

The Queensland Radio News

"Your Own Wireless Journal"

6⁰



Friday, 1st JULY, 1927

No. 6

Registered at the General Post Office, Brisbane, for transmission by Post as a Newspaper.

A New, Simplified, Better Type of Battery built for Radio Use!

The

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Carboncel No. 222

is a low tension battery for filament lighting with a voltage of 1.45 and capacity of 500 ampere hours. Complete with salammoniac it is only £3.

is constructed to an *exclusive formula* which enables it to deliver strong, steady, level voltage and which gives it extraordinary long life.

It is the *only air-depolarizing primary* battery known to successfully replace an accumulator.

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An Amplion Carboncel, unlike other primary cells of similar description, possesses remarkable **Staying Power**. It will give six to twelve months' service on a four-valve set on its first charge. You can recharge it **at home** in a very few minutes by simply adding a little salammoniac.

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Carboncel No. 270

is used for H.T. or plate supply. Voltage 1.45 (capacity 10 ampere hours. Complete with salammoniac, 3/-.

An Eminent Engineer Writes of his CROSLLEY



Read the letter FIRST.

It should dispel the old idea that a good set costs a lot of money.

The writer of this letter is one of the foremost engineers in N.S.W. He chose the Crosley, not only because of its great value, but also because of its sound construction and excellent performance.

The Low Price is made possible by the huge production of the Crosley factory. Every unit within the set is Crosley made, and all are efficient.

Great Range— Pure Tone

These receivers are guaranteed to bring in 4QG, 2FC, 2BL, 3LO on the loud speaker. Under favourable conditions many other stations can also be logged.

The neat panel and the polished walnut cabinet combine to give an attractive appearance. Faithful reproduction and good volume on distant stations are features of this receiver.

"Braeside," Shirley Road,
Roseville, N.S.W.

Dear "Courier" Building, Brisbane.

With reference to the two-valve Crosley Radio Set (Model 51) which I purchased to advise you when in Brisbane, I would like to express my greatest satisfaction. It was a low-priced instrument to me to find that such a low-priced instrument could give such excellent results. As an engineer, I am very favourably impressed with the sound mechanical simplicity of the set, and its simplicity of operation.

It has been in operation with me for 6 months without any change of the dry batteries. As you are aware, two of my friends have already installed a similar set, and I am enclosing an order for a fourth set, and shall be glad if you would give it your usual attention.

Yours faithfully,
B.Sc. (Engr.)

As the writer of this letter holds an important position in N.S. Wales, he naturally does not desire his name published. The original letter may be inspected at our office.

Most dealers sell Crosley Sets. If unable to procure locally, write direct to—

CROSLLEY 3-VALVE

£13/10/-

COMPLETE WITH

Aerial and Ground Equipment; 3 De Forest D.V.3 or Condor P.R.41 or 48 Valves; 3 Dry Cells; 2 B. Batteries, 45-volt; 1 pair

Spitfire Headphones; 1 Grid Leak; 1 Spitfire Speaker; 20ft. of Insulated Battery Connecting Wire.

WHY PAY MORE?

Home Radio Service Ltd.

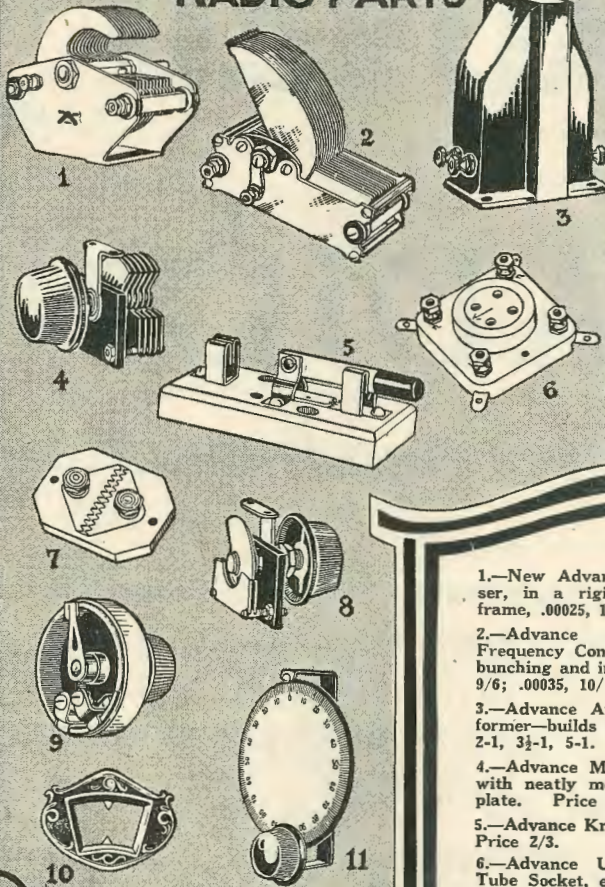
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RADIO PARTS



*A Good Set
deserves the
Best Parts*

Ask
for
ADVANCE
Parts

- 1.—New Advance "Centralign" Condenser, in a rigid, one-piece aluminium frame, .00025, 12/; .00035, 12/; .0005, 12/6.
- 2.—Advance Improved Straight-Line Frequency Condenser—eliminates station bunching and increases selectivity; .00025 9/6; .00035, 10/; .0005, 10/6.
- 3.—Advance Audio Frequency Transformer—builds up volume. In ratios of 2-1, 3½-1, 5-1. Price 17/6.
- 4.—Advance Midget Condenser, finished with neatly moulded bakelite knob, 11-plate. Price 6/6.
- 5.—Advance Knife Switch with Arrester. Price 2/3.
- 6.—Advance U.X. or U.V. Porcelain Tube Socket, ensures perfect insulation. Price 2/6.
- 7.—Advance Lightning Arrester; passed by the Melbourne University and Fire Underwriters' Association. Price 2/6.
- 8.—Advance Neutralising Condenser. Correct capacity for neutralising and balancing; 3-plate. Price 4/6.
- 9.—Advance Rheostat. Gives smooth contact and a perfect resistance. Made in 6, 10, 20 and 30 ohms. Price 3/.
- 10 and 11.—Advance Rear Panel Mounting Vernier Dial. The neatest you've seen. Price 7/6.

Sold by all Leading Radio Dealers

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All Australian
RADIO PRODUCTS

**RADIO CORPORATION OF AUST.
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RADION

The Supreme Insulation

TO those who desire excellent workmanship and neat appearance, no other material will suit their needs. No cracking, warping, fading or leaking.

Radion Sheets Tubing Sockets

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Outline of 4QG's Programmes for July

Friday, July 1st—Dramatic recital.
 Saturday, July 2nd—St. Augustine's male party.
 Monday, July 4th—The Federal Band; organ recital.
 Tuesday, July 5th—Mr. Erich John's party.
 Wednesday, July 6th—Concert from Blind Institution.
 Thursday, July 7th—Concert arranged by Finney, Isles, Ltd.
 Friday, July 8th—W.E.A. music class; studio concert.
 Saturday, July 9th—Silkstone Apollo Club.
 Sunday, July 10th—St. Stephen's Cathedral; St. John's Cathedral; band concerts.
 Monday, July 11th—The Federal Band; a radio debate.
 Tuesday, July 12th—Sandgate Methodist Choir.
 Wednesday, July 13th—A radio novelty.
 Thursday, July 14th—Mr. A. Sharman's party.
 Friday, July 15th—W.E.A. music class; Anglo Male Quartette.
 Saturday, July 16th—The Silkstone Apollo Club.
 Sunday, July 17th—Wharf Street Congregational Church; band concerts.
 Monday, July 18th—Mr. Erich John's pianoforte recital.

Tuesday, July 19th—Ithaca Orchestral Society.
 Wednesday, July 20th—A nautical night.
 Thursday, July 21st—Mr. Erich John's party of radio artists.
 Friday, July 22nd—W.E.A. music class; Silkstone Apollo Club.
 Saturday, July 23rd—The Stuart Family Quartette.
 Monday, July 25th—A night at the Croft studio.
 Tuesday, July 26th—The Anglo Male Quartette.
 Wednesday, July 27th—The Federal Band.
 Thursday, July 28th—Concert from Dayboro.
 Friday, July 29th—W.E.A. music class; Silkstone Apollo Club.

SUBSCRIPTION FORM

"QUEENSLAND RADIO NEWS."

Box 1095N, G.P.O., Brisbane.

Please send me the "Queensland Radio News" for 12 months. I enclose cheque or P.N. for 6/6.

Name

Address

Your Battery at Full Pressure— ALWAYS

The New Way to Charge your "A" Battery at Home

No more run-down batteries, no more inconvenience—your set will ALWAYS be ready, with full charged batteries, when you instal the new BALKITE TRICKLE CHARGER.

Simple, compact, working from your electric light socket at negligible cost, the Balkite supplies a continuous charge to your battery; silently renewing and building up battery power as it is being drained away during operation.

No up-to-date-set is complete without a Balkite Trickle Charger. See your dealer.

FANSTEEL
Balkite
Battery Charger

Price £4-7-6

AT ALL RADIO DEALERS

or Direct from the Queensland Distributors~

W. E. PETERMAN

PERRY HOUSE, ALBERT STREET, BRISBANE

Watch for Further specials in Next Month's Issue

IMPORTANT ANNOUNCEMENT

A. C. COSSOR LIMITED, Highbury Grove, London, N.5., have designed 4 and 6 Volt Valves specially to suit Australian Radio conditions

These New Cossor "Point One" Valves are now available from all High Class Radio Dealers

The Capital behind Cossor Valves is British

The Labour which makes Cossor Valves is British

The Materials from which Cossor Valves are made is British



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BRISBANE



Fitted with U.X. Bases or Standard English Bases.

2	volts,	0.1	amp.
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13/6 ea.

All Voltages.
All Purposes.



Listen in to
'The Cossor Musical Hour'

Every Tuesday Night
from 8 to 9 p.m.

Broadcast by
Station 2BL, Sydney

Buy COSSOR The British Valve



The Broadcaster and the Radio Trader

THE Broadcaster and the Radio Trader have much in common. Their efforts are entirely in sympathy. One has a service to sell, and the other a commodity. Both are anxious to do business; both desire to reach the same field of prospects.

Partly through the efforts of our weekly paper, "The Broadcast Bulletin," a conference between the Director of 4QG and the Radio Traders of Brisbane was called recently to consider and deliberate upon the all-important question of organising a Radio Week to stimulate a State-wide interest in Radio.

For the first time in the radio history of Queensland, Broadcaster and Radio Trader sat at the round table discussing a proposal that concerned both parties. Although the meeting was but a preliminary conference, an active committee of five was appointed to formulate a definite scheme to present to the full meeting to be called early in July. Director Robinson is the most enthusiastic man in the movement, and he promised the whole-hearted support of Station 4QG to assist any scheme that the committee may deem advisable.

The wonder of it all is how dealer and broadcaster have not got together before to organise a united front in selling licenses and receivers. With the co-operation of a 5000 watt station, the committee have a most powerful weapon to wield which, linked with other methods of propoganda, should achieve much.

"But," the listener may ask, "what has the organisation of a Radio Week do with me? I have purchased my set and paid my license. Radio Week is only for those who have not yet done so."

True enough, the holding of a Radio Week has as its prime motive the gathering of more listeners into the fold; but with the swelling of the revenue funds cannot we, as listeners and license-holders, expect better service and longer sessions from our station?

We surely can. So, when Radio Week comes along, let's turn our homes into "Demonstration Lounges." Let's invite our friends over and let them see how radio brightens our home. Make them envious—jealous if you like—but if we each can induce one friend to "join up," Radio Week can be considered a huge success.

BRITISH **Brown** THROUGHOUT



The Incomparable **Brown** in Seven Superb Models

Now that Broadcasting has awakened such an intense national interest, it is only natural to find that Loud Speakers, in common with many other commodities, Radio or otherwise, must be produced in a variety of types at prices that will be within the reach of all. It is for this reason, therefore, that there are now available seven superb models of **Brown** Loud Speakers.

Brown H1.
2000 Ohms
£6/15/-



Brown H3.
2000 Ohms.
£4/2/6.



Brown H4.
2000 Ohms.
40/-

Of all the Loud Speakers on the market to-day, the **Brown** is unique, because, by a brilliant application of an entirely original principle, it achieves results which can be obtained in no other speaker. **Brown** principles of design and construction can be found only in **Brown** Loud Speakers. The famous tuned reed mechanism, which permits the use of a supersensitive cone-shaped aluminium diaphragm as thin as paper, is responsible for a tonal purity and mellowness which must be heard to be fully appreciated.



Brown H2.
2000 Ohms.
£2/18/6

Obtainable from all Radio Dealers.

Sole Agents:

NOYES BROS.

(MELBOURNE) Pty. Ltd.

(SYDNEY) Ltd.

Melbourne:
495 Bourke Street
Adelaide:
Darling Building
Franklin Street
Hobart:
145 Macquarie Street
Launceston:
123a Charles Street

Sydney:
115 Clarence Street
Newcastle:
11 Watt Street
Brisbane:
Perry House, Elizabeth St.
Agent for W.A.:
J. R. W. GARDAM,
138 Murray St., Perth.

How to make a Pick-up Device

A Wonderful Attachment which, when connected to your Gramophone enables you to play your Records through your Receiver

(By the Technical Editor.)

When the gramophone first appeared on the market, it was only capable of producing faithfully about one octave of sound; but in the latest machines this sound range has been increased to practically five octaves, the high and low frequencies thus being brought up to their proper values.

Records in former years were made mechanically, the artists or orchestras having to perform before amplifying ducts.

Nowadays they are made electrically, studios and gramophones identical to those used in broadcasting being used. The microphones convert the musical sounds into electrical impulses; these impulses are then amplified by the usual valve amplifiers, and finally actuate a special electromagnetic cutting stylus.

By this method records can be made which contain all the low notes and overtones, which were formerly absent.

Furthermore, it enables a record of a church service to be made direct from the church; or a symphony orchestral concert direct from the concert hall. Then again, everyone performs as though they were giving a regular recital, it being no longer necessary

for the artists in front to sing or play softly in order that they will not drown those at the back.

Modern electrical gramophones such as the "Electrola" and the "Panatrope" are designed to operate entirely from the light socket, and consist briefly of an electrical pick-up audio-frequency amplifier and power speaker. (It will at once be apparent that these devices have been borrowed from radio).

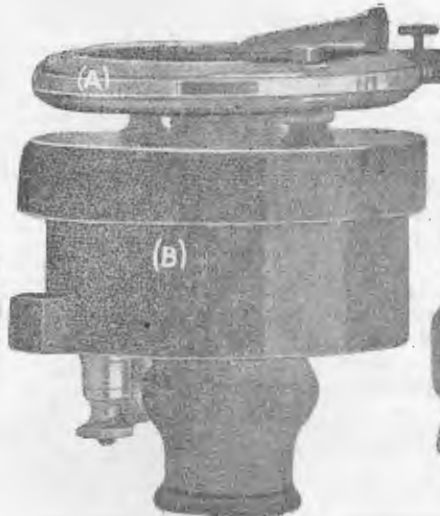
A volume control is provided which allows adjustment of the volume from a whisper to maximum, which is very useful, particularly when the instrument is to be used in a large hall or dance room.

These commercial instruments are, of course, expensive, though those who have heard them state that they could never be satisfied with their old type machines again.

Now, it is the purpose of this article to describe a method of electrifying the phonograph, so that when it is connected to your radio receiver and loud speaker you will have an instrument similar to those already described.



This photograph shows the damping spring (A) and stylus bar (B) in position. The small felt pad (C) is secured to the end of the damping spring, applying pressure to the point where the stylus bar and driving unit are joined. The spring may be secured to the unit either by means of a small machine screw or solder.



Showing the method of attaching gramophone unit (A) to the cap of the Lissen unit (B). The spacing washers may be terminals puts on standard 1.5-volt dry cells.



Another view, showing rubber coupling tube in position. It will of course be necessary to adjust the reed of the pick-up device. This is done in a similar manner to loud speaker adjustment, only in this case the unit as a whole will have to be turned, as the adjustment screw will remain motionless in the grip of the rubber coupling.

The parts required are as follows:—

- 1 Lissenola (loud speaker) unit.
- 1 Gramophone speaker unit.
- 2 4B.A. machine screws.
- 2 3/4 in. x 5/16 in. diameter spacing washers.
- 1 Centralab 500,000 ohm modulator.
- 1 Old valve base.
- Quantity flexible wire (twin).

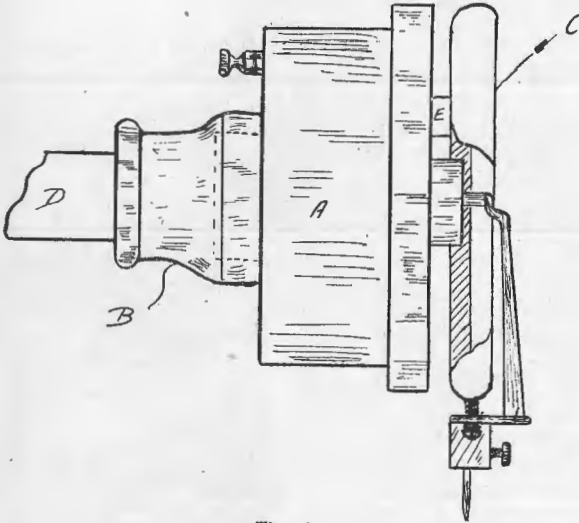


Fig. 1.

The electrical pick-up device shown in Fig. 1 operates in the following manner:—

The needle running in the groove of the record actuates an iron reed, which is placed in a strong magnetic field.

Now, it is obvious that any movement of the reed will alter the intensity of this magnetic field, thus inducing a current in the coils of wire which are wound on the magnet poles.

This current will then follow the vibration in the record groove, and will therefore give an exact electrical reproduction of the music recorded on the record.

The current generated is, of course, rather weak, and has to be passed through a suitable amplifier in order that it may be reproduced on the loud speaker.

Making the Pick-Up.

Those people who are mechanically inclined should not experience any difficulty in making this pick-up device if the diagrams are carefully followed.

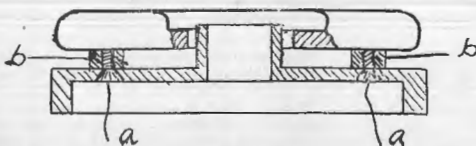


Fig. 3.

First remove the mica diaphragm, stylus bar, and rubber packing washers from the sound box. If a lathe is available the gramophone unit should be mounted in it, and the back portion bored out to 3/4 in. diameter, in order to allow it to pass over the tube of the Lissen unit.

This will, of course, have to be done with a hand saw and a half-round file if the job cannot be done in a lathe.

The tube which protrudes from the front of the Lissen unit will have to be reduced to a length of 3/4 in. by means of a hand saw, in order to allow the stylus bar to operate.

Fig. 3 shows the method of fastening the sound box to the cap of the unit, the screws A should be of the counter-sunk variety, so they will not interfere with the reed when the cap is screwed down. The spacing washers are shown at B.

Assuming that the units have been fitted together it now becomes necessary to insert the iron reed and screw on the cap, taking care to keep the small brass driving rod in the centre of the unit.

The small brass rod will now have to be cut to the correct length, so that the stylus bar can be soldered to it.

Upon inspecting the photographs, it will be noticed that a small damping spring (which has glued to it a piece of felt) presses on the top end of the drive rod. This will be found necessary, as it clears up the music considerably.

The rubber tube B, which is supplied with the unit, is pushed over the knurled nut (shown dotted), the other end of course being attached to the tone arm of the machine.

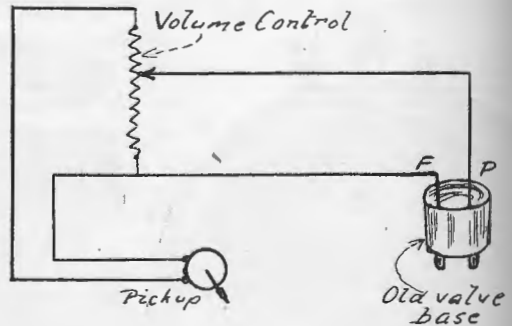


Fig. 2.

Referring to the circuit diagram, Fig. 2, it will be noticed that the arm of the potentiometer connects to the P. terminal of the socket, a 2 M.F. condenser can be connected in this lead if desired, its purpose being to avoid accidents, for if the H.T. detector lead is left on the set and the condenser is not in circuit damage may be done.

In conclusion, we would state that a good quality amplifier is essential. Cheap or poor quality transformers will render very poor results, as they are not capable of even amplification through the musical frequency range.

Wireless House New Catalogue and Radio Handbook

A SPLENDID PUBLICATION.

It has been our pleasure to peruse advance proofs of a very fine catalogue and radio handbook that will, by the time this issue is published, be off the presses.

Wireless House Ltd. have succeeded in compiling a catalogue that will, because of its valuable contents represented in reliable radio information, be a handy book of reference for radio men generally.

Mr. E. C. Littler, M.R.S.G.B., the technical expert connected with the business, has gone to no little trouble to make the 1927 catalogue not only a complete compendium of all that is new and reliable in radio sets and accessories, but a veritable handbook of radio, containing as it does many instructive and useful pages of information.

The anatomy of the books is as follows:—Personal of Executive, Service to Country Clients, How to Choose a Receiver, Full Range of R.C.A. and Dulcephone Receivers (described and illustrated), List of Broadcasting Stations of Australia and New Zealand with their power and wave-lengths, Page for Logging. Then follows the Home Assembly Section, Wiring diagrams, and lists of parts for building Dulcephone one, two, three; Browning-Drake four and five valve receivers.

A useful chapter on "Locating Faults in a Receiver" precedes the General Price List, which is really a complete category of all the wireless equipment and accessories that are carried in stock by this big radio house.

