

WIRELESS WEEKLY

Registered at the G.P.O., Sydney, N.S.W.

Transmitted by post as a newspaper.

VOL. 7. No. 11.

FRIDAY, JANUARY 8, 1926.



Important Announcement

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FEATURE :

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Honeycomb
Coils

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WIRELESS WEEKLY

Phones: Redfern 964 and 930.

Official Organ of the New South Wales Division of the Wireless Institute of Australia, with which are incorporated the Affiliated Radio Societies and the Australian Radio Relay League.

Editor : A. W. WATT

The Editor will be glad to consider Technical and Topical Articles of interest to Australian Experimenters. All Manuscripts and Illustrations are sent at the author's risk, and although the greatest care will be taken to return unsuitable matter (if accompanied by stamps), the Editor cannot accept responsibility for its safe return.

Subscription Rates.—Twelve months (52 issues), 13/6, post free. Six months (26 issues), 6/6, post free. Single Copies 3d. each, or post free ad.

Advertising.—Advertising Rates may be had on application to the Advertising Manager. Copy must be in the hands of the Editor by the Friday preceding each issue. If copy is not received in time, the previous week's advertisement will be repeated.

"Questions and Answers." All requests calling for technical advice or drawings MUST be accompanied by postal note or stamps to the value of 1/-. A maximum of four questions is allowed.

Agents in Great Britain.—The Colonial Technical Press Ltd., Dudley House, Southampton Street, Strand, W.C. 2.

All accounts should be made payable to Publicity Press Ltd., 12/16 Regent Street, Sydney.

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WHAT DO YOU WANT?

"Give the Public what it wants."

That is a slogan that has become the watchword of the proprietors of many successful papers in different parts of the world. It may be easy enough to do with a journal appealing to the general public, but it is an entirely different proposition when it applies to a specialized paper such as one dealing solely with wireless.

To a certain extent it is possible for us to gauge the technical requirements of "Wireless Weekly" from the queries which reach us from readers. Our experience is that while perhaps only one person writes for information upon any particular subject, hundreds of others are interested in the same thing but it has probably not occurred to them to write us. We have proved this by the fact that where we have published additional matter relative to some particular circuit published in a previous issue, shoals of letters invariably pour in concerning it.

What we really want, however, is a definite indication from readers as to what this paper should contain. Every one of us has definite ideas upon

certain matters, and nobody can take this paper regularly week after week without forming some sort of opinion concerning what should be published in its columns.

A traveller attached to a large Sydney wireless concern recently returned from a trip through the country and he stated that he was astounded at the number of country dwellers who take "Wireless Weekly" regularly. It is the opinions of these readers we want as well as those of the thousands who buy the paper on the bookstalls and from newsagents in the city.

Do you like the Broadcast programmes? Are you interested in one, two, three, four or five valve sets? Do you want more advanced articles? Would you prefer more simple articles? Is there too much technical matter and not enough general information—or vice versa?

These are just some of the subjects we want to discuss with you. Start our move for a better service by writing us your opinions, for it is only by co-operation in this matter that we can give you better value for your money.

A. W. WATT.

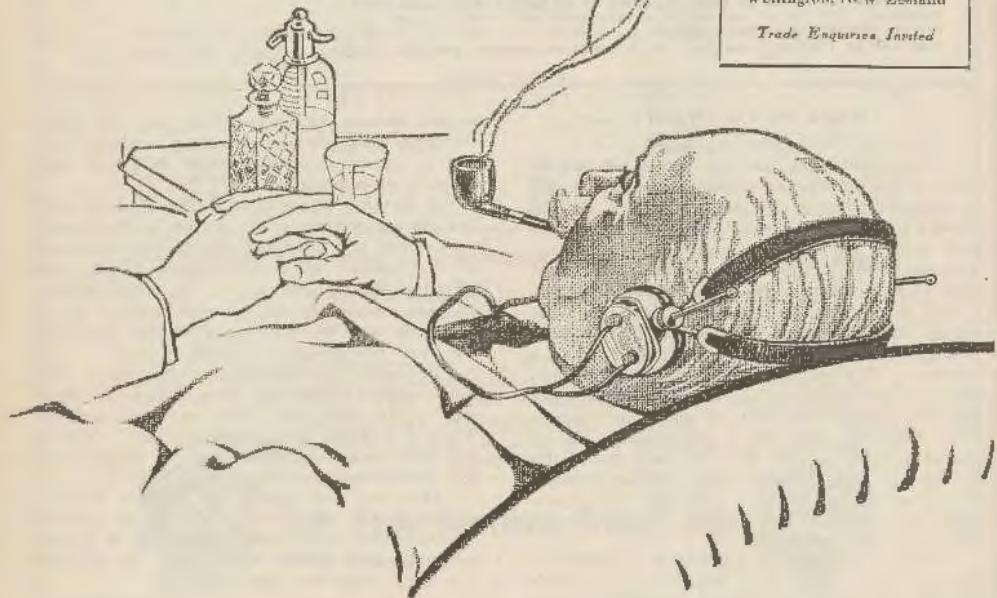
Brandes

The name to know in Radio

GRANDPA reflects on how fine it is to be quiet and restful, yet still finding a full measure of amusement for the leisure hours. The armchair presses comfortably against the back of his head; his broad shoulders sink luxuriously into its padded depths. Glancing down the stem of his pipe he sees the deep, rich colour of the polished bowl, and just beyond, into his uninterrupted line of vision comes a glass—and a “finger” of mellow liquid with the thousands of tiny bubbles hurrying to the top. Across his head is the dark, comfortable-looking headband of a Brandes. The **Matched Tone** receivers, clasped gently but firmly to his ears, bring the world and its news; its pleasures and achievements. No need to have it bawled at you across the club smoking-room by a choleric ex-colonel. “Great!” he sighs contentedly.

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Trade Enquiries Invited

Systematic Method of Locating Faults in Receiving Apparatus

Part I—By R. C. V. Humphery

Locating a fault in a receiver is very often a thankless job, more especially in the case of multi-valve and reflex sets, and unless some system is employed hours may be spent in fruitless search.

Most receiver trouble may be divided into three sections, as enumerated hereunder:—

- (a) No signals are heard.
- (b) Signals are intermittent or constantly varying in intensity.
- (c) Noises of various kinds are heard in the phones or loud speaker.

Before taking the receiver out of its cabinet, the battery, aerial, and earth connections should be checked up. It is rather annoying to discover, after having spent a couple of hours on a set, that the earth switch was closed or the aerial adrift. When perfectly satisfied that all the external connections are in good order and connected up correctly, a wiring diagram should be procured and the circuit divided up into its component parts. Take, for example, the case of the one valve receiver shown in Fig. 1. There is the aerial circuit on the left-hand

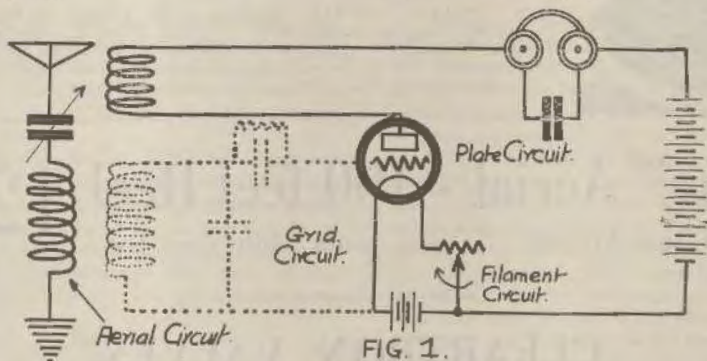


FIG. 1.

In this article it is proposed to deal with section (a) only. Sections (b) and (c) will appear in a later issue.

Now, in addition to the usual tools which every set builder possesses, it will be of great help to have one or two spare valves which have been tested and a new B battery. As both these items will be used sooner or later, they will incur no additional expense. An extra pair of phones and an 0 to 10 voltmeter will also prove useful.

side, the grid circuit shown in dotted lines, the H.T. circuit (thick lines), and finally the filament circuit. If the valve flickers or fails to light altogether, the trouble lies in the filament circuit, which consists of a lighting battery, a rheostat, a socket, and the valve (Fig. 2).

Now, with the voltmeter take a reading first at the battery terminals (points E F, Fig. 2), then at the receiver filaments terminals (C D), and finally at the socket terminals (A B). By this means the

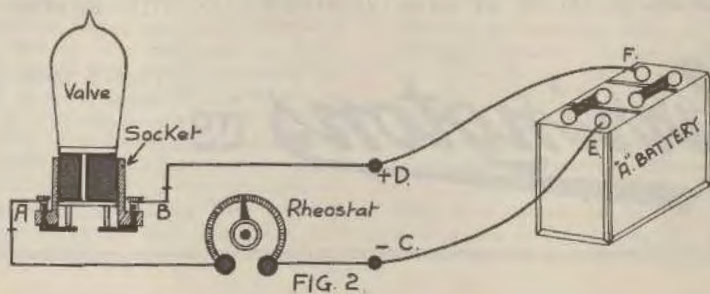


FIG. 2.



