on frequency and signal, then a faithful Super Wasp, which served well for some years until displaced by the Skyriider.



for long, and of late years the log shows an entry for practically every day. The station has progressed from 140 volts on a UV202 in a self-excited Meissner and Hartley up to the present gear, namely, a 4-stage rack crystal controlled with 47, 46, 46 and 210 in the final on 20 metres, where the station practically always is situated. VK4DO has never in the 13 years of its existence used a greater input than 40 watts, always being on low power. The 4-stage crystal rig has switching for change to 40 metres by cutting out a 46 doubler. The transmitter is followed by a

A map of the world in front of the operator keeps brushing up his geography, and at the same time is used to show many stations and countries worked. It is mounted on a sheet of Celotex, and a pin is inserted at the exact spot a station is worked. The pin has a small flag at the top, on which is the station call. It only takes a glance to see just where QSO's have been made.

Crystal control has been in for some time. Prior to that the station went through all the old time—trying to get a good note—supplies,

including the old slop jar rectifiers, Amrad "S" tubes, and an ESCO generator giving 500 volts.

In 1926 VK4DO was the winner of the Queensland Jewell Miles Per Watt Contest, communicating with Hawaii, California, and Oregon (U.S.A.), using 140 volts on a UV202. In this year the station was also successful for Queensland in the Trans-Pacific Tests conducted by the A.R.R.L. and the W.I.A. In 1925 it pushed 200-metre phone to New Zealand (2000 miles), using 160 volts on a receiving valve in the transmitter.

Despite the low input always used, all continents have been worked several times, five in one hour being the best piece of DX. The station also claims WBE. The OM is an original member of the Rag Chewers' Club. To date 56 countries have been worked in all continents. Over 2,500 contacts have been made, using never more than a 202 or 210. The aerial is a single wire with small counterpoise, in a poor location, but is always used. R8 reports from Europe and Eastern U.S.A. seem to indicate it is a good radiator.

VK4DO holds a first-class Wireless Operator's Certificate, but amateur radio is his hobby. When 10t with the gear, manages a theatre. Is married, with a junior op. three years old, and is 30 himself. Is keener to-day than when he started over 13 years ago.

202 Campbell Street, Rockhampton, Queensland, Australia.

STATION DESCRIPTION

VK2HV

Owned and operated by Harry V. Hutton, of Inverell, in the North-west of N.S.W., VK2HV made its debut on 40 metres with the classic pair of 45's in push pull.

This humble breadboard layout has graduated, over a period of four years, into a considerably more complicated and effective rig.

However, and quite naturally enough, during that time a great

many transmitters and receivers have come and gone, some quite orthodox and others, for the cause of science — otherwise! Unfortunately, those coming under the category of otherwise refused to show even a glimmer in the good old pea lamp, so for them, R.I.P.

T.N.T. Hartley M.O.P.A. and what not were all tried and results were about the same; although many locals and ZL's were QSO'd, real DX seemed beyond their reach.

Then came in '34 the first Xtal rig, 47, 46, 10 and altogether about 16 countries were worked on 40 metres with a max. input of 9 watts! Xtal versus S.E. with a definite decision in favor of T9.

About three months later the Xtal gave up the ghost whilst in an experimental tri-tet hook up and S.E. once again came into its own; the advantages of T9 were remembered, however, and shortly another 3 stage rock outfit was in operation; phone was installed and when modulating (Heising) the input to the final never exceeded 3.5 watts. Some ever to be remembered phone QSO's were obtained with this hook up, and all States and ZL were worked on 40.

Then time began to tell; first the modulator gave out, then the 46 and finally the 210. It looked like a certain end to 2HV for all time, as, after all, even a ham can't spend all his cash on his hobby; particularly when he's courting his future YF hi!

But every cloud has a silver lining and at this darkest hour, Father Christmas, in the disguise of the genial Jim Campbell, an Inverell resident and radio enthusiast, came to light with his Xmas box, an open order with a well-known VIS firm for the gear to build 2HV 1936.

Frame mounted and some six feet high, this rig consists of 47 crystal oscillator on 80 metres, 46 doubler on 40, 46 doubler on 20, 210 buffer on either 40 or 20 and 210 final on both bands. Another final stage is to be installed shortly, using a 100 watter, and will be used in conjunction with antennae experiments.

(Continued on Page 13)

Correspondence

To the Editor, "Amateur Radio."

673 David Street, Albury,

14th July, 1936.

Dear Sir,—As an amateur who is interested in his Division, I take strong objection to your remarks in the Editorial of the May issue.

Firstly, you state that Victoria has to supply all the advertising and practically every article that appears. Is this correct?

It is not!

I have taken the trouble of checking through the Magazine from July, 1935, to May of this year, and find that, exclusive of Zone Notes and Divisional Notices, that Victoria supplied 19 articles, and other States supplied 24.

This shows clearly that the apathy you allege does not exist with regard to the articles.

Re advertising, you are mostly right, though ads. have appeared from other States, and the reason for this lack is probably on account of the time that elapses between the time ads. should be in (20th of month) and the date of delivery to "hams" in other States (as late as the 24th of the following month here once)

Secondly, you say that most Divisions are lagging in payments to the magazine.

Is the Editorial the place to say that?

Does it not indicate lack of business control by the magazine, and therefore their own fault?

We are not all financial experts.

It is not a great while since the N.S.W. Division became a part of W.I.A. in name, but during this period, friendliness and co-operation with other "hams" and Divisions have

been, and will, we hope, continue to be 100 per cent., and I am sure there is nothing you can ask the "hams" generally to do that they won't try, if it means improving Amateur Radio and the W.I.A., but we prefer honey to castor oil.

Your remarks are too sweeping and inaccurate to secure results.

Our memories are all unreliable.

Well, I guess the chest feels easier, so 73.

Yours faithfully,
R. W. Ross, VK2IG.

(Continued from page 12)

Each stage has its own plate meter finished in silver, and these, mounted on the front panel of black sprayed plywood with its control dials finished in gold, give the job a very pleasing appearance.

Three power supplies are used, one giving 350 volts for the oscillator and doublers, a second delivering 500 volts for the buffer and a third giving 650 volts for the final.

Two speech amplifier stages using 58's as high gain triodes follow the D104 mike; the third stage has a pair of 56's which in turn drive the modulators, a pair of 50's. Two receivers are in use, one a 6 valve dual wave, and an home-built E.C. job using 58 and 56. Monitor and wavemeter one a la QST handbook.

Well, that's the Xmas box; what do you think of it?
So do I hi!

With this line up 36 countries and W.A.C. have resulted. Many antennae have been tried, but all gave about equal results when operated under the same conditions, it was proved beyond all doubt, however, that an alteration in direction made a big difference in results.

A 14 MC. rotary beam antenna is at present under construction, and should tests prove it successful, details may appear in "A.R." later.

(Continued from Page 5)

the regeneration control is advanced. A point will be reached when a whole flock of signals can be tuned in and out with this condenser alone. When correctly adjusted just short of oscillation this condenser should have only a very slight effect on tuning, merely altering the pitch of the beat note as it is tuned through resonance. The correct setting of this condenser is indicated by a sharp rise in background noise with the I.F. gain control advanced.

The measured single-signal effect was found to be approximately 30.1. That is, the power output was 30 times as great on the side of the signal to which the B.O. was tuned.

The selectivity was too high to be measured accurately on standard laboratory apparatus, but a sufficiently good idea can be obtained when it is stated that the signals from an 80 watt station half a mile away occupy approximately 20KC on the dial.

In conclusion it might be mentioned that this receiver was used throughout the recent German D.J.D.C. DX Contest, and gave complete satisfaction.

Coil Data.

28 MC
1½ Inch Former

Converter.

4½ turns 22g., spaced to cover 1 inch, tapped at ¾ turn. Primary 3 turns 30g., enamelled, spaced ½ inch from earth end of grid coil.

Oscillator.

4 turns 22g., spaced to cover 1 inch, tapped at 1½ turns.

14 MC

1½ Inch Former

9¾ turns 22g., spaced 8 turns per inch, tapped at 1 1-3 turns. Primary 3 turns 30g. enamelled, spaced 3-8 in from earth

end of grid coil.

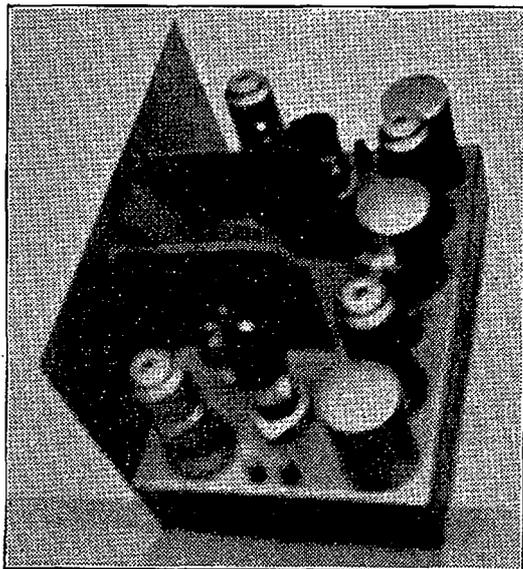
9 turns 22g., spaced 8 turns per inch, tapped at 2 1-2 turns.

7 MC

Tube base

15 1-3 turns 24g. d.s.c. wound close, tapped at 1 2-3 turns. Primary 4 turns 24g. d.s.c., spaced ½ in. from earth end of grid coil.

14½ turns 24g. d.s.c. wound close, tapped at 2¾ turns.



A newcomer to the ranks of Ham radio is 3SU, Syd. Edwards, of Collins Street, West Preston (two doors from 3PA. Oh! the QRM, hi). He has only been on the air for a few months now, but works some FB DX with his QRP .45 TNT Xmitter and 6 watts. He has a two toob rx .57-2A5. The power pack for his rx supplies both Xmitter and rx by change-over switch. The ant. is half wave zeff facing N-S. Syd has a Xtal rig under construction. Behind the scenes he is a very active member of the W.I.A., and has been a member for three years.

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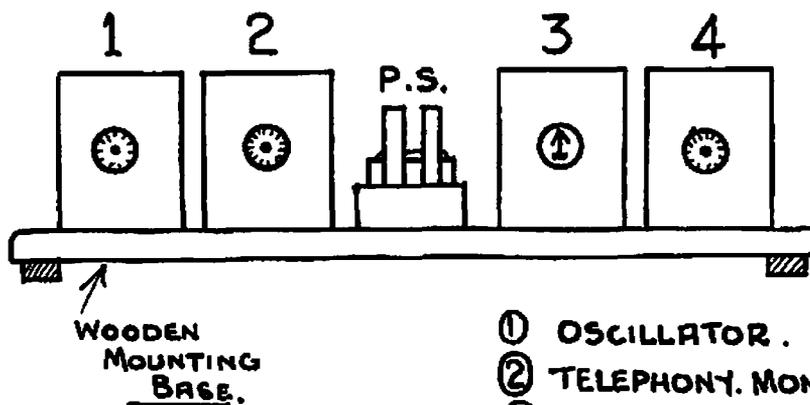
W. E. C. Bischoff, VK2LZ.

With a view to winning a Xtal microphone, and incidentally provide a piece of apparatus of value in the shack, it was decided to arrange a series of pieces of test gear in some manner that they would be reasonably portable.

The Xtal microphone was to be presented to the amateur who exhibited the best piece of apparatus at the N.S.W. W.I.A. Exhibition.

The oscillator can be either modulated or unmodulated, covering a wave-length of 9 metres to 2000 metres. Next the vacuum tube voltmeter, having two voltage scales, 7½ volts and 150 volts, its main use being line up, the telephony monitor, and, finally, the frequency meter, which can be used as a C.W. Monitor.

The filament and H.T. connections



- ① OSCILLATOR.
- ② TELEPHONY MONITOR.
- ③ V.T. VOLTMETER.
- ④ FREQ. METER.

P.S. POWER SUPPLY.

It was decided to construct each unit separately shielded in its own case, and using a common power supply, and mount the lot in a larger unit, with only the 240 A.C. leads being taken away.

After considerable thought, the following were constructed as being necessary, and of the greatest use to the Amateur:—(1) Oscillator (Modulated and Cw), (2) telephony monitor, (3) vacuum tube voltmeter, (4) freq. meter. Each in its own box, 6" x 9" x 8" high, and the lot together, with the power supply screwed to a wooden base 3' long x 11" wide, as per assembled sketch. Figure A.

Broadly speaking, the units Nos. 2 and 4 are those necessary for correct receiver operation and adjustment, and Nos. 1 and 3 necessary for monitoring transmissions.

are made to the power supply, via 5 pin plugs and cables.

(1) Oscillator covering 9-2000 metres, Modulated or Unmodulated.

This unit uses a 6D6 tube, and is electron coupled; three coils are used to cover the short-wave channels, one for the broadcast band and two more for the frequency range, from 550 metres to 2000 metres, a total of six coils in all.

Modulation is accomplished by using an audio transformer coupled between plate and screen circuits. This is shorted out screen winding when modulation is not required; mounted on the front panel is the tuning dial, pilot light and switch.

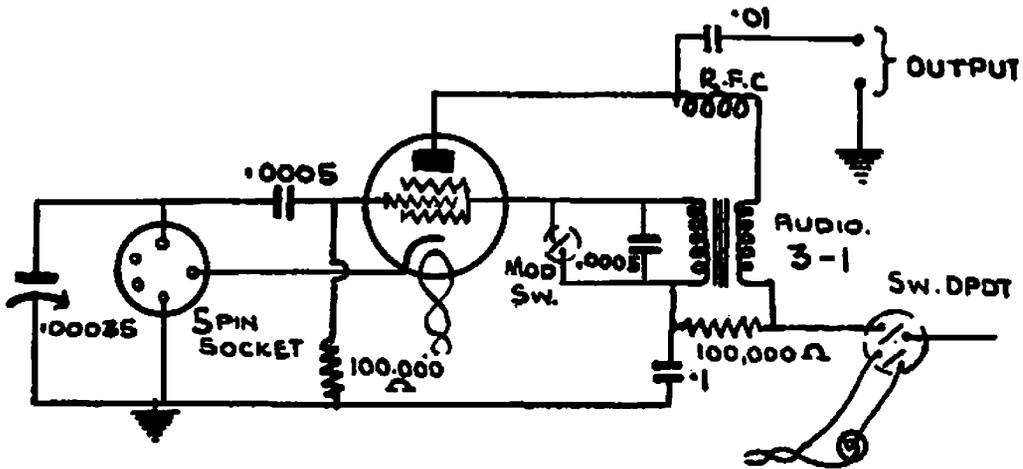
Output of the oscillator is fed to a plug mounted on the front of the panel, and to a plug connected to the

chassis. This may be used as an earth return should one be needed.

(2) Telephony Monitor.

This unit is merely a monitor to check the quality of a telephony

The audio output is connected to a 5-pin socket at the rear of case, and can be taken away to either phones or fed into the input of an amplifier for loud-speaker work.

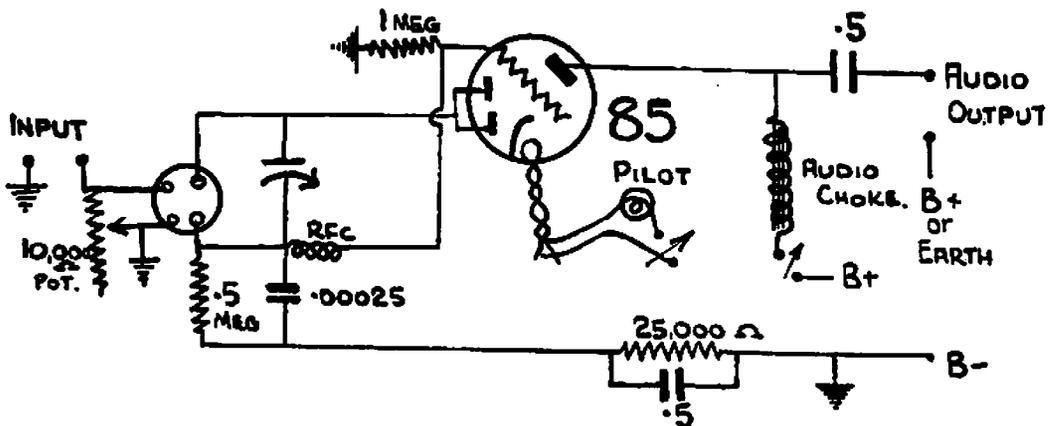


① OSCILLATOR. 9-2000 Mx.
(Mod. or C.W.)

transmitter. It consists of a duo diode triode tube 85. The two diodes are connected in parallel, and the triode portion, using a low mu triode, feeding the phones, which are normally used for monitoring. The circuit diagram is quite straight-

(3) Vacuum Tube Voltmeter, 7½ and 150 V Scales.