Perhaps the most interesting section of the whole book—so far as the amateur is concerned—is the "Review of Circuits," which is really an assembly of circuits that have been tried and tested, ranging from a crystal receiver right up to the modern Solodyne receiver. Under each circuit is listed the parts and the cost of same, so that the cost of building the various receivers may be seen at a glance.

Naturally the cost of compiling and producing such a book have not been light, and in view of the wealth of information that the book contains, the management has decided that by placing the small of 3d. on each copy, the amateur will be receiving wonderful value for his money, and at the same time the cost of production will be considerably lightened.

The book is now available, and we urge all radio enthusiasts to write or call for their copy without delay, as there is bound to be a ready demand.

Wireless House Ltd., are to be congratulated upon the production of such a splendid catalogue, and we sincerely trust it will earn for them the business that their enterprise deserves.

The Ladies Want "A Housewives' Page!!"



During the month your Editor was favoured with a visit from Mrs. T. Craddock, secretary of the Housewives' Association of Queensland.

Mrs. Craddock stated that, at the direction of her association, she approached "The Queensland Radio News" with the suggestion that a Housewives' Page should be added to the pages of the journal.

Mrs. Craddock good-humoredly explained that although "Q.R.N." was a radio paper, it was a home paper as well, catering excellently for the menfolk and the children, but seemingly overlooking the wives and mothers.

A very kind offer was made by Mrs. Craddock on behalf of her association to supply matter to fill this page. These would comprise recipes, household hints, and other items of interest to womenfolk generally.

Before taking the rather drastic(?) step of opening such a page, we put the case to our readers.

We invite our readers to let us know their views on the matter. Are we to have a Housewives' Page? If the "ayes" outnumber the "nays" we shall include this new feature in our next issue.

Write Your Views to the Editor!

4QG's Successful Re-Broadcast

PROGRAMMES FROM LONDON, PARIS AND
LANGENBERG FOLLOW EACH OTHER IN
QUICK SUCCESSION.

As we go to press Station 4QG has just completed an excellent piece of re-broadcasting through the Philips Experimental Station PCJJ.

On Thursday evening, June 23rd, 4QG interrupted their programme several times to make the announcement that the attempt to rebroadcast programmes from London, Paris and Langenberg would be made between 1 a.m. and 6 a.m. the following morning.

Success did not attend the efforts of 4QG's engineers until 4 a.m., owing to the span of daylight through which the signals had to pass between the hours of 1 a.m. and 4 a.m.

From 4 a.m. to 6 a.m. signals became much louder and clearer, and those who had braved many evasions of a cosy bed to answer 4QG's repeated calls, enjoyed the transmissions to the full.

With the experience gained from this attempt Station 4QG will doubtless arrange a more definite hour at which listeners alarm clocks may be set should another rebroadcast be arranged.

ELSTREE SIX SOLODYNE NIGHT HAWK

The following MULLARD Valves have been specially recommended by Mr. Reyner, B.Sc., of Elstree Laboratories

		ELSTREE SIX					
Battery Voltages		POSITIONS					
		1st	2nd	3rd	4th	5th	6th
2 Volt Accumulators	{	PM1	PM1	PM1	PM1	PM1	PM
		HF	HF	HF	HF	HF	2
4 Volt Accumulators	{	PM	PM	PM	PM	PM	PM
		3	3	3	3	3	4
6 Volt Accumulators	{	PM	PM	PM	PM	PM	PM
		5a	5a	5	5	5	6

		SOLODYNE				
Battery Voltages		POSITIONS				
		1st	2nd	3rd	4th	5th
2 Volt Accumulators	{	PM1	PM1	PM1	PM1	PM
		HF	HF	HF	LF	2
4 Volt Accumulators	{	PM	PM	PM	PM	PM
		3	3	3	4	4
6 Volt Accumulators	{	PM	PM	PM	PM	PM
		5	5	5	6	6

		NIGHT HAWK				
Battery Voltages		POSITIONS				
		1st	2nd	3rd	4th	5th
2 Volt Accumulators	{	PM1	PM1	PM1	PM1	PM
		HF	HF	HF	LF	2
4 Volt Accumulators	{	PM	PM	PM	PM	PM
		3	3	3	4	4
6 Volt Accumulators	{	PM	PM	PM	PM	PM
		5	5	5	6	6

Use MULLARD
Wire-wound
Resistances in these
Circuits

Obtainable from
every Radio Dealer
in Australia

Mullard

THE · MASTER · VALVE

The Q.R.N. Wavetrap

A Sure and Simple Silencer

At the Radio and Electrical Exhibition, held in August of last year, this journal, which controlled the amateur section, added and offered prizes for a wavetrap section. The prize-winning trap, designed and built by Mr. L. Whitham of Brisbane, was a most efficient although remarkably simple arrangement. In our October 1926 issue Mr. Whitlam contributed an article entitled, "Some Experimental Wavetraps," in which he described several arrangements, including the prize-winning circuit. Reference to the October 1926 issue (page 8, Fig. 7) will prove this to be the case.

Members of the staff of this journal have been using and recommending this circuit for many months, and all who use it pronounce it as the ideal wavetrap.

As no constructional details were given when the circuit was previously published, for the benefit of those who need something more than a circuit diagram to construct from, we publish herewith full details for the building of the trap.

It is interesting to note that "The Wireless Constructor" (an English publication) in their April, 1927, issue, feature this self-same circuit with the addition of an on-and-off switch. The wireless contributor for a Brisbane Sunday paper also recently published the circuit, and a well-known radio house has now adopted the circuit as their standard wavetrap, and report a healthy demand.

We mention these facts merely to make it plain to our readers that we were first in the field, and that we have not culled the circuit from any any other source.

When a high-powered broadcasting station such as 4QG is erected in the very heart of a metropolis, it becomes practically impossible for listeners operating sets of less than five or six valves to tune out the local station and bring in other distant stations operating on a similar waveband.

As "variety is the spice of life," most listeners have the desire to at times cut out the local station—no matter how excellent the transmissions may be—and listen to something further afield.

The wavetrap is attached between the aerial of itself and the aerial terminal of the set. The coil and condenser act as a filter which absorb the interfering waves of the local station, allowing the set to be operated in the same manner as though the local station was off the air.

There are many types of wavetraps in use today, but the wavetrap here described is the best arrangement we have yet tested for completely cutting out the interfering station without reducing the volume of the wanted station.

Parts Required.

- 1 Bakelite panel, 8in. x 5in. x 3/8in.
- 1 Variable condenser (with vernier).
- 1 Card former, 3 1/2in. dia.
- 1 Baseboard 7in. x 7in.
- Quantity 20g. D.C.C. wire
- Quantity Busbar wire.

Assembling and Wiring.

The photographs (figs. 1 and 2) and the pictorial diagram (fig. 3) makes the construction a very simple matter.

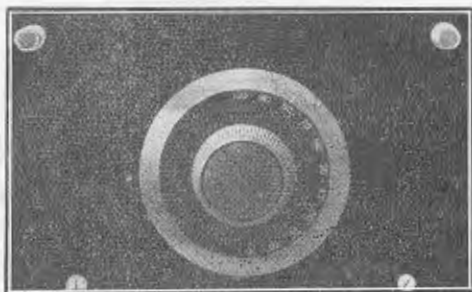


Fig. 1.
Don't Judge the Efficiency of the Trap by the Simplicity of Control

struction a very simple matter.

The first item that claims our attention is the winding of the coil. This is accomplished by winding 70 turns of 20g. double cotton-covered wire on a 3 1/2in. former, leaving about 9in. of wire at each end.

The condenser is then mounted in the centre of the front panel with a terminal in each of the top corners (see fig. 1).

Now fasten the coil on to the baseboard immediately behind the condenser as shown in Fig. 2, using two right-hand brackets.

The 35th turn of the coil is then lifted up with a small screwdriver and a piece of bakelite placed underneath it as shown in fig. 2. At this point the wire is bared and a length of wire soldered to it.

All is now ready for wiring. Refer to fig. 3 and you will see just how it is done. First connect the wire from the centre of the coil to the left-hand or aerial terminal. Now connect one of the free ends of the coil to the stator terminal. The last connection to be made is from the other stator terminal to the right-hand or set terminal on the panel.

Operating the Trap.

To connect the trap to the set attach your aerial lead-in to the aerial terminal of the trap. Another short wire is then taken from the set terminal of the trap to the aerial terminal of your set—placing the trap in series with the aerial lead-in.

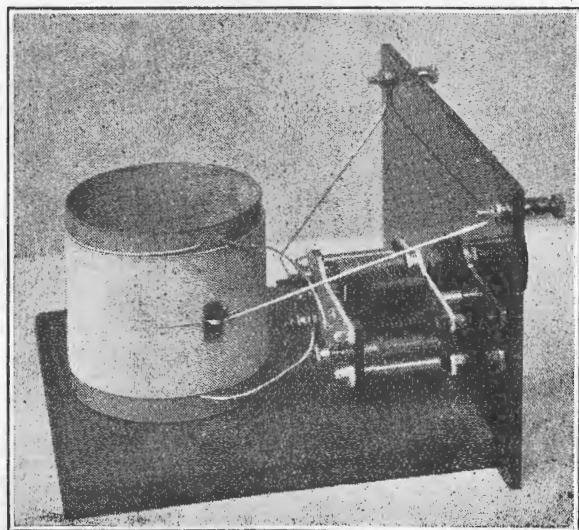


Fig. 2.
Showing the Wiring of the Trap and the Method of Tapping the Coil.

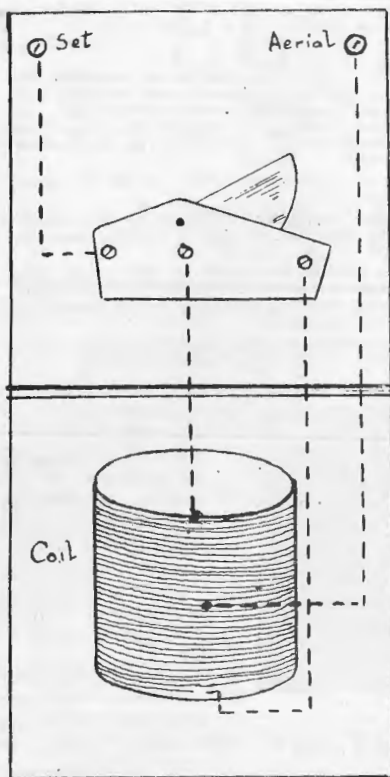


Fig. 3—Semi-pictorial Diagram.

To operate, the condenser dial of the trap should be set at "zero" and the local station tuned in correctly on your set. Now rotate the wavetrap dial slowly until the minimum strength is reached. A vernier dial is necessary for the trap condenser, as tuning is very precise.

Now turn your attention to your set and re-tune it

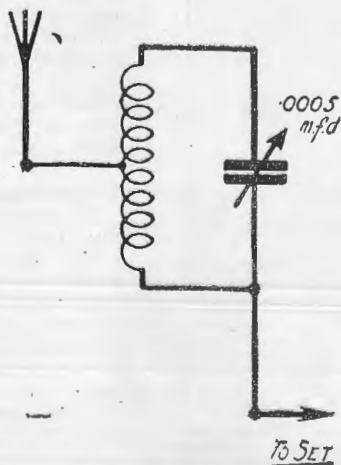


Fig. 4—The Circuit.

to the southern stations, when all trace of the local station will entirely disappear.

Should any difficulty be experienced in entirely eliminating the local station, we suggest that the last connection made, viz., that between the set terminal on the panel and the stator terminal of the condenser should be changed over to the rotor terminal of the condenser.

In fact, it is a good plan to try both connections even though results on the first are good. The best connection of the two can then be decided upon.

Reports Welcomed.

If you have never built a set in your life before you should have no difficulty in building the Q.R.N. wavetrap.

We welcome reports from our readers on the results they secure with this wavetrap.

Beethoven--Mozart-- Mendelssohn Concert

Special Concert Arranged by Mr. Erich John for
Station 4QG.

TO BE BROADCAST ON SUNDAY, JULY 10th.

An unusually fine vocal concert has been arranged by Mr. Erich John which Station 4QG has arranged to broadcast on Sunday evening, July 10th, following the usual band concert.

The entertainment is to be comprised of the works of Beethoven, Mozart, and Mendelssohn—a programme that should find great appreciation among lovers of good music.

The following is the order of the programme:—

- (1) Quartette, "Spring is Returning" (Beethoven), double quartette.
- (2) Duet, "Oh! Wert Thou in the Cauld Blast" (Mendelssohn), Miss Audrey Bell (contralto) and Jack Lord.
- (3) Soprano solo, "The Quare" (Beethoven), Miss Maye Hughes.
- (4) Baritone solo, "Within These Sacred Portals" (Mozart), Mr. Ben Cloirec.
- (5) Quartette, "Children's Pleasures" (Mozart), double quartette.
- (6) Duet, "The Cheated World" (Mozart), Miss Jack Lord (tenor) and Ben Cloirec (baritone).
- (7) Contralto solo, "I Love You" (Beethoven), Miss Mildred Bell.
- (8) Quartette, "O, Lovely May" (Mozart), male quartette.
- (9) Duet, "Cloe's Warning" (Beethoven), Misses Mabel Malouf (soprano) and Mildred Bell.
- (10) Tenor solo, "New Love, New Life" (Beethoven), Mr. Jack Lord.
- (11) Quartette, "Nature's Adoration" (Beethoven), double quartette.
- (12) Bass solo, "On Wings of Song" (Mendelssohn), Mr. Tom Ryan.
- (13) Quartette, "Choosing the May Queen" (Mozart), double quartette.

Important Broadcasting Changes in America

(By "Ray Dio.")

The newly appointed body to control radio in the United States has already got to work. The Federal Radio Commission, which will be in supreme charge for 12 months—after that it will continue as an appeal court, leaving the administration and control work to the Department of Commerce—consists of five members. Their first move was to hold public hearings of suggestions, offered by various bodies and persons, as to the best method of unravelling the tangle of too many stations.

Too Many Stations.

During last year the number of broadcasting stations throughout the States increased alarmingly, and owing to an ascertained defect in the existing Federal radio laws, the authorities were unable to prevent a station operating or even taking a wave-length already assigned to another station. Hence the confusion in the air became a veritable bedlam. In New York and Chicago, as many as thirty stations were operating at the same time in each city. In an area 100 miles from the centre of New York City there were no less than 80 stations; in a similar area around Chicago 68 stations played havoc with the listeners' sets.

Some Must Close Down.

Now, the commission has decided that a great many of the 700 odd stations in the States must either close down, or divide time between themselves. In New York City and suburbs only 20 stations will be permitted to operate. It has been decided, and a very definite announcement has been made, that stations will be licensed and authorised to operate on a basis of usefulness. Public service or public convenience will be the determining factor in licensing a station and allotting a wave-length. As there are only 89 channels or suitable bands of frequencies available for the whole of the United States—after setting aside six for Canada, it follows that many stations will use the same wave-length. This can be arranged for according to the distance between the cities in which the stations are located, and the power to be used. Thus, interference will be eliminated as stations of comparatively low power separated by say, 1000 miles, may use the same wave-length simultaneously.

Exclusive Wave-Lengths.

That method, of course, will not provide for hundreds of stations, as some National or important high-power stations must be allotted an exclusive wave-length. The second method of allowing for four or five hundred stations is to require these to split up the operating time between them.

No Wide Frequency Separation Between Stations.

A very important matter of course is the frequency separation decided upon between the stations. In New York all stations in that area will have a separation of 50 kilocycles, and the other stations outside the 100 miles from New York will be fitted in between the 50 K.C. separations. That will come as a surprise to Sydney listeners, who complain of their inability to receive 3LO owing to the narrow separation allowed for. It is, as a matter of fact, much wider than the new American basis—and the new European basis for that matter. The "A" stations in Sydney, like the "A" stations in Melbourne, have a separation of over 150 Kilocycles. In America the separations would be 50 kilocycles. Very stringent regulations have been made regarding the observance of its allotted frequency by a station. The deviation above or below the allotted frequency (presumably when not modulating) must not exceed half a kilocycle.

WIRELESS INVASION.

There are now nearly 114,000 wireless receiving sets in Victoria alone, and it may be safely assumed that everyone listens-in at some time or other to 3LO Melbourne. Wireless has invaded the everyday life of practically the whole community. Men listen-in at work, and women during their daily tasks and toils. Children form close friendships and affection for some distant 'bedtime story-teller, and wait excitedly for their birthday greetings and messages. Way outback in pioneers' homes, where music at one time never entered, and in lonely bush camps, can now be heard the very best in music, song and story. Dances are held by country folk to music broadcast from the heart of the metropolis. The country is brought closer to the city, or in other words, the city is taken to the country—there is no better remedy than this for the evils of centralisation. Sporting men can now sit comfortably at home and hear the progress of races and other events. Think of what wireless means to the many unfortunate invalids; what a godsend it is to the sick children, and the maimed, and the aged, and the blind.

The earth is harnessed by wireless waves, and sometimes—who knows when?—Mars will be linked up with us by this mysterious and wonderful power. Dreadful machines of war in air and upon the earth and sea, can be remotely controlled by wireless. Television is an accomplished achievement, and a signature to a cheque can, the instant it is signed in one part of the world, be seen in another part and honoured. It is possible now to see ceremonies and events actually taking place in distant parts, and hear simultaneously the accompanying music and speech.

And yet the potentialities of this wonderful science are only just developing. What will the end be, who can visualise or guess?

The Little Wonder!

The UDISCO

Junior Brother to the Famous Udisco 5 [MODEL "L"]

To the radio-wise the mere fact that the Udisco Three is designed by Mr. E. G. Beard (chief Engineer United Distributors Ltd.) is sufficient guarantee of its efficiency. This famous radio engineer who thrilled Australia with the new Udisco Five (Model L) has included many big set advantages in this—the most flexible and powerful of any Australian receiver selling under £30.

One Dial Control

The neat appearance of the panel with its absence of unnecessary dials simplifies and facilitates tuning immensely. Look at the illustration opposite. The control on the left is the filament switch, the centre control is the tuning condenser (vernier) while on the right is seen the reaction control. Thus all stations are tuned in by merely rotating the vernier knob of the condenser, an extremely simple operation.

Volume from Distant Stations

We hold some remarkable reports from Udisco Three owners. One of the best we have yet received came from Mr. Holden of Sandgate a few months back, who though an absolute novice logged no fewer than 24 stations including the elusive and distant 6WF Perth. We sell Udisco Threes with a guarantee that they will bring in all Australian stations on the speaker under favourable conditions.

With Careful Tuning every "A" Class Australian and New Zealand Station and many "B" Class Stations can be logged at Loud Speaker strength!

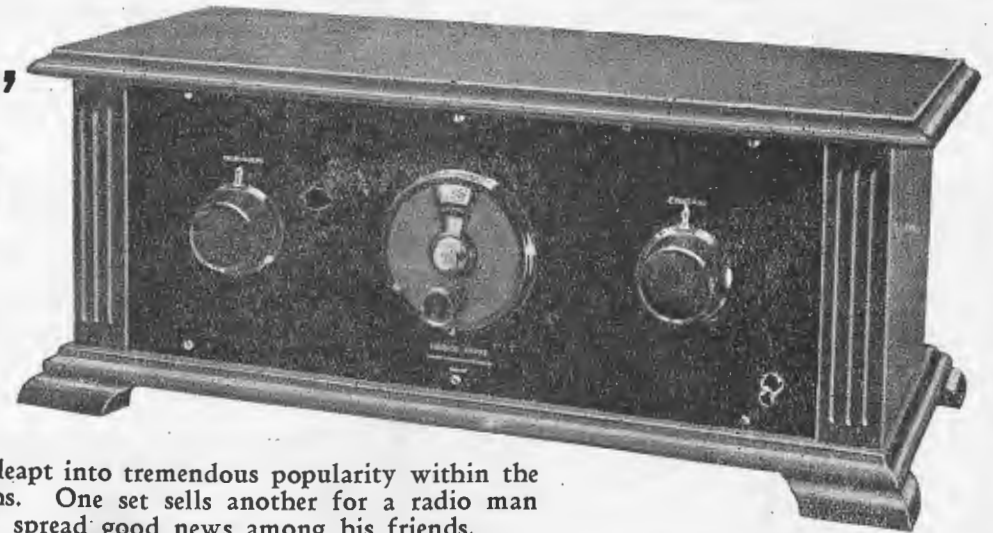
Big set advantages

Like the Udisco Five, the Udisco Three will operate quite efficiently from a rough indoor aerial. No interchangeable coils are used, the set being designed to cover the Australian Broadcast Waveband. The volume from distant stations is nothing short of amazing for a set of this size, while the tonal quality is pure and true, due to the high quality components used.

Surprising Selectivity

A special selector switch fitted inside the cabinet sharpens tuning so that 4QG can be easily tuned out in the city with the aid of a simple series rejector or wave-trap. The quality of the construction is largely responsible for the splendid performance of the Udisco Three. The tuning coils are a specially wound low-loss type consisting of a self-supporting single layer of wire. The tuning condenser is also of low-loss construction, and the circuit perfectly balanced throughout.

"3"



This little set has leapt into tremendous popularity within the past fifteen months. One set sells another for a radio man is always quick to spread good news among his friends.

There are other 3-valve sets on the market most of which are cheaper, but none—not ONE—can give the same results or is backed by the same guarantee that covers the Udisco Three.

PRICE~

£ 27/10/-

Complete with the following High-Grade Equipment—

- | | |
|------------------------------------|---------------------|
| 1 Clyde 6 volt 55-amp. battery. | Lightning Arrester. |
| 2 Heavy Duty Ray-o-vac B Batteries | Lead-in Tube. |
| 1 Baldwin Symphony Speaker. | Earth Clamp. |
| 3 Radiotron UX 201 valves. | Instruction Book. |
| 150 ft. Aerial Wire. | |
| 25 ft. Lead-in Wire. | |
| 6 Insulators. | |
| Battery Cords. | |

Order from your Dealer or from

United Distributors Ltd.