"MARS" AERIAL

Experimenters claim 50% more volume with wonderful new aerial wire

"MARS" AERIAL consists of 84 strands of fine hard-drawn phosphor bronze wire, a special alloy of great strength and durability. Exhaustive tests have shown that it has an extremely low ohmic resistance of 0.17 ohms per metre, and provides much greater surface area than solid wire.

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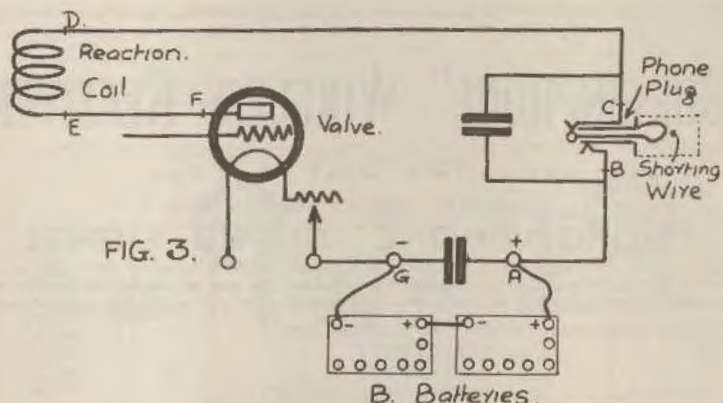
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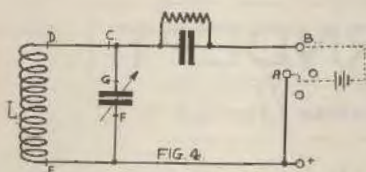
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exact location of the fault can be ascertained. For example, a reading at C D and no reading at A B indicates a defective rheostat. A reading at A B and the valve failing to light means a burnt-out valve or a bad contact between the valve prongs and the socket springs.

If on substituting the old valve for a new one it still fails to light, the trouble undoubtedly lies in the socket springs. A maximum deflection of the voltmeter on being connected to the points A B indicates the B battery short-circuiting through the filament circuit. This, of course, will burn out the filament, but the damage will not end here, as there

However, if the external connections are in good order, substitute the H.T. battery by a dry cell or a 4 volt accumulator, and join the two phone plug terminals with a small piece of bare wire. Now insert the plug into its jack and again take a series of voltmeter readings, first at the terminals G A, then G B, G C, G D, and finally G E. A reading at G B and none at G C indicates a bad contact between the plug and the jack, which can be remedied by bending the jack springs back to their normal position. The reaction coil and contacts are tested in a similar manner, and if any doubt exists about the valve it can be exchanged with one which has been previously tested. If the phones are suspected, connect one of their pins to the terminal of a single dry cell, and if on touching the other terminal with the remaining pin a click is heard, they are in good order.



will still be an alternative path for the H.T. current through the filament rheostat and A battery, which will very soon absorb all the energy from the H.T. battery. However, we will assume that the filament lit up and turn our attention to the plate circuit; this consists of one or more H.T. batteries, a transformer or pair of phones, a single or double circuit jack, a reaction coil, and a valve (Fig. 3). A disconnection in this circuit will be indicated by the absence of a loud click on removing the wander plug from the H.T. battery and then replacing same. When two batteries are used, the two positive and two negative terminals may have been connected together or the negative terminal may have inadvertently been connected to the plate. In either case the result will be all.

The only remaining items are the bypass condensers, and if these are suspected of causing the trouble, they may be temporarily disconnected. We now come to the grid circuit. A dry cell should be connected to the socket terminals A B (Fig. 4), and the coil L temporarily removed or disconnected. If the voltmeter shows a reading at A C this indicates a defective grid condenser; a reading at C B during any position of the tuning condenser dial shows that the fixed and movable plates are touching at that particular position. The coil L is now re-inserted into its socket, and the voltmeter will show a reading when connected to B D if there are no bad connections in the coil or in its mount.

Passing on to the aerial circuit. The aerial and lead-in should be carefully examined to see that they do not touch the roof or any foreign object. The earth lead should also be thoroughly gone over, making sure that the connection to the earth plate or waterpipe is clean and firm. The series parallel

"BURGINPHONE" WIRELESS RECEIVERS

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TUNE IN THAT DISTANT STATION WITH A

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Manufactured in response to a demand for a highly efficient receiver that will tune in the main Broadcasting stations of Australia without the use of outside aerial and with more ease than ordinarily accompanies high class receivers requiring outside aerial.

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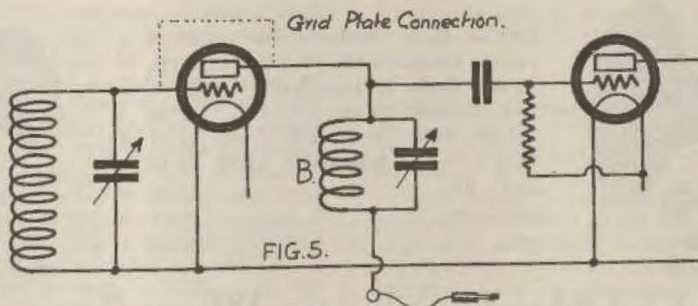
BURNDEPT (Australasia) LIMITED

Telephone: M3732.

Broughton House, 181 Clarence Street, Sydney.

switch should next be inspected to ascertain that the switch arms make firm contact with the studs, and finally the coil, coil holder, and condenser should be tested as previously explained. The same procedure will be followed in the case of a multi-valve

If the tuned anode method of coupling is used, disconnect the anode coil B and the H.F. wander plug C (Fig. 5), and connect the grid terminal of the H.F. valve socket to its plate terminal. If signals are heard with the phones plugged into the detector jack.



set, except that it will first be necessary to ascertain whether the fault lies in the H.F., detector or L.F. circuits.

This is usually a simple matter when phone jacks are employed in the detector and amplifier, because if signals are heard with the phones plugged into the detector jack, the fault must be in the L.F. amplifier. However, if no signals are heard, we must examine the H.F. and detector circuits, and endeavour to find which of these two is to blame.

(Part 2 of this article follows next week.)

The trouble undoubtedly lies in the H.F. amplifier. If transformer coupling is used, disconnect the H.F. wander plug from the battery, and also the secondary terminals of the transformer. A lead is then taken from the grid terminal of the H.F. valve to the wire which was disconnected from the high potential end of the transformer secondary. The procedure is now the same as in the tuned anode.

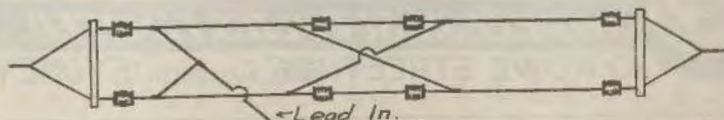
Intermittent signals and receiver noises will be dealt with in an early issue.

Novel Aerial Reduces Hum

— Try this out —

Many people, particularly those living in the smaller towns, are troubled by the induction hum from power lines or motors which make good reception almost an impossibility. The novel two-wire aerial illustrated above is worth trying in the effort to eliminate or greatly reduce this hum. It will be seen that the two wires cross each other in the middle of the span and end on the side opposite. The arrangement is not entirely new, but it has been

found to eliminate as high as 90 per cent. of induction hum in a location where reception was impossible on any other type of aerial. The reason is that the fields of the wires are assisting each other on one end and opposing at the other, neutralising any induction hum. Construction isn't at all difficult. A long insulator can be used to keep the wires apart where they cross.



BURGESS—"ASSURE CLEAR RECEPTION"—BATTERIES

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Wireless Sets and Parts make Acceptable Xmas Presents



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Amplion Gram. Attachment AR35	£3 15 0
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Genuine Radio Sets that Will Work

One Valve Set complete with all panel material, cabinet, wiring wire, wiring diagram, solder, etc. £ 10 0

Accessories required:—

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4 Radioaks Coils, Mtd. ..	0 19 0
2 1.5 Dry Cells ..	0 8 0
1 High Tension Battery ..	0 2 6
1 pr. Head Phones, 4900 Ohms ..	0 12 8
100 ft. Aerial Wire ..	0 2 6
15 ft. Lead-in Wire ..	0 1 8
	£5 8 3

Two Valve Set complete as illustrated, with wiring diagram, etc. £ 4 2 6

Accessories required:—

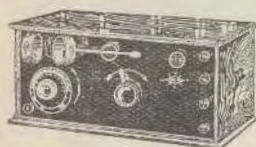
2 Valves ..	1 15 0
4 Radioaks Coils, Mtd. ..	0 19 0
2 1.5 Dry Cells ..	0 6 0
1 High Tension Battery ..	0 18 0
1 pr. Phones ..	0 12 8
100 ft. Aerial Wire ..	0 2 6
15 ft. Lead-in Wire ..	0 1 8
	£4 14 3

£ s. d. Loud Speakers from 35/- Three Valve Set complete with all panel material, cabinet, wiring wire, wiring diagram, solder, etc. 5 15 0

Accessories required:—

3 Valves ..	2 12 8
4 Radioaks Coils, Mtd. ..	0 19 0
3 1.5 Dry Cells ..	0 9 0
1 High Tension Battery ..	0 18 0
100 ft. Aerial Wire ..	0 2 6
15 ft. Lead-in Wire ..	0 1 8
Amplion Junior Speaker ..	3 10 0
	£8 12 3

Loud Speakers from 35/- extra.