This unit consists of a 37 type tube used as a linear diode detector coupled to a second 37 DC amplifier. A 2-milliamp meter is in the cathode of this amplifier tube. Across this



② TELEPHONY MONITOR.

forward, and requires very little explanation. A 15,000 ohm potentiometer is used to reduce the input if it should be necessary. This is connected across the aerial coupling coil, and actually limits the pickup supplied to the detection diode.

2-milliamp meter is connected a bucking battery (4.5v) and variable resistor to return the needle to zero setting.

The milliamp meter originally read 7½ and 150 volts DC, but with the moving coil rewound to 2 milliamps

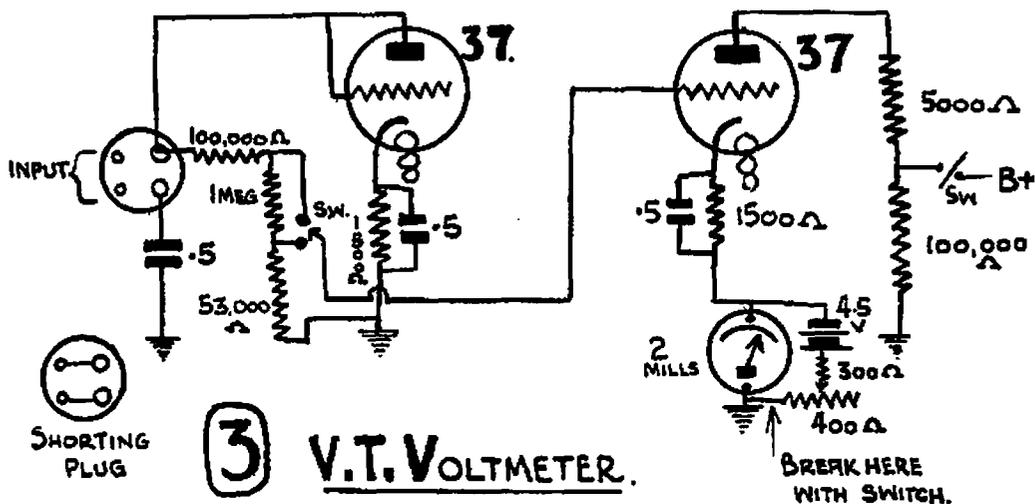
full scale it was found possible to use the original scale on AC voltages.

For DC measurements it is, of course, necessary to have the correct polarity, or no reading will be obtained.

The original intention of this unit was to measure and check the transmitting carrier for lopsided modulation, and for this purpose coils may be plugged into the 4-pin socket. When AC or DC voltage measurements are required, the shorting plug 1 is used, and feeds the input terminals direct to the diode. When a

lator, tuning across the Power portion of the broadcast band. An 11-plate condenser is used to tune the frequency meter, while a 23-plate midget is used as a padder. The idea of using the lower portion of the broadcast band was to enable a check to be made against either 2SM, 2CH, or 2UW, for accuracy of calibrations.

For use as a frequency meter sufficient output is obtained up to 14 MC harmonics without any extra coupling other than proximity to receiver. For use on 10 and 5 metres it is necessary to provide some addi-



coil is plugged in the tuned circuit is plugged between the plates of the diode, and the input terminals are connected to a coupling coil. It thus can be used very easily to measure changes in field intensity of the transmitter concerned. A bleeder of 15,000 ohms is connected across the B + Supply, which, in addition to that already contained in the Power Supply, maintains a constant voltage on the plate of this amplifier tube.

One 37 type tube is mounted on the subpanel, this being the diode, and the amplifier is mounted beneath the subpanel.

The unit is of great use when used in conjunction with the Oscillator, and these two are really indispensable for lining and keeping superhets in alignment.

(4) Frequency Meter and CW Monitor.

The unit consists of a 6C6 type tube as an electron-coupled oscil-

tional coupling, which can be coupled to the grid of the oscillator through a very small condenser consisting of two wires overlapping about 2 inches.

For use as a CW Monitor, the output is fed into a pair of phones or into an amplifier for speaker monitoring, via a lead connected to one of the pins of a 5-pin socket mounted at the rear of the subpanel. If extra pickup is required for CW Monitoring a length of wire is connected via a plug to the grid end of coil.

The 23-plate midget is used to set the vernier dial to the calibrated chart.

By using the phones on this unit, connected as for monitoring CW transmission, and coupling a short piece of wire, it is possible to heterodyne any of the three lower B Stations in Sydney. These provide a very accurate check, and the meter may be set on to its calibrated chart

Yes I Remember

(By 4MM.)

The look of surprise on the face of the Yank sparks when he had scrutinised the rig that laid down radiotelephony on his one-valver off New Hebrides, way back when 800 metres was UHF.

My sulphurous surprise when, two trips afterwards, he walked ashore with a one-valver in a cigar-box, and after certain necessary surgical attentions had been given to it, carried me back with it to the ship and logged a couple of 200-metre home stations. (P.S.—That was my first love affair, Elsie Hartley being the damsel.)

When I first fired up the old pack (W/T), set on around 2500 metres, and was warned off by certain gents with acrid keys and huge horsepower on 600M.

How a lubricated young gent., having decided to visit the shack, hopped the back fence and baulked at the car head-lamp that was wrapped round the old 7/22. He still maintains that he saw the "butter-

flies" that night.

When the plate tank coil of 211E tubes in parallel used to do to gramophone needles, and how the virgin 50 cycle disagreed with said valves.

How a certain circuit-breaker hopped out and refused to stay in. And how all and sundry spent weary hours looking for the reason, and desisted eventually for morning tea. And how the tea-bringer observed that the butterfly nut holding the breaker-spring in was three inches further up the threaded rod than it was two days before.

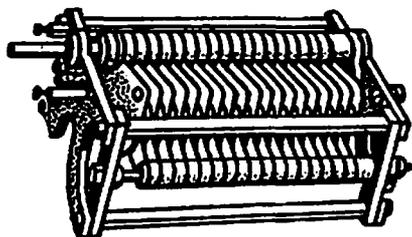
The 90-metre speed man. Jim Warner's fist on KHAB. Those ZL skeds with 45v. of B on the rx valves, and the same battery on the TX.

The good men I met, and the acquaintances that have ripened into friendship. And, of course, the ink I have slung in the Cause.

And, of course, the days of the Ford coil and carborundum xtal working down into the Bay with shipping anchored there. And then the night the home-made Poulsen arc exploded. I saw the marks on the wall of the old building a few months ago.

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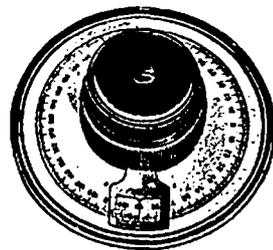
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Notes from Federal Headquarters

Federal Convention, 1937.

The Federal Convention for 1937 will be held in Sydney during the Anniversary Day week-end at the end of January. Dates:—Jan. 30th, 31st, Feb. 1st. As there will be matters of vital importance to discuss, it is hoped that all States will spare no effort to make the Convention a success by sending one or more delegates. A programme of the above will probably be published in the next issue.

C.C.I.R., 1936.

The Fourth Meeting of the C.C.I.R. is to be held in Bucharest towards the end of the year. The amateurs of the world will be represented at the meeting by Messrs. J. C. Stadler, VE2AP, of Montreal, and J. J. Lamb, of Hartford, who are being sent to Bucharest by the I.A.R.U. Their report on this meeting, the forerunner of the Cairo convention in 1938, is awaited with much interest by all member societies of the I.A.R.U.

New Regulations.

The new Amateur regulations which became operative September 1st, have certainly achieved splendid results on the higher frequency bands. There will be a time in the not too far distant future when Australian amateurs may feel justly proud of the general signal quality on the various bands. Of course, there are a few amateurs who have complaints to make, but it must be realised that these regulations have been formulated with a view of deriving the greatest benefit for the greatest number.

CRYSTALS IN VACUUM.

AWA have announced a line of amateur quartz crystals in evacuated envelopes similar to the type 42 fitted with 4 pin bases. These crystals have a low temperature coefficient. Grade 1 has coefficient of less than 3 cycles per million per degree.

Grade 2 has coefficient of from 3 to 10 cycles per million and both grades are free of irregularities in their frequency-temperature range from 15 degrees to 45 degrees C. Supplies are available from stock.

Five MX Notes

During his recent holidays 3OT, energetic fellow, took along his portable gear and listened at various times for the city stations. Nothing was heard, but from observations made he is certain that city stations could be contacted from some of the localities that he visited, notably Mt. Franklin and Tarrawingee in central and north central Victoria. From Tarrawingee with its road to the top and its 90 ft. observation tower, a clear view is obtained of Arthur's Seat and beyond, over Bass Strait to the south, the Otway ranges to the south-west, and to Pyramid Hill and on towards Mildura to the north-west. Melbourne is just shielded from sight by a spur of the range at Mt. Macedon.

From Mt. Franklin, the crater of an extinct volcano with a 200 ft. climb to the top lip, Melbourne can be seen. From past results our portables can cover this distance, and in the near future an attempt shall be made to do so.

For the field day locations are as yet not decided. 3KQ, who has formerly operated from Mt. Macedon, expects to go to Ballan district. 3MR and another party have been there before, but only succeeded in hearing a total of one station for the two trips. It is hoped this time to find out just what is wrong with the locality. Another party is expected to go to Gisborne, where 3UH had bad luck last time in not hearing anyone.

3OF, owing to lack of transport, may have to operate from his home gra. He may yet succeed in going away. 3DH will once again be at Mt. Dandenong. 3JJ will be in Adelaide at the time, so shall not be taking part.

3KQ is first in again as on the last five mx field day he succeeded in hearing his home transmitter on 112 mcs or for those who cannot work that out it is the two and one-half mx band. This rig used about 15 watts input and finished up into a Vertical dipole. The signal was received on his 5 mx super het. Change of coils was all that was necessary to listen. Airline distance 42 miles.

Divisional Notes

N.S.W. Division

W. G. Ryan, Secretary, VK2TI, Box 1734JJ, 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, Carlton.

ZONE 4 (Hunter River and Coalfields)—

S. Grimmett, VK2ZW, 161 Tudor Street, Hamilton.

ZONE 5 (South Coast and South West)

MANLY DISTRICT RADIO CLUB.

On Oct. 3rd, 4th and 5th the club held a 5 mx observation camp at Blackheath, 3 members spending the week-end under canvas. A 5 metre superhet (57, 58, 58, 56) was used.

All our listening was confined to 5 mx. 2HL and 2WJ were stations that came in very well, 2WJ at times being R max on fones. 2 other stations were hrd on the low freq. end of band. Think one was 2ZN. It is intended to hold another camp shortly. The club is transmitting on 5 mx from the club-rooms with parallel 45's modulated by parallel 2A3's. All reports on transmissions will be acknowledged with the station's card.

2QK on 20 with 830 B's grid modulated. 2EL also trying for some 20 mx dx. Heard Alan 2HF on 5mx R8. Have since found out he was on 20. Not bad for 4th Harmonic, Alan.

Victorian Division

VK3DP

The October meeting was well attended owing to the very fine lecture given by Mr Gibbs of the R.A.A.F. on his trip to the South Pole for the rescue of Ellsworth and Kenyon. The

two hours of the lecture were filled with many interesting descriptions of Polar life, etc. Much amusement was caused by descriptions of shipboard life and incidents occurring on the trip. The enthusiasm with which the lecture was received and the questions asked by those present indicate that a few more talks of this type would be well received.

Among those present was Mr. Bennett, 3DR, of Shepparton, who was welcomed in the usual ham manner.

The Xtal donated by Mr. Howden was presented to Mr. Campbell, 3MR, who won the local DASD contest. Just another rock for the collection.

Another interesting item was the Council Representative's report on the forthcoming Cairo Convention. Log sheets have been received from the ARRL and all amateurs are requested to listen on the 6000 to 8000 Kc. and 4000 to 4500 Kc. bands and to log all commercial stations operating on these frequencies, together with time, approx. freq., material Xmitted. These sheets may be obtained from this section. Country members will be notified by Mr. Marshall, 3UK, with particulars, etc., and we hope that you will all co-operate as it is a matter that will concern everyone in the near future.

Reports of the 56M/c Field Day held on 6th September resulted in 46 points to the U.H.F. Section and 36 points to the Key Section.

3PW-3PL had better luck than 3MR on the Field Day, the owner of the hill collected to boil the billy, while 3MR had to dry his own firewood.

3UO.—Trouble galore, haywire crystal, "high efficiency" PA, Min. plate mls 29 to 45, hi! R9 on E.C. from Mallee wid 5 watts.

3YR in market fer a new bottle.

3RV on 80 metre fone

3KE has new 8 tube super.

3DF-3TU still on 20 mx wkng sum DX wid OC's ant, hi!

3UH about to undertake manufacture of tourmaline Xtals for 5 metre work.

3YK hopes to have wind driven genny going in a few weeks; all prob-

lems in construction solved until it's tried out.

3OD on lookout for hi-powered bottle.

3YP too modest to state the number of 28M/c contacts or how many he takes to hole out.

3BQ has 28M/c beam for Yanks, but finds it upsets the pattern of the other 28M/c ant, so it's going to be scrapped.

3CX fractured another 7Mc. Xtal. Tritet on 14Mc.

U.H.F. GROUP—VK30F.

Following the sensations of the September 5 mx. field day events have moved quietly onwards on the 5 mx band in VK3. Notwithstanding this comparative calmness enthusiasm remains unabated and various stations have been operating consistently each week.

Among these pride of place must be given to Gil Miles, of 3KQ. Every spare second of time (and not that only) is devoted to the furthering of the 5 mx. band, although I believe that for one half second his fone was heard on 40 mx. A VK5 reported it as fb with modulation almost too good for a ham signal. Evidently that VK5 has never heard a VK3 5 mx station.

Another station that never misses is 3OT, Brighton. This station is on the air to a regular schedule at 1900. This is a general call and is not directed at any special station. Val's idea is to be of assistance to anyone who wants a hurried test before they go out for the evening. 3OT is at present using a T.P.T.G. circuit with P.P.245's feeding into a vertical half-wave zepp. With his location on top of a rise he gets out remarkably well and is an easy station to raise. 3XM, further south in Ormond, provides the hams in the northern suburbs with some dx to chase.

3JO did not take long to get on after his return from VK7. He was heard in Brighton at R8 while calling CQ. Evidently he has re-erected his antenna, which was blown down in a recent storm. These hurried jobs. Reverting to 3OT, a second storm completely demolished his big antenna. The first storm broke his pole into three pieces and bent the garage a trifle when it came to earth. The second blew the chips away.

The voice of Murray, of 3HZ, seems to have recovered from the strain of the recent exam. Rumor has it that he

passed. Congrats OM. He must rapidly be approaching his millionth qso with 3VH. This Bentleigh station with his elevation and his tall pole also provides the dx traffic path across the bay to 3LG at Newport. Les 3LG is at present using a 53 as osc., a 53 as class C, another as class A, while two 57s connected as triodes act as his mike amp. All this feeds into a figure H beam antenna. He was going to alter this but altered his mind and left it to a later date.

3OF decided not to go on the air until he had Xtal control. He set one perfectly good 40 mx xtal and one 53 to work in a Jones exciter unit, but nd. Using the xtal cannot obtain any transfer of energy into the 20 mx doubler. Replacing the xtal with a resonant grid coil everything works o.k. He wants to know what next? However, the bug was biting too bad and once again he is disturbing the air with a pair of 210's in a pp. T.P.T.G. Xtal control will be definitely used in the near future.