343 Queen Street, Brisbane

And at Sydney, Melbourne, Adelaide, Perth, Launceston (Tas.), and Wellington (N.Z.).

Does Udisco Build a Four?

Udisco DOES build a four, although little is heard of this member of the famous Udisco Family. This four embodies the same radical improvements found in all Udisco Receivers, and is without question one of the most efficient of its type yet produced.

However, like all fours, its performance under Queensland conditions has been so closely approached by the Udisco Three and so brilliantly eclipsed by the new Udisco Five that public interest has centred largely around these two sets, which are of such outstanding merit.

Udisco Four, complete with all accessories £32/10/-

Personalities



During the past few weeks Brisbane has suffered the absence of one of its distinguished citizens—Tommy Elliott (4CM). Enquiries failed to elicit where the bird had flown, and several of his ham friends have been wondering if he had transmitted himself into the ether on a necessarily long wave-length. Let their fears be now at rest. Tommy is home again. The writer ran into him in Queen Street yesterday, and was greeted with a hilarious, "Shake Bo!" Tommy, resplendent in a swell "D.B." by a southern tailor, has been to Sydney "on business."

Mr. Ralph Hentze (2RH) was recently in Brisbane for a few days and gave some of the local boys a call.

The new yacht "Marco," owned by Dr. Val. McDowall, has just completed a northern trip. She is fitted with radio, and relied on the broadcasting stations for weather information as well as entertainment.

Mr. W. Finney, manager C.C.M. radio department, has just returned from a trip to Central Queensland.

The newly-formed Q.'ld. Transmitters' League are, we believe, planning a big radio evening for the near future. This go-ahead group of young men gives promise of becoming the most active of all amateur bodies in the State.

Mr. R. V. C. Humphries, the installing engineer at the new Pinkenba beam feeder station, has completed his task, and returned to Sydney. Mr. Jefferies, his assistant, is now back at his radio business at Albert House making up for lost time.

Mr. M. A. Prudence is relieving the wireless operator of the "Cape Freewin" for a month or two. At present he is sailing in northern waters.

We recently had the honour of a visit from Mr. V. H. MacKinney, radio sales manager of Philips Lamps (A.'sia) Ltd., Sydney. Mr. MacKinney, who is in Brisbane on business, joined the all-night virgil at 4QG when that station rebroadcasted the Philips Experimental Station PCJJ some few days ago.

Mr. Milburn, of Home Hill, N.Q., recently visited Brisbane and secured for himself a liberal supply of transmitting gear. From this it would seem that Andrew Couper (4BW) is now to have a little playmate. Up-to-date 4BW has been the only amateur station in North Queensland.

Mr. Percy Grant (of 4HB renown), is visiting Brisbane on a brief holiday from Sydney, where he is studying for his ship wireless officer's ticket.

"Lost, Stolen or Strayed—One Pair of Gentleman's Horn-rimmed Spectacles."—Noticing the foregoing advert. in a Brisbane daily recently, we have been wondering whether the Director of 4QG has suffered a dire calamity, as we notice he now peeps through the rimless variety. Honestly—you wouldn't know the man!

"Uncle Mick," "Uncle Ben's" new offsider at 4QG, is the essence of fun. Mr. L. W. Waterman—for such is his name—is a great impersonator and a splendid vocalist. He should prove a very valuable acquisition to the station's already famous staff of bedtime story-tellers.

ERICH JOHN'S NEXT RECITAL.

Chopin Programme, 18th July.

Students and lovers of music generally are most appreciative of the monthly pianoforte recitals broadcast by Station 4QG from Erich John's studio.

The 6th recital, which is set down for the 18th of July, is to take the form of a Chopin programme. The following numbers have been selected, and will be played by Mr. John:—

"Polonaise (military) Opus 40 No. 1," "Nocturne Opus 15 No. 2," "Waltz in E-Minor," "Waltz, Opus 6 No. 2" (in C-sharp minor), "Preludes, Opus 28 Nos. 7, 20, 21," "Etude, Opus 25 No. 12," "Etude, Opus 25 No. 6," "Prelude ('Raindrop') Opus 28 No. 17," "Scherzo Opus 31" (in B-flat minor).

A CALL THAT WAS NOT HEARD.

Many and varied are the letters received in the daily mail of a bedtime storyteller. Some are filled with happiness, others are penned by sad little souls who try bravely to see the bright side of life.

Of the thousands of letters received by "The Sandman" none have carried the heart throb contained in the following letter.

It is an emphatic answer to those who criticise the bedtime stories as an "unnecessary session," and it makes us wonder what would radio be without the children's hour.

GUNDIAH

N. C. Line

9th June, 1927.

Dear "Sandman"

Friday 10th June is the anniversary of the birthday of Violet Kajewski of Gundiah. Her name was called by you last year. Unfortunately she can not hear your voice this year for she sleeps in a little country cemetery. You were always her favourite entertainer, and she like you, was an ardent lover of nature. Your "Stories My Doggie Told Me" appealed to her greatly. She suffered intense pain with courageous silence and the best of Brisbane's medicos worked in vain. To pass the weary hours she used to write to many other lonely bush children and listen to her "Radio Friends".

Her last few days were spent in St. Martin's Hospital Brisbane, from where the tall 4QG towers could be seen. Many were the questions she asked, and how she longed to see inside it, but no! 'twas not to be. Her life was cut short two days after a severe operation.

I thank you "Sandman" for the pleasure you have given her, and the pleasure you must give to many other lonely and sick children. May you be long spared to continue your most honourable work.

I am

Yours very sincerely,
L. E. Kajewski (Brother)

TRICKLE CHARGERS and ELIMINATORS

WE HAVE ALL THE COMPONENTS.

Make your own everlasting and efficient Trickle Charger. Tantalum 8/6, Transformer 10/6, obtainable in Queensland only at

THE RADIO SHOP—482 QUEEN STREET

Phone: Cent. 4315.

Makers of Puratone 5-Valve Sets, guaranteed to eliminate 4QG at two miles without a wave-trap. Repairs to all makes of sets.

Automatic Control of Valve Filaments

Including a Useful and Original Table of Resistances

(By Fred Hoe.)

The rheostat with its many drawbacks, is still almost universal on home-constructed sets, indeed, on the largest proportion of manufactured sets also. Possibly the main reasons for this may be outlined as:—

Firstly, because the rheostat was the initial means used for filament control, and practice has developed along these lines; secondly, because there are so many valves in use, working at different current and voltage values; and thirdly, because of the lack of knowledge of correct values for resistances, whether automatic or rheostatic.

Under these circumstances the variable filament rheostat to control the current supplied to the valve has been largely guesswork, and when the danger of burning expensive valves, by turning the rheostat just a fraction too far for correct functioning of the valve is considered the significant value of an automatic filament control of absolutely correct resistance can be fully appreciated.

Automatic filament control has been more used in America than anywhere, and practically all of the 1927 models of American standardised sets have this type of control, being without rheostats altogether. Only two types of valves, the "five-volt quarter ampere" "bright" filament, and the "three-volt six-tenths" ampere "dull emitter" being in general use (until power valves have been lately introduced) has facilitated the use of automatic filament controls in U.S.A.

Automatic filament controls are now available and are known by various descriptions which are almost trade names, such as "Amperites," "Filament Ballasts," "Brachstats," "Temprytes," to quote a few. They consist in most makes of a sealed tube of small size somewhat like a gridleak and suitable for clipping into a spring mounting which is usually provided. The sealed tube contains a resistance wire of carefully sized diameter and length which, when put in circuit between the low tension or "A" battery and the valve, will "drop" the voltage of the battery to the correct value for the valve, and supply the latter with the correct current, and ensure operation at the best temperature for best results and service.

The best makes of controls even compensate almost completely for the slight alteration of battery voltage between fully charged and almost discharged states. This is done by incorporating a resistance wire, having what is known as a high temperature coefficient as the element of the control. This type of wire has the property of rapidly increasing in resistance with a rise in temperature, or in other words, with an increase in the current passing.

The net result is that with the battery, slightly high in voltage when first charged, tending to pass too much current through the valve, the resistance wire in the automatic filament control, becoming heated

above normal, increases in resistance and holds back the excess voltage. Hence the term automatic filament controls.

At first the various filament controls were marked with the name of the valve they were designed to function with. This method has possibly been a very serious drawback to their more general use, as builders of sets and users were never certain if a control marked for one valve would be suitable for another valve somewhat similar.

The later and much improved practice is to mark the filament control with the actual resistance of the element, so that the correct control can be chosen for any valve and battery from knowledge of the filament voltage and current recommended by the valve makers, and almost generally published by valve manufacturers after very careful and extended experimentation.

The correct resistance of the filament control (or of the minimum value rheostat) to be used may be calculated from a very simple formula, which is as follows:—

Volts to be dropped in filament control divided by amperes taken by valve.

Example: Valve, Radiotron 201A. Filament, volts 5; filament, amperes, .25 with six-volt accumulator. Volts to be dropped, 1. Therefore 1 divided by .25 equals 4. Control required, 4 ohms.

Another example: Two Mullard P.M.6 valves with ment volts, 3.7; filament amperes, .1 with four-volt accumulator. Volts to be dropped .3. Therefore .3 divided by .1 equals 3. Control required, 3 ohms.

Or as another example, the latter valve with a six-volt accumulator, 2.3 volts to be dropped. Therefore 2.3 divided by .1 equals 23. Control required, 23 ohms (usual nearest 25 ohms).

Another Example: Valve, Mullard P.M.3. Filament six-volt battery. Filament volts, 5.6; filament amperes twice .1 equals .2. Volts to be dropped .4. Therefore .4 divided by .2 equals 2. Control required, 2 ohms.

The subjoined table has been calculated and checked for the information and guidance of Queensland Radio News readers, the first published in Australia, and may be relied on implicitly, covering as it does, most of the makes of valves in general use in this country.

Modern radio practice demands something more simple, more scientific, and more practical than the old-fashioned variable rheostat, and the use of automatic filament controls is certain to be more widely availed of, and eventually almost universal.

**A USEFUL AND ORIGINAL TABLE
OF RESISTANCES.
FOR VALVE FILAMENT CONTROL.**

Marketed Type of Valve.		Filament Volts	Filament Amps.	Resistance required in Ohms when Battery Volts are:-			
				2-volt	4-volt	6-volt	
Mullard	P.M.1-H.F. ..	1.8	0.1	2	20	40	
	P.M.1-L.F. ..	1.8	0.1	2	20	40	
	P.M.1-A. ..	1.8	0.1	2	20	40	
	P.M.2 ..	1.8	0.15	1.5	14	25	
	P.M.3 ..	3.7	0.1		3	25	
	P.M.3-A ..	3.7	0.1		3	25	
	P.M.4 ..	3.7	0.1		3	25	
	P.M.5 ..	5.6	0.1			4	
	P.M.5-B ..	5.6	0.1			4	
	P.M.6 ..	5.6	0.1			4	
	P.M.254 ..	3.8	0.25		0.75	8	
	P.M.256 ..	5.6	0.25			1.5	
	D.F.A.0 ..	3.5	0.35		1.5	7.5	
	D.F.A.1 ..	5.5	0.35		1.5	7.5	
	D.F.A.1 ..	5.5	0.25			2	
	D.F.A.3 ..	5.6	0.06			5	
	D.F.A.4 ..	5	0.25			4	
	D.O.6 ..	3	0.06		17	50	
D.U.5 ..	2.7	0.77		1.75	4		
D.U.10 ..	4	1.1			2		
D.U.2 ..	4	1.1			2		
Radiotron	U.V.199 ..	3.0	0.06		17	50	
	U.X.199 ..	3.0	0.06		17	50	
	U.X.120 ..	3.0	0.125		8	25	
	U.X.201A ..	5	0.25			4	
	U.X.200-A ..	5	0.25			4	
	U.X.112 ..	5	0.5			2	
	U.X.171 ..	5	0.5			2	
	U.V.200 ..	5	1.0			1	
	Osram	D.E.R. ..	1.8	0.35	0.3	6	12
		D.E.3 ..	2.8	0.06		20	55
D.E.V. ..		3	0.2		5	14	
D.E.2-H.F. ..		1.8	0.12	1.5	17	33	
D.E.5 ..		5	0.25			4	
D.E.5-A. ..		5	0.25			4	
D.E.5-B. ..		5	0.25			4	
D.E.8-H.F. ..		5.6	0.12			3	
D.E.8-L.F. ..		5.6	0.12			3	
D.E.6 ..		2	0.5	0.3	4	8	
D.E.4 ..		3.8	0.3		0.75	7.5	
L.S.5 ..		5.25	0.8			1	
D.E.P.215 ..		2	0.15	0.3	13	25	
Cossor		P.1 ..	4	0.7		0.75	3
		P.2 ..	4	0.7		0.75	3
	P.3 ..						
	W.1 ..	1.8	0.3	0.5	7	14	
	W.2 ..	1.8	0.3	0.5	7	14	
	W.3 ..	1.8	0.5	0.3	4	8	
	Point 1 ..	1.8	0.1	0.2	20	40	
	Stentor 2 ..	1.8	0.15	1.5	14	25	
Stentor 4 ..	4	0.1		0.1	20		

Marketed Type of Valve.	Filament Volts	Filament Amps.	Resistance required in Ohms when Battery Volts are:-		
			2-volt	4-volt	6-volt
Ediswan R.	4	0.75		0.75	3
" G.P.2 ..	2	0.1	0.1	20	40
" G.P.4 ..	4	0.15		0.3	13
" D.R.2 ..	2	0.1	0.1	20	40
" A.R.D.E. ..	2	0.3	0.3	7.5	13
" A.R.06 ..	3	0.06		17	50
" R.C.2 ..	2	0.1	0.1	20	40
" P.V.5-D.E. ..	5	0.25			4
" P.V.2 ..	2	0.15	0.3	13	25
" P.V.6-D.E. ..	2	0.5	0.5	4	8
" P.V.8-D.E. ..	3	0.12		8	25
" P.V.4 ..	4	0.35		0.3	6
B.T.H. R.	4	0.7		0.75	3
" B.2 ..	5	0.7			1.5
" B.3 ..	1.8	0.35	0.3	6	12
" B.4 ..	5	0.25			4
" B.4-H.	6	0.25			0.3
" B.5 ..	2.8	0.06		20	55
" B.5-H.	2.8	0.06		20	55
" B.6 ..	2.8	0.12		10	25
" B.7 ..	6	0.06			0.06
Phillips A.106 ..	1.2	0.06	13	45	
" A.109 ..	1.2	0.06	13	45	
" B.105 ..	1.2	0.06	13	45	
" A.306 ..	3	0.06		17	50
" A.310 ..	3.0	0.06		17	50
" B.406 ..	3.7	0.1		3	25
" A.409 ..	3.7	0.06		5	40
" A.425 ..	3.7	0.06		5	40
" B.403 ..	3.7	0.15		2	15
" A.609 ..	5	0.06			16
" B.605 ..	5	0.1			10
" A.141 ..	1.2	0.06	13	45	
" A.341 ..	3	0.06		17	50
" A.441 ..	3.7	0.06		5	40
" B.2 ..	1.8	0.15	1.5	15	25
" D.1 ..	3.5	0.5		1	5
" D.2 ..	3.5	0.5		1	5
" E.	4	0.7		0.75	3
" C.509 ..	5	0.25			4
De-Forest D.L.2 ..	5	0.25			4
" D.L.3 ..	3	0.07		15	45
" D.V.3-A. ..	3	0.07		15	45
" D.L.4 ..	5	0.25			4
" D.L.5 ..	5	0.25			4
" D.L.7 ..	5	0.5			2
" D.L.14 ..	5	0.5			2
" D.L.15 ..	5	0.25			4
Condor P.R.31 ..	1.2	0.06	13		
" P.R.41 ..	3.7	0.1		3	25
" P.R.48 ..	3.7	0.06		5	40
" P.R.51 ..	3	0.06		17	50
" P.R.52 ..	5	0.25			4
" P.R.54 ..	5	0.1			10
" P.R.55 ..	5	0.06			16

For Multiple Valves on one Control divide Resistance given in Table by Number of Valves.

Questions Answered

"J.K.," Peel Island:—Your aerial is rather long, and we think that this is probably the cause of broadness in tuning. Try reducing your aerial to 90 or 100ft. (including lead-in). The small fixed condenser connected between the aerial terminal and centre tap of aerial inductance should be .0001 mf. capacity and of good quality.

"R.L.W.," Darra:—We are of the opinion that double grid valves of the present type are not suitable for L.F. amplification when good volume is desired. They are easily overloaded, and as will be seen by inspecting the characteristics, the emission and linear limits are small.

"High Tension," Gympie:—(1) Your idea is not at all practicable, as a step-up transformer is purely an A.C. device, that is to say, an alternating current must be applied to the primary winding in order to obtain transformation; (2) the amount of current obtained from the medical coil would be much below the voltage you require for your purpose.

"Live," Bajool:—Provided the valves have been matched and are in good condition, we do not think, changing the type would improve your reception. It is advisable, however, to use valves of the same manufacture throughout, as the charac-

teristics of the various makes differ slightly. A 3-4 volt .1 amp. power-valve would give you more volume and better quality if placed in the speaker valve socket.

"W.B.," Red Hill:—(1) If you need a complete super-het. outfit we would advise you to purchase an Igranic Super-Het Kit. If, however, you are merely needing oscillator, filter and intermediate frequency transformers, we would recommend the Emmco Kit. (2) A super-het will eliminate the local station if well constructed. The super-het. is most sensitive and capable of long-distance reception, thus you should, under favourable conditions, be able to log some of the big American stations. (3) The super-het. range covers approximately from 200 to 600 metres.

"Rudder," Wietalabar, B.V. Line:—It is not possible to use a step-up transformer as pure D.C. current is required for operating the valves. The usual method is to step-up the voltage, rectify same, then pass the rectified current through a suitable filter. At a future date we will publish a constructional article on a small power transformer.

"C.M.," New Farm:—A Carborundum Stabilising Detector Unit should work quite satisfactorily in the Q.R.N. Balanced Crystal-Valve Receiver, the difference in resistances being compensated for by the switch arm.

"R.T.B.," Rockhampton:—Your query is too technical for this page. Buy "Wireless Valve Transmitters" (James), 12/-, or Ballantyne's "Radio for the Amateur," 10/6, from McLeod's Bookstore, Elizabeth Street, Brisbane.

Now—we can enjoy Pure
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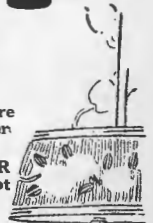
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Super 40-volt 30/-

Ever-Ready "B" Batteries take the "ire" out of wireless. They are ever ready to deliver a strong, even flow of current to your receiver and render longer service.

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R.W. 100 3-Valve Cabinet

Illustration R.W. 100 is for a Three-Valve Set, the measurements being 15 inch x 7½ inch x ½ inch (Bakelite Panel Size.)

PRICE 45/.

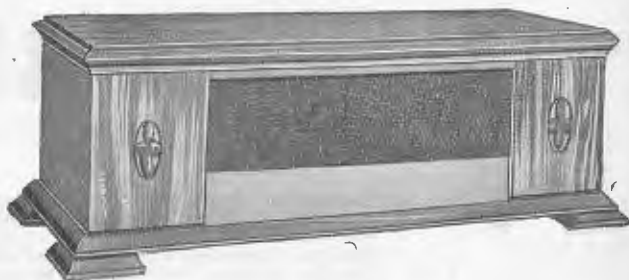
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Robbing the Ether

How a Forest of Aerials can drain Energy from a Broadcasting Station

(By J. Decomade.)

The number of receiving aerials erected in the close vicinity of certain of the B.B.C. transmitting stations, more particularly in the densely-populated London suburbs, has already reached a point where their cumulative action upon the passing ether waves threatens to constitute a serious drain upon the broadcast energy available for those listeners who are situated further afield.

Each of the transmitting centres is limited to a more or less definite power-rating, and it therefore stands to reason that the absorption effect of a closely packed ring of garden aerials cannot be ignored in estimating the amount of energy available for feeding the more distant receivers.

Absorbing the Energy.

Up to the present it has been customary to consider the amount of energy extracted from a passing ether-wave by any single receiving aerial as a negligible quantity. In fact the broadcast wave has been generally regarded as an inexhaustible source to be tapped at will without fear of exhaustion.

This is a legitimate assumption in so far as commercial wireless stations are concerned, where the number of receiving stations is necessarily quite small. But in the case of a broadcasting station such as 2LO where tens of thousands of receiving aerials surround it in close formation, all or nearly all being tuned to extract the utmost possible energy from the passing wave, such an assumption is no longer valid.

A Practical Test.

A series of experiments recently carried out at Slough by Messrs Barfield, Smith-Rose, and Munro, have, in fact, shown that the energy of the 2LO wave as received at Slough is reduced to a mere fraction of its normal value by the cumulative effect of aerial drainage in transit.

Considerable ingenuity was displayed in putting this point to a practical test. In the first place it was obviously impossible to remove the large number of intervening aerials for the time being, and equally impracticable to arrange for them all to be simultaneously out of tune with 2LO.

Accordingly the experimenters contrived to have the broadcast wave thrown out of tune with the aerials. With this object in view, arrangements were made with the B.B.C. for the wave-length of 2LO to be changed in step from its normal value of 364 metres over a range of from 300 to 450 metres. This

of course, done outside the normal hours of broadcasting.

The receiving apparatus used at Slough was of a specially designed to measure accurately the strength of the incoming signals.

Under these "test" conditions, the intervening aerials were all gradually thrown out of tune with the broadcast transmission, so that their power to extract

energy from the passing wave was proportionately reduced.