We can supply "Colmo" Ready to Wire Sets completely wired, tested and ready to be installed, with accessories as set out above, at SPECIAL PRICES FOR XMAS

1 Valve Set ..	£6 5 0
2 Valve Set ..	£9 8 0
3 Valve Set ..	£15 10 0

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WINDING HONEYCOMB COILS

By F. L. SUCH

Many articles have appeared at various times describing methods of winding honeycomb coils, but no one in the writer's knowledge has approached the very obvious and simple method about to be described. Nor have the writers instructed their victims how to arrive at the number of turns actually wound when completed. This important information is given hereunder, and enables one to determine the number of turns on any honeycomb coil. The writer is sure that some of the methods described have discouraged the average "broadcatcher" from attempting to wind his own coils, especially after a first attempt, which is usually a failure. The following method is one a boy can use and the most unmechanical mind understand. It may sound complicated, but the simplicity will be apparent as the operation proceeds in practice.

A cork former is used, in conjunction with ordinary large household pins, a strip of white paper $\frac{1}{2}$ inch wide, strips of presspahn or good quality thin cardboard, and a small quantity of shellac varnish. The cork should be round and 2 inches in diameter, and not less than $1\frac{1}{4}$ inch thick.

First of all, the strip of paper, which should be of good quality, as it is to serve its purpose for as many coils as are required, should be wrapped round the circumference of the cork once and cut so that the ends exactly meet. Now lay it on the table and divide into 16 equal parts by folding and marking the creases with pencil or pen. Divide each of these parts into two, when 32 equal divisions are obtained, as shown in Figure 1.

Now take your cork former and wrap this strip round the centre. Stick ordinary large household pins at the edge of the paper strip in the cork at each mark on each side at the "16th" or "32nd"

divisions according to the number of turns required. The table at the end of this article will show you how many to use.

Now take your cardboard or presspahn strips $\frac{1}{2}$ inch wide and wrap once round the cork between the pins. Shellac the surface and wrap once more. This gives a firm base for the coil and facilitates the removal of it when finished.

Now for the winding. It may seem necessary to the uninitiated that an odd number of pins, such as 13 or 23 or 31 should be used (and these figures are frequently employed by writers), but it is not so. Any number of pins may be used, providing that that number does not have a common factor with the number of pins missed in winding. For instance, using 32 pins on each side (which figure is the product of $2 \times 2 \times 2 \times 2 \times 2$), we may miss any number which cannot be divided by 2, such as 25, 27, 29, 31, 33, and so on. If we were to miss 26, 28, 30, etc., it would be found that a number of pins would not be in use at all, so be careful how you start. The writer frequently misses one more or less than the number of pins used (one one side), as this brings each succeeding turn adjacent to the preceding one. This method avoids possibilities of error, and although the self capacity of the coil may be greater, the writer is of the opinion that it is inconsiderable in amount, and, moreover, the resulting coil is a compact one, and thus more desirable. The writer recommends this method for large coils. The reader may use his own discretion, however, and directions are given for missing any number of pins.

Now for the winding. We will suppose you are going to wind a 50 turn coil. Referring to the table you require 16 pins each side, and that you are to miss 16 pins, so prepare your former accordingly. (Continued on Page 13.)

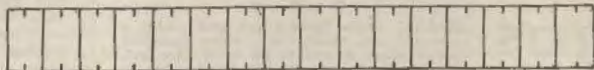


FIG. 1

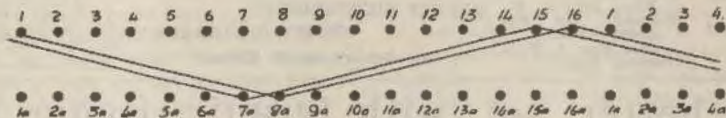


FIG. 2. Missing 15 Pins.

BROADCASTING POSTERS.

(To the Editor.)

Sir,—Would you kindly inform readers of "Wireless Weekly" that the Postmaster-General has arranged for the "special features" weekly posters of the Broadcasting Companies to be exhibited at practically every post office in these country areas of N.S.W. I would be glad if every "fan," "ham" and radio trader would inspect his local post office and let me know if the posters are not put up punctually each Friday.—Yours for Radio,

C. C. FAULKNER,

Director, Radio Broadcast Bureau.

2 Castlereagh Street, Sydney.

DISTORTION.

Distortion is more frequently caused by a distant station on a closely similar wavelength than by a defect in the receiver. It may even be that the signals from this interferer cannot be heard, but are sufficient to break up the wave stream of the desired station.

QSL FROM THE FAR EAST.

2CM again.

A letter from Indo China has been received by 2CM reporting Aussie and New Zealand calls heard. The following stations are QSL'd by Joaquim da Rocha Saraiva, Macao. Saraiva is on a steamer trading between Batavia and other Eastern ports.

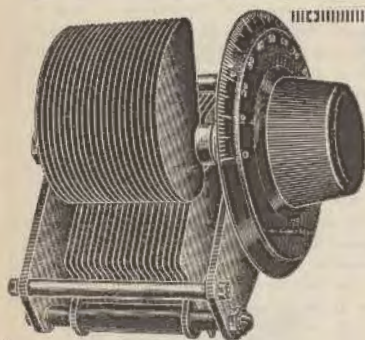
Australia: 2SW, 2RG, 2DJ, 2YK, 2RJ, 2GG, 2CS, 3AO, 3EF, 3LM, 3XO, 3BD, 3YX, 5AK, 5WW, 7DX, 7PF.

New Zealand: 1AX, 1AO, 2AC, 2XA, 4AC, 4AV.

BROAD TUNING.

If you experience broad tuning with your new radio receiver, it is a good idea to try a few less turns on the primary winding. This will often make much sharper tuning.

Unmarried women get a chance to listen-in much more than their home-maker sisters.



A typical Igranic quality production. A square law variable Condenser, low loss type, fitted with ball bearings. Made in three sizes. Complete with 4in. Bakelite Knob and Dials. Price, 35/- up.

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Quality!

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Every part is the result of careful research, correct design and skilled craftsmanship expressed in the finest quality materials. Is it to be wondered they are supreme? Yet, withal, they are moderately priced.

IGRANIC Radio Devices may cost a little more, but they are infinitely cheaper in the long run. They will give years of trouble free operation, make your Radio activities more pleasing, and enable you to hear Radio at its best.

IGRANIC Radio Devices are sold under a guarantee; are backed by a sound technical service which is free to all users; are British made and represent the finest value in Radio parts to-day.

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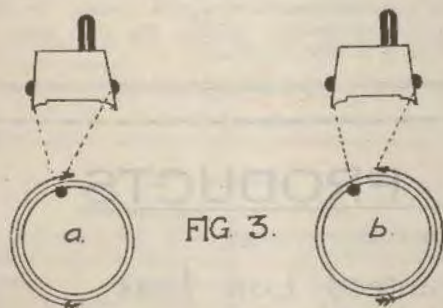
Honeycomb Coils, Concert Coils, Radio Frequency Transformers, Audio Frequency Transformers, Telephone Transformers, Fixed Condensers, Variable Condensers, Filament Rheostats, High Resistance Potentiometers, Low Resistance Potentiometers, Aperiodic Couplers, Coil Holders, Variometers, Varicouplers, Valva Sockets, Fixed Grid Leaks, Variable Grid Leaks, Knobs and Dials, Marking Switches, Radio Switches, Telephone Connectors, Spring Clip Terminals, Vernier Friction Pencils, Etc., Etc., Etc.

Build a better set with Igranic Radio Devices

WINDING HONEYCOMB COILS.

(Continued from Page 11.)