3DH once again has his super het. going and is very busy preparing for the next field day. He also has an idea of using his super het. as an overgrown transceiver. Early tests have been reasonably successful and his signals have been reported a couple of miles away. Ivor did not think that they were getting out, consequently did not listen to see if anyone was calling him. Unfortunate om. Nearly all stations are equipped with super hets now though 3OF still lacks one.

3KQ has an idea about a new layout for his rig, making due allowance for accessibility and ease of control.

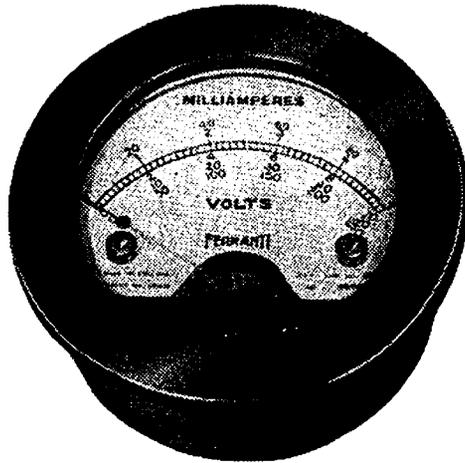
Regarding the next field day, news is not yet to hand as to the arrangements to call and listen for VK5 and VK7. If everything goes as planned VK3 and VK7 should contact on 5 mx. From our higher southern hills we have a clean sweep across Bass Strait to Tasie. 200 miles is definitely not far when compared with reported everyday contacts in U.S.A.

If this attempt fails 3OF intends to take a higher powered rig to Olinda with its a.c. mains and 2000 ft. elevation. That should do the trick. Congrats are also extended to VK5 on their successful 5 mx field day. It is hoped that they will take part in our next. We in VK3 still have to identify those mystery stations heard last time.

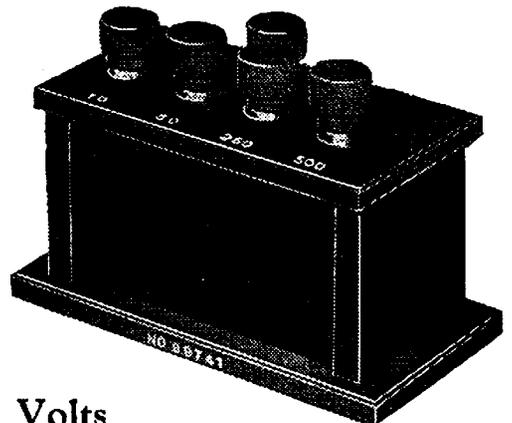
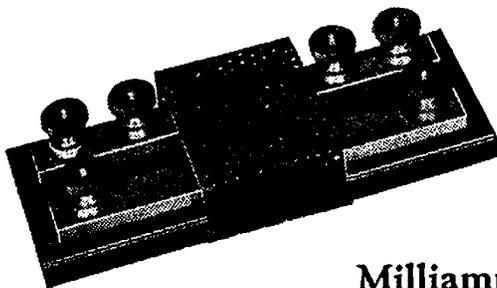
Just what work is being done on 5 mx in other States? We hear meagre

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reports here, but nothing definite. Will some of those active please communicate with VK3OF? This is really important. Some means must be found of unifying the work. And does anyone know the record distance covered in each State? Send your information along.

WESTERN DISTRICT NOTES.

3HG

Last month no less than four new hams in this district obtained their tickets, namely 3FA, 3SE, 3DE and 3XG. So far only two have been heard. 3SE is active on 7 mc, with M.O.P.A. that gives a good signal although with a fair back-wave. 3XG heard on 3.5 m.c. phone with quite good quality

3BG, a newcomer in Bendigo, reports old 3OS as being again bitten by the bug and staging a comeback. 3GQ and 3KX are doing well in the DX contest, while 3GC and 3WW are also working on 14 m.c. There are at least three hams now in Hamilton, but 3AC is the only one to be heard. He puts over 240 metre programs occasionally. 3JE has definitely left this district, and is now located at Yarram.

3OW is seldom heard on any band now, possibly due to pressure of work with the shearing, while 3PG is never heard. 3HG doing a little in the Fisk and DX contests and intends experimenting with 14 m.c. beam antenna and a wind-driven battery charging plant.

Conditions on all bands seem to have fallen off, 3.5 m.c. being practically dead, while DX is rather hard to raise on 7 and 14 m.c. with low power.

MALLEE AND NORTHERN DISTRICT NOTES.

(3ZK-3HX)

Conditions during the past month have been excellent on 14mc, 7mc, but on 3.5 mc the condx are rapidly breaking up, and before long the higher frequencies will be very crowded indeed. On 20 metres condx have been wonderful in this part of the State. Listening very occasionally many countries have been heard, Yanks, of course, making a very big hole in the speaker.

Condx on 40mx have been better than previously and any amount of DX can be heard when not QRM'd. hi! 80mx is very poor, QRN being practically constant and will be almost useless

during the summer months. Scandal.

3TL is by this time on the air again wid a new rig operated from AC mains, and QRM-ing someone hi. "Treb" has 23 tubes working. Don't blow 'em all at once, Treb.

3KR will also be back on the air wid AC from mains and making those DX stations take notice. FB Ken OB.

3OR is putting a very nice sig out on 80mx, and will have by this time lined the rig up for HF. Flash !! Murray has a new car. Ask 3CE?

3CE has invested in a house lighting plant for himself, so will be on the air more consistently. Also bought a 30' windmill tower for a very low price.

3WN.—Jack informs us that he is or has shifted to a new gra, location—next door. Hi. Better for DX, Jack.

3HN.—Heard one night on 80mx fone, using the audio of rx for speech-amp. hi; will be on permanently soon.

3HR.—Amongst the missing. Believe Charlie is building something new and QRO. Look out gang.

3EP.—Got his new RX blooming; thought he would give 20 a flutter, so promptly put the rig down or up and proceeded to call CQ. Many were the stations that called Ted on 40 mx. Fine business, Ted.

3FF, of Corop, doing a very fine job wid flea pwr, worked a Yank on 40mx; wid 5 watts es got R6 FB Jock OB, es keep it up.

3GD.—Another new one, by name George Downing, at Stanhope, es no doubt will be on the air ere this is printed.

3BG, of Bendigo, is on 40 es 80 mx wid a chirpy note. Roth intends to rebuild and make a permanent rig, wid xtal control.

3NN is not heard very often, but is usually on the job for Sunday morning skeds. Another flash — has also bought a new car. Herb says it's supposed to do 90 mph. Whew!

3AI.—Frank is on 40 mx; es will be pleased to work any of the gang.

3CG, 3MK, 3PX haven't been heard for some time, but are possibly on higher frequencies and we are unable to hear them.

3WE has thrown out so many hints lately about nobody taking enough interest in his personality and the "TWINS" to include them in the notes So if we don't take notice something might happen, hi. Bill is putting out an FB sig from Omeo, but can't get a

pair of 50's class AB going. If you want some backchat, boys, work 3WE about 7p.m. hi.

3ZK has at last got that new rig going, but he got landed wid a dud triode section of a 6A6 so sent it back and is now on wid a new tube es fb fone, Jimmie is going to 20 es 40 mx between times working 3WE.

3HX is still (or might have 'em by this time) waiting on the 6P6's for gro. Works 3WE consistently, and has not got that Radio Auntie yet. Rumcr has it that the gang are trying to put one over. You see we have been listening. hi, hi.

3KI heard on 80 mx with suppressor grid modulation to the RK20.

Tasmanian Division

At the October meeting, held on October 6th, the speaker was Mr. E. J. G. Bowden, D.R.I., and the subject dealt with was points on the New Regulations recently issued to amateur experimenters.

The half hour per QSO item seems to be the bone of contention amongst the gang here, but on the whole the new regulations have been favourably approved. The general opinion is that 40 metre fone should be banned altogether after dark. Until recently VK7 could plead not guilty to this offence.

The VIH gang propose to visit the Launceston boys over the Eight Hour week-end.

Three more members sat for their A.O.C.P. on Tuesday, October 13, namely Messrs. J. Dodds, D. Watson and C. Miller, and according to reports all did well

Condx on the DX bands are fb. of late, in Hobart 20 mx being by far the most popular. At night the W fones are often R9 and are QSO'ed without any difficulty.

28M.C. is producing plenty of W's and ZS1H, but no Europeans as yet.

SCANDAL.

7YL rebuilding receiver now. (7 tube S.S.S.) and hopes to cause a panic amongst the Yank fones on 20 mx soon. At present, partly incapacitated through car accident, but happily nothing serious.

7DH.—Making whoopee with 3 stage rig, es nice T9 note. Lives very close to 7CL. Wow!

7PA.—Heard occasionally on 20 mx

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es join the mothers' meetings of a and regularly on 200 metres. Going to try a velocity microphone I believe.

7JH.—Hopes to install fone shortly Sunday a.m.

7KV.—Lays claim to the longest transmitter in VK. 6 foot of bread-board lay out. Did well in Fisk contest and at present taking a passing interest in DX contest.

7CL.—Also burning up plenty of power in test. Hopes to install 6L6's as modulators very shortly.

7CT.—On 80 es 40 mx with a M.O.P.A. now.

7WI.—Not on yet

7SR.—Signals Radio Club transmitter recently rebuilt is now using 53 xtal osc-dbler; 802 P.A. suppressor-grid modulated. Should be hrd regularly soon.

7NC.—At present shifting QRA. Hopes to be on again shortly.

7JB.—Latest addition is an Astatic D.2 microphone; es response definitely better than the old D104. At present losing plenty of sleep in DX contest; worked 20 countries so far.

Evidently the A.R.R.L. regard VK7 as a separate country from the rest

of VK, as the results published in Q51 of W/VE contest show 3MR as winner for Aust., and 7JB for Tasmania. We don't mind hi.

Heard from 2YL that 3EG had worked over 100 stns in 45 countries during first week-end of DX contest. How do u do it, Ivan?

7AB, 7LZ.—Hrd calling CQ. Test es plenty of dx coming back. First time the North has been seriously represented in DX contest. F.B. om's.

7RK, 7KR and 7CL.—Hrd in a three-way fone QSO last Sunday, 11th Oct. KR three points louder than RK down here in VIH.

7BQ.—Finds time to come on 40 mx fone of a Sunday a.m. Very nice quality es that D104 mike, certainly sounds fb, Len, om.

7CJ.—Finds no difficulty in working W. with 25 watts to three stage xtal rig.

7BC.—Haven't hrd u yet, om, but ur outward cards certainly indicate plenty of activity

7CK.—Very active lately and regularly skeds 7LJ on 40 mx fone, Sundays. Contemplating installing a xtal D2 mcirophone.

R.A.A.F. Wireless Reserve Notes

Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

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

Third District, Victoria—Pilot Officer V. E. Marshall, 3 Myrtle Avenue, Kew (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—S. J. Madden, Dundas Road, Maylands (VK6MN).

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

Federal Notes.

All members outside the Victorian District will be interested to see the report of the D/C for that District on the mythical "war" that has been waging for some few weeks. This test of training under "active service" conditions appears to have done more for the general good of the District than all the contests put together. It has provided for an opportunity for mem-

bers to use their own initiative; the "something" that defines the difference between a good and a skilled operator.

A similar national exercise will be conducted within a month or so, employing every member throughout the Commonwealth.

Now that radio telephony procedure has been issued to District Commanders for passing on to members, we can look forward to a change from the W/T procedure

that has been used exclusively for eight years now.

Activity is at its highest in most Districts, but in the notes correspondents have failed to tell us all about it; so let us hope for brighter and better pages next month.

3rd District (VK3UK—3Z1).

There is so much to fit into the space allotted this month that it is hard to know what to cut out and what to put in. Unfortunately, 3Z1 was laid up with a bad bout of 'flu just as the Mag. went to press last month, and missed his notes for the first time. The main item of news that missed that issue was the Metropolitan Station meeting at 3Z1 to discuss the plans for the re-shuffling of sections, and also to make a presentation to 3D6 and 3C4. We made the night quite an informal one, with no visitors, because of the fact that none of the country men could get down. However, we may make 3D6 and 3C4 have their presentations re-presented on the first occasion that the district is together as a whole. At the same time, we can re-present the Trophy to 3B3, which 3Z1 had to do when last up there. These presentations were being held up for the Camp, but as it has been postponed there was nothing for it but to go ahead and make them without the country men being able to be present.

This month has been taken up completely by the first of a series of tactical exercises. This one was run more as an experiment than anything, but has proved a great success, so the next one is being formed in mind right away. This one took the form of a "war" between Victoria and an "enemy" attacking along the South Australian border. Each member of VMC represented an Air Force

unit, and handled exactly the same type of traffic that he would in a time of war.

All sections are going to be re-shuffled immediately now, so that each will be small geographically. Thus members of a section can get in personal touch with each other, as well as in the usual W/T manner. The present method of one Metropolitan station per section has many disadvantages, and it is felt that this new section scheme will be a big improvement. The new Metropolitan sections are planning to equip themselves with 56mc transceivers so that they can handle traffic by R/T down there as well. By the end of the month it is hoped that all sections will be handling R/T traffic, and thus will be versed in another type of R.A.A.F. procedure.

During the last six weeks we have been fortunate in having had quite a large number of country men down in the city. 3F9 was down twice, and 3D4 had a flying trip of a day. We were able to talk over the latest Reserve plans.

3B5, whom we have never seen in the city before, had a week here, and we were able to see quite a lot of him. There is no doubt of the fact that ten minutes' yarn in person is worth a ream of letters or a dozen QSO's.

3B6 was down for a few days last month, and we were able to confirm in person the rumours we had heard about his new super. It certainly must be a beautiful job. When Dick sets himself out to make a real job of anything, there is not a more painstaking Ham in the game.

3B1 is having surprising success with his indoor aerial, which he is using as a transmitting aerial for skeds.

(Continued on cover 3.)

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less pwr. supply, -14Mc and 7Mc. C.C. 6A6, -10. 56-60 Mc. super regen. Receiver -76, -41, -80. 56-60 Mc. transmitter, series fed Hart, osc., -10 modtd. by P.P. -50 mentioned above. Table with pair B.T.H. pickups, two turntables, "Paillard" (two speed) and spring motor. "Tungar" 5 amp. charger. Level Indicator operates on all modulators. VK3CR, c/o Regent Radio Pty. Ltd., 975 Burke road, Camberwell, E.6.

VK4EI would like to spend about three weeks' holiday from end January in country. Tableland preferred. VK2, 3, 4, 5. Age 26. Fond walking. No objection to light outdoor work. Please write to Roy Belstead, 2 Park Lane, Townsville.

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.....
(Continued from Page 28)

3C1 seems to lead a great life. The latest information is that he is in Adelaide, after a good trip over by car. We are hoping to see him as he passes through VIM on his way back.

3D2 will be the most thankful member of the Reserve over this re-shuffle of sections. He can't work while 3A5, quarter-mile away, is on the job, but now they will be in the one section. His new generator seems to be working nicely.