As a result of the experiment it was found that a five per cent. variation in the wave-length of 2LO caused an increase of ninety per cent. in the intensity of the signals received at Slough. This increase can only be explained by the fact that the "de-tuned" wave travelled across the intervening distance without experiencing the full absorption losses to which the normal wave is subjected by the action of the barrier of tuned aerials.

For a wave-length change of 120 metres a total increase of field strength of nearly five to one was obtained. In other words, for a given power transmitted the received power was increased more than twenty-fold.

By way of contrast a further series of experiments carried out along a different path, where there was no heavy accumulation of intervening aerials, showed that an increase of 10 per cent. in the normal wave-length made no appreciable difference to the power available at the receiver. This again indicates clearly that the loss must be due to the aerial barrier.

Other Factors.

It is a curious fact that the minimum received signal-strength, and therefore the maximum absorption en route, does not occur at the precise 2LO wave-length, but at a value somewhat below 364 metres. At first sight this would appear to indicate the existence of some other absorption factor beyond that the intervening aerials, the majority of which may be assumed to be tuned to the 364 metres.

The explanation, however, lies in the fact that when an electro-magnetic wave is propagated through a medium containing a number of resonators (aerials) all tuned to the same frequency, it is well known that on varying the wave-length of the transmitted wave, a critical change takes place both in the absorption factor and the refractive index of the medium, this being sufficient to account for the apparent discrepancy observed.

These remarkable results, verified by repeated measurements, can therefore only be accounted for on the assumption that the normal 2LO wave has its energy continually sapped by the tuned aerials over which it passes. The out-of-tune transmission, not being subject to the same absorption effect, arrives at Slough with practically undiminished energy.

It will probably be asked how it is that listeners at Slough and other correspondingly-situated districts have not complained of a falling-off in signal strength, due to this cause. In this connection it must be borne in mind that the growth in the number of intervening receiving aerials has been a gradual one. Moreover, the robbing or absorption en route has to a large extent been offset or masked by correspondingly increases in the power-rating of the 2LO station, which have taken place from time to time. Also

there is the greater efficiency in the design of modern receivers to be taken into account.

It will be noted that these experiments were conducted at a point situated just beyond a very densely populated area. It is quite likely that at places still further afield from the transmitter, the effect would not be so pronounced.

Having regard to the fact that the radiated wave is propagated in all directions in space, upwards as well as along the earth's surface, it will be clear that the extraction of energy by tuned aerials can only weaken locally in that portion of the wave which follows the earth's surface. At a later stage this energy is probably replaced to some extent by drawing on the energy of the wave in the upper regions of the atmosphere.

It may well be that a densely populated area such as that between the metropolis and Slough is surrounded by a ring-shaped zone in which the weakened surface wave has not yet been able to obtain sustenance from the space wave. In other words, the crowding together of a number of tuned collecting aerials may be regarded as casting a radio shadow in the area immediately surrounding them.

The Worst Offenders.

If it is admitted that an exaggeration of receiving aerials does extract a small, but collectively important amount of energy from the wave, it will be of interest to examine which types of aerials and receivers are the greatest offenders in this respect.

The size of the aerial is perhaps the most important factor, the other being its damping or effective resistance. The larger and higher the aerial, the more energy will be torn out of the passing wave. Taking two aerials of equal effective height, the aerial that is less damped absorbs the more energy.

Accordingly, the order of offenders may be set out as follows:—

- (1) Standard P.M.G. aerial connected to H.F. valve, or anodeband detector.
- (2) Similar aerial connected to grid-leak detector.
- (3) Similar aerial connected to crystal detector.
- (4) Small indoor extended aerial.
- (5) Frame aerial.

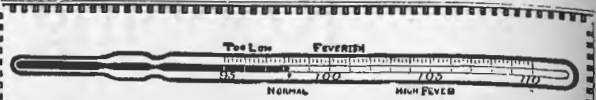
Where reaction is applied to the aerial, the energy absorbed will be greater the more nearly the first valve is brought to the oscillating point.

As previously stated, it has generally been assumed that a broadcasting station can feed an indefinite number of listeners without having regard to the amount of power or energy each listener is extracting from the ether. The uniform scale of license fee is one result of this attitude of mind.

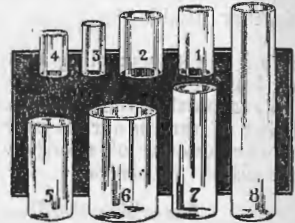
A Graduated Tax?

In point of fact, however, it is quite clear that different types of receivers absorb different amounts of power from the wave. Moreover, as these, in the mass, apparently handicap more distant listeners, it would seem that a licence fee, graduated in accordance with the type and size of aerial, and with the kind of set employed, would form a more equitable basis of payment.

At the same time the graduation could not fairly be made a steep one, as the greater part of the expenses of the B.B.C. lie in other directions than that of merely providing the power necessary for radiation.—“The Broadcaster.”



PLAGUE, INFLUENZA, DENGUE FEVER, and all other diseases are first indicated by a rise in temperature; therefore, a Clinical or Fever Thermometer is a necessity in every home, especially where there are children. Order one NOW and have it ready. **Price 3/9 each.** Posted 9d extra. If you paid a guinea you could not buy a better article.



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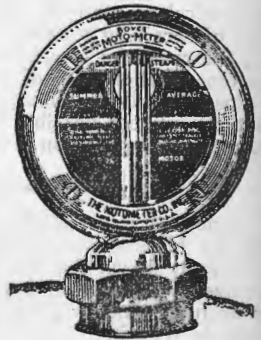
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Better Broadcasting in Country Districts

The large number of aerials visible in cities and their suburbs, added to the number of aerials that are not visible, shows that broadcasting is a satisfactory service in the metropolitan areas of the States. The patrons of the new form of entertainment and education in those areas are increasing steadily except perhaps in one city.

That satisfaction unfortunately cannot be said to exist in country districts. The number of country subscribers to the broadcasting services is extremely small and the growth very gradual. What is the cause of this dissatisfaction? It is not the programmes; it is the fact that the service from the stations in the cities cannot reach out sufficiently to cover the States.

More Stations Wanted.

The placing of the stations in the capital cities was not the mistake some people seem to think it was. With the peculiar distribution of our population it was the obvious thing to do, and the broadcasting stations had every desire and intention of serving country people as well as city people when they decided on the powerful stations. For they were really powerful stations in 1924. There were very few stations in any part of the world as powerful. Even now there is only one station in England more powerful than 3LO Melbourne. But experience has taught that a station in the capital city cannot be expected to give satisfactory service throughout the State. The fortunate part is that while 3LO can and does give a good service outside the borders of Victoria, it cannot give such a service to some parts of Victoria where its subscribers reside. That inability is due to natural phenomena beyond the control of the community. The menace of fading experienced on all broadcasting station wave-lengths throughout the world is experienced equally by our stations.

The remedy is to either increase the power of the station or to increase the number of stations and put them in selected country districts.

Unless the power is super-power any one big station will be unsuitable. By increasing the power from 5000 to 50,000 watts one would think that the resulting radiation would be strong enough to cover the distant part. Experience has shown that it will not. The increase in useful power radiated is not directly related to increase in the station power. To increase the effective radius of 3LO then, time would necessitate using 100 times the station power.

Such a powerful station would bring evils to a large number of listeners. The effect, now well known, of blanketing listeners near to a powerful station would be intensified. The super-power station would need to be far removed from any centre of population whose residents desired to receive other stations as well.

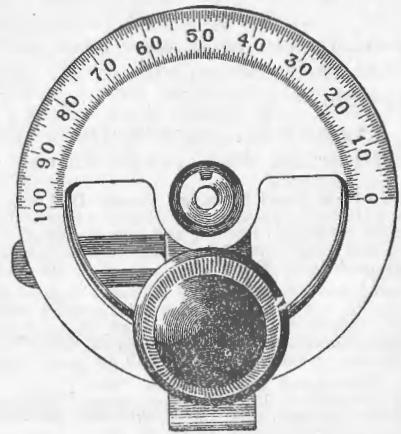
Relay Station.

By installing moderate powered stations in selected localities throughout the State, the listeners generally would be served.— These stations—relay stations—

would bring the main station service nearer to the listeners.

There may be obvious enquiry as to why these stations have not been erected. It certainly is a fair question. The 3LO Company had been endeavouring to do so for over 12 months. There have been difficulties in various directions which had not been overcome. The supply of the plant for the stations on reasonable terms has caused considerable trouble which is not yet overcome and the provision of telephone lines is another difficult matter. Both of these difficulties however are likely to be overcome in the near future.

EMMCO BACK PANEL VERNIER DIAL



This dial represents something unique and outstanding even amongst the most modern dials, and has features which give it pre-eminence in its particular field. It is supplied complete with template for mounting, and as it has one hole fixing, no trouble is experienced in placing it on the panel.

The dial itself is mounted behind the panel, the markings being visible through a small logging window immediately behind the dial, which has a hair-line adjustment.

Also obtainable with the dial is the illuminator, the mounting for which is also provided for on the template; this also has a one hole fixing, the arrangement being such that the small lamp appears immediately behind the logging window, throwing the dial markings into sharp relief. This illuminator is provided with an automatic cut-off switch, which is operated by a small knob projecting through the front of the panel.

The dial itself has a delicate vernier action, although of sturdy construction, and its arrangement is such that it may be adapted to any existing type of condenser. The whole job is beautifully finished, and is a distinct departure from any other type at present obtainable.

It may be obtained either with or without the illuminator, and can be recommended to all those who require attractive appearance with good performance.

Crashing All Barriers

and gaining the immediate approval of the most critical radio enthusiasts in the world to-day—the amateur experimenters—Emmco's new apparatus is smashing its way through in record to the type of popularity spreads like wildfire.

After our announcements of the new parts in recent issues of Australian radio journals there has been a constant demand for demonstrations in all the radio dealers where they are sold.

Before two famous amateur experimenters in a Sydney laboratory, in a comparative test with two of the acknowledged best radio lines on the market, the Australian parts were conceded to have far out-classed their competitors in all phases of broadcast reception.

Examine the parts to-day. See them in actual operation and draw your own conclusions.

Emmco Back Panel Mounting Vernier Dial is a distinct advance upon anything yet produced. It offers a most handsome appearance, remarkably fine tuning and easy mounting. Price, including Bezel and Template, 5/6. Illuminations only, complete with switch and bulb. Price 4/6.

Designed for Controlling the Filament Current for all types of valves, for use in resistance coupled amplification, and for "B" Battery Eliminators, the **Emmcostad** line is unequalled for performance on this market. **Emmcostad** has a Bakelite knob and casing and one hole mounting. Will not pack. Unaffected by heat.

- No. 1 Emmcostad, 1 to 100 ohms, Price 7/6
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- No. 4 Emmcostad, 30,000 to 500,000 ohms, Price 7/6
- No. 5 Emmcostad, 0 to 5 megohms, specially suited for battery eliminators. Price 7/6
- No. 6 Emmcostad, 1 to 10 megohms. A first-class variable grid resistance. Price 7/6

The **Emmco Stratelyne Condenser** embraces correct minimum and maximum capacities, perfect insulation, pig-tail connection, true alignment, cut-away brass plates in both stator and rotor. Base or panel mounting. Has a hollow quarter-inch shaft interlocking, allowing tandem mounting of two or more condensers. Prices: .0005, 12/6; .00025 and .00035, 12/.

THE EMMCO B. BATTERY ELIMINATOR.

Specially adapted for the current and voltages of the Australian electric A.C. lighting mains. Has five terminals, one Earth, one B —, one Detector † adjustable by a knob for voltages of from 20 to 25, one Radio † adjustable up to 100 volts, and Audio † for the full 135 volts. If a lesser voltage is desired in one or more of the Audio valves, they may be connected to the Radio terminals and adjusted to suit. The voltages may be altered by the adjustable knobs while the Eliminator is in use.

A scientifically made job, sturdily built in a neat metal case with bakelite top. Compact. Weight 13lbs. Measurements 8 1/2 in. x 5 in. x 7 1/2 in. Price £10/10/-

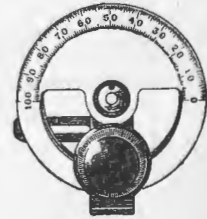
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Electricity Meter Mfg. Co. Ltd.

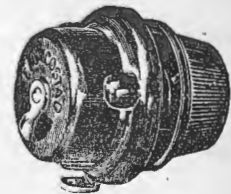
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The Emmco B Battery Eliminator



The Emmco Back of Panel Mounting Vernier Dial. Price 5/6.



The Emmcostad Price 7/6.



The Emmco Stratelyne Condenser. Prices, 12/6 and 12/.

Emmco Midget Transformers Price 13/9

Notes from 4QG.

RADIO IN DENMARK.

Radio is proving of distinct economic value to the farmers of Denmark, according to a recent official report, which states that during the past few years Danish agricultural industry has been aided, especially in its harvest work, by the radio service of the meteorological Bureau. That this service has been of value to the farmer is now brought out by the fact that important Danish farm organisations have decided to work for its extension. To this end a committee has been appointed which will co-operate with the Government Radio Control Bureau. This bureau has met the request of the farm organisation with alacrity, and at the present time plans are under way for the broadcasting of special programmes for the Danish farmer; at least two lectures dealing with agricultural problems will be broadcast each month, and from time to time agricultural experts will deal with seasonal agricultural matters in the same manner.

In this connection it is interesting to note that Station 4QG has been catering for the farmers of Queensland since its inception. A specially trained market officer is employed at the station and personally conducts farmers' sessions daily.

BROADCASTING FROM OUTSIDE POINTS.

It is doubtful if any other radio station in Australia broadcasts so many programmes from outside points as does 4QG. Wherever or whenever there is anything of interest to be picked up for broadcasting endeavours to have it relayed for the benefit of our listeners. The relaying of items from outside points entails much preliminary arrangement, including telephone lines, installation of equipment, etc. The numerous letters received by 4QG indicate that the efforts of the Director and staff to provide listeners-in with a variety of entertainment are greatly appreciated.

SPORTING RESULTS.

Throughout Australia, Saturday is recognised as a day of sport, and, characteristic of the average Australian, cares of the week are forgotten by devotees of the various branches of sport. To cater for the large number of sporting enthusiasts who listen-in on Saturday evening, Station 4QG has included in its early evening session, talks on racing, football, tennis, basket ball and sailing.

STRANGE REQUESTS.

Strange indeed are some of the requests which are made to the director of a broadcasting station. A newspaper office is noted as a haven of rest for many people who have quaint ideas which they desire to bring before the public, but now broadcasting stations are quite as popular with various people. Scarcely a day passes without some fantastic scheme being placed before a station, and if some of the ideas were acted on the public would doubtless derive a certain amount of amusement—were they able to see the humour of it all. A lady has visited 4QG several times recently, complaining that she hears wireless messages at all times without a receiver and asking cannot the station pre-

vent it. A gentleman called a few days ago and insisted on singing to the inquiry clerk. He said that he did not want to sing, but his workmates had heard him humming a tune, and remarked that radio was his place, and had sent him up to 4QG. Perhaps the most threatening of all callers was the man who made a request for the broadcasting of some ideas which would gain world power for himself, and when refused the facilities pointed out that when he secured world power, the Director of 4QG would be the first to loose his job.

"PERCY"—"THE SANDMAN'S" OFFSIDER.

Some people are very modest; they simply abhor the limelight. Such a person is "Percy" of 4QG bed-time story fame. Numerous children have written to "The Sandman" requesting particulars of "Percy," but "Sandy" respects the wishes of "Percy," who is not desirous of having his identity disclosed, and reluctantly refrains from giving the children the information desired. Even numerous grown ups enquire who "Percy" is, which says much for "Sandy's" ventriloquial powers. It is to be hoped that no children, and at least few adults, will discover the identity of "Percy," which the above paragraph clumsily attempts to hide, because for the youngsters at least a good deal of interest would be lost if the real identity were known. "The Sandman" and "Percy" provide an immense amount of fun for all ages.

—and now
the
C.A.V.
Loud Speaker



These new C.A.V. Loud Speakers are indeed unique in mellowness of tone. They reproduce a full range from bass to the highest and most delicate notes, without vibration or distortion. They have special diaphragm adjustment.

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Agency Proposition

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THE Burgin Electric Co. Ltd., whose Burginphone Wireless Receivers have been successfully distributed throughout Queensland for some years past, are desirous of appointing district agents throughout the State, who will operate direct with the Company's factory in Sydney.

We desire to appoint in every town an agent who can demonstrate and sell Burginphone Receivers. "Burginphones" are manufactured by one of Australia's pioneers in Wireless and have a reputation of many years standing.

A full range of Receivers are manufactured, supported by an attractive price and discount policy. Prompt inquiry is invited from prospective agents.

Burgin Electric Co. Ltd.

342 Kent Street, Sydney

Telegraphic Address "Burgineco," Sydney

New Valves

MULLARD VALVES FOR R.C. AMPLIFIERS

The development of resistance-capacity coupled amplifiers having anode circuit resistances of some megohms in value, has led to the design of valves specially suited to these new conditions. The impedance of the coupling being so high, a valve with very high amplification factor can be made, and the attendant increase valve impedance is of no consequence.

The Mullard P.M.1A, P.M.3A and P.M.5B have amplification factors of nearly 40 and, in consequence, the anode circuit resistance be, say, 2 or 3 megohms, the amplification per stage is equal to that obtained from a transformer coupled amplifier. This removes the one objection to resistance-coupled amplifiers, namely, low-amplification per stage, and of course, for equal amplification of all audio frequencies and true rendering of tone, such an amplifier is unequalled.

These valves take 0.1 amp. maximum filament current and are designed to work from 2, 4, and 6 volt supplies (for P.M.1A, P.M.3A and P.M.5B respectively). For reception of the local station, two P.M.1A or two P.M.3A valves may be used, followed by a P.M.2 with 2-volt accumulator, or P.M.4 with 4-volt accumulator. For stronger signals, the Super-power valve P.M.254 should be used in the last stage when using a 4-volt accumulator.

With two P.M.5B valves the amplification obtainable gives very considerable signal strength from the local station, and in most cases it is desirable to employ P.M.256 in the "power amplifier" stage, although P.M.6 can be used.

Grid leaks should be fairly high and sufficient negative grid bias should be used on the power amplifier to ensure that distortion is not introduced in the last stage of the receiver.

The economy of such a set will be apparent when it is considered that the H.T. consumption of the Mullard P.M.1A, P.M.3A and P.M.5B valves is quite negligible, being fractions of a milliampere, so that only the power amplifier takes appreciable current from the H.T. battery, while the P.M. filament ensures minimum L.T. consumption consistent with strength and long life.

The characteristics of these valves are as follows:—

	P.M.1A	P.M.3A	P.M.5B
Max. Filament Voltage	2.0	4.0	6.0
Filament Current (amps.)	0.1	0.1	0.1
Max Anode Voltage	125	150	150
Anode Impedance (ohms)	72,000	63,000	74,000
Amplification Factor	36	35	37
Mutual Conductance (m/A volts)	0.5	0.55	0.5

*At anode volts 100; grid volts zero.

THE UX-240 DETECTOR AND VOLTAGE AMPLIFIER RADIOTRON

Because of the widespread interest of amateurs in resistance coupling a high mu tube, especially designed with a view of providing high amplification, and suitable as a detector as well as an amplifier, is now announced by the Radio Corporation of America. This is the UX-240 Radiotron, which in general appearance and physical dimensions is similar to the well-known UX-201A Radiotron.

The UX-240 Radiotron is a storage battery tube, with a one-quarter ampere, long-life filament of the thoriated tungsten type. A standard UX base is provided. This tube is intended to provide the highest practicable voltage amplification so essential in resistance-coupled amplifiers. This method of amplification, in contrast with the transformer-coupled method, depends entirely upon the tube for the step-up effect. In transformer coupling, on the other hand, the step-up effect is brought about by the transformer ratio as well as the tube. Therefore Radiotron UX-240 has been designed to provide an amplification factor of 30.

The overall amplification of one stage of resistance coupling, employing the UX-240, is substantially equivalent to the average stage of transformer coupling employing the UX-201A. This is contrary to general belief, which holds the resistance-coupled circuits give such poor amplification that additional stage or two are necessary to produce satisfactory volume. When a general purpose tube of moderate amplification is employed, this is admittedly the case. It may be the case when tubes of a lower mu than 30 are employed. But with Radiotron UX-240 in the detector stage as well as in the first stage, there is an adequate output to operate a power amplifier at full volume.

When the exceptional amplification factor (high mu) of the UX 240, it becomes possible for amateurs to reduce resistance-coupled amplification two stages namely, the first stage with this tube following the detector employing the same type tube, and the second stage with a power amplifier Radiotron. The cost of the condenser plate coupling resistor the grid leak employed in each resistance coupled stage is only a fraction of the cost of the usual transformer.

Resistance-coupled circuits have heretofore been limited in popularity because of the high B-battery drain. This was true when the general purposes type tube was misapplied to resistance coupled circuits which call for a high mu tube. The "B" or plate current drawn by the UX-240 however, is about one tenth that drawn by the average general purpose tube employed for the same purpose, even when operating at "B" voltages of 135 to 180 which are essential for proper results with resistance-coupling.

The characteristics of the UX-240 Radiotron are as follows:—

Filament Voltage	5.0 volts
Filament Current25 amperes
Maximum Plate Voltage	180 volts
Recommended "B" Voltage	135-180 volts
Plate Resistance	150,000 ohms
Voltage Amplification Factor (μ)	30
Plate Current at Rates Voltages	2 milliamperes

When employed in resistance-coupled amplification the UX-240 should have a negative grid bias, which may be obtained from a "C" battery, to ensure freedom from distortion. Only the highest grade blocking condensers and resistances should be employed.

The condensers must have high insulation resistance, while the resistance must be capable of withstanding the necessary current flow without deterioration. Otherwise, noisy reception may result sooner or later. The UX-240 itself is non-microphonic and otherwise free from noises.

The following valves are recommended for resistance-coupled amplification with the UX-240.