Then wrap the cardboard or presspahn as described and you are ready. Start on any pin, and anchor the wire (22 D.C.C.) by taking one turn round the pin. Call that pin No. 1. Now start winding diagonally across to pin No. 8a on the opposite side (see Fig. 2), then proceed to pin 16; go round that and continue to pin 7a. It will be seen that this brings succeeding turns on to adjacent pins, and the winding may be continued. Seventeen pins may be missed and the wires will still be adjacent, but will be one more than the previous turn instead of one less as when 15 pins are missed. Missing 13 or 19 pins brings succeeding turns 3 pins apart, and this method may be used where it is required to keep self capacity as low as possible. With 32 pins the same method is followed, remembering that the first diagonal goes to a pin approximately half way on the other side. That is, suppose you miss 31 pins from pin No. 1 go across to the 15th or 16th pin



on the opposite side—it does not matter which. In deciding how many pins you will miss, remember that the larger the number is the smaller the number of layers will be. The method of determining the number of turns on a coil is simple, and consists of multiplying the number of wires on any pin by the number of pins missed, but be careful, however, that all the pins have the same number of wires round them. Supposing you have started off by missing 15 pins, and that you have gone round all the pins four times, the total number of turns is $15 \times 4 = 60$ turns. If you have missed 17 pins the total number of turns would be $17 \times 4 = 68$ turns. To obtain 50 turns, therefore, we require, with 15 pins missed, 3 wires on each pin plus 5 turns. Missing 17 pins we require 3 wires on each pin, less one turn. Using 32 pins the same calculations apply, such as 31 pins missed, and 6 wires on each pin gives $31 \times 6 = 186$

turns. It will thus be seen that to wind a coil of any number of turns is a very simple matter.

When the required number of turns are wound on, tie a piece of string round the circumference of the coil to keep the top wires in place. Remove all the pins and slip the coil off the former. It may now be stiffened, if required, by boiling in paraffin wax for a minute or so.

Coil Mounting.

Many writers instruct their readers to use a standard method of connecting coils to mounts, such as connecting the outside of coil to pin of mount. This is misleading, so readers must be careful when doing this to see that the exit of the wire from the coil is in a standard direction also, when looking at the mount with the pin (say) to the right. Referring to diagrams in Fig. 3 it will easily be seen that if (a) is turned over, we get (b). Thus, if the two coils were connected to their respective mounts as shown, one of them is reversed. This is important, as reversed coils frequently lead to unsatisfactory results in receivers using reaction.

TABLE.

No. of turns required.	Gauge wire.	No. of pins.	No. of pins missed.
10 to 15	18 D.C.C.	16	13
16 to 25	20 "	16	13
20 to 50	22 "	16	15
60 to 75	24 "	16	17
100 to 200	24 "	32	31
225 to 300	26 "	32	31
Over 300	28 "	32	23

EXAMPLES REFERRING TO TABLE.

Coil	No. of wires on each pin.	No. of turns extra or less.
25 turns	2	Less 1 turn.
35 turns	2	Plus 5 turns.
100 turns	3	Plus 7 turns.
250 turns	8	Plus 2 turns.

Both the earth and lead-in wires from the aerial should be as short as possible. They cannot be run all over the house and near other wires and metal objects without affecting the operation of the receiver.

The wavelength to which a circuit will be in resonance is higher when the plates of a variable condenser are more in mesh. As they are turned out from the stator plates the wavelength of the circuit is reduced.

Australian Broadcasting Stations—Schedule of Transmissions

Located at	Operated by	Call.	Wavelength.
Sydney, New South Wales	Farmer & Co. Ltd.	2FC	1100 metres
Sydney, New South Wales	Broadcasters (Sydney) Ltd.	2BL	353 metres
Melbourne, Victoria	Aust. Broadcasting Co. Ltd.	3LO	371 metres
Melbourne, Victoria	Associated Radio Co.	3AR	484 metres
Perth, West Australia	West Australia Farmers Ltd.	6WF	1250 metres
Hobart, Tasmania	Associated Radio Co.	7ZL	410 metres
Brisbane, Queensland	Queensland Radio Service	4QG	395 metres
Adelaide, South Australia	Central Broadcasters Ltd.	5CL	395 metres

HIGH COURT LISTENS-IN.

Mr. Justice Isaacs, of the High Court is a wireless fan. When sojourning in Sydney an inseparable companion of his evenings is a four-valve set.

But when absent from Sydney his Honour dispenses with the evening companion. It rests at Darlinghurst, carefully watched over by the faithful custodian of Darlinghurst, Mr. Sam. Godkin.

The second meeting of the New Zealand Radio Broadcasting Board will be held about the end of January.

A fisherman friend of ours is off radio for life. Last Sunday, just as he finished telling the boys at the camp about the big mickie that broke his pole and got away, someone turned in Zion on the portable, and the voice of Voliva was heard saying, "A liar is lower than the fish that rest on the bottom of the ocean."

—"Radio Digest."

The Duke of York makes dictaphone records of his broadcast speeches from 2LO, London. He likes to hear his speeches repeated. The Duke seems to be alone in this proposition.

EMMCO RADIO PRODUCTS

MFD. BY ELECTRICITY MFG. CO., SYDNEY.

Australian Made Guaranteed Low Loss Condenser

All Capacities with Direct Vernier.

Built like a Watch.

Most Minute Adjustment.

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Straight Line Wave Length. Square Law.

Most up-to-date Low Loss Condenser made.

Emmco Jacks, Single	at 2/6
" " Double	at 3/-
" " Switch	at 4/6

SEE THEM AT YOUR DEALERS

QUERIES ANSWERED

Q: Why do heterodynes cause crystallisation in non-radiating tuned reflex aerials?

A: We will bite! How?

Q: Is it true that the announcer at BVD is a close guy?

A: Just in the summer time.

Q: I just adore the tenor who sang from PDQ Christmas Eve. What is the colour of his eyes?

A: Her name is Mike.

Q: How can I learn how to be a radio announcer?

A: The courses in the Podunk Correspondence School of Applied Brick Laying are very beneficial for those desiring to become poultry-raisers.

Q: What is the wavelength of Station XYZ?

A: Her right name is Mabel, and she has a permanent wave.

Q: Why?

A: Because.

—"Radio Digest."

R.I.P.

Willis: "Do you think the radio is driving out the phonograph?"

Gills: "I don't know, but it certainly is drowning it out."

AN APOLOGY.

THE ARTICLE LAST WEEK.

We regret very much that an unfortunate mistake occurred in the article "Adding Transformer Coupled R.F. Amplification to the Improved Armstrong Receiver" through inadvertently running this article into another one which had nothing to do with it. While we know the average reader would have at once detected the error, we apologise if inconvenience has been caused to anyone.

Please read the article on from the 11th line in the left-hand column on page 32. (List of parts—last line, 1 loud speaker.) Now read on:—

It will be found that the selectivity is excellent, but that the tuning is not quite so fine as in the previous method. It is rather difficult to make a choice between the two receivers, as each has its own particular advantages, while as regards range and volume they are about equal. To make a choice, the transformer coupled receiver is probably the best for use in the country or where interference from mains is bad, while the other design is the best for city work, as I have found that it will completely tune-out either 2BL or 3LO, if required.

WHAT THEY WRITE

GO GETTERS NOTE!

(To the Editor)

Dear Sir,—It is really interesting to note the number of experimenters that appear to pick out KGO, KDKA, WOAT, etc., at any time and with perfect ease—and on one valve. Have any of these men been able to pick up VIM, VIA and VIP broadcasting at any time without interference? I doubt if any of your long distance men can get VIA (5CL) or VIP (6WF). It appears strange to the general broadcast listener that those huge distances can be received when you can bet your bottom dollar they cannot receive Perth or Adelaide, when my little 12 year old kiddie can tune them in with ease. What say the "Go Getters?"—Yours etc.,

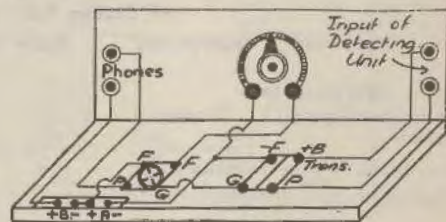
ARTHUR McCLELLAND.
372 Railway Parade, Kogarah.

MOUSE STOPS BROADCASTING.

The tiny mouse who committed hari-kari by getting himself electrocuted on the plates of one of the main condensers at 5XX, Daventry, held up broadcasting for 12 minutes. At Sheffield some months ago a mouse stopped transmission by chewing the moving coil of the microphone. The latter mouse "got away with it," while the Daventry mouse paid the penalty.

A QUERY.

A reader, or, to be exact, several readers, have asked us to publish a diagram of a stage of audio to be hooked up to the Marikay crystal receiver described in "Wireless Weekly" some weeks ago. Here is a back panel view of the one stage audio. Simply join it up to the existing phone terminals of your set.



FOR SALE: Two .0005 Acme low loss variable condensers — never used — cost £4/17/- per pair — sell £4. R. Walsh, Montrose, 9 Arthur Street, Leichhardt.

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	1.5 "	5/6
	1.5 "	4/6
B	60 "	25/0
	45 "	20/0
	1034 x 7	
C	4.5 "	2/4
	4.5 "	12/0
	6.0 "	15/0

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ANOTHER LOOP RECEIVER

A Design which Reduces "Static" Interference

By A. ALEXANDER.

With the arrival of summer and the consequent increase in the strength of static, the reception of the broadest concerts and news items may be at times entirely spoilt, and if one desires to enjoy continuity of service and perfect reception at all times, some means of reducing the interference must be found. It must be confessed at the outset that inventors have, in the past, so sadly neglected their duty that no effective means of preventing "static" interference has yet been discovered, but by taking certain precautions one is able to reduce the interference to a negligible amount.