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AMATEUR RADIO



Published in the interests of Amateur Radio
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Vol. 4 No. 12

1st December, 1936

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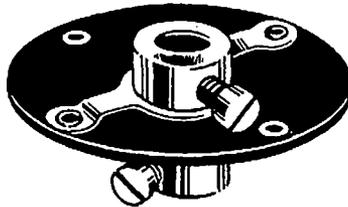
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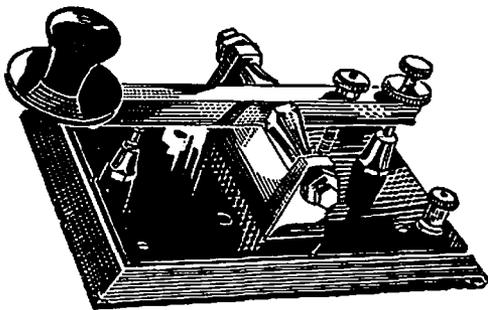
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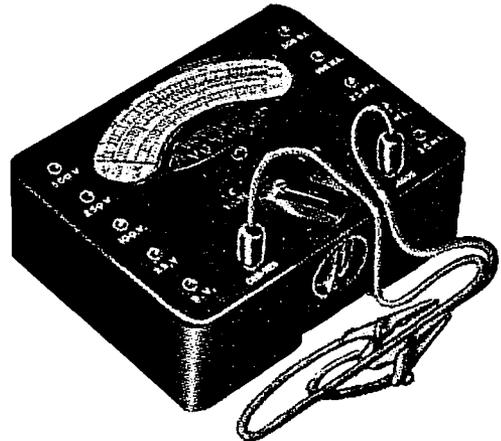
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Editorial

The Institution of Radio Engineers of Australia has fixed 12th December, 1901, as the birthday of Radio—the marvel and mystery of the wonderful twentieth century. It was on that fateful day that the wizard Marconi bridged the Atlantic Ocean with the first wireless signal. It consisted of the Morse code signal for “S,” and he received it at St. John’s, Newfoundland, from Poldhu, Cornwall. That seemingly modest but actually history-making event crowned the untiring efforts of the pioneers, principally Marconi, Crooks, Lodge, Preece, and Jackson. Arrangements are already in hand by the Institution to have a world-wide broadcast of the letter “S” as an important item in their celebration programme on Radio Foundation Day. Also on that day, under the auspices of the Institution, a dinner will be held in Sydney, an example which it is hoped will be the forerunner of an annual event, not only in the capital cities of the Commonwealth but in overseas countries also.

As a matter of fact, Australia has figured largely and importantly in the development of radio during its first thirty-five years. It is a matter of history that a Russell-street police car was the first in the world to use wireless equipment. Recently in Manchester Professor W. C. Bragg, the well-known physicist, described the work of his grandfather, Sir Charles Todd, in the sending of the first wireless messages to Australia, and his own assistance in the project. Sir Charles was South Australia’s first postal chief in 1901, and it was he to whom was entrusted the great work of constructing the overland telegraph from Adelaide to Darwin. He was already an old man when the first whisperings of Marconi’s “toy” were heard around the world, but his imagination was deeply stirred. A wireless installation was fixed near Adelaide between two stations two miles apart, and signals were successfully broadcasted. It was then little thought that ere long sated millions of people would be regarding their radio as an ordinary every-day commonplace and necessity, and would not hesitate to complain about alleged insufficiencies and shortcomings of “regional programmes.”

As far back as the year 1896, Mr. G. W. Selby, of Malvern, Victoria, was already exploiting the great subject, and he exchanged correspondence with Sir Oliver Lodge, who even at that time was evincing keen interest in the mystery. Also before the year 1900 the late Professor W. C. Kernot and Messrs. H. W. Jenvey and F. W. Chambers, of the Victorian Postal Department, were experimenting in the same direction.

So it will be seen that Australian experimenters were well to the fore in the world’s investigation of this, perhaps the greatest manifestation of man’s genius. Gradually along the years experimentation gave way to practical achievement, and from that first modest spanning of the Atlantic to the triumphant establishment of regular communication around the globe, Australia has little need to be diffident. Amazingly has been justified, and, aye, transcended, Puck’s boast: “I’ll put a girdle ’round about the earth in forty minutes.”

It would be ill if our own Wireless Institute of Australia did nothing to mark this great celebration, and its own not inconsiderable part in the development of the most marvellous discovery of a marvellous century. Hence, this Special issue, which has been made possible by the co-operation of our advertisers to whose notifications in these pages we commend the attention of all hams.

A DEDICATION.

To the Immortals who reached the Heights and wrested from the Heart of Things the Great Mystery, and passed it on.—To the Thinkers who seized it and shaped it and harnessed it to the Service of Mankind.—To all Amateurs and others who followed the Gleam.—To the Great Business Concerns whose adaptations are reflected within these pages—

We dedicate this Issue.

December, 1936

THE EDITOR.

Ultra High-Frequency Receivers

By Gil. Miles, VK3KQ

The U.H.F. Band is recognized to extend from 28-300MC, or, in other words, from 10 metres down to one metre. Below one metre they are known as micro-waves and, at the present time, will not be discussed. The reception of signals at these U.H.F. calls for special circuit arrangements, using ordinary valves and other components of suitable size.

The three types of receivers that are used are super-regenerative, super-heterodyne and super-infra, regenerator; the first listed being the most common, as well as the most popular.

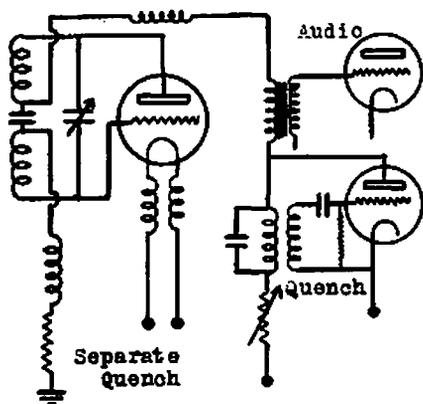


Fig 1.

Before discussing the merits or demerits of any of these forms of receivers, it might do well to look at our old friend the oscillating detector, and audio used on the lower frequencies. Most of us know what it is like trying to receive signals, especially telephony on, say, 14mcs with this type of receiver. Firstly, it is susceptible to changes in frequency, due to voltage variations of both plate and filament supply, changes of load and movement of parts. Secondly, any effort to control reaction results in serious detuning effect. Thirdly, the attenuation of the U.H.F. signals is so great that the amount of energy picked up is very small. However, suppose a detector is adjusted to be just on the verge of oscillation, a small signal applied to the grid will shock this unstable arrangement and oscillation will commence, which will build up

to maximum amplitude governed by the circuit constants. This arrangement would not be capable of reproducing readable signals because oscillation, once started, would not cease at the conclusion of the signal since the effective resistance of the circuit is negative. It is well-known that if the resistance of the circuit could be varied periodically at a frequency lower than the incoming frequency between positive and negative values, then very large amplification could be produced without distortion.

Super-Regen. is the method of

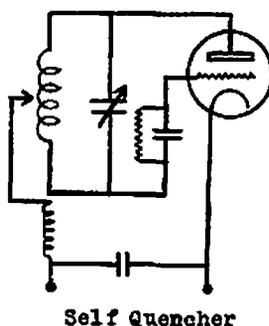


Fig 2.

carrying this feed-back past the point of oscillation without distortion, and can be brought about by using a separate quenching oscillator or making the detector carry out both functions. Thus we have:

- (a) Separately quenched oscillators (fig. 1).
- (b) Self-quenched oscillators (fig. 2).

The separately quenched detector is plate-modulated by the quench oscillator, in other words, its plate-voltage is varied at the periodicity of the quench frequency. The self-quenched detector functions as an ordinary oscillator in which the grid leak is too high to allow the electrons on the grid to leak off at a rate to give constant value of grid bias voltage. This causes a change in average bias and stops the oscillation, because the plate current is decreased and, therefore, the mutual conductance of the tube drops.

In the absence of a signal, the Super-regen. detector is in a complicated state of oscillation.

One of the outstanding characteristics when tuning a super-regenerative receiver for the first time is the apparent lack of selectivity. This is due to a phenomenon called "Multiple Resonance," and is caused by the presence of a number of component frequencies which are produced by the Quenching action. Fig.

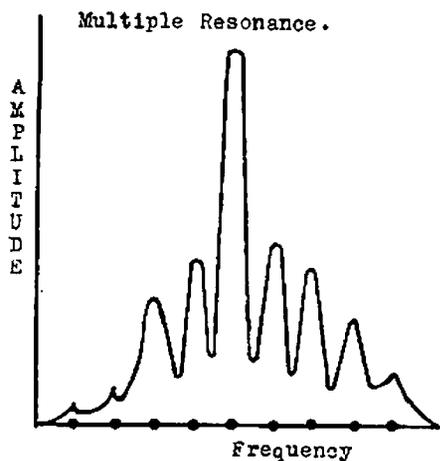


Fig 3.

3. Each separate resonant peak can be seen on a sensitive wavemeter and also heard on tuning to a weak carrier and listening on either side of the main peak.

The correct quenching frequency to use seems to be a debatable point, but Fig. 4 shows plainly the curve obtained by one reliable investigator. In this particular case the quench voltage was held constant and the quench frequency varied. From this curve it can readily be seen that the sensitivity is low for either too low or too high quench frequencies.

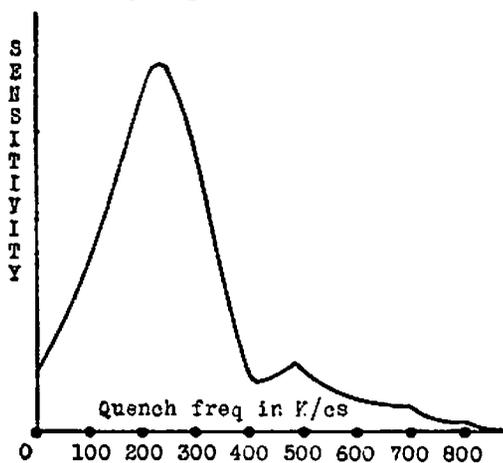


Fig 4.

In contrast with this data the English experimenters favor a quench frequency of about 20 Kc's.

As this type of receiver has its best operating condition in a state of mush, an important condition which is part of the quenching action is the loud characteristic background noise. This is also a function of extreme sensitivity.

Fig. 5 shows the suppression of this mush by the arrival of an incoming signal and the stronger this is the further the noise is suppressed. To obtain this data a galvo and crystal detector were connected across the headphones, and the curves show the galvo readings.

The incoming signal also increases the grid current, which means increased bias, and this, of course, decreases the plate current.

The variation of plate current is greatest when the receiver is operated at a plate voltage between 30-40 volts. For lower or higher plate voltages than this the sensitivity rapidly drops off.

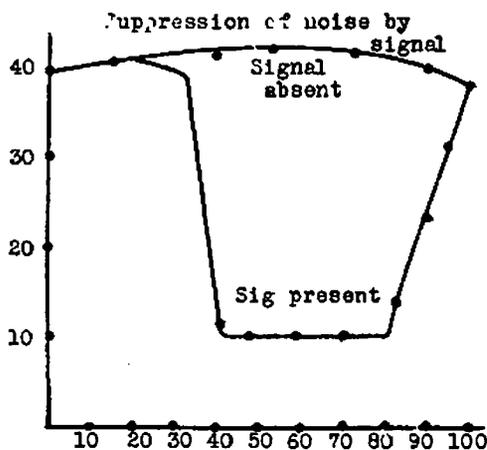


Fig 5

The correct plate voltage is such that the receiver is just brought to an oscillating state.

The receiver should not be considered satisfactory if it is necessary to raise the detector plate voltage above 40. Receivers using a higher plate voltage than this are not only inefficient, but are good radiator, and, as such, can cause considerable interference, which is not confined locally.

Fig. 6 shows a suitable RF stage, which will help in this direction.

The advantages of super-regenerative receivers are:—

- 1.—Extreme amplification.
- 2.—Uniform audio response.
- 3.—Good automatic volume control.

"AR" News Session

- ¶ It is officially reported from North Melbourne that a fine modern factory has just been completed, and equipped with latest machinery, at 8-10, Scotia Street.

- ¶ The entire transformer and testing equipment plant of Messrs. Tilbury & Lewis has been taken over by a new firm whose personalities are well known to Hams. Manufacture will continue on the same lines as heretofore, under brand-new conditions, and a continuous policy of development.

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Disadvantages:—

- 1.—Non-selective.
- 2.—Strong characteristic noise.
- 3.—Re-radiation.

Now, the first two of these disadvantages can be considerably reduced by the addition of a radio-frequency stage, using special tubes, although some gain can be realised using standard tubes.

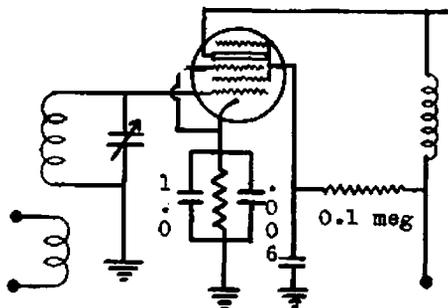


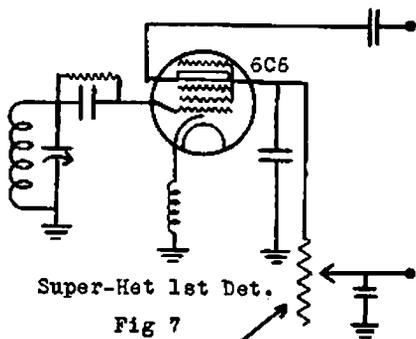
Fig 6. R.F. Stage

Advantages of a radio-freq. stage

- 1.—Signal to hiss improved for weak signals.
- 2.—Isolates the detector from antenna.
- 3.—Prevents radiation.
- 4.—Improves selectivity.

Before proceeding to the next type of receiver, just a few aids to better reception and less noise:—

- 1.—Use proper quench frequency.
- 2.—Control of quench voltage.
- 3.—Audio transformer by-pass.
- 4.—Tone control to eliminate the higher quench-frequency and some control on signal to noise.



Super-Het 1st Det.
Fig 7
One method

5.—Electro static shield between audio-transformer primary and secondary.

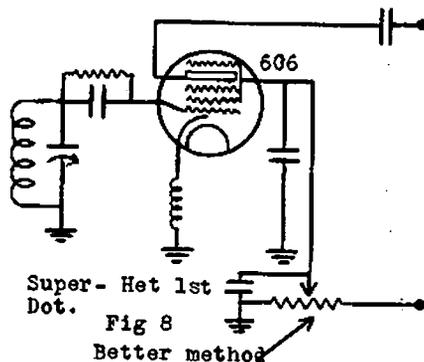
6.—Reversal of primary to stop distortion.

SUPER-HETERODYNE.

A simple type of super consists of an auto-dyne detector and resistance couple I.F. and second detector. The first detector tunes exactly like

an oscillating detector at lower frequencies.

This I.F. amplifier using proper values of resistors and condensers, tunes over a wide band from 10 to 100 KC, and because it is a poor audio-amplifier, its response to audio frequencies is nil. This also prevents the rectified audio-component in the first detector from being amplified through the receiver. The most sensitive condition is obtained when the detector is oscillating weakly, and this accounts for the excellent signal to noise ratio. Any other form of I.F. amplifier can be used providing it is adjusted to have a flat response. The one serious disadvantage of this type of receiver is its inability to exclude car-ignition and other similar disturbances.



Super-Het 1st Det.
Fig 8
Better method

However, by the use of a Faraday screen between the antenna and grid coil, also earthing the centre of the antenna pick-up coil, this can be reduced somewhat. Care must be taken with the first detector circuit that too high a plate voltage or incorrect value of grid-condenser and leak are not used, otherwise this detector will super-regenerate. Failure of this detector to oscillate at all can be put down to cathode to filament bypass in the tube itself, and can be cured by the addition of filament chokes. The grouping of all earth return leads to a common point cannot be too strongly stressed. Fig. 7 shows a typical first Detector circuit using cathode regeneration. Fig. 8 is an improvement because of the more stable operation obtained by the screen-grid voltage control potentiometer as compared with the series resistor in Fig. 7.

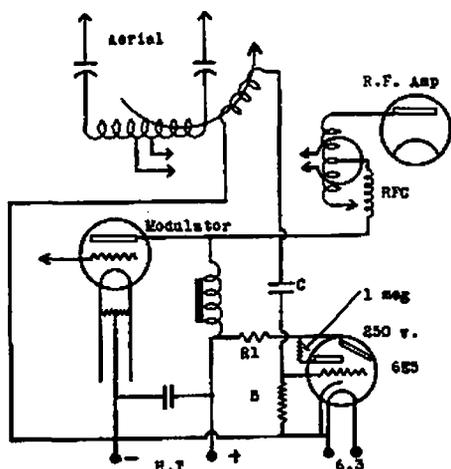
(The author desires to acknowledge having made use of certain copies of the P.I.R.E. for some data given here).

A Simple "Magic Eye" Modulation Indicator

VK2BJ—K. Burnett.

Apropos Mr. Denys R. Ayres' promised investigation as to the possibilities of employing the 6E5 as a percentage modulation indicator, a similar thought has been back of the writer's mind ever since this tube was first released on the local market.

After awaiting further dope along these lines, and making tentative, but so far unsuccessful, enquiries from various distributors, we purchased one of these, and decided to get busy.