Blocking Condensers005-.05 microfarad
Amplifier Grid Leaks	2 megohms

"B" Voltage	Plate Coupling Resistance	"C" Voltage
(Volts)	(Ohms)	(Volts)
180	250,000	-3
135	250,000	-1.5

Employed as a detector, the UX-240 Radiotron may be connected in the conventional manner with grid leak and grid condenser. The conductor should be of .00025 microfarads capacity, while the grid leak and plate coupling resistance are as follows:—

"B" Voltage	Plate Coupling Resistance	"C" Voltage
(Volts)	(Ohms)	(Volts)
180	250,000	2-5
135	250,000	2-5

Where minimum of distortion is preferred rather than extreme sensitivity, a different detector circuit using "C" battery instead of a grid leak and condenser is recommended. A common "C" battery for detector and amplifiers may be used, the "C" connection being similar in both instances. It will be noted however that a higher "C" voltage is used for detection.

"B" Voltage	Plate Coupling Resistance	"C" Voltage
(Volts)	(Ohms)	(Volts)
180	250,000	-4.5
135	250,000	-3.

With the appearance of the UX-240 Radiotron, it is confidently expected that resistance-coupling will become increasingly popular with amateurs.

Radiotron UX-240 is being marketed by Amalgamated Wireless (A'sia.) Ltd., and will shortly be available at all radio Dealers. Price 13/-.



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B 605 .1 amp. Audio
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The anatomy of the catalogue is as follows: Personal of Executive; Valve Receivers; Home Assembly Receivers; Accessory List; Review of Circuits; and then follows a wealth of radio information that makes the book a veritable compendium of radio. The cost of preparing such a book has not been light, and it is felt that by placing a small charge of 3d. on each copy, amateurs will be receiving wonderful value for their money.

Three editions of our 1926 catalogue were needed to supply the demand. This year it is our present intention to limit the supply to one edition only. Therefore, early application is absolutely IMPERATIVE, otherwise disappointment will result.

Send 3d. in Stamps
TO-DAY

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Complete Units Built to Order £4/4/- complete.

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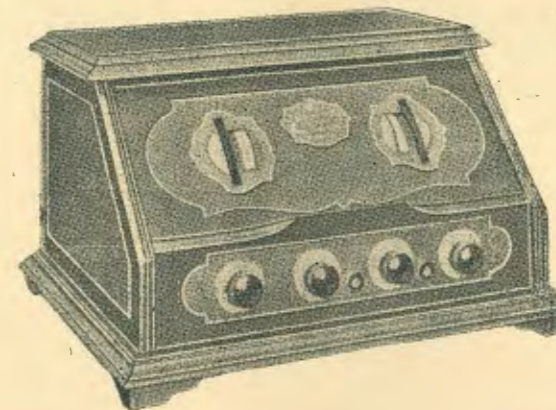
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The Finest Five-Valve Receiver Made

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The R.C.A. Model 20 has uni-control mechanism. You can select your station with one finger, and never again suffer the tiring exasperating experience of prolonged "tuning"—a triumph of the technical ability of R.C.A. engineers. You can mark the positions of all stations on the calibration strip, and thereafter turn the cylinder directly to the exact position for finding whatever station you want.

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With Knob and Pointer, 5/.

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Loud Speaker Cords, 20ft. 3/-, 12ft. 2/6, 5ft. 2/.

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Club Activities



RADIO CLUBS OF QUEENSLAND.

- AUCHENFLOWER AND DISTRICT**—Secretary, L. Cribb, "Frampton," Ridley Street, Auchenflower.
- CAIRNS AND DISTRICT**—Secretary, Mr. Tarbit, c/o Mr. Les. Fitzsimmons, Cairns.
- EASTERN SUBURBS**—Secretary, J. Burns, Longland Street, East Brisbane.
- GRACEVILLE**—Secretary, H. Carter, Cr. Molonga Terrace and Wylie Streets, Graceville.
- IPSWICH**—Secretary, S. J. Aspinall, Brisbane Street, Ipswich.
- SOUTH BRISBANE**—Secretary, W. R. Gilbert, Gordon Street, Coorparoo.
- TOOMBUL**—Secretary, T. Starkie, Sandgate Road, Nundah.
- TOWNSVILLE**—Secretary, E. J. Jefferies, Fletcher Street, West End, Townsville.
- WIRELESS INSTITUTE (Queensland Division)**—Secretary, Charles Dunn, Perry House, Elizabeth Street, Brisbane; telephone No. Central 7260; postal address Box 689K, G.P.O., Brisbane.
- WOOLLOWIN**—Secretary, H. A. Jear, Lisson Grove, Woollowin.
- WYNNUM AND MANLY**—Secretary, P. J. Golden, c/o Trackson Bros., Ltd., Elizabeth Street, Brisbane.

Woollowin Radio Club

Since last month several interesting meetings have been held. A new feature, an impromptu debate evening, was held—in anticipation of our coming debate with Toombul. I suppose—and was noted by all to be F.B. There were present just enough members to form six debating teams, and subjects such as "Wireless versus Gramophones," "Should Club Notes be Published" (sorry, Mr. Editor!), etc., were chosen. Much breath was wasted, but a very pleasant evening passed. A "Question" Night was also held, and many and varied were the questions asked. In the midst of the proceedings someone dropped a valve on the floor. It was shattered, of course (after a second attempt), and a lively discussion on the chemistry of the interior followed.

An unusual stunt was put over one evening, when Mr. Nim Love gave an account of his exploits down at Canberra during the opening. Mr. Love produced a map of the locality, and the questions asked indicated the interest of the listeners. At the conclusion of the lecture we all, I feel, departed with a vastly different idea of this much-talked-of city-to-be.

Mr. Bruce Munro, who has just passed his A.O.P.C. exam., is at present enjoying a short holiday down the Bay, that is, aboard the naval training ship "Marguerite." I suppose that when Bruce returns he will be thinking of nothing but arcs, sparks and commercial traffic—as he is a "sparker."

Most of the transmitting members have installed new piece of equipment in the form of a telephone switchboard. Several of the old switchboards from the Albion Telephone Exchange have been obtained from auction rooms, etc. The shutters and jacks were removed and an ebonite panel substituted, making

a very neat cabinet. The operator then sits up in front of the board like "Jacky" and operates like a telephonist. 4FK, however, will not have one on his mind, as he says that his union allows him to work on telephone material for 44 hours per week. 4LJ uses one of these boards for a bookcase.

Our worthy president, Mr. Kington, has just returned from a short trip down to the land of the 2's, and, as he is down on the syllabus for a lecture on his travels, we look forward with interest to hear of some of his deeds. Verily, our Mr. Kington is a man of travels. Ever since the foundation of our club he has been constantly moving around the country, so his old brain must be full of adventures.

Well, our much-put-off debate with Toombul has had to be put off again. Somehow, a letter from us to 4TC went astray, and we had to postpone the proceedings again. However, as the evening fixed for the event turned decidedly wet, it was a good thing that this was done. I don't wish to startle you, gentle reader, but I have heard a rumour that this debate is to "come off" shortly—but I said that two years ago. However, "One never knows, does one?"

Toombul Radio Club

The attendances at the last few meetings of 4TC have been unusually large, notwithstanding the cool evenings, inclement weather, the better DX season, and sundry counter attractions. Also, new members are joining up almost every meeting night.

The lectures being delivered each meeting night in accordance with the roster drawn up by the technical committee, are proving very interesting to all the members, and there is no doubt that similar lectures will in future be delivered at every meeting of the club.

On May 25th A. E. Walz, who operates Station 4AW, gave an interesting and instructive lecture on "Accumulator 'B' Batteries." Mr. Walz knows his subject well, and at the conclusion of his lecture gave minute instructions as to how to construct an accumulator "B" battery, with the result that several of the members have announced their intention of attempting to construct these useful accessories.

June 1st was set apart as a "Questions Night," when several knotty problems presented by the "newer" enthusiasts were unravelled and smoothed out by the "old hands," and everyone went away from the meeting feeling much more enlightened on wireless matters than when he came to the meeting.

A lecture on "Short Wave Reception" was delivered by the hon. secretary, Mr. T. W. Starkie, on June 8th. Mr. Starkie, whose "ham" name is 4NW, dealt firstly with various types of receivers employed for short-wave reception, explaining, as he went on, the merits and demerits of each particular type. At the conclusion of the lecture the usual batch of questions were asked by "the people who wanted to know things."

On June 16th a debate, "Thermionic versus Mechanical Rectification," was to have been held between

4WN and 4TC, but it is understood that a shortage of technically-proficient men in 4WN's team was responsible for the abandonment of the debate.

The club has decided to spend a week-end at Woody Point on July 9th and 10th. Experimenters are asked to keep a lookout for 4TC then on the 90 metres and 30 metres bands.

The club's transmitter has just been completed, and will be operated on the 90 metres and 30 metres bands.

The club meets every Wednesday evening at club headquarters at the residence of Mr. C. A. Walk, corner Eton Street and Sangate Road, Nundah, and anyone interested is cordially invited to attend any of 4TC's meetings.

The Queensland Radio Transmitters' League

As previously reported, the above league, comprising holders of Amateur Operators' Certificates of Proficiency, has been formed for the purpose of furthering the interests of experimental radio in this State.

To date about eighteen of the 4's have been enrolled, and the Postmaster-General's Department has granted permission to members to handle per radio essential traffic of an urgent nature relating to the official business of the league or any experiments it is engaged upon. This, it will be recognised, is quite an important step, representing as it does, probably the first time such a permit has been issued to any body of amateur experimenters and transmitters.

At the time this is printed the league's first reliability relay will have been completed. This test consisted of the relaying of three messages through members' stations with a view to establishing reliable contact and accurate handling of radio messages. The procedure adopted was in accordance with the International Wireless Convention. Reports as to the result of the relay will be available for the August issue.

One decision of the league is of importance to all short-wave listeners. It is to form a section of the league to be called the Queensland Amateur Observing Station Section, and its object is to enrol all interested short-wave listeners with a view to their submitting to the secretary (OA4LJ), c/o Main Roads Commission, Brisbane) monthly a report as to receiving conditions in their particular portion of the State. Details of atmospheric conditions, weather, time of day or night, signal strength, fading or any other points which will enable the league to draw up a map showing graphically the conditions throughout the State. This work will involve enormous effort on the part of the league, and it is only with the earnest co-operation of the Q.A.O.S. that it will be made possible. It is the first attempt of its kind in Australia other than the map prepared by 3LO in connection with broadcast reception in Victoria. Therefore the league would be glad to receive applications for membership as a Q.A.O.S. as early as possible, so that details can be sent out. No fees will be payable by Q.A.O.S., but it is proposed to issue a monthly bulletin containing all the latest information about the league's doings, together with tips and hints on radio reception and transmission. This bulletin will be called the "Q.T.C." and will be available monthly at threepence per issue.

This is a chance for the short-wave listener and the "near-amateur" to line up with the amateur experimentalist and learn all the latest, as well as to render some really worth-while assistance to those interested in radio generally.

Q.A.O.S. members may attend the league meetings by arrangement with the secretary. Visitors must be limited, owing to our limited accommodation, but two or three each night will be welcome. Ring Central 8420 between 9 a.m. and 5 p.m., or M3635 after that if desirous of any further information or of being present at a meeting.

CAPTURING WAVES FROM THE ETHER.

The importance of using efficient dry batteries and cells in regard to their association with wireless sets, cannot be overestimated. To achieve the best results only the best aids of capturing the waves from the ether should be employed, and it is interesting to note that throughout the Commonwealth the greatest strides have recently been made in the production of batteries and cells, which not only compare most favourably with those imported from overseas, but in most instances even eclipse these articles of foreign extraction. Among the leading firms in Australia specialising in this direction is the Widdis Diamond Dry Cells Pty. Ltd., of 119 Hawke Street, West Melbourne (Vic.), whose products have earned a well-deserved reputation for general excellence. In illustration of this fact it may prove of interest to quote what a representative of "The Australasian Manufacturer" has to say in regard to batteries and cells of this brand. He writes: "I tried out three Diamond dry cell batteries on my two-valve set at home, and found them most satisfactory in every way. In fact, they were more efficient than others I had previously used of American manufacture. The volume of sound given was something like 20 per cent greater than that I had previously been receiving." This is an expression of opinion gained from practical experience and is wholly authentic, and indicates that dealers in wireless accessories and users cannot do better than secure from the Widdis Diamond Pty., Company, further particulars, prices, etc. of these electrical equipment products, which bear upon themselves, and also in practice, the highest hall mark of efficiency—a mark which all wireless enthusiasts know is coincident with and synonymous to "giving the goods"; in other words, the performance of all the duties for which the Diamond batteries and cells have been designed.

ON WEDNESDAY EVENINGS

If you are a wireless enthusiast you'll want to know all about the Morse Code. You'll then be able to understand those wonderful dot and dash messages from the ships.

LEARN MORSE

Mr. H. L. Miller, the well-known wireless expert, conducts our Morse Class every Wednesday night. Whether you are a beginner or whether you already have a working knowledge of Morse, you'll find the course most interesting, instructive and helpful.

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452 Queen Street, (Opp. Customs House).

Atmospherics That Are Not

A source of much Radio dissatisfaction that you can rectify

If an analysis could be made of complaints of alleged atmospherics it is more than probable that a fair percentage of the atmospherics would be found to be "home-made." Troubles from a run-down H.T. battery, to quote one of the most common causes of crackling noises, would never be regarded by the vast majority of listeners as any thing but the genuine thing. Obviously if they are under the impression that the crackling noises are genuine atmospherics then no effort will be made to rectify matters. Unfortunately, it does not always follow that signal strength will go down as soon as battery noises occur; on the contrary it is quite a possibility that a battery will go on functioning for quite a considerable period with sufficient electromotive force to keep the signal strength up to standard. But that is not the only source of interference. On the other hand there are many other faults which make themselves audible in the nature of unpleasant crackling noises. For instance, a break in one of the transformer windings, particularly the primary winding, will produce quite an amount of "atmospherics," but in cases such as this the fault is nearly always accompanied by weak signals. Anode resistances, other than the wire wound variety, can be the cause of very heavy "understorms" in the loud speaker.

Tramway "Atmospherics."

To mention some of the external sources of noise, electric trains, powerful transmitting stations and strictly speaking alternating current mains are often blamed for unpleasant interference. Unfortunately, it is not possible to divert the tramway lines, nor is it possible to "transplant" the powerful arc stations, but it is possible to reduce these noises to a minimum.

Another Form of Interference.

In cases where "live" rails run in close proximity to the aerial to cut down the static noise to a minimum it is essential that the receiving aerial should be at right angles to the source of trouble.

Although those responsible have taken every step to reduce the "mush" from powerful arc transmitting stations it is practically impossible to eliminate altogether this form of interference.

The Difficulty of Eliminating "Mush."

The writer's aerial is situated within a distance of two miles from the giant aerials of a big broadcasting station. "Mush" from this station is still noticeable on occasions, although it has been reduced considerably from what it was twelve or eighteen months ago. Unfortunately, there

is no really effective way of cutting out noises from such a source unless it is by reducing the size of the receiving aerial. If interference is bad, and the receiver is situated reasonably close to the local broadcasting station, by far the best thing to do is to use a frame aerial or a short inside aerial. This will have the effect of reducing signal strength, but on the other hand the interference will be far less and therefore the signals will be very much more pleasant to hear.

A.C. "Hum."

Trouble from alternating current mains usually makes itself manifest in the form of a continuous "buzzing" noise. Fortunately, this form of interference is not at all common except when using reflex circuits. It is often possible to dispense with this interference by using a small condenser in the earth lead by shielding the tuning coils.

Coming back to the accessories; a source which can prove quite puzzling to find is noisiness in the actual valve itself. Valves of this nature are not common, but it does happen on remote occasions with some makes of valves that due to a slight imperfection of the soldering of the electrodes inside the bulb terrible crackling noises occur.

Obviously a listener having a valve of this nature and knowing little or nothing about wireless would be absolutely at a loss to account for the "thunderstorms" which he had experienced.

If "atmospherics" are emanating from the H.T. battery, if the set is still to be used a new source of H.T. will be required. Then take the case of a break in one of the transformers. The only remedy for this of course is a replacement.

From whatever source these noises may be produced it is quite safe to say that reception is absolutely spoilt by their presence. Therefore the next time out-of-season atmospherics trouble you, disconnect the aerial when, if they are genuine atmospherics, they will cease. This simple test will prove whether the noises are due to faults in the receiver or whether they are originated from an external source.

A comprehensive range of new radio parts is illustrated in the new, attractive, two-colour folder produced by Electricity Meter Manufacturing Co., Ltd. Such things as balanced sockets, Emmcostads Stratelyne condensers, illuminated back panel dials, Midget transformers, etc., are described fully in this little eight-page pamphlet. A full page is devoted to the Emmco B eliminator, which is an entirely new product and is meeting with great success. There are three different kinds of transformer, and three different kinds of dial shown, in addition to several of the standard lines which have always been a feature of Emmco. Copies of these Emmco pamphlets are obtainable from all radio dealers.

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From the far North of England to the South of Tasmania Brandes products are renowned. The continued increase of satisfied customers demands your attention. ¶ When planning the new set use Brandes Condensers, Transformers, Speakers.

Now! Brandes show the way. The Cones are fitted with an output filter, something no other speaker has.

Brandes Condensers .0005 .0003 30/-
Transformers 27/6, Table Talker 45/-
Table Cone 70/- Brandola 90/-
The Ellipticone 130/.

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200 Castlereagh Street, SYDNEY

What is the Ideal Receiver?

(By "Ray Dio.")

This well-worn question is still being asked. And it will be asked for a long time to come, just as purchasers of gramophones query their friends as to the best gramophone to obtain.

The answer to the question frequently puzzles wireless traders and set owners; and the hesitancy in readily answering the question often creates the impression in the mind of the questioner that his trader or wireless friend does not know much about it after all. As a matter of fact, it is the very possession of knowledge of the subject that causes the friend to pause before replying. To answer the question outright is a great mistake.

Many Factors Involved.

There are many factors to be taken into account before the question can be answered adequately. The matter of finance—how much is the questioner willing to pay? the location of the proposed set; the desires of the would-be listener—whether he will be satisfied with his local station or whether he wants to play radio golf and play round all the stations—these and other points have to be ascertained and kept in mind.

Broadly, we can divide the listeners into two main groups:—(1) Those in the metropolitan district; and (2) those in country districts. The factor of selectivity is not a serious matter for the listener out in "the bush" when compared to a listener five or ten miles from 4QG Brisbane. We can safely assume that both express a desire to listen to inter-State stations.

Advantages of City Listeners.

The metropolitan listener has one big advantage not possessed by his country cousin—that is the availability of electric power supply. The country listener finds great difficulty in getting his "A" batteries charged and consequently is forced to operate a set which depends on dry batteries for its current supply. That means, in the average case, increased cost of maintenance.

The city listener possesses a second advantage in the greater volume he receives from the station. That enables him to get his programmes—from the local station—through the static. The volume is greater than the static. His set however, must be more carefully constructed and operated, so that he can get the distant stations without interference from the strong signals of the local station.

No Batteries and No Aerial.

Where a reliable source of electric supply is available and assuming the listener is prepared to pay for efficiency and convenience, the ideal set is the one which dispenses with the necessity for an aerial and troublesome batteries. When we refer to "no aerial," it is to be understood of course that there will be no external aerial. The set cabinet may have a contained aerial or a small frame attached to it.

A set of that description will generally be a super-heterodyne, or a multi-valve—from six to eight valves.

The absence of an external aerial is a great convenience and is a decided advantage in freeing the listener from interference produced either by static or by other stations. Such a set of course is an expensive one, costing from £50 to £100.

Eliminating Batteries.

The absence of the batteries would be appreciated by all of us. The supply of really efficient "battery eliminators" is now a regular thing in up-to-date shops. It is very convenient to plug into the house lighting supply—at the power point—and run the set regularly without having to test or renew "B" batteries, or have the "A" batteries recharged. These equipments, too, are expensive items.

Simple and Easily Controlled.

Limiting the controls to one or two knobs is highly desirable, and many good sets now have this advantage.

The loud speaker should be carefully selected to fit in with the set—not only electrically, but from a furniture point of view.

Lastly, the important point in an ideal receiver is faithful reproduction—sufficient volume and faithful clarity.

GOVERNMENT BROADCASTING.

The most important news in the wireless world is the establishment of a Government station for New South Wales. This marks a new departure in broadcasting.

It is, at the moment, uncertain how such a station will be run. It has been described as a class "A" station by Mr. Lang, which, if true, would entitle it to broadcast programmes and share in the license fees with the two "A" stations already on the air.

The interesting query arises—"In what particular direction will a Government station be used? The government in power will, of course, have the right to use the station for propaganda, unless the prohibition against politics is enforced. As the station must of necessity come under Commonwealth control, Commonwealth regulations must prevail, with all its restrictions and prohibitions.

Deprived of political broadcasting, to what will the new station be reduced? To bedtime stories told by Mr. Lang to young electors—stories about the wicked ogre Mutch who eats little children? Stories about what happened to the children who tried to find their way through the dark wood of politics? It is interesting to speculate. If propaganda can be shot through the air, we may expect interesting statements by Labour, as long as it is in power, relating to the wicknesses of Nationalists. Each election will really be fought for the possession of the machinery of propaganda, the most powerful ever devised. The whole situation is full of interest, especially as a big fight is foreshadowed between State and Commonwealth rights,



Phone transmissions on the short waves seem to be the present vogue and chief topic of the day. Probably inspired by the splendid stuff put out by 2XAF, 2XAD, 2XG, PCJJ, etc., a number of hams have been trying to do better with their own Xmitters. I haven't heard of anyone exceeding the quality of either 2XAF or PCJJ yet, but some really creditable phone comes from Australians 2TM and 5WH occasionally; also from VS-1AB (ex SS-2SE) at Singapore. A few locals—4CG, 4HG and 4RB have been heard very strongly on 32 metres, and with a little more improvements all round they will threaten even 4QG's wonderful clarity. Other stations heard on phone include NU-7RL (on 20 metres), Jap.—1TS, Aussie 2SS, 2RC and 5BW.