Before proceeding to elaborate on the methods of avoiding interference from static, it is rather interesting to note that, of late, static has not been nearly so troublesome as it was, say, three years ago, or prior to the advent of broadcasting in this country. This fact, according to an electrical engineer who knows his job thoroughly, may be attributed to the enormous increase in the number of aeriads in use, at least within the metropolitan districts. These, he states, offer a continuous path to earth for the atmospherical electricity and so keep the air drained, as it were. His argument has been partly substantiated by observations in districts in which almost every other house was equipped with a wireless receiver, and also in districts in which the nearest aerial was nearly a mile distant. It was found that in the former case the static interference was almost negligible, while in the latter it was so bad that reception was very poor, indeed.

Undoubtedly, receivers which employ a direct

coupled aerial tuning arrangement are the most easily affected. The remedy in this case is to employ a selective tuner in the form of an inductively coupled circuit. Another method which can be used is to lower the filament of the detector until the broadcasting station is only just audible, using one audio stage of amplification. In this case an additional stage (i.e., three stages in all) of audio frequency amplification will be required for the operation of a loud speaker.

The best method of all is to make use of a receiver which is so sensitive that both outdoor aerial and earth may be dispensed with, and a loop or indoor aerial used in their stead.

It is possible to do this with some forms of four-valve receivers in which one stage of radio and two stages of audio frequency amplification are employed, but it is better to add an additional one stage of radio, even though for economical reasons it may be necessary to cut out one stage of audio frequency amplification.

Naturally, if one can afford it, the second audio valve would improve the receiver, but, for the present, details are presented for the construction of an instrument employing two stages of radio, detector, and one stage of audio frequency amplification.

The circuit is shown in Fig. 1. When used with an outdoor aerial the coil shown as L1 is brought into use, but normally the loop is plugged into the grid circuit of the first valve in the position indicated. The coupling between the first two valves is

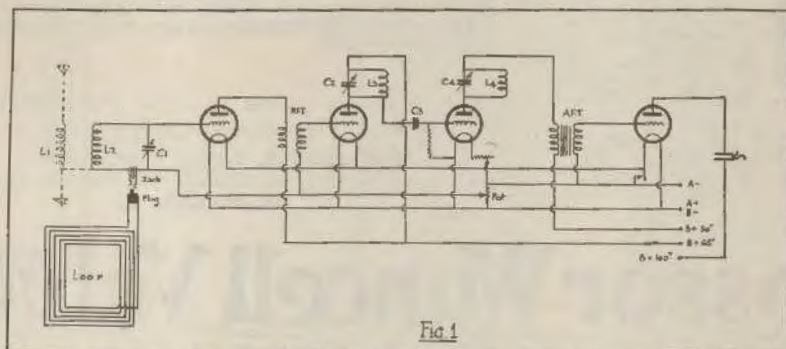


Fig 1



**WUNCCELL DULL
EMITTER.**

TYPES W.1. & W.2.

Type W.1. is for use as a Detector or Low Frequency Amplifier. Type W.2. (identified by its red top) has been specially developed for use as a High Frequency Amplifier. Owing to their construction, and also to the fact that the filament glows only at a very dull red heat—almost invisible in daylight—Wuncell valves possess an exceptionally long life.

Technical Data.

Filament voltage, 1.8 volts.
Filament consumption, 3 amps.
Plate voltage, 20-80 volts.

**WUNCCELL DULL
EMITTERS. TYPES**

W.1. & W.2.

In characteristics these Valves are identical with W.1. and W.2., but are fitted with an additional resistance to enable them being used with either a 2-, 4- or 6-volt accumulator without alteration to Set. Specially suitable for use with bright emitter valves working from a 6-volt accumulator. When required for use with a 2-volt accumulator the internal resistance can be thrown out of action by means of a short-circuiting screw. Technical Data as above.



**COSCOR LOUD
SPEAKER VALVE.**

TYPE W.3.



When used with a good Low Frequency Transformer this new W.3. Valve gives an immense volume of pure and undistorted sound. Its use renders a second stage of L.F. amplification practically superfluous. The design embodies all the well-known Coscor principles, and the Valve is, therefore, quite free from microphonic noises. Filament voltage 1.8 volts, filament consumption .5 amp, plate voltage 40-120 volts.

Tracking microphonic noises to their lair!

WHILE bright valves were universal we rarely heard much about microphonic noises. To-day, now that so many wireless enthusiasts are awake to the economies of the Dull Emitter, the elimination of microphonic noises is quite a problem.

Various ingenious methods are suggested. Valve holders sprung on rubber bases or on coiled springs are already available. Some technical writers even advocate the mounting of valves on rubber insulated platforms. But these are only makeshifts to make the best of a bad job. Obviously the best way to overcome microphonic noises is to go to the root of the trouble within the valve itself.

Microphonic noises are due to external vibration. Usually the cause lies in the use of an extremely fragile filament. Sometimes it is due to lack of rigidity of the grid. To overcome such noises, therefore, these elements must be so robust in design that movement is practically impossible.

This was the problem that had to be faced when the Coscor Wuncell was designed. Microphonic noises were not accepted as inevitable, we knew that they could be eliminated. First of all we tracked down the causes. The worst culprit was the valve with the long, straight and extremely fragile filament. A filament so delicate that the slightest touch on the glass would set it a-quivering. Such valves on occasion have even been known to set up microphonic noises when the mouth of the Loud Speaker is turned towards them!

Another fruitful cause of microphonic noises lies in the use of a Grid insecurely mounted on its electrode. Most Grids are merely spirals of wires secured to upright nickel supports. And so our experiments drew us more and more to the conclusion that the standard Coscor construction which had definitely produced the finest Bright Emitter should be used for the Wuncell.

Owing to its unique filament construction—an arch with a third supporting electrode at its centre—all possibility of vibration is eliminated. Its Grid, too, is wonderfully rigid. It is built up on a stout metal Grid band and each turn of the wire is securely anchored in three distinct places. Thus in the Wuncell microphonic noises are tracked to their source and completely eliminated. Even if the table on which the Receiver stands is struck there will be no answering discord from the Loud Speaker. Can any other Dull Emitter survive such a drastic test? And thoughtful valve users are realising that such rigidity and strength—particularly in the filament—means a considerable increase in life for the Wuncell.

Coscor Valves are stocked by all the principal Wireless Dealers. In case of special difficulty, apply to

JOHN ARNOLD, Factory Representative,
Box 802, DE GRAVES BUILDINGS, DE GRAVES STREET,
MELBOURNE.

Coscor Wuncell Valves

THE BRITISH DULL-EMITTER WITH THE LONGEST LIFE

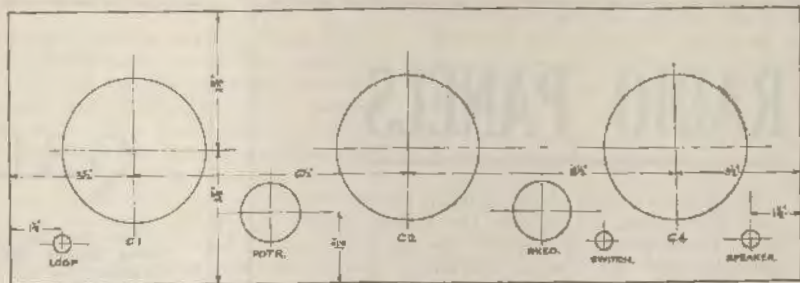


FIG. 2

made by an all-wave (200-1500 metres) radio frequency transformer type A.W.A. The plate circuit of the second radio valve is tuned by the coil L3 and condenser C2, to which the grid of the detector is coupled by the grid condenser C3 of .00025 mfd. capacity.

Regeneration in the detector valve is obtained from the tuned plate circuit L4 C4, but if desired this may be dispensed with if economy is of paramount importance.

Reverting to the tuning circuit L2 C1, it will be seen that when using the loop, L2 is operating as a loading coil. By this arrangement the exact size of the loop, within limits, is not particularly important, but best results will be obtained when receiving stations whose wavelengths are below 400 metres by short circuiting the coil plug altogether with a special plug. The exact size of the loop, unless one is purchased ready made, is best determined by experiment, but it will be found that about 12 or 15 turns of wire spaced 1/8in. apart on a frame 30in. square will be suitable for 2BL and 2KY. When winding the loop it is quite easy to

arrange the wires so that by using a battery clip any number of turns may be included in the circuit.

A suitable panel arrangement is shown in Fig. 2.

The components and material required will be:—

1 Panel, 20in. x 7in. x 3/16in.

1 Terminal panel, 10in. x 1/8in. x 1in.

3 .0005 mfd. variable condensers, with verniers for preference.