R1. Dependent on V.D. required.
C. 0.05 mfd but subject to L/C variation to avoid undesirable lag.

Although we originally intended to employ a more complex design (and may yet do so), we could not resist the temptation of trying out the following very elementary scheme first, and anyway, why use two 6E5's if one can be made to do.

The circuit hereunder is self-explanatory in the main, but a word concerning reference source, and adjustment may be in order.

The antenna coupler is so adjusted that the unmodulated carrier has negligible effect on the grid of the 6E5, but is sufficiently tight to allow

of approximately —8V bias when 100% modulation is applied.

Under these conditions, we assume that the angular variation of the pattern between 90 and 0 degrees gives an approximate indication of percentage modulation, and that over-modulation will result in overlap. Naturally, a reference must be used when estimating the practical values indicated upon the scale surrounding the dome of our 6E5, and we consider that this may be obtained by co-relating reports received from a number of reliable stations. It will, of course, be essential in this case to effectively lock the coupling to the antenna circuit so as to prevent any mechanical variation in this respect.

Distortion, when known to be present, has also been distinguishable by a blurring of the edges of the fluorescent screen, but we are not prepared to suggest that the nature or degree of this can be estimated with this device.

To say the least of it, this gadget is distinctly intriguing in that it appears to the naked eye to give instantaneous response to carrier variations at audio frequency, and if our other assumptions are erroneous we shall certainly welcome constructive criticism from any source whatsoever.

GENERAL MEETING.

Victorian Division.

A General Meeting will be held at the Institute Rooms on Tuesday, 15th December. At the conclusion of business, Mr. Murray Clyne, VK3HZ, will deliver a lecture on "APPLIED ALTERNATING CURRENT."

All members please attend, and an invitation is extended to non-members to be present.

R. A. C. ANDERSON,

QUARTZ CRYSTALS

Every Crystal tested to 50 watts input to Penthode Crystal Oscillator
Accurate grinding to .03 per cent. 3.5 M.C., 20/-; 7 M.C., 30/-
100 K.C. Xtals. 465 K.C. Xtal "Gates. Prices on application

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MAXWELL HOWDEN (VK3BQ) CONS. RADIO ENGR.

13 Balwyn Road, Canterbury, E.7.

U.H.F. Section Field Day

By VK3DH

In spite of very uncertain weather conditions which prevailed on the Sunday morning of November 15th, thirteen stations took portable gear and hopefully retired to the country around VK3 with the optimistic hope of a fine day and a contact with a VK7.

Stations 3XM, 3TH, 3OJ, 3HF, 3WY, 3LC and 3WI (C.R. and D.H. operating) maintained a running fire of signals from the home locations, while 3KQ and 3VH made for Wallan; 3HZ, 3VX, Donna Buang (Ben Cairn); 3OF and 3OT, Dromana (Arthur's Seat); 3RS, 18 miles out of Shepparton; 3UH, Kinglake; 3JO and 3KE, Macedon; 3ML and 3UK, Angelsea, and 3HK, One Tree Hill.

Generally speaking, the results were not up to expectations, due, I think, wholly to the bad weather. 3KQ has a very good description of the weather around Wallan, but we'll have to leave that out.

An arrangement was made with VK7AB some weeks before the field day to call and listen at definite times for any VK7 stations who could get on; 1000-1015 call VK7, 1015-1030 listen, and so on, every hour, with the remaining half-hour for locals.

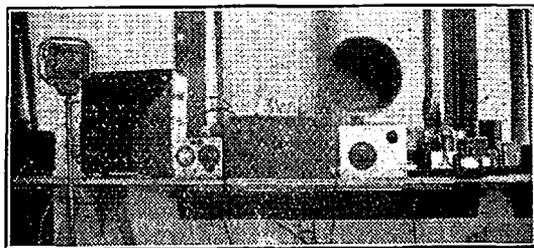
In reply to our letters VK7RC had to report that he would not have the time to get on the air on the 15th, and VK7AB was to be the only starter. Up to date no report has arrived from 7AB about his activities of last Sunday, so there is still hope—he may have heard a VK3.

At a previous meeting of the U.H.F. Section it was decided that 3WI would be on the air to receive, relay or exchange news and general information on the doings as the day progressed, rather than, like the stations on location, take part in many experiments, etc.

Since the A.C. mains have not yet been made available at the W.I.A. rooms we were forced to use the alternator for power supply on this occasion. This, of course, meant

that everything would have to be shut down before we could use our superhet receiver (batt. operated) on account of the Q.R.M. (electrical) from aforesaid alternator. The A.F. department, including microphone, three stage S. amplifier and modulator used all indirectly heated valves — result, a certain amount of time lost in change overs.

This A.F. gear was supplied by myself. The R.F. unit was produced by 3KQ and kindly loaned for the day, likewise the power department (transformer, rectifiers and filter) came from 3CR. On duty at



56 MC Gear at VK3WI

3WI, 3CR, O. Davies and yours truly. Receivers, Super Regen, loaned by 3CR and operated from A.C.—Superhetrodyne from 3DH. Antenna, half wave vrtical with $\frac{1}{2}$ wave, matching section on 40ft. mast atop W.I.A. rooms. Installed by O. Davies.

Stations received (3XY and 3AW, very steady), 3OJ, 3XM, 3TH, 3JO, 3HK, 3OF, 3OT, 3HZ and 3KQ, 3WI was reported a consistently good signal from most locations (we haven't heard from VK7 yet)—and most stations received at 3WI were more than R5—since the noise level there was bad and all below R5 were lost.

After 1415 the conditions improved very noticeably, and most of the stations heard came in between then and 1600. This improvement in reception conditions coincided with a temporary clearing of the weather—clouds cleared away, sun shining—

At 1500 we heard a tooting from the street below which, on investi-

gation, proved to be the 3KQ-3VH combination. They reported a record rainfall at Wallan in record time; they had to get out while they could, or they would have had to send out distress calls for the first time on 5 metres. I rather wish something like that had happened, and we would have at least made some history, since we couldn't contact Tasmania. The gang might have converged on Wallan "en masse" to drag KQ-VH out of the mud.

3TH reports a large number of stations contacted from Caulfield, which proves that by removing a number of our local stations about 50 miles out from home to good localities and operating on perhaps $\frac{1}{2}$ power input good reliable communication is easily maintained — 3TH's bag:—3LC-R6, 3XM-R7, 30J-R6, 3HZ-R5, 3WI-R9, 3HK-R3, 30F-30T-R8, 3UH-R4, 3VH-R9, 3JO-R3, 3KQ-R7.

3ML at Anglesea commenced operations at 1215 and not until 1416, when they changed the horizontal array to a vertical dipole, did they have any result. At this time they heard 30F. At 1435, 30T was heard at Anglesea telling 3UH King-like that he heard 3ML in the morning R4-5 — so the horizontal array WAS working.

Then at 1541, 3ML contacted 30F-R6, and at 1555, 30T-R7-8. Actually 3ML and 3UK heard only 30F and 30T, both at Arthur's Seat, with two transmitters 4 watts and 15 watts. Later 3UH and 3KQ reported hearing 3ML, but no contact. These facts seem to point to the dipole as being more efficient than the horizontal array.

3KQ originally set out for Pyalong, near Wallan, but after losing much valuable time, due to wrong direction, they finally set up there just in time to be drenched. However, just before the rain did arrive, 3KQ-3VH called 3RS with beam antenna N.E. and S.W., according to schedule. At 1148 called CQ, with beam N. and S.—N.D., and then they were washed out by the rainstorm. They intended to re-set up the station at Wallan, but the rain did not let up for long enough, so they were forced to retreat homewards.

From the usual address of 3KQ at 1540, contacted 3WI-R9, 3KQ's

sig., R6-7; 1555, 3HZ-R5, R5; 1610, 30T-R6, R6-7; 1620, 30F-R4, R6-7; 1628, 3HK-R4, R4.

Then 3JO at Macedon was heard at R4; 3TH at Caulfield, was heard at R7; 3ML, at Anglesea, was heard at R4.

A rather amusing experience was reported by 3KQ. Besides noticing very bad static interference, Gil. claims to be the first to hear a horse. When the laughter died down, the explanation was given that, as a horse trots along the track we have all noticed the sparks produced by contact between the "fore" and "aft" shoes: well, Gil. could hear regular clicks on his superhet. received, and, on looking around, noticed that the clicks corresponded with the action of the horse trotting along the track at the foot of the hill.

The next log is from 3XM, operated from Ormond (home). It will take up too much space to set out a detailed report of the log, so we shall have to be content with a general comment. Les was on and off from 1000 to 1433. Heard 3WI-R5, 30J-R5, 3LC-R5, 3TH-R5, 3HZ-R5, 3HK-R4, 3JO-R2-R6, 30F-R5-7, 30T-R7, carrier strong only.

Contacted:—3WI, 30J, 3TH, 3HZ, 3HK, 3VH, 3LC, 30T.

GENERAL OBSERVATIONS: — Very great difference in signal strengths from all stations, improving during day. Very little QRM from receivers; 30T extra strong carrier; modulation not so strong.

Then 3HZ located at Ben Cairn, near Donna Buang. Operated from 1100-1620. Contacted 30J, sig. in, R6, sig. out, R5; 3XM, R9, R4; 3TH, R9, R6; 3JO, R7, R7; 3HK, R8, R5; 30T, R6, R9; 3UH, R8, R7; 3KQ, R5, R5; 3VH, R9, R8.

Operators, 3VX plus 3HZ plus Mr. Evans. Antenna, vertical, $\frac{1}{2}$ wave, 2 elements plus reflectors. Transmitter, 45's P.P. and 4 Tube Superhet receiver.

.....

Note on another page the arresting notification from Mr. R. H. Cunningham (VK3ML). He has secured the valuable British agency of the famous Eddystone products, and can offer exceptionally good terms to hams and houses. We shall be pleased to publish some interesting particulars in the news columns of our January issue.

Station Description

VK7CK

Situated at Natone, about eight miles inland from Burnie, on the North-West coast of Tasmania, the call sign of VK7CK first came on the air early in September, 1932, shortly after the owner and operator, L. F. Clark, better known, perhaps, as "Poley," had acquired the necessary A. O. P. Certificate. Much of the credit of this must be given to "Lon" Jensen (VK7LJ), and the late Bruce Craw (VK7BC), who sowed the necessary "bug" and supplied much of the urge to qualify and obtain a license.

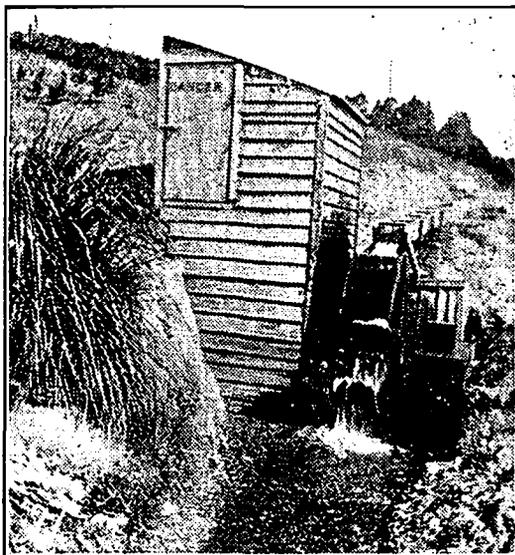
Much brass has been pounded since those days, and many friendships, near and distant have been made, while many call signs, together with their owners, have disappeared from the island State. Much water has passed over the old waterwheel that supplies 7CK with electric power in the meantime, and as the State hydro-electric scheme will in all probability be extended to Natone in the next few months, it was thought that a description of the power plant and station might be of interest, before it was reconstructed.

During the time that the necessary knowledge was being acquired to qualify for the operator's certificate, the matter of some means of power supply had to be seriously considered and after much planning and work, became an accomplished fact.

About 170 yards from the house is a fairly big creek, and the water from this was diverted along its bank for about 60 yards until it gained sufficient elevation to drop on to an overshot waterwheel with an extended main shaft, running in wide waterproof bearings, which were screwed down to half-ton wooden blocks set in concrete. Care had to be taken to see that sufficient fall was allowed for the exhausted water to run back into the creek bed from the wheel placement. The waterwheel is five feet in diameter, and two feet in width, and contains 17

compartments in its circumference.

The wheel shaft at its extended end passes through a wall into the building which houses the generator and its attendant driving gear. On this shaft and close to the main end bearing is a large sprocket wheel fitted by a heavy roller chain which passes to a smaller sprocket on one end of a countershaft, mounted some three feet away on the same block. Fastened to the other end of this countershaft is a large pulley which acts as a flywheel and from which an endless belt passes up at an angle

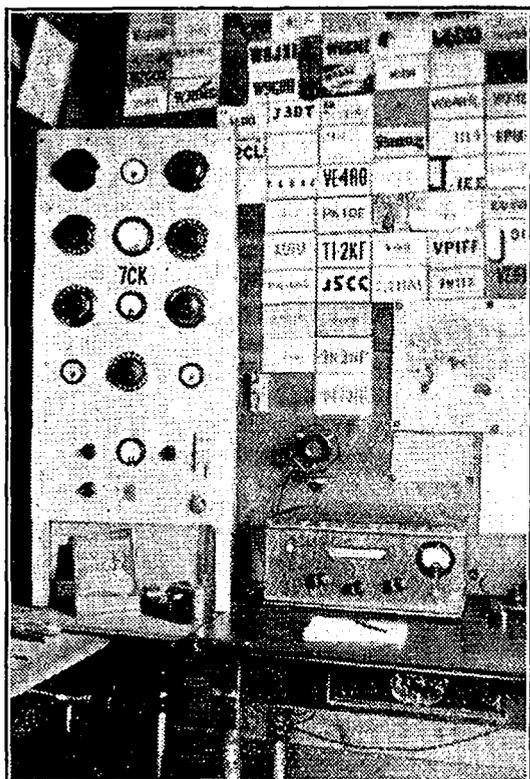


of 45 degrees to the generator on a platform above.

This platform is really at ground level and also carries a set of "Pickering" governors that control the amount of water falling on to the driving wheel, by means of an extended arm and rod, operating a butterfly valve in the water channel. The drive for these comes from a small 10-inch pulley, on the countershaft beside the flywheel and connects by a small vertical belt. These governors regulate the flow of water according to the load and maintain the speed and voltage to within about seven per cent. either way, under varying loads. The cor-

rect gearing ratios were only found after experiment, and are as follows:—

Normal speed of water-wheel and driving sprocket (42 teeth) up 7-1 20 r.p.m.
 Speed of countershaft; driven sprocket (6 teeth) up 7-1 140 r.p.m.
 Speed of generator; fly-wheel 30-inch., generator pulley 3-inch. up 10-1 1400 r.p.m.



The Gear at VK7CK

The generator is an A.S.E. dynamo 1 k.w. 240 v. D.C. and at 1400 r.p.m. maintains its voltage to about half load, but being shunt wound falls somewhat after that. The whole plant is equipped with reservoir ring oilers and only needs attention about every ten days. It runs continuously and the only expense since it was built has been the oil for the bearings, amounting to about ten shillings a year. The output is used for house lighting and power besides radio purposes, and is brought to the house by the usual type of overhead H.T. line. The only flaw in the whole scheme is the fact that during dry periods, the creek doesn't maintain sufficient volume of water to give satisfactory operation. All power for radio purposes is taken

from the 240 v. mains, and passed through a 30 H. 300 m.a. choke, shunted by a bank of 8 mfd. condensers. Another 4 mfd. is also placed from each pole of the dynamo through a small audio choke to earth in the power house, and r.f. chokes wound of heavy gauge wire in the leads to the power lines. Lower voltages for receiver and other purposes are obtained from taps on a bleeder resistor of generous proportions. All filament supplies are from accumulators, which are charged by means of a 240/6 volt motor generator set, in the shack.

The first transmitter was a shunt fed Hartley followed soon afterwards by a M.O.P.A. utilising 2/E406s in the amplifier stage. Crystal control was later used, and with this rig much dx work was done on cw, and all VK and ZL districts were consistently worked on 'phone on the 3.5 and 7mc. bands. Verified reports of 'phone on 80 metres were received from U.S.A., Europe and Hawaii.