It has been prophesied that within a few years all the B.C. stations will be operating on the short waves, but I think myself that the "prophets" who say this are those kind of chaps who always get themselves into trouble through jumping at conclusions. Although the American 2XAF and the Dutchman PCJJ are received here with every quality desirable, very unfavourable reports come from listeners within a 200 to 2000 mile radius of these stations, claiming distortion and extraordinary fading. This, therefore, puts the "kibosh" on the use of short waves for inter-State broadcasting.

A new arrival on the air is 4WA. His note needs a lot of improving, even though it does come from a M.G. outfit; nevertheless, it is only his first few nights on the air, so a big difference is to be expected soon. The op. is an ex-A.I.F. "Sigs." man and is certainly no novice on the key.

4DO has been back at his QRA since February but as he has been kept busy managing a couple of theatres in Rockhampton we haven't heard much of him since his return from Sydney. He expects to be on the air fairly regularly now, as soon as he can get some decent filter condensers.

4MN has now got a "7½ watter" on the job, hooked onto a bunch of "shop" rectifiers which are "recting" O.K., after a few weeks forming.

4GO is re-building. He has finished making a 2,000 v. transformer and most likely has something in the way of big "toob" up his sleeve.

4RB is now using a 201A in the 'mitter with 250 to 300 volts on the plate. He reports working over a dozen yanks, a few Canadians and Jap-1SK with it.

4HW is building a crystal controlled outfit. He has an English 75 metre crystal and intends to work on its fundamental (37.5 metres).

4JG is putting out a nice signal.—Plenty of strength and a good R.A.C. note. A similar report also fits 4FK who has been working plenty of DX lately.

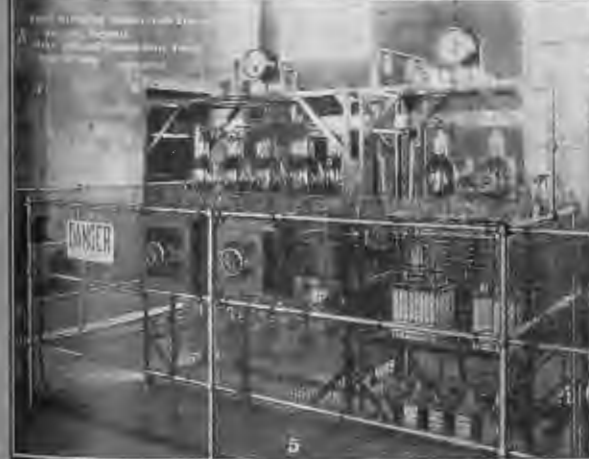
4LJ is fairly strong but has rather a "squashy" R.A.C. note which does not seem too favourable for DX.

4CM's T250 tube is still standing up well on the job. He has got his 200 cycle alternator in this month and has improved his note quite a lot by using a sort of frequency trap in the grid circuit.

4AB has improved since last hearing him. He has a very good note and a strong steady signal now.

4AW is using a couple of those new Mullard DUO's which are, by the way, rectifier tubes for charging B batteries. He says they work fine for "recting" the H.T. for a 7½ watter and pass plenty of current. Bright emitter receiving tubes, with the grid and plate connected together are not bad for rectifying high voltages but of course, their regulation is very poor and they won't pass more than 20 miles each. The 201A or other thorium coated filament receiving tubes are no good at all for rectifying high voltage or moderate currents as using a 201A in a test with 500 volts A.C. to be rectified; drawing 40 milliamperes the output was approximately 350v. R.A.C. which remained constant for 10 minutes, the current and voltage then began to drop rapidly to nearly zero. It was found that the tube was quite cool showing only the slightest signs of heat, yet the thorium had been practically stripped off the filament in a period less than 15 minutes. The tube was then re-activated with a 1 minute "flash" (15 volts on filament) and with a 10 minute "aging" on 8 volts, restoring it to normal life again. There are however several types of dull emitting tubes specially designed for rectification purposes and these are equally as efficient as the bright filament variety provided the manufacturers rating is not overworked.

The Tuned Grid and Plate circuit is one rapidly becoming popular all over the world. It is a little harder to adjust than the Hartly and Calpitts' Circuits but it is really worth the little extra time. The input current can be kept amazingly low with maximum aerial radiation thereby increasing the efficiency; and for stability on short waves its the next best thing to crystal control. Far still more efficiency, a better note, a high as possible, resistance grid is favoured. A good investment is a non-inductive variable leak. The only make selling in Brisbane, present, is the "Electrad-Royalty" retailing at 1/6. These are made in several different sizes but the type "B" 1,500 to 100,000 ohms should suit all transmitting tubes.



BEAM WIRELESS

Darge—Photos.

Some interesting photographs from the Beam Station at Ballan (Victoria), completely described in our last issue.

- (1) Towers supporting English aerials and reflector in foreground; Canadian aerial and reflector in background.
- (2) Transmitting Station; portion of power control panels.
- (3) View of aerial feeder system and aerial balance weights.
- (4) Power generating station.
- (5) High tension thermionic valve rectifiers.
- (6) Central Radio office Melbourne, in direct communication with Central office London.

Put a Power Audion

in

Every Socket

Radio's sensational development has seen nothing more startling than the new de Forest Audions the latest development of Dr. Lee de Forest.

Now for the first time an American Audion can be purchased to suit the circuit.

Replace your older type with the DL4. Don't take our word for it, try them yourself. The decided improvements you will get will fully justify for same.



DL9, DL4, DL5
DL15, DL7, DL14
DL3.

Dealers! we require agents everywhere

INTERNATIONAL RADIO CO. LTD.

200 CASTLEREAGH STREET, SYDNEY.

July Features from 2FC.

ALFRED O'SHEA.

Alfred O'Shea, Australia's foremost tenor, will appear next at 2FC Studio on Friday, 1st July.

A REAL BRAW SCOTCH NIGHT.

Will be heard through 2FC from the Rockdale Society's concert, to be held in Rockdale Town Hall on Saturday, 2nd July. The artists include Miss Peggy Dunbar, Miss Mabel Batchelor, Charles Lawrence, Alfred Cunningham, and others.

ANOTHER MEXICAN NIGHT.

Madame Consuelo de Aldag, in response to numerous requests, will give another lecture-recital on Mexican costumes and music, from 2FC Studio, on Friday, 3rd July. Miss Annie Payne will give vocal demonstrations.

JULES VAN DER KLEI.

This noted Belgian 'cellist will be heard from Station 2FC on Sunday night, 3rd July, in association with Raymond Ellis, who will include in his programme works with 'cello obligato.

ORPHAN'S WAIL.

The next Wail will be held at Warringah Hall on Monday, 4th July. As this is American Independence Day, Madame Evelyn Grieg and Madame Vera Alma have collaborated in an American programme of typical music, including negro spirituals, folk songs, etc., which will be presented from 2FC Studio.

CYRIL MONK.

Cyril Monk is arranging a students' recital from 2FC Studio on Monday afternoon, 4th July.

NOVEL BOOK COMPETITION.

2FC has hit upon rather a happy idea in their book competitions. The announcer, between items, will find a favourable opportunity of reading a paragraph or two from a well-known book—fiction, literature or poetry, and a copy of the book will be given to the listener whose correct solution is opened first. Quite a number of well-known volumes will be awarded in this way. The competition starts on Monday night, 4th July.

CHARLES RENTON.

This popular comedian from "Sunny" has been booked for a series of engagements with 2FC, commencing 6th July.

W. F. KAY.

This artist's stage reminiscences are of such interest that he will speak on "Behind the Scenes" on Wednesday, 6th July.

RAYMOND ELLIS.

Returns to Melbourne at the beginning of July to fulfil engagements there, but he has still to make four appearances at 2FC before his departure. These are set down for 28th June, 3rd July, 12th July, 19th and 25th July. An opportunity will be taken by Mr. Ellis to present a Yiddish night, a popular comic opera

night, an operatic night, and a night devoted to old English songs. His farewell appearance will constitute a request night.

NEW ARTISTS.

Some more 3LO artists to be heard from 2FC include J. Alexander Brown, from Melbourne, and the English Futurists, who have just completed a long season with the southern station. Some well-known artists are included in this combination, such as Cyril Northcote and G. W. Desmond.

"MADAME POMPADOUR."

The success of the transmission of "Pompadour" on Saturday night, 11th June, was undoubted. Elaborate preparations were made by the 2FC Studio to broadcast excerpts from the first and second acts. Through special arrangements being made with J. C. Williamson, it was possible to allow this production to be heard during the first week, and it is doubtful if a more satisfactory transmission has been given from the theatre. Officials from 2FC Studio visited the play until the whole production was thoroughly known, and correct timings were made of the various numbers. Before the show commenced, an intimate and interesting talk was taken from the dressing-room when Beppie de Vries and Frank Webster, the two principals, told of their experiences. Just before the overture the story of the opera was given, the overture came on to time, and the first two numbers were heard before a break was made. The crossing over from the microphone in the dress circle to the one behind the stage was done very cleverly, and the dialogue, although not put on the air, was described to listeners. The wait until the next item was filled from the studio, and the minute before the beautiful duet, "By the Light of the Moon," was due, a few words told listeners what had happened in the interim. The duet came through most successfully, and was cut off as the applause commenced. And so on through the night, the cream of the production was skimmed for the benefit of listeners. The success of the transmission has been such that in response to numerous requests, similar broadcast performances will be given on 8th July.

DR. HENRY.

This much-travelled and very interesting person will give from 2FC Studio, during one of his short stays in Sydney, a vivid description of "The Streets of Japan," on Friday, 8th July.

ORGAN RECITALS.

Permission has been granted by the Sydney City Council for 2FC to present a series of Monday midday recitals given by the City Organist, Ernest Truman. These will commence on 11th July, at the conclusion of the present series being presented by Dr. Charles Jarman from Christ Church, S. Lawrence.

"THE SPARKLERS."

Rus Garling and his scintillating band will make their second appearance at Studio 2FC on Saturday, 9th July. The artists include Wilfrid Thomas, Miss

Peggy Dunbar, Miss Maida Jonas, Ernest Archer, Charles Lawrence, and Brunton Gibb. Mr. Rus Garling has been asked to repeat his burlesque on the 2FC Racing Commissioner, which was so screamingly funny.

2YA WELLINGTON.

This station is due to commence operations on their 5-kilowatt power on Saturday, 9th July. A message of greeting will be sent from 2FC, and if the reception is satisfactory a relay will be given between 7.30 and 8.0 (9.0 and 9.30 New Zealand time).

ROYAL SYDNEY APOLLO CLUB.

This club will be heard in their next programme, through 2FC, from Beale's Concert Salon, on Monday, 11th July.

NEW ARTISTS AT 2FC.

Alison Dale (soprano), who will sing on 11th July; Edee Sinnotte (soubrette), who has done good work with Billy Maloney's Revue, who appears on Tuesday, 12th July; Joyce Frew (the blind student), who, studies under Gordon Lavers, and who has gained her L.A.B., will give violin solos on Wednesday, 13th July; Lorraine Jarman (soprano) will sing from the studio on 12th July.

MERYL HOLLIDAY.

A contralto whose pleasing voice has been heard regularly through 2FC, and has been chosen as one

of Fortune's favourites. She is the happy recipient of a Melba scholarship, which carries twelve months at the Melbourne Conservatorium entirely free tuition. Good luck to Miss Holliday, who goes to Melbourne with many pleasant recollections of her work in Sydney, not the least of which is her association with Station 2FC.

RADIO REVELS.

Laurence Halbert and his Revellers will trip lightly heartedly through the programme at Studio 2FC on Saturday, 16th July. Listeners are always asking for something new, and the "Radio Revels" is indisputable evidence of Mr. Halbert's desire to fill this long-felt want. The artists include Wally Baynes, Gwladys Fimister, Peggy Peat, Shirley Cooke, Percival Spouse. Perhaps Mr. Halbert may be induced to sing "The World is Waiting for the Sunrise."

SYDNEY MADRIGAL SOCIETY.

The Sydney Madrigal Society will be heard through 2FC on Thursday, 14th July, from Palings Concert Hall. There is no doubt choral work is one of the popular items on the air—and by "popular" we mean it is acceptable to high-brow and low-brow alike.

DR. HAIGH.

Dr. Haigh's recital from St. Andrew's Cathedral will be given on Sunday, 10th July. This brilliant organist has already given much pleasure to 2FC listeners.

We're Proud of this ~

A correspondent writing to us on June 19th, said:—

"You will allow me, please, to thank you for your various services, because I am aware that, even if your business is that of selling books, there is behind the business a love of the printed word as apart from its sale."

This letter gave us great pleasure—and it is true. It is one reason why, though it only the two-year-old baby of a firm thirty-six years old, the general department of our business is finding as warm a place in the hearts of the general public as the educational department has had for years in the hearts of members of the teaching and allied professions.

Our first two by supplies of that great book by Col. Lawrence, "THE REVOLT IN THE DESERT," are quite sold out, and a third (that we had to cable for) is getting well booked up. This book is hailed in England as the book of the year. It is beautifully produced and costs 30/- (the English price), postage 1/-.

A popular book will be F. F. Foster's "CONTRACT BRIDGE." Contract for the new development of Auction that is now all the rage in England, America and the Continent. This is the first complete book, with rules, that has been published. Price 4/6 (postage 4d).

We have now opened new supplies of the following good books that are now in great demand:—

Dorsey—"WHY WE BEHAVE LIKE HUMAN BEINGS." 16/- (postage 8d).
"THE GENTLEMAN WITH A DUSTER"—"THE HOWLING MOB." 6/6 (postage 4d).
Tressall—"THE RAGGED TROUSERED PHILANTHROPIST." 3/6 (postage 4d).

Cobham—"AUSTRALIA AND BACK." 3/6 (postage 4d).
Fowler—"DICTIONARY OF ENGLISH USAGE." 10/- (postage 8d).

Osborne and Lloyd—"THE SECRET OF HIGH WAGES" 4/6 (postage 4d).

Joynton Smith—"THE STORY OF MY LIFE." 6/- (postage 4d).

I shall be happy to add your name to our mailing list, and to keep you posted on new books as they arrive.

W. A. Bracken

GENERAL & TECHNICAL DEPARTMENT.

A. McLEOD Brisbane's Best Bookstore
107 ELIZABETH STREET **Brisbane**

The Premier's Papers

A Radio Story

(By "Flexmore.")

"I most strongly urge you to stop the practice at once, Mr. Shaw. Since that young Bright has been permitted to introduce that noisy affair all semblance of order has left this office, and the verandah is turned into a very low-grade ballroom by all the irresponsible—"

"Now, now, Mr. Partley, I'm afraid your-er rather serious views of life lead you to rather a too drastic judgment. Still, of course—" William Shaw (Under Secretary to the Queensland Department of Home Affairs) relapsed into the serious expression that had momentarily been relieved by a slight smile. "We must have decorum, I suppose, even in the lunch hour, I will leave it to you to issue instructions to discontinue the use of the wireless receiver Bright has been operating for the staff during the lunch hour."

Partley's thin lips worked nervously for a moment before he said: "As I am in such close contact with the staff, Mr. Shaw, perhaps it would be better if you were to issue a memo direct. Young people are hard enough to control these days without risking the—"

While recognising Partley's wholehearted devotion to duty, Shaw sometimes hated the man, upon whom, however, as the head of the office staff, he had so much to rely.

Partley was a good man. A real solid, honest-to-goodness advertise-it-yourself good man; whose Bible was the biggest, and sermons in the local church when he officiated, the longest.

And the iniquity of the world, and particularly the state of happy Australian boys and girls he controlled, had caused his eyes to become permanent seekers for wrong—his mouth constantly murmuring bitter accusations against someone or other.

"Alright, send in Miss Aylward and I'll issue a memo."

"Thank you, sir." Partly rarely smiled, but there was a distinct air of satisfied malice as he left the Under Secretary's room, silently closing the big cedar door which led to the general office, and looked across to the desk where a young man was busily engrossed in searching some voluminous piles of papers, without which no Government officer's desk ever seems complete.

Ben Bright, radio experimenter and amateur crime investigator, the most popular chap in the whole block of Government offices, looked up for a moment, and catching the faintest glimpse of the hurriedly removed gaze of the pleased Partly, leaned over to his neighbouring worker and said:

"Old Cheerful's got a bombshell for me, I'll wager. He's just been in with the old man, so I suppose we'll have another example of Christian kindness somewhere in the next 24 hours. Hullo! There goes Peggy Aylward into the old man's room. There's something going, Oscar."

Five minutes elapsed and, Partley being temporarily absent, the big door opened again, and Peggy Aylward, very sweet of face and disposition, but now with reddened angry look, came back and made straight for Ben's desk.

"That pig of a Partley has complained to the boss that we make such a noise in the lunch-hour that I've got a memo here to issue that prohibits us using that

lovely wireless set you made for us all, and that we've been dancing, too, on the verandah. Fancy, for Heaven's sake, too much noise—with only ten of us dancing, and a stone verandah right away in the quietest corner of this big block of buildings. That man wants his neck wringing—"

"I just told Oscar that we'd have some more Christian kindness soon, Peg, old girl. Oh, well! leave it to me. We'll have to stop, I suppose, and go hanging round town again in the lunch-hour instead of all really enjoying ourselves together with the music and dancing that we get from the old set. But—he paused a moment—sure it's Partley?"

Further conversation was curtailed by the arrival of the unpopular Partley himself, and the air was electric most of the afternoon as he went to and fro amongst the incensed staff.

Five o'clock came at last, slowly as that hour always is in arriving, and one of the first persons Ben met in the street was his old friend, Detective-Sergt. Malone, who had good cause to thank Ben for his assistance in several cases which had caused the police much worry until Ben's wireless knowledge and gear had been brought into play.

"Well, how many burglaries to-day?" Ben's happy smile was no less cordial than the sergeant's as he grasped the outstretched hand.

"If there's not a few more soon I'll be up looking for a job. I've been trying to find time to see you these last few days. Come on and we'll have a little nourishment while I tell you all about it."

The name of Scott which marked the finest hotel in Queensland was noted for its pure liquors, and the sergeant and Ben were soon seated at a small table in the spacious lounge in a corner which offered considerable privacy.

"We've got something in hand that's proving a bit of a poser. I know there's no need to bind you to secrecy, as you already know it's important, but you'll realise the absolute necessity of it when I tell you the case concerns the very office you work in."

Ben was frankly astonished, and showed it.

"The facts are these. Since Labour was defeated at the last election, and the coalition of Labour and Independents have been more or less running the State, McGrath, the Premier, has been at much pains to keep all well with the Independent members, whose support of course is necessary for him to secure a majority vote in the House. Now, these Independents—as I suppose most right-thinking men can see—are nothing less than a lot of faithless Labourites, who, now that the evolution of time and conditions has made the straightout Labour policy so difficult to administer, have got together and are definitely out to vote anywhere that will bring them personal advantage and kudos. The fact that two or three of them are prominent in anti-liquor movements lends some stamp of respectability to them, but, privately, I know that they are as hypocritical in that direction as in most others.

"Now, as you know, the next year or so is going to be very hard on McGrath. He's a good man, old

(Continued on Page 49.)

*Even the finest notes
of the violin—clear
clean—undistorted*



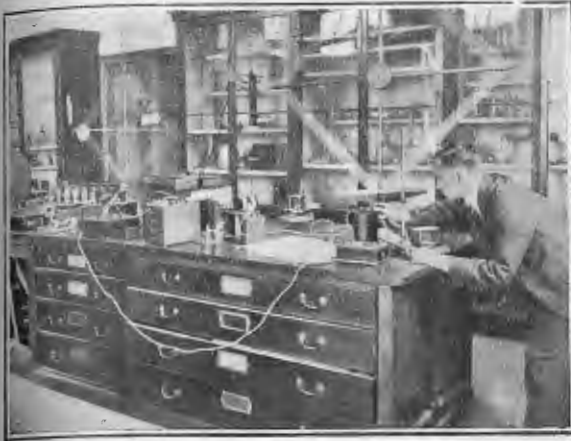
JUST as you would hear the artist were he before you, so you are sure of pure radio enjoyment, with every fine note and intonation amplified to its true strength, with "Condor Valves."

Made by the Makers of "CONDOR LAMPS"

CONDOR LAMPS (Australasia) LTD.

Sydney, Melbourne, Adelaide, Brisbane, Wellington (N.Z.)

A Page of Interesting Photographs



SOLVING THE FADING PROBLEM.

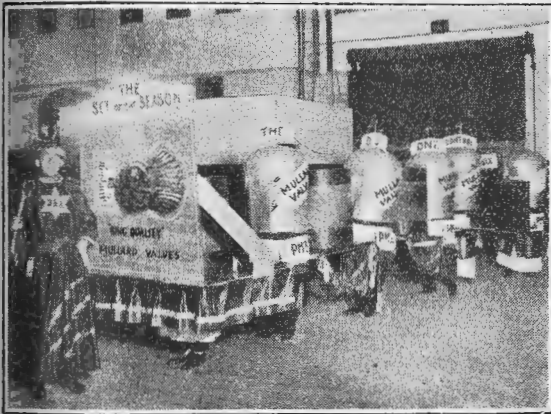
Mr. R. O. Cherry, who has been appointed by Professor Laby under the grant made to the University by 3LO to conduct research into the causes of wireless fading, is here seen calibrating the portable receiving set with which the signal intensities of the broadcasting stations have been measured.

The apparatus is collapsible and can be carried on a motorcycle.



3LO'S NEW STUDIO.