2 Rheostats.

1 Potentiometer.

8 Terminals.

4 Coil plugs.

1 Special shorting plug.

1 Loop fitted with phone plug.

1 Set of coils.

1 D.C. jack for loop.

1 Jack for speaker.

4 Valve sockets, non-microphonic type.

1 A.W.A. radio transformer.

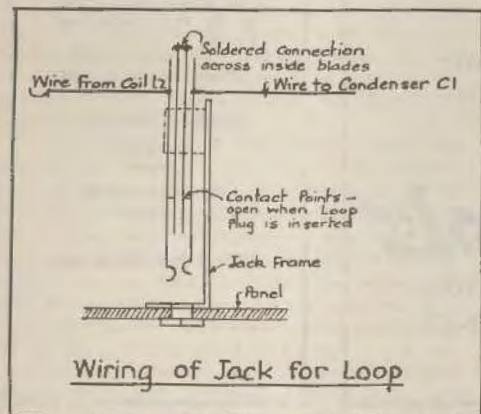
1 Audio transformer.

1 .00025 mfd. grid condenser, C3.

1 Grid leak.

4 Valves, 201A type.

1/2 lb. Tinned wire, spaghetti covered.



Wiring of Jack for Loop

When purchasing the coils it may be better to buy three each of numbers 50 and 150 instead of a complete set. By doing this the receiver can be calibrated, so that for any given station the dial readings on each of the condensers are the same. To calibrate the receiver slacken the screws of each of two dials (when the station has been tuned-in), and adjust them so that the readings are the same.

This may give false zero readings, but this is quite immaterial.

When building the receiver, lay out the whole of the various parts on the baseboard in such a manner that, so far as possible, all high frequency leads are short. If a baseboard about 10in. wide is used there will be plenty of room for the components. The rheostat for the amplifying valves is secured to this board instead of on the front tuning

RADIO PANELS

To those who are about to build their own Radio Set, we submit the following. These prices of Bakelite we would mention are the lowest prevailing in Australia.

BAKELITE

Cut to any desired size

1/8in. $\frac{1}{2}$ d. per square inch

3/16in. $\frac{3}{4}$ d. per square inch

'NEUTRON' Crystal

Have you tried this wonder Crystal yet? It has been aptly named "The

Crystal with Valve Power" **2/3** each

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To the professional and amateur alike these Dials are known only as the best.

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Q.S.L.

The meaning of the three letters QSL is: "Please give me a receipt" — or, in other words—"Send me an acknowledgement."

There isn't a transmitter on the air now who is not glad to get a report on his signals, whether they are phone or C.W.

You can put everything you want to say on a Publicity Press QSL card. It takes only a minute to fill in and conveys all the information the transmitter wants.

Over the last few months we have printed thousands of these cards for both transmitters and receivers, among them 2UW, 2CX, 2BF, 2LM, 2WW, 4CK, etc.

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panel. Once it has been adjusted there is no need to touch it.

The wiring for the loop jack is given in Fig. 3. Using a double circuit jack, the two outer blades are connected to the first variable condenser and tuning coil respectively, while a piece of wire is soldered to the two inner blades to complete the circuit through the jack when the loop is withdrawn and the outdoor aerial brought into use.

Some notes regarding the performance of this receiver will be of interest. As a loop receiver it worked excellently at a range of 70 miles, and it appeared that its maximum range would be much in excess of this. In the experimental instrument built three stages of audio amplification were incorporated, the last being resistance capacity coupled. Away out in a country town, 400 miles air-line from Sydney, using the first four valves only, both Sydney stations (2FC and 2BL) were received on the speaker during daylight, the aerial being a common clothes drying line without insulators of any sort.

Using five valves and with a standard aerial, all Australian stations came in with excellent volume. The sixth valve was not required at any time; in fact, its use was forbidden, because, although the tone was excellent, the volume was just too much for comfort.

Static was not nearly so troublesome as with a receiver employing a direct coupled aerial, nor was any interference experienced from a near-by house lighting electric set.

Before concluding, readers who build this set are advised to use a 3-ply ebonite baseboard for mounting the components, as not only does it facilitate the mounting of the coils, but the wiring is simplified by virtue of the fact that all low tension wires can be separated from those carrying high tension currents, thus obviating the danger of accidental short circuits.

The receiver is very easy to build, and when completed will give complete satisfaction.

DISSATISFIED LISTENERS

If the spirit of recent meetings of listeners in Auckland and Wellington may be taken as an indication, the listeners in the North Island are very dissatisfied with the present broadcasting situation and the future prospects for the type of broadcast service they have every right to expect. The feeling in the South Island is not so obvious. The Christchurch Radio Society has condemned criticism of the Radio Broadcasting Company of New Zealand, Ltd., until it has demonstrated its operations with the new transmitters which are under order.

In Auckland, the burden of complaint is the failure of the broadcasting company to fully substantiate its claims in regard to broadcasting from the Damedin Exhibition, the curtailment of the service from 1YA, and the failure of the owners of the station to define their future policy. During the past week there has been a marked increase in the strength of the transmissions from VLDN, but the modulation is still not good.

As regards 1YA it is felt that an injustice has been done to listeners in the reduction of a service given on six evenings and two afternoons of the week to a service of four nights weekly. It is difficult to understand the attitude of the Postmaster-General in sanctioning the reduction since the agreement between the trustees of the broadcasting company and himself provides that the new owners of 1YA must provide "as efficient a broadcasting service as the prior licensee carried on."

Wellington listeners have vigorously protested against the present condition of broadcasting with

special reference to the fact that no broadcasting station is operating in that city. The Wellington people have been exceptionally unfortunate and have received the worst treatment of listeners in the four centres. The broadcasting company was to purchase the Wellington station, 2YK, and at the first meeting of the broadcasting board it was explained that delay had occurred owing to the owners of the station not having indicated their intention to sell. The listeners' representative suggested to the Postmaster-General that an issue should be forced, and, in addition, the broadcaster company indicated its intention to erect a temporary station at Wellington if 2YK were not purchased. At the present time, two months after the meeting, there is still no broadcasting service in Wellington. The Postmaster-General and the broadcasting company assert that listeners have no grounds for complaint.

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A FURTHER REPORT from KOSCIUSKO

The Wireless Set supplied by David Jones' to the Hotel Kosciusko continues to give excellent results. It has now been in operation several months. Its continued reliability is most gratifying to David Jones' Radio Department and also to Mr. Charles MacLurcan who designed this instrument for the Government Tourist Bureau.

Sets similar to this, and all other radio sets and accessories can be immediately supplied by our Radio Department.

Let our Experts solve your wireless problems. If your set is not giving the best possible results phone City 6336 or B6971 and a qualified engineer will call and effect a repair or alteration at the lowest possible cost. Advice is given freely.

DAVID JONES

New Zealand Broadcasts

An endeavour by a New Zealand correspondent to obtain full details of all the stations broadcasting in the Dominion has not been very successful. The various broadcasters were requested to supply information on the hours of service, wave length, power input and output, if available. Most of the requests have been ignored, while the manager of the Radio Broadcasting Company of New Zealand, Ltd., wrote declining to supply the information on the grounds that the existing stations being temporary, no useful purpose would be served by publishing such details.

As near as can be gathered, however, the stations at present broadcasting are as follow:—

1YC, Whangarei, 15 watts output, 250 metres; 1YA, Auckland, 33 metres; 1YB, Auckland, 265 metres; 2YM, Gisborne; 2YL, Napier, 100 watts output, 190 metres; 2GL, Palmerston North; 2AQ, Taihape; 3AC, Christchurch, 50 watts input, 240 metres; VLDN, Dunedin, 370 metres; 4AB, Dunedin.

The regular transmissions are:—

Monday—1YA, 8 to 10.15 p.m.; 1YC, 7.30 to 9.30; 2GL, from 7 p.m.; VLDN, 8 to 10. Tuesday—1YA, 8 to 10.15; 2YM, 3AC, 6.45 to 7.15 and 8 to 10; VLDN, 8 to 10. Wednesday—3AC, 8 to 10 p.m.; VLDN, 8 to 10. Thursday—1YC, 7.30 to 9.30 p.m.; 1YA, 8 to 10.15; 2YL, from 7.15 p.m.; 2YM, VLDN, 8 to 10. Friday—1YC, 7.30 to 9.30; 1YA, 8 to 10.15; 2GL, from 7 p.m.; 3AC, 6.45 to 7.15, and 8 to 10; VLDN, 8 to 10; 4AB. Saturday—3AC, 8 to 10 p.m.; VLDN, 8 to 10 p.m. Sunday—1YB, 7 to 10 p.m.; 2YM; 2YL, from 7.15 p.m.; 3AC, 8 to 10; 4AB.

1YC, Whangarei, has been broadcasting successfully with 7 watts output, and it is proposed to increase this immediately to 15 watts. The times given above will be effective for this station when the power is increased. 2AQ, Taihape, broadcasts frequently every week.

THE CAT'S WHISKERS.

The cat stepped on the battery wires,
And every hair threw electric fires;
She gave a jump, and let out a wail,
When jazzy music came from her tail.
She leaped out the window, wild with fear,
When a soprano solo came from her ear:
She'll not forget where'er she'll go,
The night she sang on the Radio.