These last were surprising, as only grid modulation was used, and the input power at no time exceeded 15 watts.

The present transmitter is a three stage one, using link coupling throughout, and quickly changeable for the 3.5, 7 and 14mc. bands. A B403 tube is used in the oscillator stage, followed by a D404 as buffer driving a pair of E406s in parallel for the final amplifier. For 20 metres the last stage is used as a doubler, and appears to get out just as well as when used on the fundamental, and in this fashion all Continents have been successfully worked on an input power of 15 watts, and four of them on six watts. For 'phone work Telefunken modulation is used, comprising an A415 as modulator preceded by a two stage speech amplifier, a Philips microphone and a B.T.H. pick-up. This unit may be seen on the bottom shelf and panel of the transmitter.

All transmissions are checked on a shielded monitor, comprising an A425 tube in a Colpitts type circuit.

The receiver uses five tubes, the first two being A442s, r.f. amplifier and regenerative detector respectively, an A409 resistance coupled as first audio, followed by a pair of

(Continued on Page 32)

"Sh-h-h!

I think I hear a man singing"



Do you remember when Radio was a squeaking, home-made toy through which, at irregular intervals, came sounds like music or the human voice? And those days were only twelve years ago.

Vealls Radio and Electrical Stores were established 25 years ago, way back in the days of razor-blade, electrolytic and crystal detectors, long before valves were even thought of and loudspeakers were a Jules Verne dream.

The experience, the service rendered by Vealls is a product of these years let them serve you, give you the benefit of these years, and years of studying, just what the amateur needs.

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Country Hams visit Kerang

The population of Kerang increased for one day on Sunday, November 15th, when six Hams, an XYL opr., official photographer, etc., arrived in that fair city.

The parties were, from Rochester, 3EP and Mrs. Perkin (Auntie Jess) 3FF, and his brother Tom (who hasn't got a call sign yet), from Charlton, 3AI, 3HX, Mac (the official photographer), a new Ham, by name Fenton Burton, also another.

boards folding the doors back, and there was the rig, and what a rig, a masterpiece of construction complete with 58 switches, 27 tubes, etc.

After signing a document (it might have been legal), and having a photo taken, we journeyed forth to the "King of DX" 3KR's shack. Ken has two Xmitters in operation, and he called CQ on 40 metres and worked 2ACD. On the wall of the shack were two WAC certificates, one



Sitting (left to right)—3HX, Mrs. Perkin, 3TL.

Standing—3FF, Tom Speer, 3KR, 3OR, Fred Skinner, 3AI, 3EP, Fenton Burton.

The Rochester gang arrived somewhere about 12 o'clock, and were joined by 3TL and 3KR for lunch, after which they proceeded to 3TL's location.

The Charlton Gang arrived at Lake Meran, from whence 3OR transported them via the new bus to Kerang, getting to 3TL's just as the rest of the gathering were about to view the works, CQ was sounded, by three cars, and everyone thought that there had been an accident.

Well, after being introduced all round, and after at least three of the gang had decided to take 3TL's mast home, Treb escorted us inside, but lo and behold, no rig could be seen. Treb opened a couple of cup-

CW and the other fone, the latter having arrived the previous day, as Ken put it up specially for the occasion. Hi!

We still had another shack to visit, that of 3OR, so the whole gang, 12 in all, made tracks for Lake Meran, where we were entertained to afternoon tea.

Murray then showed us his shack, and some shack, too, and after waiting a long time, 3CE and 3ZK were contacted on 80mx.

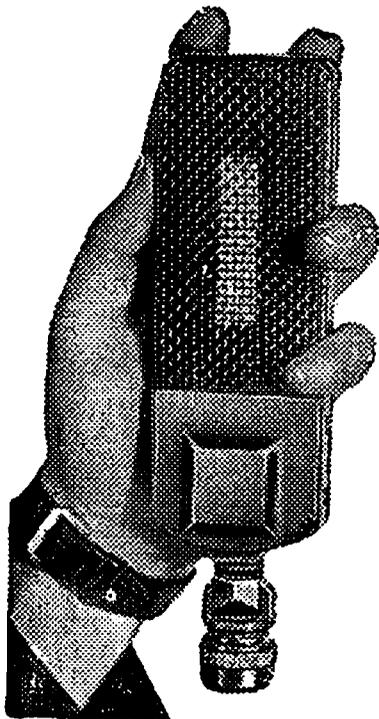
As time was then late, more photos were taken, and the gang began to wend their weary way homeward, after a very FB day indeed.

Let's hope gang, we have another like it very soon.

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Type	Height	Price	Type	Height	Price
458	1/8	1/8	866	1 5/16	1/8
478	1/4	2/6	866J	1 5/16	2/-
478J	1/4	3/-	966	1in.	1/2
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FINE GRANULE MICROPHONE CARBON

We have small supplies of this carbon in stock, of the Polished Granule Type which we can sell to Amateurs only at 12/6 an ounce nett.

The W. T. S. Crawford Trophy Competition for best Amateur Telegraphist

Open to N.S.W. Amateurs

The Senior Radio Inspector, W. T. S. Crawford, Esq., has always had the interests and well being of the Amateur and Experimental Transmitter at heart and it has always been a pleasure to him to help the "ham" in his experiments in every way possible. Many an amateur is only too willing to testify to this fact.

Mr. Crawford has always held a very high opinion of the operating abilities of the Australian Amateur and he considers that they hold their own with the rest of the Amateur World. In an endeavour to raise this standard still higher, he has very generously donated a trophy for competition among the New South Wales amateurs in order to find the best operator in our ranks.

This trophy will take the form of a silver cup, together with three replicas, and will be competed for over a period of three years. Each year's winner will hold the cup for a period of twelve months and will retain a replica for all time. The amateur winning the competition twice will win the trophy outright.

The Wireless Institute of Australia (New South Wales Division) has been delegated the honor of drawing up the rules, organising and conducting this competition. This does not mean that the competition is restricted to members of the Institute. Every amateur operator in N.S.W. 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

professional telegraphist is also debarred. (This covers present and ex:— P.O., Railway, R.N., R.A.N., R.A.F., R.A.A.F., Cable, Ship, Shore, Army and Police operators).

RULE 2.— Automatic keys and "Mills" of any description will not be permitted.

RULE 3.—For the preliminary heat, three judges will be selected from the ranks of the commercial and professional operators. The Senior Radio Inspector will be sole judge at the final. Judges' decisions in all cases to be final and binding.

RULE 4.—There will be one preliminary heat only, and that will take place during the week-ending 23rd January, 1937. The final will take place during the course of the 1937 Amateur and Short-wave Radio Exhibition on a date to be fixed.

RULE 5.—The radio clubs affiliated with the Institute and the Institute itself will conduct the preliminary heat in the city and suburbs. The Institute will conduct two sections of the preliminary heat (a) for members, (b) for non-members. Amateurs are asked to get in touch with the radio club in their district or the Institute itself. Any amateur who is not a member of the Institute or a radio club, should get in touch with the secretary of the W.I.A., at Box 1734 JJ, G.P.O., Sydney, who will make arrangements for his test.

The following country centres have been decided upon together with the controlling body. Newcastle Radio Club (Newcastle and Coal-

fields), Broken Hill (Broken Hill Radio Club), Wagga (Wagga Radio Club), Albury (W.I.A. Zone Officer, VK2IG), Grafton (W.I.A. Zone Officer, VK2NY). Should entries warrant it, other centres will be added.

RULE 6.—In the various sections of the preliminary heat the following procedure will be adopted to decide the finalists:—

Where there are ten or more entrants, 1st, 2nd and 3rd will qualify; where there are five or more entrants, 1st and 2nd only will qualify; where there are under five entrants 1st only will qualify.

RULE 7.—The Operating and Receiving Test will take the following form:—RECEIVE at the rate of 20 words per minute, two messages—each of one minute's 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 minute's duration — and three minutes press. Marks to be awarded for formation, spacing, freedom from errors and breaks.

The Senior Radio Inspector's object in donating this trophy is an earnest and wholehearted desire to raise the standard of operating technique to a very high plane, and every "ham" in this State, who is worthy of the name, will ensure the success of this competition by sending in his entry form and making this test the event of the year.

With reference to this competition the point must be stressed that speed is not essential to success—that is, of course, speed exceeding 20 words per minute as previously set forth. The Institute realises that quite a number of amateurs would be interested in an endeavour to find the fastest operator among the "hams." To cater for these "hams," the Institute has decided to run a competition in conjunction

with that for the Radio Inspector's trophy.

The trophy for this competition—to be known as The Wireless Institute of Australia Speed Contest—will take the form of a silver cup and three replicas, and will be competed for over a period of three years. Each year's winner will hold the cup for a period of one year and retain possession of a replica for all time. Competitor winning the cup twice will be the outright winner.

RULE 1.—Competition will be open to any amateur in New South Wales possessing an A.O. C.P. and current experimental licence.

RULE 2.—Entrants for Radio Inspector's trophy are eligible to compete for this trophy also.

RULE 3.—Country centres, as previously mentioned, will conduct tests and the rule for eligibility to qualify for final will be same as Rule 6 in R.I.'s trophy.

RULE 4.—There will be one test only in the city, and that will be conducted by the Institute itself. This will cater for country finalists and all city and suburban entrants.

RULE 5.—Test will be to receive and transmit, press for three five-minute periods at the following speeds:— 20, 25 and 30 words per minute. Marks will be awarded as under Rule 7 R.I.'s trophy.

RULE 6.— Automatic keys or "Mills" are ineligible for this competition also, but upon conclusion, any entrants desiring to create a record may use both.

RULE 7.—At least twenty-five entries must be received before this competition will take place.

RULE 8.—Judges in this competition will be the same as for R.I.'s trophy, and their decision will be final and binding.

RULE 9.— This competition will take place immediately following the final for the R.I.'s trophy. The country heat in the various areas will
(Continued on page 32)

Notes from Federal Headquarters

VK-ZL 80-Metre 'Phone Contest.

The recent 80-metre telephony contest organised by the N.Z.A.R.T., Inc., in conjunction with the W.I.A. Federal Headquarters has concluded and the results are now to hand. The number of logs submitted was surprising, and it is regretted that through lack of space we are unable to publish the complete list of scores.

VK2NY, of Grafton, N.S.W., was the winner of the transmitting section with 420 points, and R. E. Webb, of Coramba, N.S.W., led the receiving section with 432 points. New Zealand results are not yet to hand at the time of writing. Leaders in the two sections are as follows:—

	Call Sign	Points	
Transmitting	VK2NY	420	
	VK4CB	416	
	VK3WE	336	
	VK3ZK	308	
	VK6RW	288	
	VK4GG	240	
	VK4HA	224	
	VK3HX	196	
	(ex-ZL4GP)	VK2HB	168
		NK3KE	126
Receiving	R. E. Webb, Co- ramba, N.S.W.	432	
	J. T. Edwards, Rye Park, N.S.W.	408	

New Regulations.

As there seems to be some confusion amongst amateurs in general regarding the interpretation of a "30-minute session," we publish an extract of a letter, from the Chief Inspector of Wireless, Melbourne, which should clear this matter up definitely.

Mr. Malone writes as follows:—

"Regarding the '30-minute session,' it is intended that 30 minutes should cover the whole period of a two-way contact. To allow transmission by one station for 30 minutes without a break, would contravene Regulation 114 under the Wireless Telegraphy Act, which provides, inter alia, that the call sign shall be signalled not less than once in every five minutes. The present arrangement does not prevent an experimenter from making a second contact

on completion of the first."

From the above, it should be perfectly clear to everybody, as to what is meant.

Federal Convention.

Arrangements are well under way for the holding of the Convention in Sydney, at the end of January.

Details of the above will be published in the January issue of Amateur Radio.

Federal and Victorian QSL Bureau

By VK3RJ, Federal Isl. Manager.

I sincerely regret the omission of notes from the November issue. The notes were sent in on the usual date, but owing to a re-arrangement to enable Amateur Radio to appear on the first of each month, the notes unfortunately missed the edition.

Great doings at Crib Point! Dave Duff, VK3EO (late VK2EO), after a few months swotting for exams., expects to put to sea early in the New Year. Gordon Macleod, VK32Z, the other big noise down there, is now a proud father. Congrats. on the arrival of that junior, Gordon.

After weeks of endeavour, the writer managed to get Sunday, 8th, off duty to take part in the 56 MC field day, only to find the outing postponed to 15th inst. Understand the day was a success.

VK3 country hams should advise the QSL manager when they become members of the Victorian Division of the W.I.A.

Still wanted by this Bureau—the JRA of SX3A. Thanks to John Langley, of 2OW, for the info. about SX3Z.

On October 18th VK2LZ, in the VKZL international test, had 68 QSOS, working 18 countries on 28 MC. Some performance, Con.!

The new QRA of the R.E.F. is—Resau des Emetteurs Francais, 6 Square de la Dordogne, Paris, 17°.

H. O. Widmer, of Sao Paulo, Brazil, writes to advise that he is compiling a "Born on the same day" register. For a trifle, friend Widmer will supply a list of persons born on the same day as yourself. Looks like a new stamp collecting stunt. Particulars may be had on application.

(Continued on page 19)

Early Melbourne Radio

Our representative enjoyed a chat the other day with Mr. O. A. White, advertising manager of Veall's. Mr. White was with many others now occupying important positions in local radio circles associated with Homecrafts, the first radio house in Melbourne. The old principal, Mr. P. H. McElroy, is, we are glad to say, still going strong. He carried on business for years at the still existing establishment in Swanston street, making a reputation in the retailing of Meccano and mechanical gadgets generally, until radio came along, of which he was quick to take advantage. In those days Mr. White ran "Homecrafts Magazine," which was very popular, associated with him were S. C. Hamberg, now staff superintendent and a director of Veall's, R. D. Fabine, special representative for O. H. O'Brien, F. Watson, for some years with Hartley's, now with Precedent Radio, S. V. Hosken, to-day resident engineer at

3AR Melbourne, and later at Veall's, A. E. Newnham, now announcer at 2CO Sydney, who made history during the dramatic rescue at Albury of the Dutch plane. We would gladly welcome for publication any further recollections of the early days of radio.

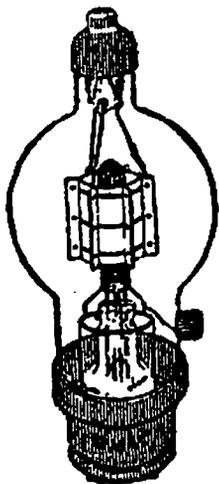
(Continued from Page 18)

Cards are on hand at the Bureau, 23 Landale Street, Box Hill, for the following Victorian stations: — AD, AP, AT, AX, BG, BK, CA, DD, DT, DZ, EL, ET, EW, EZ, EH, EQ, FM, FZ, GA, GH, GJ, GP, HB, HE, IL, JE, JZ, KA, KG, KO, KS, KT, LG, LP, LQ, LT, MX, NA, NB, NG, NT, OL, OI, OU, PG, QZ, RN, RZ, RV, SB, TB, TE, TG, TO, UD, UJ, UO, VF, FK, WB, WC, WM, WZ, XJ, XV, XR, ZB, ZU, ZW, Sebire Hibberd.

Cards for the following, unless claimed forthwith, will not see Xmas: —VK3BE, BL, BX, CW, HO, JW, JK, KM, LY, LS, LK, NR, OZ, OP, OX, PS, QO, QP, QX, RM, SP, TW, VL, WH, YF, YL, YW, ZO.

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Divisional Notes

All copy must be in the Editor's hands not later than the 18th of the month preceeding publication

N.S.W. Division

SPORTS DAY

The N.S.W. Division will be holding a combined Sports Day at Wyong on Sunday, December 6. Tennis, golf or cricket, whichever is your selection, and you will have an opportunity of meeting many country "Hams." Write the secretary, W.I.A., Box 1734, J.J., for fullest information.

ULTRA HIGH FREQUENCY SECTION.

This section held its inaugural meeting on October 22, and was formed because of the very increased interest shown in this division on the ultra-highs.

The objects are briefly as follows: To cater for all members interested in 28 mc and higher.