One of the two beautiful new studios at 3LO. Seating accommodation is provided for the public. Thus applause is usually heard at the conclusion of each item from 3LO.



HUMAN RADIO SET.

The intrusion of wireless into everyday life found novel expression recently at the Palais Royal, Sydney, when a brilliant ball was held by the employees of David Jones Ltd., to commemorate the 89th birthday of the firm.

The wireless department staged a spectacular representation of a wireless set. The whole effect was carried out by nine members of the department who formed themselves into their Super-Six Neutrodyne wireless receiver. The six Mullard valves were each carried by a member of the department, who also carried portion of the chassis, thus forming the whole instrument. This set was led by Mr. Basil Cooke, M.R.S., the manager of the department, who represented "The Spirit of Radio." The set as illustrated won first prize.



3LO'S TELEPATHIC TEST.

Counting and sorting the huge mail that deluged 3LO for days.

THE NEXT RADIO PLAY FROM 4QG.

"Careers" (Michael Croger), on July 21st.

On Tuesday, July 21st, "Careers," a new and original comedy by Michael Croger will be broadcasted for the first time. The play—for it is a play, not a musical comedy—is described by its author as a "comedy of manners." It is a domestic comedy that treats of incidents which might have occurred to the members of any well-regulated family, provided they had a sense of humour. But, although it is not a "musical" comedy, some examples of the musician's art necessary to the action of the story have been introduced. These, however, are very few—the author tells his story entirely by the spoken word—but what there are of them will be sung by Erich John's Radio Vocalists. The play will be produced by the author.

The
**National
RADIO
Exhibition**

New Hall, Olympia
LONDON - ENGLAND

**Sept. 24th
to Oct. 1st
• 1927 •**

Open each day 11 a.m. to 10.30 p.m.
~ [Closing Saturday, 1st October, at 10 p.m.] ~

*All Exhibits will be of British
Manufacture*

BAND DAILY ::: (H. M. AIR FORCE) ::: DANCING

*New designs and latest Improvements in Receiving
Apparatus and Components*



TO ALL MY LITTLE RADIO PALS—
Aerial Avenue
Radioland.

Dear Sweethearts,—

Just another short letter from your old "Uncle Ben" with the hope that you are still as good and happy as ever. My word, it seems quite a long time since I wrote to you for this page, doesn't it?

The days and nights are now quite cool, and I don't think mother has a very hard task to pack you off to "Bunky-doo" these chilly evenings. In fact, I know quite a lot of children who listen-in to the bedtime stories beneath the blankets! Isn't that a jolly good idea? If daddy has a long cord on the loud speaker, ask him if he will bring the speaker into your bedroom. Its such fun listening-in in bed.

How welcome we find the warm sunshine these days! Do you know that children can be little rays of sunshine bringing warmth and happiness into a world that is oftentimes cold and dark. Everybody loves a happy boy or girl and nobody loves a grumpy, cross old. Remember this, and be kind, good and happy and you will always have plenty of true friends.

I suppose by this time you are becoming quite used to the new arrangement at 4QG, whereby "Uncle Jim" tells the stories on Tuesdays and I on Saturdays. I miss Tuesday nights very much, but it had to be, because I have lots of other work to do besides telling the stories, and I really cannot find time to do it all.

On this page you will see a photograph of "Uncle Mike." Now, you are going to love "Uncle Mike" very much, because he is really a dear chap, and he is a very "hard case."

Well, sweethearts, I think that will do this time. Thank you all for your welcome letters. Keep writing—for I simply love to read your little messages.

Now cherrio sweethearts, good-bye little ones! CHERRIO!
GOOD-BYE!

Yours fondly,
UNCLE BEN

FIND THE MIS-SPELT WORD.

"Uncle Ben's" Competition.

On this page is printed a mis-spelt word. Read every word carefully, and see if you can find it.

When you do discover it, write it on a piece of paper with your name and address, put it in an envelope addressed "Uncle Ben's Competition," Queensland Radio News," Box 1095N, Brisbane.

The first envelope opened containing the correct answer will be awarded a prize of 5/-, and the second a prize of 2/6.



"UNCLE MIKE."

A newcomer to 4QG's bedtime story staff. His ready wit and pleasing baritone voice are quite an asset to "Uncle Ben's" Saturday evening session.

RESULTS OF GRANDFATHER'S COMPETITION.

None guessed quite correctly, but two guessed within one name. These are:

Mavis Manser, 7th Street, South Townsville;
Doreen Baker, Howie St., Eagle Junction;

and "Grandfather" is giving an extra first prize. The second prize, after drawing from fifteen who missed two names, goes to

Florence Wilton, Diamantina Hospital, Ipswich Road.

There were a great number of children entered, and besides those from the suburbs of Brisbane and nearby towns, there came entries from Victoria and New South Wales, and from Maryborough, Townsville, Clifton, Allora, Goomburra, Beenleigh, and Ipswich in Queensland. Some time later "Grandfather" may give the children another competition—"Buried Animals and Birds of Australia."

CORRECT SOLUTION.

BOYS' BURIED, NAMES.

- (1) You will, I am sure, take Lancelot to the party.
Names: William, Lot, Otto.
- (2) Mother, Bert says he likes all the jam, especially the plum.
Names: Herbert, Eli, James.
- (3) He may be rich because a man drew money from the bank for him.
Names: Eric, Andrew.

GIRLS' BURIED NAMES.

- (1) If ever you see my racket tell them I lost it a week ago.
Names: Eve, Myra.
- (2) She was filled with dismay as she arose from the ground after falling.
Names: May, Rose.
- (3) They sell engagement rings, and they do rather a good trade with others as well.
Names: Ellen, Dora.

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"THE PREMIER'S PAPERS"—(Continued).

Silent McGrath, who will not let his own ends stand in the way of doing what he feels is right for the State's good. And the fact that some very serious reorganisation is badly needed in many Government departments, where five men are now doing the work that could be handled comfortably by two, and taxation is needed particularly amongst idle wealth, where it can most be spared, is going to force the Premier to endeavour to promulgate some measures in Parliament which, if not engineered through before the Independents have time to fully realise the undoubted unpopularity that those responsible will suffer for a time, will never be passed, as the Independents will most surely swing over to the Liberal side against McGrath.

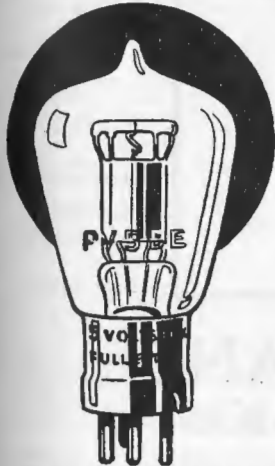
"Now, there's no man McGrath trusts more in Government service than Shaw, your boss, and you'd be surprised to know just how much Shaw has had to do in the framing of those measures that have up to now been passed. Before a Bill is given to the Cabinet for consideration it has been discussed, arranged, and thoroughly talked out between McGrath and Shaw and the Premier feels that when Shaw leaves him any information he had gained is as if sealed in a steel vault of impregnable strength.

"But a leak's developed!" As the sergeant's voice dropped still further, Ben leaned closer across the table, tense with interest. "Last week McGrath went into the preliminaries of a Bill for the readjustment of railway freights on luxuries. Shaw took his notes to his office and locked them in his desk, meaning to carefully go through the mass of detail it was necessary to at first arrange methodically. The very next morning, Whitty, the Independent leader knew the whole plans from A to Z, and rang up McGrath and warned him that he would never gain the votes of his section of the House with such a measure.

"McGrath was dumbfounded and terribly annoyed, of course. Shaw has been nearly off his head. We have probed every possible avenue, but cannot find even a small clue to show who it was, or what means were employed to obtain the information for Whitty. All you boys and girls in the office have been the objects of investigation as to your movements for the past week, but we have candidly found nothing. Shaw's desk is stoutly built, and all locks are strong and untampered with. No fingerprints are to be found on it, but his own. We have examined every possible corner of the Premier's office for hiding places where someone might overhear a conversation, but none exist.

Twice since then Shaw has made a great show of consulting the Premier, and then brought back papers to his office, which he has locked in the same drawer of his desk. We have then kept his office under strict surveillance day and night, secretly of course, but nothing has occurred to give us any help. On the papers were fake plans of suppositious Bills, but no sign from Whitty shows that he has been advised of them. Now, do you think you can see a ray of light anywhere?"

Ben relaxed back into the chair with knit brows, his mind busily running over the information he had just received which so deeply concerned all his fellow workers.



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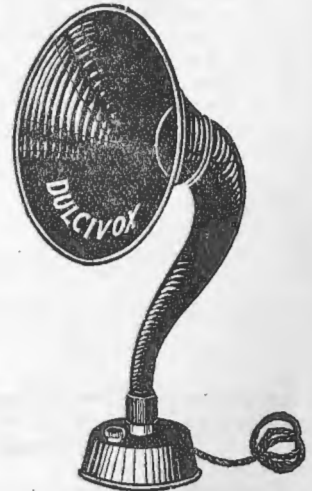
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"THE PREMIER'S PAPERS"—(Continued).

And then in a moment! "I'll bet it's not Shaw that's crooked, Sergeant!"

"Well, that's what I think, Ben. But Shaw is the only man in possession of the information, and it gets out. Now, Shaw is a married man with two sons and a daughter, all now grown up. Did Shaw tell his wife, in hearing of the daughter, who foolishly told her young man or did—well, there's a hundred ways it might have come out, all leading in the first instance from Shaw. It's a fair poser, so far."

The two men sat in silence a moment, considering deeply.

"Well, Sergeant, I'm afraid my old wireless apparatus is right out in the cold this time, and I'll have to resign here and now as far as wireless helping you is concerned. But I'll keep my eyes and ears open in the office and let you know anything I hear."

"Thank you, Ben. We need help in the matter badly."

* * * * *

"Good mornin', young Bright. I'm glad you come in early. I've got to wind that clock over the door in Mr. Shaw's room, and it fair makes me old knees quiver climbin' up on that chair and reachin' up. Eh! You'll do it? Thank yer, my boy. I'd better come in with yer, though, case that Partley sees us. 'E's been tryin' to get me put out o' 'ere this last twelve month, but although I'm gettin' old nobody won't better caretake this place than what I've done this 30 years past."

Ben smiled at old Stewart, the caretaker, as he chattered along, and picking up a chair, he opened the big door that led into the Under Secretary's room and entered the spacious office, heavily carpeted, with well-filled bookshelves along two sides of the room, a big photo of the former Under Secretary on the wall between the two windows that looked out towards the adjacent river, and another heavy door, rarely used, that led immediately to the passage.

Over this door was the clock which it caused old Stewart so much distress to now wind, owing to his uncertainty on his legs, when standing on the chair, and the strain of reaching up to operate the winding key.

Ben regularly came in early on Monday mornings to help the old chap in this little duty, and was consequently no less popular with the garrulous caretaker in consequence.

"Get all your work finished on Saturday afternoon?" prattled on the old man. "Fer Heaven's sake don't breathe a word that I let you in. You know how strict the orders is about overtime work unless a whole department is working back, and that Partley'd have his way at last with me if he found out."

"That's all right, Stewy, old son," replied Ben. "I unfortunately got a bit behind in my work, and Partley would just as much like to get me out of here if he could. Never mind, that hour quietly here on Saturday squared everything up and I'm right up to date now. There you are, now. There's the clock right for another week."

"God bless you, my boy. Thank you very much; thank you very much." And out he went, duster in hand, mumbling away to himself.

The office gradually filled, and punctually at 9 the methodical Partley arrived, closely followed by the chief who, following his usual practice, walked to his room through the general office with a pleasant "good morning" for the staff.

Partley, the morning's mail in hand, followed the Secretary, and again appeared half-an-hour later to set the typistes fingers busily operating. A bell rang, to be answered by the boy, who came back to Ben's desk, and announced:

"Mr. Shaw wants to see you in his office."

Ben rose, and in a moment was standing at his chief's side.

"Mr. Bright," the Under Secretary finished writing as he spoke, and looking up continued, "I issued a memo instructing you to cease the operation of your wireless set in the office during the lunch-hour. I believe that it has not yet been removed. I want that done at once, please."

"It has not been used since your orders were received, Mr. Shaw, and as it is collectively the property of the whole office staff out there, it has not been in my province to move it without their instructions. I believe they were hoping"—Ben spoke in firm but respectful tones—"that you might be persuaded to reverse your decision with regard to the harmless entertainment it afforded."

"No, Bright. I confess that it did not cause me any worry, but there are others in authority here whose wishes must carry some weight, so please arrange to have the set removed as soon as possible, and on no account must it be heard in operation again here. Thank you"—and the writing was resumed.

Ben returned to his duties and directly Partley went out, informed the boys and girls of the Secretary's unalterable decision, much to their disgust.

A few moments later the Secretary appeared, hat in hand, and asked for Partley.

"He is out at the moment, Mr. Shaw," replied Ben.

"Please tell him, Bright, that I am at the Premier's office should I be required urgently, and he can ring me up there"—and he went out.

"There's one thing"—Peggy Aylward voiced her opinion—"nobody can accuse old Shaw of any monkey tricks in his office. I've never seen him use that private door of his office yet. He always comes in and out through here. Wish he wouldn't"—she turned over another page of her notebook—"you've always got to be ready to hop in case he appears suddenly."

Partley was informed by Ben of his chief's whereabouts on his return, and the morning passed quietly, Shaw returning at nearly 12 o'clock, evidently very concerned.

He was only in his office some ten minutes when he again came out, and after a second's chat with Partley, left for his lunch.

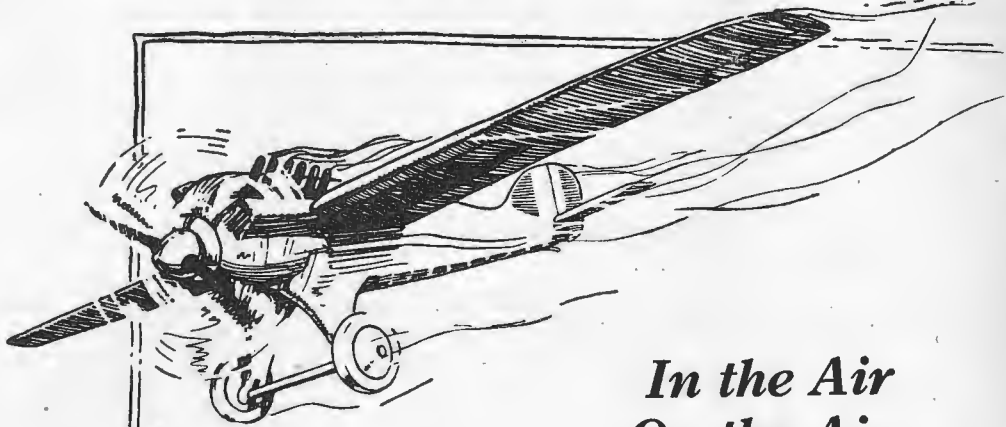
At the stroke of one the office rapidly emptied, the staff seeking elsewhere the relaxation they had previously obtained from dancing to the strains of the unfortunate wireless set, now so much in disfavour.

"Come on, Ben. We're going down to have a look at the new Swedish motor ship just in to-day. Engines are wonderful, I believe."

"No thanks, Sam. Want to go through some private papers here, old chap. Count me out this time."

Producing a book from his desk and a small parcel of lunch, Ben began to chew and read, the while three office boys sunned themselves outside on the verandah and talked loudly of the prowess of their favourite riders at the motor-cycle speedway.

At 1.30 Partley came back, and after looking through his desk for a moment, disappeared into the Secretary's office, reappearing almost immediately. He



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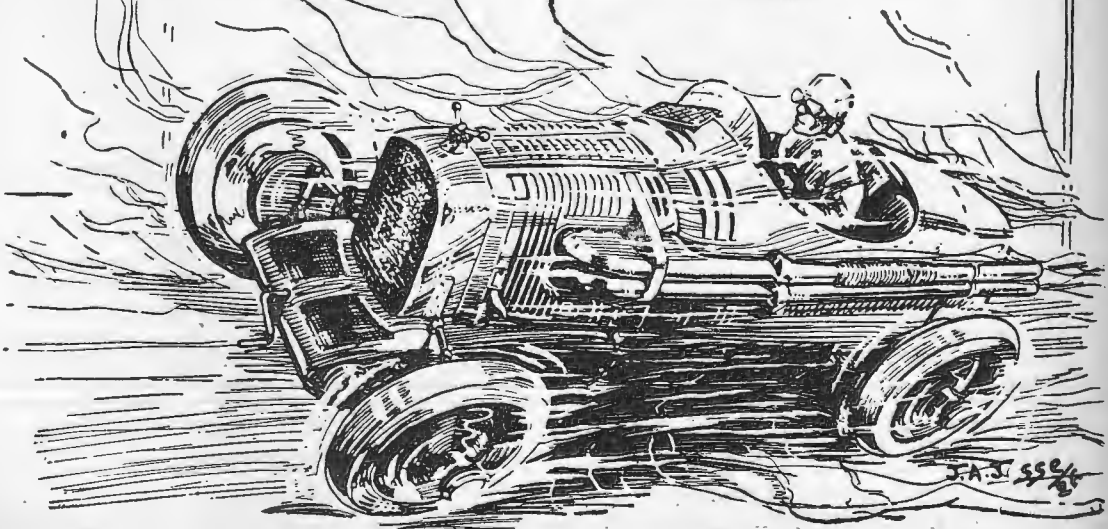
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"THE PREMIER'S PAPERS"—(Continued).

sat at his desk, after carefully scrutinising Ben for a moment, and then became very busy amongst some papers there.

The moments slipped by until Ben, pulling out his watch, noticed that another ten minutes would complete the lunch-hour, so, closing his book, he wandered out on to the verandah, and leaning over the end rail enjoyed the undoubtedly splendid view the winding river and distant hills afforded.

Five minutes to two—four minutes to two—and then the silence was broken by the raucous screaming of the wireless set, bursting suddenly forth in unpleasantly amplified music that could be heard half-a-mile away.

Immediately Ben ran like a hare into the room, and rushing to the door leading to the Secretary's office, jammed a chair under the door knob, and hung like grim death, the while somebody began to tug furiously at the door from the other side as if to get out.

On screamed the music as Ben called to the first boy to come running in. "Quick! for your life! Get the C.I. Branch on the phone and tell Detective Malone to come over here immediately. You, son, watch that nobody tries to get out of those windows and climb down the front of the building."

From the room came furious shouting and expostulation, drowned however by the frightful noise of the amplified music, and the bedlam was at its height when the Under Secretary came hurriedly in, followed by the returning office staff.

"Bright! Have you gone mad? Despite my strict

instructions—Bright! immediately go away from my door and stop that infernal noise."

It was necessary to raise one's voice considerably to be heard above the din, and Ben shouted:

"Please, sir, don't let anyone out of your room till I have stopped the set. There, that's right. Now, sir, please do not ask for explanations for a few moments. Ah! here's the Sergeant!"

"Bright, either I've taken leave of my sense, or you have perpetrated the most impudent piece of conduct I have ever had performed in this department. You, Sergeant, have evidently been drawn into this ridiculous display as well. What does it all mean, Bright?"

"Just that if you open that door, sir, you will find the man who is employed by Mr. Whitley to—"

"Sh! That's enough, Bright. Open the door, Sergeant, please."

Malone smiled as he removed the jammed chair from the door and threw it open to disclose the enraged form of the unpopular Partley.

"Mr. Shaw, I have been the victim of the most outrageous piece of—"

"Just one moment, please. Come into my room and we will get at the bottom of this apparently insane joke or whatever it is."

The party trooped into the room, and when the door was safely closed the Under Secretary seated himself at his desk, and turning to Ben, asked in severe tones:

"Now that we've had your exhibition of bad taste as a Government officer, Mr. Bright, kindly explain why it was necessary to disobey my instructions, insult Mr. Partley, and involve Sergeant Malone in a ridiculous exhibition, apparently stage managed by



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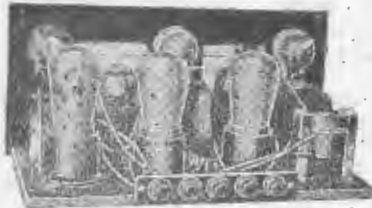
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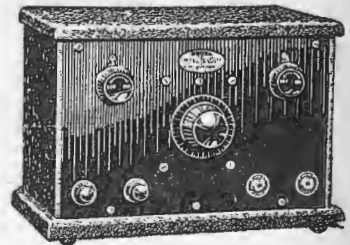
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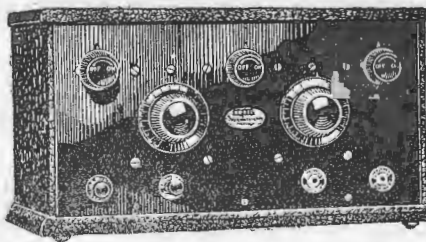
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"THE PREMIER'S PAPERS"—(Continued).

you as a protest against my decision to let you run the Government offices in the lunch-hour as you liked."

"I am afraid, sir, that's not right. In the first place, Mr. Shaw, is there anything in your desk now that you are anxious to keep particularly private?"

Shaw's anger was becoming more apparent every moment, but his hasty reply was checked by Malone, who said:

"This young man knows quite a lot about the unfortunate happenings of the past week or so, Mr. Shaw, and you can answer him with as much candour as if I were asking the questions."

Shaw considered a moment, then said:

"Well, it appears rather Gilbertian to sit here and be questioned by one of my junior officers, but, as you say it is in order, Malone, I'll admit that there is a paper here that is for my eyes and those of one other person in Queensland only."

"Very good, sir. The information contained in that paper is now known by that man"—he turned and pointed an accusing finger at Partley—"and he searched your desk and obtained it only a few minutes before your return."

The utter disbelief of Shaw now amounted to anger, and he howled:

"You have the impertinence to stand there and accuse Mr. Partley, the most trusted officer in this department, of such actions. Bright, your impudence is impossible."