WANTED.—All kinds Secondhand Wireless Sets
Parts, Speakers, etc. Best prices given. JACK
RAPKEN, 16 George Street West. MW 1201.



SEASONINGS WITH A TOUCH OF MIXED MUSTARD.

VERA TASMA.

Mme. Vera Tasma, long expected to sing from the studio of 2BL, made her first appearance as a 2BL artiste on New Year's Night in programmes of Old English and Scotch songs. Mme. Tasma's beautiful voice transmits perfectly, and will be a feature of 2BL's programmes for several weeks. In addition to songs of the type mentioned, Mme. Tasma will render operatic arias and various Continental songs from her extensive repertoire.

SKETCHES AND PLAYLETS.

To meet the demand for sketches and playlets 2BL is organising a small company of players who will be heard to great effect in the near future. One act plays, witty dialogues, and more extended items are in course of preparation, and will be eagerly awaited. The first of these will be presented by Frank Shepard's company on Jan. 6.

FOREIGN AFFAIRS TALKS.

The talks on foreign affairs by Mr. J. M. Prentice continue to excite the utmost attention, especially in regard to the answering of questions, in which the speaker shows great resource as well as a fund of knowledge. Many people have expressed amazement at the fluency and assurance with which the most penetrating questions are instantly answered, and this has led to the idea in some quarters that the questions are prepared beforehand; this, however, is not so, as Mr. Prentice will prove to any doubter who may desire information. It is only as the result of great study of foreign politics, spread over a number of years, that Mr. Prentice has obtained the intimate knowledge of persons and policies that distinguishes his talks. Tuesday evening in each week is the Radio Question Hour.

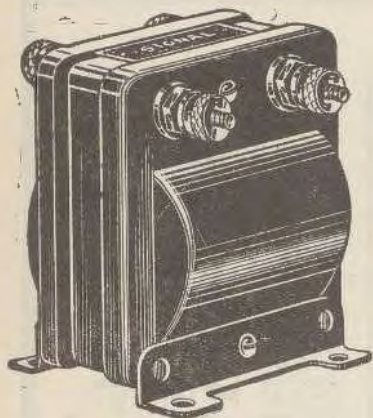


Miss Dulcie Blair, violinist and member of 2BL's Trio.



Mr. Norman Wright, tenor, another success from 2BL.

BURGESS—"THEY'RE USED ON THE UNITED STATES AIRCRAFT"—BATTERIES



Every one is Perfect!

This fact is borne out by every one of the twenty thousand or more Signal Transformers in use throughout Australasia.

Signal Transformers are manufactured by Electricity Meter Manufacturing Co., Ltd., Sydney, solely for United Distributors, Ltd. Ninety per cent. of the employees, machinery, and material is Australian. This, coupled to the fact that they are wholly efficient, makes a convincing argument in favour of Signal Transformers.

"SIGNAL" AUDIO-FREQUENCY TRANSFORMER — A high-grade amplifying transformer, in a magnetically shielded case, made in 7 to 1, 5 to 1, 3½ to 1 and 2 to 1 ratios. Gives loud, clear amplification, free from distortion.

RETAIL PRICE, 21/-.

"SIGNAL" RADIO-FREQUENCY TRANSFORMER — An efficient air-core transformer with simplified control of adjustment to various wave lengths. In nickelled brass cases to reduce any stray couplings.

RETAIL PRICE, 32/6.

"SIGNAL" PUSH-PULL TRANSFORMER—for best results in all push-pull circuits.

RETAIL PRICE, per pair, 65/-.

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Adelaide.

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Perth.

SEASONINGS — Continued

TEA ROOM QUARTETTE.

The David Jones Tea Room Quartette are heard every Monday and Thursday afternoons from 2BL. This delightful trio, comprising Miss Caspers, pianiste, Mr. Acheson, violinist, and Mr. Cleaver, cellist, have captivated many of the afternoon listeners-in with their delightful playing. Selections from popular musical successes, operatic selections, with outstanding numbers in the musical world are played with great verve and joyousness.

Radio helped to save seven tourists and four Swiss guides and porters during the past tourist season in the Swiss Alps. The number of Swiss cheeses so rescued has not yet been tabulated.



Miss Pauline Harford-Foster, soprano, often heard from 2BL.

LECTURES TO COME.

Lecturers of merit are engaged in giving entertainment and instruction in the most pleasing manner from 2BL. Mr. G. C. Barnes, President of the Independent Theosophical Society, and an exceptional student of archaeology, will deliver a series under the general title of "Romances of Buried Treasure," dealing with the treasure heaps of Egypt, the sea kings of Crete, Spanish galleons, and so on. Mr. Fraser Anderson will follow with a series on "Astrological Aids to Character."

DIALECT EXPERT.

"Bringa" (Mr. W. Robertson) continues to fascinate the young people, and adults also, with his talks on the Australian aborigines. His acquaintanceship with this rapidly vanishing folk-lore is wide and accurate; he has had first-hand experiences of tribal mysteries and customs, and knows dialects probably better than any other living white person. His greeting in one of the aboriginal dialects is eagerly awaited by many on each Saturday, when he shares the Bedtime Story Hour with Uncle George, of 2BL.

SMART SET DIGGERS.

The Smart Set Diggers will be heard again from 2BL on Jan. 9. This admirable organisation pleased the listeners-in on previous occasions, and presents a really fine programme of songs in unison, solos, duets and concerted numbers, as well as sketches.

DAME OF DAMES

Character
Comedian
Extraordinary



The
Famous
Pantomime
Dame
From
Drury
Lane

DAN THOMAS

FAVOURITE FUNSTER

--AND--

PRIME MINISTER

--OF MIRTH.--

PHILIPS VALVES

B.406 "THE NEW WONDER VALVE." B.406

This Valve is a product of many months' exhaustive work in our own Laboratories. Philips' have a staff of over 60 scientists, many of whom are men of international reputation, continually employed in examining and perfecting the products of the Works. After long and continual research, this new WONDER VALVE has been developed and perfected, and for general purposes is without a rival. The current consumption is .1 amp. only, whereas all valves of the 201.A type take .25 amp., and the B406 filament requires only 4 volts, for which purpose three dry cells or two accumulator cells are sufficient. This remarkable saving in current is effected without any loss in volume, and, indeed, it may be said that the B406 reproduces music more faithfully than any valve yet manufactured. When purchasing valves for your Radio set, it is imperative that you obtain the products of the Philips factory, as the name PHILIPS' gives a guarantee of absolute satisfaction and money well spent.

Price 17/6 Standard English or American Cap. Price 17/6

A.110 — "THE ONE-CELL VALVE."

Detector and Amplifier.

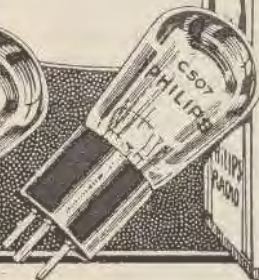
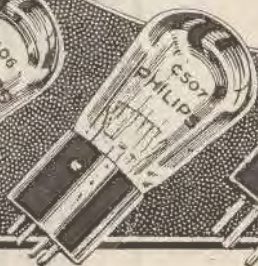
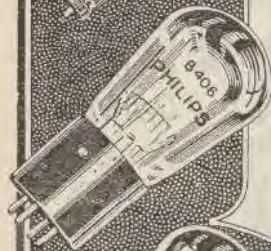
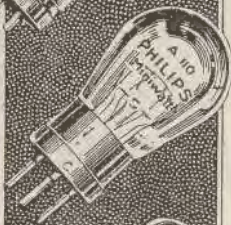
Filament Consumption, 1.0/1.8 volts, 0.06 amp.

Plate Voltage, 20/100.

"A 110 consumes less current than any other Valve yet produced, and makes it possible to operate a set for many weeks on one dry cell. The filament is not coated with Thorium Oxide, as in the ordinary Dull Emitter, but is made under a specially patented process, and as long as the marked voltage is not exceeded, the filament will keep the same characteristics throughout the life of the Valve."

Price 17/6 Standard English

or American Cap. Price 17/6



FROM HERE AND THERE

RADIO WEDDING MARCH.

Home weddings have become popular in the United States, particularly in Chicago, on account of the part which can be played in the ceremony by radio. Thousands of American brides are having home ceremonies because radio stations are always pleased to broadcast any of the famous wedding marches for the occasion. All the bride has to do is to arrange with the broadcasting station the precise time at which she would like the wedding march played. Then the best man tunes in the family radio set, and the music of the broadcasting station's grand organ or orchestras rings through the home to the delight of the assembled guests. Al Carney, who plays the organ at broadcasting station WHT, Chicago, has received over a hundred requests for a definite schedule of wedding marches, sometimes for events three months ahead. Mr. Carney, who takes a special interest in putting wedding music on the air, says "giving Cupid a lift through the air" is a pleasure. Nothing of this kind has been done so far in Australia, although station 2FC not long ago broadcast an actual wedding ceremony. The manager of 2FC (Farmer's), however, is willing to broadcast the wedding march from the studio orchestra for any bridal party who lets him know when the happy event is to take place.