To encourage the use of stabilised transmitters and receivers to eliminate the use of unstable gear.

The office-bearers elected were Mr. J. Moyle, Chairman, and M. Meyers, Secretary.

The November meeting was held on the 5th inst., and all members present, whether newcomers or old hands on the "ultra highs," went away with some very interesting dope as to what has been done here with limited power. In this respect, thanks must be given to Mr. Moore, our Federal President, for the excellent talk he gave, covering the activities of the Metropolitan Water Sewerage and Drainage Board with regard to reliable and useful communication on these wave lengths.

In future, the formal meeting is to take place on the first Thursday in each month at the Y.M.C.A. Buildings and a supplementary meeting is to be held in the various shacks at least once a month.

At the next meeting a talk on modern ultra high frequency gear with special reference to receivers is to be given by Mr. Don Knock, who, at the present time, is one of the most active members in the five metre band.

As regards the activities of members over here, practically every day comes the report that interstate signals have been heard on five metres, but owing to conditions the signals are audible for a few minutes only and no definite check can be obtained on the call signs.

A report which seems to have a good basis came from 2UV of Kensington, who reported hearing 4FL on fone about 10 p.m. and, on going further into the matter, it was ascertained that 2BJ, who is some distance away from 2UV, heard this signal at the same time, so now they're only waiting for a verification.

Fortunately the majority of members are showing a trend towards crystal control on five, which seems to be the ultimate choice in the long run.

No doubt this summer the band will be much cleaner, which is a good thing, for all those down there last year will never forget the qrm caused by transceivers and the like.

With the introduction of the new 6L6 type tube, great possibilities crop up and 2NO is making good use of one as an E.C. oscillator with the first section on 10 Mx and the plate on 5 Mx. This is coupled to

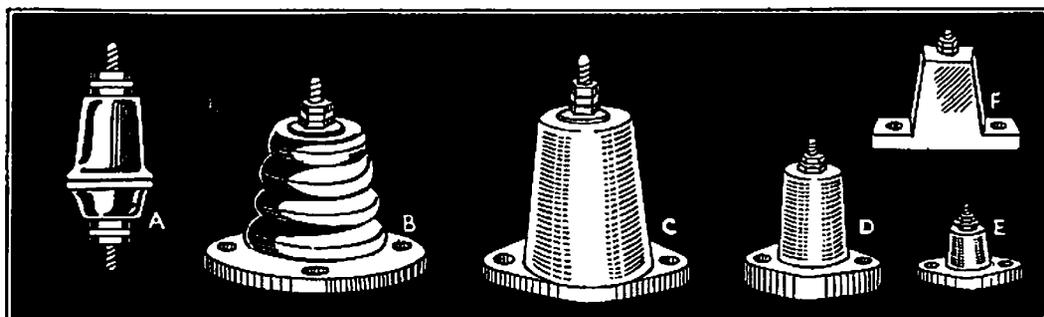
Hard to get? We may have it

THOSE Second-hand Items! No longer made, but useful to Hams. Variable Condensers, all kinds, suitable re-building and spacing for transmitters. B Eliminators of all kinds for that bias supply. The most prolific source of second-hand Radio material in Australia. Trade-in B.C. Sets with good parts of every description. Coils, Valves, Sockets, Mica Condensers, Padders, Trimmers, Rheostats. Prompt attention to mail enquiries from amateur transmitters

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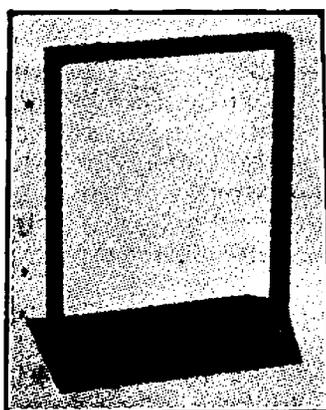
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"	D	"	"	1in 6d.
"	F	"	"	1in 6d.

(Type E not available)



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Brilliant New Radiokes Components for 1937

Incorporating many advanced features the latest Radiokes component releases provide features that are new to Australia and which will be of great interest to all who follow the latest trend of radio design.

Radiokes engineers have consistently been "first with the latest" in tuning coil design, and in support of this policy, have released for 1937 a new type iron core tuning coil.

BIC BROADCAST IRON CORE COILS.

Type BIC iron core coils are designed for use within the broadcast band: 1500 to 550 kilocycles, in conjunction with a good grade of gang condenser of 385 mmfd. capacity.

1. Under these conditions, and assuming there is no regenerative feed back in wiring and associated parts, sensitivity is practically flat over the entire broadcast band.

2. BIC coils are mounted in a small square can, 1 3-8 in. x 1 3-8 in. x 2 3-8 in. high. The unusually small coil dimensions given an attractive coil can ratio, which results in minimum loss.

3. Aerial coils are designed for an average outside aerial, 75 feet long and 25 feet to 30 feet high, or any aerial system with an approximate capacity of 300 mmfd. Although this aerial coil gives satisfactory transfer with practically any type of aerial system, special types are available for 75 mmfd. undercar antenna, or short indoor antenna, or 200 mmfd. sedan roof antenna.

4. Type BIC coils are recommended for use wherever high efficiency and small sizes are necessary. The design of these coils gives maximum selectivity and sensitivity with low background noise.

Radiokes BIC aerial, R.F. or oscillator coils, 10/6 each list.

TWA-3 COIL BOXES.

Type TWA-3 coil assembly is of greatly improved type. Briefly, the unit has been built in three sections, the first section housing aerial coils, the second R.F. coils, and the third oscillator coils. The unique design and construction of the TWA-3 box includes the following features, and is designed on the latest overseas principles.

1. Complete and most effective brass shielding between each section, giving complete stability with high sensitivity and selectivity with a minimum of loss due to close coil shields.

2. Coils are mounted around the contacts of the switch, making very short leads from coils, with consequent low loss. Complete shielding between switch sections prevents R.F. feedback.

3. Broadcast coils are of the new iron core Litz wound type, which are remarkably efficient in spite of their small physical dimensions. The increased permeability provided by modern iron cores means:

(a) Lower self capacity, lower capacity losses, and lower R.F. resistance.

(b) Marked improvement in selectivity.

(c) Unusually high ratio of reactance to R.F. resistance ("Q" value).

(d) Unusually high transfer of energy in the aerial coil, without tightening coupling, resulting in lower noise level for equivalent sensitivity and selectivity.

4. The wave change switch is actually built into each section of the box. By this means leads are kept short. The switch contacts are silver-plated to provide long and noise free operation.

5. The A.B.C. by-pass condensers are located within the box, actually at the coil returns, and it would be hard to find a more satisfactory place for them.

6. The TWA-3 box covers an unusually wide frequency range in three bands. Lower short wave band covers 10 to 25 metres. Medium band 25 to 80 metres, and broadcast band 200 to 550 metres. Short wave coils are space wound with heavy gauge enamelled wire, and primaries are interwound for maximum coupling.

7. Aerial coil is designed for use with an outside aerial, approximately 75 feet long and 25 to 30 feet high, or for any aerial system showing 300 mmfd. approximate capacity. Although designed for definite antenna capacitance, transfer is satisfactory with any type of aerial.

Radiokes TWA-3 Coil Assembly, £6/17/6 list.

Available from all good radio dealers. Wholesale Distributors in all main cities of Australia and New Zealand.

Amateur Radio

an 802 which drives 2-35T's in the final, a very good line up, too.

2HZ has a crystal rig down there, but at the moment is putting in what little time he has into building a two-tube autodyne receiver.

WN is down there with a crystal, but has not been heard for some time.

As usual 2JU is the silent worker.

LAKEMBA RADIO CLUB—VK2LR (Affiliated with the W.I.A.)

By 2DL.

It is desired to extend congratulations to three members of the above club in the persons of Mr. W. Picknell and Mr. B. Dimmock (2OW), both of whom have taken unto themselves a wife, also to Mr. K. Johnson (2NJ), who was recently presented with a junior op. Len Worrall (2XM) was recently transferred to Cairns, Queensland, his new call sign being 4XM. A very compact and efficient transmitter was constructed for him by 2QP and 2QX. The rig consisted of two stages C.C., using the 6P6 valve in the final.

2ABT at Yerrinbool spends most of his spare time listening for 5mx signals of the Lakemba gang, but so far has drawn a blank. However, the boys are working on improved transmitters of the M.O.P.A. class, also new type receivers. 2OD hopes to be using 6P6's in push-pull, with suppressor grid modulation in the final.

2XD from Tamworth recently paid the club a visit, but reports that conditions in Tamworth are pretty "punk" as compared with his former Bankstown location; as regards Northern YL's, he reports nothing over T5.

The above club wishes everybody a Merry Xmas, and a cordial invitation is extended to visitors who may desire to attend the meetings at the Sunrise Hall, Canterbury Station, every second Tuesday.

2WJ and 2UV both doing good work and 2BJ and 2HL can be heard nearly every night with good signals.

Just an example of the interest shown by members is that of old-timer Roy Hart, 2HO, who is back on the air after several years, and is going to put in some good work on the ultra highs.

2VN has crystal rig under construction, 53's in the exciter with a 7 mc crystal followed by a 6L6 doubling to 5mx and a 6P6 amplifier. At the moment experimenting with a four tube super on 5, but so far, not so good!

Speaking of supers calls to mind 2LZ, who has one working excellently down there, 7 tube, I think. The fb signal he is putting out comes from push-pull 800's, from which almost as much output is obtained as from his 20 mx xmtr. Incidentally, Con is using a 132 feet flat top antenna for this band.

With regard to 10 mx, the most notable performance of late is once again that of 3LZ, who, on the 3rd week end of the VKZL test had no less than 28 contacts in 13 different European countries. Congratulations, Con om!

Conditions are rather patchy at present, occasionally Europeans are heard around 7 p.m., and when they are heard it is usually at good strength. VS6AH and the consistent J2IS are heard regularly about 6 p.m., while the W fones can be heard around 6 a.m. fading out about 9 and coming in again a little later. It is of interest that on the night 2LZ put up his remarkable performance the signals could be heard from 6 p.m. until almost midnight.

Dave, 2AE, worked a G recently, and is now in the happy position of being WAC on this band.

With only one or two exceptions, all N.S.W. stations operating on 28 mc are using crystals and those exceptions have highly efficient mopas, so there is still room for plenty of stations without qrm! What about it, boys?

Well that seems to be about the lot for this month, so all you interstate "ultra-high" enthusiasts, we will be very pleased to hear from you and several of our members are anxious to make skeds.

NEWCASTLE RADIO CLUB (Affiliated with W.I.A.)

2RF.

Condx. have been only fair on all bands lately, 20 mx. having lost a little of its previous kick.

2ZW has his 10 buffer working now. The way his key-clicks are we hate to think what's going to

happen when the final is on the air. Stan is often heard chewing the rag with locals on 40 and 20.

2UF is QRT, building a new shack 16 x 9. Fb, Frank. The lads won't wait to be invited when it's finished. BZ has 20 countries, and is descending to 10 mx in search of bigger and better DX. Dave is using a bug

New Ham 2ADG expects to have his pp 45's perking any time now. I visited DX hound, 2XU (engineer at 2KA) while at the Mountains recently. Gilbert's old rig is the emergency BCL Xmitter now, so he has built up a line-up of 53-46-10-10 for 40 and 20 mx. With the aid of a 132ft. antenna 90ft. high he put an R8 sig. into K5 the day before I was there. Gilbert exploded the popular idea that the middle and west of the Blue Mountains is no good for DX. Better than his old Belmore QRA, so Gil says.

Using a home-made Reiss mike, 2ZC is often on the BC band. The quality is reported to be fb.

NO. 5 ZONE NOTES—VK2IG

The ZL and VK DX Contest over now and less qrm hi!

Here OJ and QE flat out and worked some fb dx. IG also on spasmodically but troubled with rig.

QE remodelling and has mopa 45 and 10 going very fb. Sets out well and good HAF, FA and YU last Sunday, 8th. Very fb, Allan am.

OJ now on holidays, been in test and worked some nice countries, too.

VK collaborating with the dusky ones in the New Hebrides.

EU not heard much, is putting in 50 modulator for fone.

QD defunct.

3EG qso's em. hrd him say 73 to ZL, but 'twas the countries he had got in test! IG trouble with rig and filter. Now trying mopa, output not so good. Also has new Zepp 66ft. E. and W. and peaks around Sth. Africa. Qso'd all the VQ8's hi!

NEWS FROM THE "BARRIER"

(VK2ZJ)

Well gang, nothing much to report this month, except that condx. have gone vy punk here on 20 mx. Practically no dx about at all other

than an occasional PK, W, J or ZU etc., late at night. Now that summer is here QRN is getting pretty bad out here in the "bush" on 40. The chief item of interest this month is the fact that Eddie, 2HX, is at last W.A.C. Congrats. on landing that elusive S. American om.

2HX has been experimenting with antenna lately, but still maintains that the old Zepp will take a lot of beating.

2DQ, not heard lately. Believe he is rebuilding.

2ZJ, put up a new stick the other week, but rotten condx. too good for my 30 watts, hi!

2ACD, Ron still putting out vy nice fone on 40 and 20.

2ADC, Roger just back from holidays in VIA. Took a portable wid him and worked some VKS's.

2OF, Jack Francis, one of latest hams up here on the air wid xtal rig.

2AEH, Frank Atherton, another new arrival, also on 40 mx, working plenty of VK's.

Victorian Division

U.H.F. NOTES TO 16th NOV., 1936 VK30F

Work during the past month mostly concerned the construction and preliminary tests of gear for use on the field day held on November 15th. Results reported fully in this issue.

Apart from this more serious experiments have been undertaken by 3KQ. He has given much thought to a means of increasing the r.f. output of his xmitter. This new scheme was far more successful than anticipated and resulted in an approximate increase of three during the initial tests. More shall be heard of this later.

At a crowded meeting held on Saturday, 7th November 3DM lectured about the various xmitters and receivers he has built and his observations proved instructive to the members present. 3SJ, of Northcote, a newcomer to 5mx is bringing his gear to a high state of efficiency. Over a period of three days his signal as observed at Brighton improved from R3 to R8. A new and effective antenna should make his sigs. R. max.

Also among the recent newcomers to the band may be listed 3LC and 3ZM.

3XM during the past month has only been off the 5mx band on eight days. His activity brought his month's total of 5mx qso's to 85. Fifty-two of these were with 3OT. Their regular schedule at 1900 each evening helped swell the total. 3OT during the same period, the four weeks preceding 16th November, had a total of 81 contacts.

3JO, with his total of 39 contacts, and 3OJ, his brother, are causing some confusion with the similarity of their calls.

3VH and 3HZ operate four or five nights a week. That is, when they are not playing soldiers.

3PW at Eltham, when on the air, still puts an R8 signal over to Brighton. At present his inactivity is due to night work. The same applies to Scottie, of 3KW, located at Geelong.

3UH and 3HF still find their opportunities limited, as they are both situated at the bottom of a valley.

3ZK of Swan Hill, is expected soon to be active on 5mx.

3ML made everyone present envious with his high efficiency radio accessories, at the U.H.F. meeting held on November 17th. During this meeting the field day was discussed fully, verbal reports being received from participants. It was also decided to extend co-operation to VK5 during their field-day to be held on December 6th, by holding a field day in VK3 on the same date. Most stations in VK3 shall go to former locations.

3HZ was selected as the U.H.F. representative to lecture at the W.I.A. general quarterly meeting to be held on December 15th. The subject will be "Applied Alternating Current."

Next field day, on December 6th, VK5 are directing their beams at VK3. Preliminary arrangements are that VK3 shall call VK5 for the first ten minutes of each hour, E.S.T., and shall then listen for VK5 during the next twenty minutes.

All country stations, especially those in between VIM and VIA are requested to co-operate. Any VK3 stations taking part are requested to mail a report to 3DH.

'Phone Section Notes

By J. R. Kling, VK3JB

The October meeting of this Section was held on Tuesday, 27th October at the Institute Rooms, and was well attended, 26 hams being present, and various 2nd operators and Messrs. Kerley, Lahiff and Davies, of the Allocations Committee. Shortly after the meeting started we had the pleasure of a visit from our esteemed Chairman, Mr. Doyle, 3CR, who has been ill in hospital for some time, and the Acting Chairman, Mr. Thompson, 3TH, gave us an opportunity to welcome him back in the usual manner. He was still not too hot after his illness, so Mr. Thompson continued in the chair, and Mr. Doyle took a place alongside of him to give a hand with the business.