"Again please give me a few moments, Mr. Shaw. Now, Sergeant, will you please check what I say in proof that this snake has been using his trusted position to undermine the hand he serves. The Sergeant made known to me, Mr. Shaw, the trouble that arose last week, and upon thinking it well out, I arrived at a possible means of solving the difficulty. In the wireless hobby that I have followed for some years, the principles of magnetism and electro-magnets play a small part, and it seemed to me that their presence in such places as your office here would be so little suspected that they might be successfully used in an endeavour to trace the man whose intrigues were likely to wreck the efforts of Queensland's leading statesman."

"The police had made such a good investigation that it seemed to me that no methods such as common housebreaking and entering were to be considered as the means that were employed to secure the information you were so anxious to keep private, and the fact that no fingerprints but your own were found on your desk pointed to the fact that someone working in the building who, by some means, found access to your papers, was the culprit. Last Saturday afternoon I persuaded the caretaker, much against his better judgment, to break the rule re working overtime, and on the plea that I wanted to get my work up-to-date, he let me in, and I soon got rid of his chattering old tongue on the plea that I wanted absolute quiet. I then came in here, sir, and with a small gimlet and a couple of drills I made a hole in the woodwork of your desk immediately at the back of the top drawer on each side. Into these I inserted and fastened two spring finger switches which pressed against the back of the drawers, being pushed right home while the drawer was closed, but, of course, opening when the draw was pulled out from the front. With fine enamelled copper wire which I stitched under the edge of the carpet—Malone and the others were busily examining

well-disguised switches, and upon turning back

the carpet, close examination revealed two fine, fine wires which were difficult at first to see—"I connected these two switches to a relay in the wireless set, and so arranged it that upon anyone opening either of these drawers, the plungers would release, thereby switching the wireless set into action, thus immediately warning me that the thief was at work."

"But that's ridiculous"—Partley's face was now gray with fear, although he was trying to brazen out the evidence now becoming unpleasantly exact for his liking. "Mr. Shaw is constantly pulling in and out the drawers of his desk, and anyhow, the wireless station is not broadcasting at all hours of the day and night."

"I placed a small switch in my own desk," continued Ben, "and as soon as Mr. Shaw left his office during office hours, if only for a moment, I switched the arrangement into operation. I also tuned the receiving set so that it was operating in violent oscillation, so that even if no music was being broadcast at the time, the howling of the set itself would attract attention."

"All very ingenious, Mr. Bright. But how do you expect to convince us that it was Mr. Partley who searched my desk today?"

"Because I took the precaution to break my pen-knife blade in the lock of the passage door to your room thus jamming it effectually, and preventing escape or entry that way, and because—"he paused and turning to Partley asked "When did you come into Mr. Shaw's room last?"

"Mr. Shaw! Must I submit to this young man's lying accusation any longer. Surely 15 years honourable service count for—"

"Mr. Partley! Answer the question. When did you come in here?" There was no denying Shaw's imperative question.

"At 5 minutes to 1. The papers I knew nothing about as you know, Mr.—"

"Yes! broke in Ben. "And the drawer was opened at exactly 3½ minutes to 1. If you look carefully, you will find that another pair of wires runs to the clock there" they all turned to the clock over the door stopped at 3½ minutes to 1" and in the bottom, next the pendulum, is a small arm, operated by a simple electro magnet, which, as soon as the switch worked, pulled a little piece of iron into the path of the pendulum and stopped the clock."

Silence reigned for a moment as all eyes sought the guilty Partley's face. Bursting into tears, the exposed man dropped on his knees at Shaw's side.

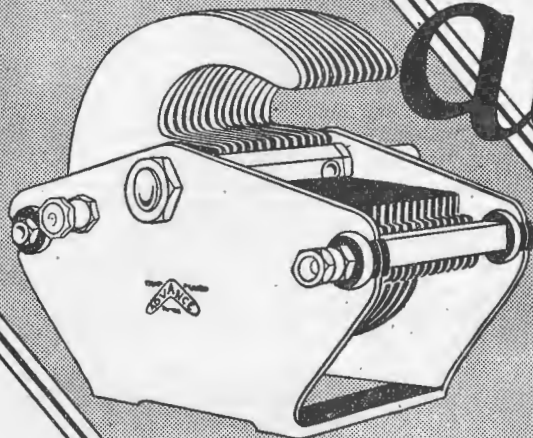
"Please forgive me, Mr. Shaw and I'll make up for it. Think of my wife and my good name at the Church if I am exposed. I ran short of money and Whitley led me on to do this for him—"

"That's enough, Partley! The Premier will deal with you. Bright, accept my compliments for your ingenuity, and go out and tell the staff that I have reversed my decision regarding the lunch-hour music.

* * * * *

"Yes, Sergeant. I heard that Partly bolted rather than face the exposure. What did I get? Well, I'm not complaining. Beryl's that pleased that she let me miss an appointment to go to the theatre, so that I might test that new 15 metre transmitter with an American Laboratory station, the Premier sent me a daisy of a 20,000 volt transmitting condenser, and the old man gave me Partley's job. Eh? Of course, Queensland's a good country."

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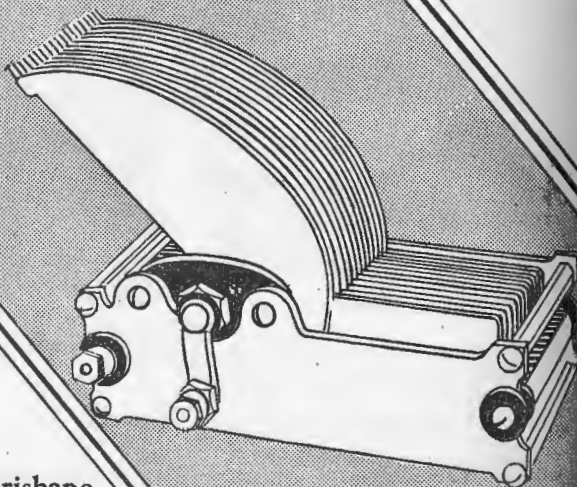
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ARTICLE NO. X.

In the June issue of this journal the construction and the behaviour of the commonest types of chemical or electrolytic rectifiers were detailed, and an account was given in general terms of the action of a valve—thermionic-rectifier.

This article will continue the discussion of the latter type, and cover instruction in the operating characteristics of mechanical rectifiers.

In general a two-electrode valve—or diode—may be connected in the output circuit of a step-up transformer in exactly the same manner as the chemical cells considered last month. That is to say, one can use diodes in one or both "legs" of the transformer secondary to give either half-wave or full-wave rectification. Special arrangements may be made for lighting the filaments of the rectifying tubes from a separate battery or a third (filament) winding on the transformer may be utilised. It is obviously desirable that, for reasons of cheapness, the filaments be lighted by the available A.C.

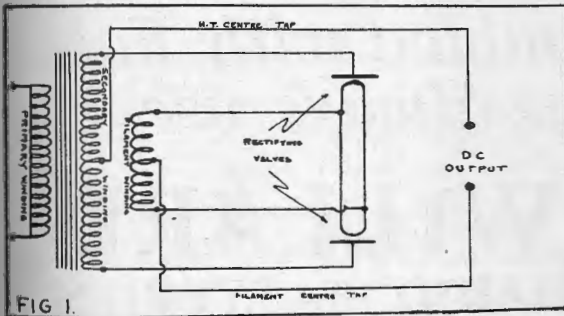


FIG 1.

Fig. 1 shows the connections of a full-wave single phase rectifier with the filaments heated from alternating current source.

In practice however it is generally found that the use of a filament winding on the high tension transformer is not absolutely satisfactory, by reason of the fact that when keying the transmitter the load impressed upon the transformer—and especially is this so if the morse key be in the usual power leads—causes a varying output to the filament winding. This in turn causes a flicker, both in the rectifying and in the transmitting tubes leading to a noticeable "chirp" in the transmitted note.

To obviate such trouble most Queensland amateurs run their filaments from a separate transformer—

usually part of the station's home-made battery charging equipment.

A two-electrode valve will rectify so long as there is sufficient heat to cause electronic emission from the filament, and so long as there is attraction between filament and plate. From a consideration of this it is obvious that there will be an "optimum" point at which the rectification will be at its best.

An increase in filament heat will, of course, result in a greatly increased electronic emission, and consequently a greater plate current.

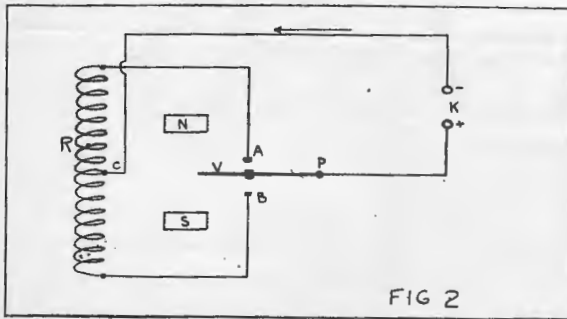
The above statement, however, only holds true so long as the plate saturation point is not exceeded. That is to say, for every given value of filament current and plate voltage, there is a maximum number of electrons which will be attracted to the plate and absorbed thereby. An increase in filament current without a collateral increase of plate voltage will cause inefficiency in the working of the valve since many of the emitted electrons cannot be absorbed by the plate and will only serve to eat away the filament and shorten the life of the valve.

Acting as a rectifier it has been found that an ordinary U.X.201A receiving valve, with its grid and plate legs shorted, will upon occasion stand up to an applied voltage of 500 volts under a current drain of 50 milliamps, but such extreme treatment is not recommended. Two or three of such valves in parallel however will give all the current required to work an ordinary 7½ watt transmitter of the U.X.210 type.

Use is also made, for rectifying purposes, of the "B" eliminator type of valve, more especially the full-wave Raytheon. Such tube has no filament—and works on the gaseous conduction principle. That is, the current passes from either plate (there are, of course, two in the valve to procure full-wave working) to a central electrode connected to the output circuit by reason of the conductivity of the gas within the tube, due to the ionisation of its atoms. A large potential difference across the electrodes is sufficient to break down or ionise the gas between them and set up a path of conductivity. Working upon a similar principle is the American S tube, which is unfortunately practically unobtainable in Australia. This tube, built for the rectification of high voltage current for transmitting purposes is reputed to stand 2000 volts in the reverse direction without breakdown.

Mechanical Rectifiers.

These are divided into two chief classes—that class in which use is made of a vibrating reed or shuttle, and that class in which rectification is caused by suitably mounting contacts and brushes upon an electric motor running from the A.C. supply. A diagram (Fig. 2) will illustrate the action of the first type.



The coil R is the centre-tapped secondary of a step-up transformer. The ends of this winding are brought out to two contacts A and B. A vibrating arm V pivoted at P is so arranged as to be free to swing into contact at A or B. In practice the vibrator and pivot are mounted upon the projecting part of one leg of the transformer core, and so receive changes of polarity in time with that part of the core, due, of course, to the electro magnetic effect of the superimposed windings of the coils. A permanent magnet of the horseshoe type is rigidly mounted with its north and south poles at N and S. The output of the rectifier is at K and its operation is as follows:—

Suppose that at any instant the core to which the vibrating reed is pivoted is of north polarity. Then the free end of the reed will be of north polarity and

will be promptly attracted by the magnetic pole S. This movement causes contact with the point B and the output circuit is complete by way of the centre tap C, the circuit at K, and the contact at V B.

The current flow, from positive to negative, will be as shown along the lead C.

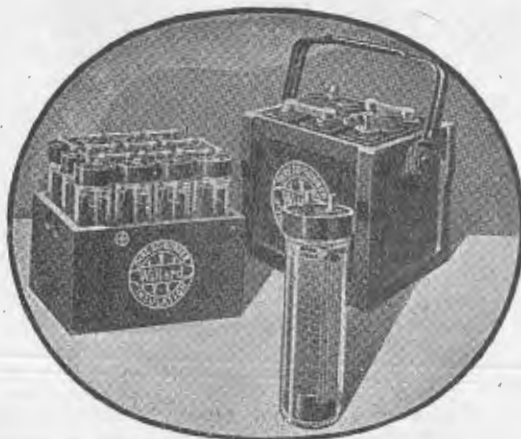
But at the next alternation of the applied primary voltage the free end of the vibrator will become of south polarity, due to the changed direction of the current in the coil windings, and will be attracted to N, making contact with A. The output current will however still flow in the circuit at K in the same direction—that is, as already shown.

A mechanical rectifier of this type is not of very much use in rectifying the plate current of the usual transmitting set because of the pronounced sparking at the contacts. It is however used in some types of battery chargers, wherein both voltage and frequency are low.

The second type of mechanical rectifier is generally known as the synchronous rectifier or "Sync." The A.C. motor used is of such type as to revolve in time with the frequency of the applied A.C.—that is, the motor is synchronous with the applied current.

Upon the shaft of such motor is mounted a disc carrying two semi-circular metal segments around its edge with small gaps between the segments—in other words, a two-pole commutator. A.C. from the secondary of the step-up transformer is applied to these segments, and brushes carrying the rectified current—the D.C.—make contact upon the segments as they revolve with the disc. These two brushes are ar-

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anged exactly 180 deg. apart, so that, for instance, each brush passes over one of the gaps at the same moment. The apparatus is so balanced that when the brushes are passing over the gaps the current flowing in the A.C. circuit is zero—the instant between any two alternations of the alternating line current.

As the current rises to its next maximum, one of the segments of the commutator will reach its maximum positive amperage, and its fellow its maximum negative amperage; and as the applied current falls to its next zero so does the current on the commutator segments fall to zero. But . . . during the time this alternation has taken place the rectifier disc has spun through 180deg. of rotation, and at the moment that the alternation has died down to zero the two brushes are once more passing over the gaps between the segments. The current begins to rise again, but in the reverse direction, and the commutator disc continues to spin, but the segment which was formerly negative, is now positive, and the brush which was formerly contacting with the positive segment has bridged the gap and is now contacting with the other segment which is now positive itself. Thus, this one brush will always be in contact with positive segments, and its fellow with negative segments. The result is that the applied alternating current is rectified into a smooth direct current.

Synchronous rectifiers are in common use among the U.S.A. and Canadian amateurs, but have not as yet found general favour with the Australian ham, by reason probably of their heavier cost when compared to the commoner chemical or thermionic rectifier.

Filters.

The output from any of the described types of rectifier is of a pulsating semi-smooth nature. It is obvious that such variations in D.C. voltage due to the complete action of the rectifier should be removed before the plate of the tube is reached. Usually some system of filter is used—such as a combination of choke coils and condensers. Many Australian transmitters simply shunt a capacity of 12 to 30 microfarads across the rectifier output, which has the effect of minimising the voltage variations. It will be remembered that in an earlier issue the reactance of a condenser—its resistance to alternating current was given

as $\frac{1}{2\pi f C}$ where p is the old friend "pi"—and f and C represent the frequency of the applied current, and the capacity of the condenser. In a perfect rectifier the output would be pure D.C., that is, there would be no "frequency" to it, and the expression given above would have a definite value while any variation in the frequency—as would occur if stray A.C. voltages leaked into the D.C. output—would be by-passed by the filter condenser and kept out of the valve circuit.

For a similar reason a choke—of which the reactance is $2\pi f L$, where L is the inductance—is often used in series with the rectifier output.

The ideal arrangement for ordinary continuous wave signalling would appear to be that shown in Fig.

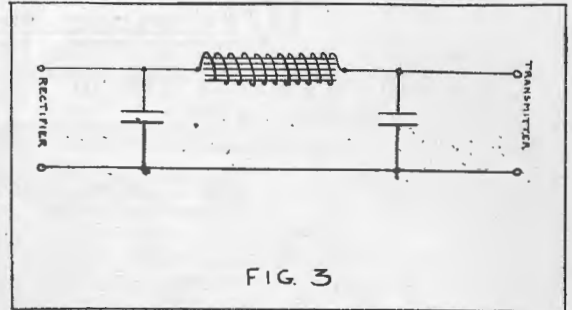


FIG. 3

3, whereby the rectifier output is fed through or across both condensers and choke. In general a value of 40 or 50 Henries in the choke coil and 4 or 6 microfarads in each condenser will work satisfactorily.

DISAPPOINTMENT.

There was a "bonser" programme last night from 4QG; I hurried round and got things done to "tune-in"—don't you see? And as the clock showed five to eight, I hastened to the set And turned the dials round and round, but no response I met. I tried again, and then again; I got in quite a "huff," And thought if I that programme miss, well that would be too "rough." I had a look at all the works and found—good gracious me! The what-you-call-it thing was dead—I mean the battery B.

—Edith Delehanty.

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Whispers from Maoriland

A RADIO CALAMITY—A LOSS TO BROADCASTING.

New Zealand Radioland got a very rude shock when the daily press announced the totally unexpected resignation from the Broadcasting Company of Mr. J. M. Prentice, known throughout Australasia as "Uncle Jack." In one or two semi-official quarters it had been rumoured that Auckland was shortly to lose the popular radio announcer who arrived from Sydney towards the end of last year, and who has since become almost a member of thousands of households in the Dominion. When interviewed, Mr. Prentice said that he had nothing to say anent his resignation, other than that, following his recent trip to the South Island, a sharp diversion of opinion had arisen with regard to matters of policy generally, and with regard to staff matters in particular. In consequence his resignation was tendered on April 22, and was immediately accepted. It was thought that his term of office would not terminate until the end of his period of service with the company, which ends on 31st July, but latest advice is to the effect that the resignation takes effect immediately.

In an interview Mr. Prentice said that he deplored the position which had arisen, but felt that, in justice to himself and the pledges given to the public on his arrival, it would be impossible for him to continue in what was essentially a false position.

The news of the resignation and its acceptance has caused more than a flutter in radio circles. By his conscientious work under difficulties, and by his courteous and genial disposition, Mr. Prentice has endeared himself to his vast audiences in both islands, and to all with whom he has come in personal contact. Many listeners realise that he has had to make bricks almost without straws, and they appreciate fully how he himself has been the main feature in the programmes of 1YA. They feel that they are losing the services of a gentleman who certainly cannot be replaced in the Dominion, and who was appreciated to such an extent in Australia that there will be a warm welcome waiting him should he return there, as he probably will. So general is the feeling of regret that on all sides one hears how Mr. Prentice will be missed.

It is not the slightest exaggeration to say that with the departure from these shores of Mr. Prentice radio business in general will suffer, and it is the consensus of opinion that there is something radically wrong with the control of broadcasting in this country when such an event is allowed to occur, and it is imperative that the whole matter should have the fullest investigation. It will be impossible to find anyone to fill the position so wonderfully as Mr. Prentice has done.

Whatever new position Mr. Prentice may take up your correspondent would like him to know that he carries for all time the appreciation and affection, as well as the very best wishes, of every single listener in this Dominion. "Kai Ora" to him.

A Listeners' League has been formed recently in Auckland, and the first public meeting has been held. The necessity of such a league, whose object is to promote the interests of listeners, is evidenced by the fact that although the league has been in existence

for only a few days, close on 200 members have been enrolled already, while enquiries have been received from all over the province. The league will adopt, no doubt, an initial policy of co-operation with the broadcasting authorities, and offer constructive suggestions for the improvement of the local broadcasting service. There are many matters for the league to deliberate upon, and the most pressing of these are the financing of local broadcasting, the wave-lengths of New Zealand stations, morse interference with broadcast reception, and the howling valve menace.

Conditions for the reception of Australian broadcasts have been particularly good during the past two or three weeks. The programmes, especially from 2FC and 3LO, have been of a high standard, so that altogether there has been much pleasure derived from receiving Australian stations.

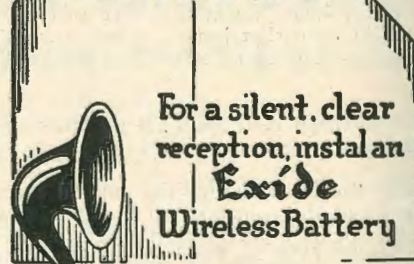
Relaying of long-distance broadcasts is becoming a popular feature of Australian transmissions. Surely our local stations could attempt to pick up and re-broadcast the special transmission from 2XAF on Sundays. The Australian broadcasters have always shown laudable enterprise in providing novelties for the listeners, and the officials of the New Zealand broadcasting stations should display more energy and emulate the Australian example.

The recent special transmission from KOA, Denver, Colorado, was heard by Mr. Norman Munro, of Papaceto. So far Mr. Munro has heard and identified 42 different American broadcasting stations.

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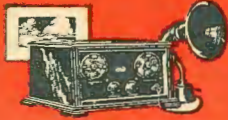
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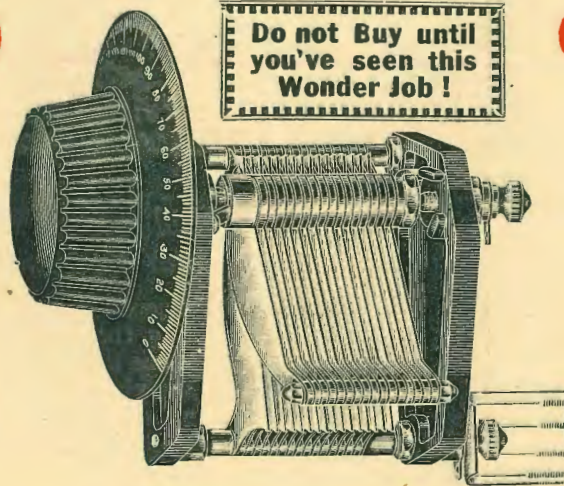
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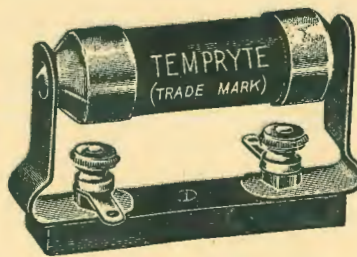


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