It was with regret that we accepted Mr. Davies' resignation from the Allocations Committee owing to lack of time to handle the job, and Mr. Hanson was appointed to fill the vacancy. The Allocations Committee members now are Mr. Kerley, Mr. Lahiff, Mr. Anderson (3PA) and Mr. Hanson.

For some time past there have been Official Observers appointed each month from amongst our own members to check up on the stations operating, just to see how our own views of the transmissions tallied with the Allocations Committee's Order of Merit, and it was very interesting to hear all the reports read out at the meetings from all those that took part each month. In lots of cases they varied widely from the Official Order of Merit, but no matter who was on the Allocations Committee we would always find we would come out in practically the same order of merit as we are now, and it has proved beyond doubt that the Allocations Committee has a very hard job and that it has always carried out its duties in a remarkable manner.

Mr. Kerley informed us that a new system of allocating points had been drawn up by the committee, and was in operation last month, and should be definitely better. He also read out details which he had compiled from his observations regarding faults which the stations had made during their transmis-

sions during the month and for which they had lost points.

This innovation is a very excellent idea, and it is hoped that this will become a regular feature at the meetings, as it tells us where we make mistakes and helps us to rectify them.

After the Order of Merit had been read out and the stations allocated to their various times and frequencies on the band for the next month the meeting closed.

It has been rumored that 3AM might be moving to a new QRA as the one at Caulfield is too far away from work and also a bit on the small side.

3FW has been ill in bed for a week, but will be well enough to be on the air when Sunday comes we hope.

3LM had trouble with a crystal that had two peaks, one on 214.2 metres and the other on about 240 metres, and unless the transmitter was very carefully tuned up it would hop from one wave to the other. 3OV will be off the air for good, so I am told by 3OY, who is running his sessions for him as well as his own.

3RI is experimenting with an Equaliser on the pickup side of the input to the speech amplifier, but it has not been decided yet whether it will go in or out for keeps.

3EL is using one of 3JB's own crystals for his frequency while 3JB is trying to get the pool slab to do its stuff a bit more as it is not too "HOT."

It was announced from 3CB that he would be off the air during the month of December, but we don't know whether it is to rebuild or to have a holiday.

3CR has a 150-175 metre and a 3.5 MC transmitter for sale complete. It looks as though we are going to lose him altogether this time.

3FL and 3EL are regular Week-Nighters lately, too.

3HF gets out well lately and has plenty of pep in his programmes. 3TM is a regular Saturday Nighter and goes well into the early hours of Sunday morning.

SHORT WAVE GROUP NOTES

By O. E. Davies

Both the September and the October meetings of the Group were well attended. At the latter meeting it was resolved that the members of the Group be assigned to frequencies adjacent to the amateur bands and keep a watch on the commercial stations operating in the immediate vicinity. All members will keep Logs which will be forwarded to FHQ for use at the forthcoming Cairo Convention.

On October 12th the Group paid a very interesting visit to 3UZ, where the staff laid themselves out in fine style and gave everyone a very enjoyable evening's entertainment.

The projected visit to the T.S.M.V. "Kanimbla" has had to be postponed until the New Year. At the present time the crew and agents are much too busy with the Christmas shipping rush to spend time on us, but a promise of a visit early in the New Year has been definitely given.

The next meeting of the Group falls on 23rd December. Roll up and assist to lay down a definite progressive policy for the New Year.

The Council have decided to allocate the Gadsen Trophy in the near future. So, with this in mind, it is of major importance that the Group settle down to serious experiments.

The U.H.F. section held a field day on 15th October, at which our representatives gave a very creditable display. Many members who were unable to go out on location succeeded in logging the majority of mobile stations from their home shacks.

Any news of members who are unable to attend meetings would be welcomed by the secretary, who will pass same on to the Gang.

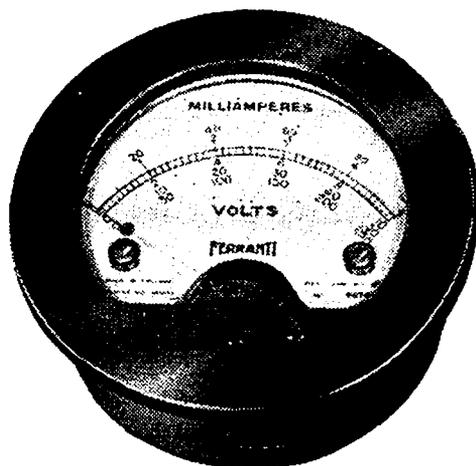
On November 8th the Group visited 3KZ. There we had the pleasure of witnessing the P. and A. Parade, and also privilege of literally pulling the Control room to bits. The Gang voted it a fine evening's outing.

Are YOU a Member of the W.I.A.? If not; Why not?

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28 M.C. SECTION

(Conducted by VK3CP)

Due to having very little spare time and being off the air at present, 3JJ will be unable to compile these notes in the future. He would like to sincerely thank all those who have helped to make them interesting. The present writer would be pleased if the boys would send along any dope, regarding equipment, stations worked, etc. Now that the DX contest is over, we can all settle down and take it easy once more—hi! Apart from the dozens of W stations worked each Sunday morning during the contest, K5AY, XE1AY, TITEA, VE5Bi, VE4PH, J2iS, J2LU, J2iN, J3FJ, all put in FB signals. In the late afternoon FB8AB and ZS1H were the only stations. From app. 6 p.m. till 11.30 p.m. the Europeans came through—G6WY, HAF8D and G2PL reaching r8 on peaks. The second Sunday night of the contest, VK3BQ had a busy time and worked over a dozen Europeans. Max uses an Eimac 50T in the final and when his class B, 6L6 mod. is finished we should hear some nice DX phone reports. On the 18th October VK3YP gave us all a surprise by working W8CRA and W4BPP at app. midnight and many other W's till after 2 a.m. This is the first time W's have been worked at this time. Ingram has an 800 in the final. VK3MR and VK3CZ have each completed their WAC on 10, now that the Europeans are so plentiful. 3CZ has PP 800 in final; Arthur has been busy with University exams, but we should hear more from him soon. VK3XP has a T9X sig. and is on most evenings; he uses PP'46 in final and only wants South America for his WAC. Our old friend VK3BD is now 2GU; he has everything in going order in Canberra and with the extra space available has erected another beam. Both Beam ants. have several half wave sections phased and in line, horizontally erected and fed by quarter wave stubs with matched lines. The following list of Europeans have been contacted at 3YP, 3BQ and 3CP, and will give an idea of the number of stations on during the evenings:—G6NF, G6DH, G6LK, G6WY, G5IS, G5RI, G2YL,

G2PL, G2GQ, G2TM, G2NH, OH7NI, OH3NP, OH3OI, OH7ND, OH7NF, F8VS, HB9AO, SM7UC, SM6WL, OK2OP, OK2RM, SM6UC, D4XQE, D4XJF, PAAZ, YL2BB, HAF8D. The most consistent European hr. at 3CP is G6DH, who has been worked 16 times during the last few weeks, as early as 5.30 p.m. and as late as 11.55 p.m. A peculiarity of the signals when getting through some nights from 10 p.m. till app. midnight is the heavy back wave and echo on most signals. At this time most stations are r8 and the band is full; this has to be heard to be appreciated. ON4AP was heard qso VK6SA at 10.45 p.m. our time. The only stations worked from India are VU2AU and VU2AM; the first often reaches r8 at 7 p.m. VK4EI is using a Zepp antenna and recently worked over a dozen Europeans in 3 hours. The 10th November was a night out of the box; OK2OP came through at 5.30 p.m. and the last YM4AA finished at 12.30 a.m. J2IN reported VK4AP, RST589X at 8.30 p.m.; 4AP has an 800 in final and used a Zepp with 3 half waves and quarter wave stub feed. 73! and may we hear more VK's on 10.

MALLEE AND NORTHERN DISTRICT.

3ZK-3HX

Conditions in this part of the State are not too bad considering the extreme changes in weather conditions which are being experienced. 28mc band has not reached its peak yet, 14mc seems to be the DX band at the moment, spasmodic listening logged many countries, including XU, CX, VS, PK's galore, G, KA's, EI, H, and any amount of Yanks.

7mc conditions has been rather good, some DX coming through on that band also. Some doubt has been expressed by the fone gang as to the regulation in respect to the time limit of 30 minutes, but this, no doubt, will be cleared up. (See Federal Notes.—Ed.)

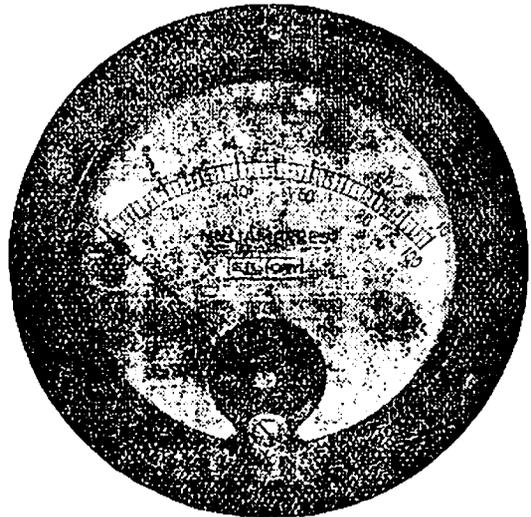
The 3.5mc band is usually nothing but QRN, but a few diehards still regularly use that band.

3CE.—Is rather inactive, but does spend some time at radio, mostly on 20 metres, where he worked a J. Roy, also let some ventilation into his second 40mx. Xtal.

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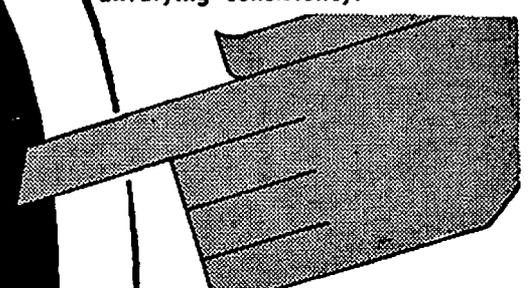
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Amateur Radio

3 WN.—Is still on 80mx, but believe Jack is very QRL.

3 HN.—Heard on CW with rather a rough note, but packing some punch.

3 HR.—Believe Charlie to be building a QRO rig.

3 PX.—On 7mc cw with rough note.

3 OR.—Active again after a few months spell, mostly on 80mx as yet, but has an 802 for final, to suppressor grid modulate on 20mx.

3 KR.—Is back on the job again with Ac, and is watching 28mc closely. Ken is WAC cw, Wac fone, and is only waiting for cards to apply for WAC 28mc.

3 TL.—Is also active again on AC, but is as yet on 80mx. Treb is going to concentrate on 14mc fone.

3 EP.—Is mostly on 80mx, but will probably migrate to higher frequencies soon, looking for some DX.

3 BG.—Is on 40mx cw, and seems to be getting his share of QSO's.

3 FF.—Also mostly on 40mx, sometimes heard on 80. Hasn't reported any DX since the Yank.

3 KI.—Has been heard on 40mx fone.

3 ZK.—Is mostly on 40mx, sometimes on 80, tried to get down to 20mx, but could not get his PA to draw anything respectable.

3 HX.—Is on 80 and 40 mx, using the Buffer as a P.a.bias modulated, but hopes to have his 6P6's in action very soon.

Our congratulations go to Tom Speer, of Corop, and Fenton Burton, of Charlton, who were successful at the recent examination, and who, no doubt, will be active very soon.

South Australian Division

By VK5KL

A YL OPERATOR IN VK5

Many readers were disappointed at the absence of these notes for November, but can assure it was not the writer's fault. The lecture on November 11th by Mr. O'Grady was excellent and seemed more like a heart-to-heart talk. This meeting was very well attended and the field day for December 6th was thoroughly discussed. Many at the meeting took down pages of notes on Mr. O'Grady's talk, "Application of

Cathode Ray Tube to Transmitter Adjustment." All five-metre enthusiasts in this State are anxious for the VK3 field day to arrive, as an endeavor is being made to contact from Adelaide. VK5 has now come into line with the other States and congratulations are extended to Miss Giesler, of Murray Bridge, who was successful in the recent A.O.P.C. exam at her first attempt. Although conditions have not been of the best several South Americans are audible at very good strength most evenings on 14 mc, the best being OA4R on 14,265 kc, OA4AI, 14,020 kc, and HKIZ, all on fone, also LUS8EN on cw. The South African stations are very busy and can easily be contacted from before midnight onwards. Ten metres has opened up earlier this season, and chaps really experimenting should try this band for some interesting dx work. 5CR still heard on 40 mx fone at night, with 6 State conferences.

5FM continues his sked with 3ML on this band every morning.

5BY-5DA are studying for first-class ticket, working dx on 14 mc in between.

Tasmanian Division

By VK7JB

Owing to a misunderstanding by members of the date, the November meeting of this division was postponed until next month, and as there seems to be no business to chronicle this month I will go straight on with members' activities.

7YL.—Chasing dx in the early hours of the morn. Worked VS7, PK1, and W's on first night. Trying hard for W.A.C. Listen for ZU1L. Joy!

7CT.—Working on 20 mx with 8 watts to a M.O.P.A. and getting R8 from VK2.

7KV.—Concentrating on 10 mx W.A.C. Still wants Europe to complete it.

7CL.—Rebuilding into rack and panel and 6L6's as modulators. Has B. CL. worries of late (who hasn't?).

7DH.—Working plenty of VK's and a few W's now and then on 40 mx. Has the bug-key craze at present.

7JH.—Heard on 20 mx with a

nice T9 note. Building a super-gainer soon.

7PA.—Installing a velocity mike for 200 mx work.

7JB.—Still recuperating from dx contest; ran up about 40,000 points. Turning to rowing for relaxation?

Dx conditions for the VK/ZL contest were ideal for the first week-end, but flopped rather badly for the remainder. The last two week-ends were particularly bad, owing to severe QRN, which made 40 mx practically useless.

7AB and 7LZ were heard regularly during the contest and should have a handy score. Both made W.A.C. in contest period.

7BN.—A newcomer in the north seems to be working regularly judging by the inward cards.

7KR.—Heard on a B.C.L. interference broadcast last Sunday. ("Don't, Charlie, they might hear you!")

In conclusion, I would like to remind non-members of the W.I.A. (VK7) that inward cards will not be forwarded unless a stamped, addressed envelope is forwarded to the Bureau. Cards are on hand for 7TY, 7CD, 7NG and 7BB.

Attention is directed to the interesting notification in this issue from the Meltran Engineering Pty. Ltd., of Scotia Street, North Melbourne. Here Messrs. R. C. Peterson and — Lewis, late of Messrs. Tilbury and Lewis Pty. Ltd., are manufacturing, in a fine new factory, transformers and other gadgets dear to the hearts of hams. A descriptive article will appear in next issue.

(Continued from page 12)

B443s in push-pull driving a dynamic speaker, with a jack provided on the first audio stage for 'phones. Band spreading is accomplished by the split stator method.

The main antenna is a Zepp, 50 feet high, with a flat top of 64 feet 7 inches, with feeders 32 feet long. This aerial points nearly east and west. Another 133 feet Marconi type is used mostly for receiving.

Activities have been mostly confined to the 3.5, 7 and 14mc. bands, but during 1933 a certain amount of experimental work was done on five metres in conjunction with the late Bruce Craw, of VK7BC, who was situated about six miles away by air line, and a certain amount of success was achieved.

By the time this reaches print, no doubt "Poley" will be seriously studying a.c. power packs, rectifier circuits, etc., and it will certainly seem strange to have QRO available. The only regret will be, that there won't be room in the shack to hang the old waterwheel up as a memento.

(Continued on Page 17.)

take place immediately after trophy heat.

RULE 10. — Country competitors should send their entry forms to the various centres. City and suburban competitors should send their entries to the secretary, W.I.A. (N.S.W. division), Box 1734 JJ, G.P.O., Sydney.

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