DX ON A CRYSTAL.

J. Shurack, Stoneyrange Vineyard, Minto, N.S.W., writes saying he has been able to listen to 2BL on a loud speaker using a crystal receiver of the tapped coil type and two stages of audio. He has also read 3LO on the ear phones using this set.

IS THAT SO?

After telling of the proposed plan to broadcast records made by famous men in later day British history, an editorial in a New York State paper makes this remark: "Don't give 'em the ether; give 'em chloroform. Let the live ones have a chance." Rather a neat pun as puns go, say we, although we do believe that some of the has-beens of history could put more life on the air than can some of the alleged performers of to-day.

Earthquakes are said to clear the air of static, but who the—well, who cares to have pet earthquakes under his aerial?

THEATRE BROADCAST.

On Friday, Jan. 8, the second act of "Leave it to Jane" will be broadcast by 2FC from Her Majesty's Theatre. From the Studio—George Searle, comedian, film talk; vocal programme from the Metropolitan Quartette, A. G. Ellis (baritone), Arthur Champion (tenor), Jenn Grant (soprano), and Mary Bourke (contralto). From the Sydney Cricket Ground—Description and scores of the match New South Wales v. South Australia.

CHURCH SERVICES.

On Sunday, Jan. 10, the morning service from St. Mark's will be broadcast by 2FC. Organ recital in afternoon. Evening service from Pitt Street Congregational Church, and from 8.30 p.m. till 10 o'clock will be given a studio concert.

CRICKET SCORES.

On Saturday, Jan. 9, there will be a continuation of description and scores from Cricket Ground by 2FC. Full racing and sporting information. In the evening a programme from the Crystal Palace. From the Studio, plays by Walter Hunt and Eve Warburst; Ina Thornton, soubrette; Fred Bluet, comedian; and dance music from Wentworth.

SELL IT!

WHY hold on to your used apparatus when you can sell it quickly—and at a very low cost—by advertising in these columns? A half-inch ad. (about 25 words) costs 3/6. There are a lot of wireless fans who read this paper, and they may want just what you have to offer. Try an advertisement in the next issue.

**MAIL YOUR ADVT.
NOW**

RADIO on Easy Terms. NO INTEREST.

All sets complete with De Forest valves, phones, A and B battery and Aerial.

Single Valve	£9 10 0
Deposit	0 18 6
Weekly	0 3 3
Two Valves	£18 15 6
Deposit	1 7 8
Weekly	0 4 9
Three Valves	£21 0 0
Deposit	2 0 0
Weekly	0 7 4
Four Valves	£25 0 0
Deposit	3 10 0
Weekly	0 8 8
Five Valves	£29 10 0
Deposit	3 0 0
Weekly	0 10 0

OPEN ON FRIDAY NIGHT.

Radio W'less Mfg. Co.

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Opposite Hunter Street,
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HOWELL'S SALE & EXCHANGE

THE HOWELL REINARTZ

HAS EARNED ITS REPUTATION BY ITS WONDERFUL
PERFORMANCES.

A FEW FACTS.

Mr. Wireless Enthusiast,—

Is it not a fact that Clarity, Volume, Selectivity, Low Wave GX Reception, and Excellent Local and Interstate Reception is the aim of every owner of a Radio Receiver?

Wouldn't you delight in being the owner of a Receiver that would give you these results?

Wouldn't you be proud of a Set that would operate on all wavelengths from 15 to 1250 metres or more, one that would receive the low wave stations as easily as the most expensive Low Loss Receivers? Yes, certainly you would. Well, you can easily do this by installing the "HOWELL REINARTZ." It will do it.

Let us rebuild your Receiver to the most "POPULAR HOWELL REINARTZ" circuit.

Call in and have a chat. It commits you to nothing.
Our advice is always given freely.

19 BARLOW STREET, SYDNEY

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HORIZONTAL STATIONARY ENGINES

	£	s.	d.
Reliable Headphones, 4000 ohms, 12/6 to	15	0	
Dulcivox Loud Speakers	2	15	0
1 Valve sets, complete with Headphones, Batteries and Valve	6	0	0
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3 Valve Sets, complete from £17 to	21	0	0

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Under the Railway, opp. Marcus Clarks

Wm. Lambert Hamilton

Radio Specialist

Bring your troubles to me.
What I will do for you.

I will remodel or re-wire your receiver, making every valve give of its best. Let me modernise your receiver.

I will build you a set to suit your local conditions.

I will answer any enquiries immediately.

My charges will be moderate.

I will buy your components for you at ruling city prices and despatch them to you within 24 hours of receipt of order. I will advise you as to the quality of the goods. This service is free.

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Dulwich Hill.

THE IDEAL BROADCAST RECEIVER

By "GRID LEAK."

Exhaustive experimentation in searching for the ideal broadcast receiver would seem to have very firmly established the fact that no form of radio frequency amplification can be included without producing distortion or loss of efficiency, or both.

That this is so is easily proved by the simple process of setting up the ideal receiver, and then altering it by attempting to add any of the forms of radio frequency to it. In this connection, choke coupling, transformer coupling, and two coil coupling have all been tried and failed to produce the results obtainable without any of these forms of amplification.

The listener-in who is away back in the country, and for whom radio frequency is deemed to be absolutely necessary to bring in radio concert from a distance, must, perforce, put up with some distortion in order that radio frequency may be employed.

At the same time, it is not at all a settled point that radio frequency is necessary to bring in distant concert. The low-loss set has exploded that fallacy, and, further than this, a set on the lines of that which will be described has brought in radio concert 600 and 700 miles long before the low-loss set was thought of.

For the reception of broadcasting, let us review what is required. In the first place, the set must be easily manipulated; there must be no unnecessary complications, and changes for the reception of both short and long waves must be made on the minimum of effort. Good loud reception must be had on the

minimum number of valves, and the reproduction must be free from distortion. Last, but not by any means least, a fair degree of selectivity must be had to cut out interference when two powerful broadcasting stations are operating at the same time.

After trying and rejecting innumerable circuits, an adaptation of the standard three-coil circuit was adopted. This is shown in the diagram.

Plug-in coils are used, but in this particular circuit the coils are plugged in but once, and then become permanent fixtures!

Which means that the same set of coils bring in 2KY, 3UE, 2BL, and also 2PC, and, of course, any intermediate wavelength stations.

This suits the listener-in admirably—it saves him the fag of changing coils. To term it a "fag" to change coils may bring the curl of scorn to the lips of the keen experimenter, but he is not in the picture on this occasion. We are catering for the listener-in, the common or garden variety, who does not care two straws about bringing in Melbourne or any of those other outlandish places—he just wants to hear the local stations.

To get on with the story, radio frequency could not be employed for the reasons stated, and the three-coil arrangement promised to be the easiest method of solving the selectivity problem.

At first an aperiodic aerial-earth coil was tried, or, to be more correct, a semi-aperiodic coil was used, semi-aperiodic because the earth lead of the coil was connected to the negative lead of the fila-

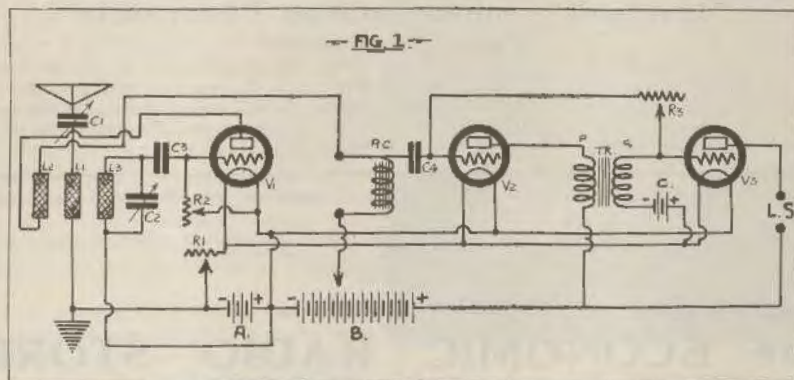


Fig. 1—The Circuit.

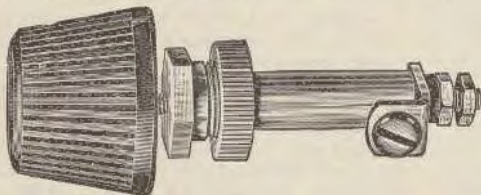
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HERE THEY ARE.

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|--|------|
| 1. The Wonderful New "RADEX" VALVES, 201A or 199 | 9/9 |
| 2. The Well-known "CRESCENT" TRANSFORMER, 6 to 1, 3½ to 1 | 13/6 |
| 3. The G.I. Co.'s NO LOSS CONDENSER, insulated with Pyrex Glass, .0005 | 27/6 |
| 4. The AJAX 400 ohm POTENTIOMETER | 4/- |



Marshall-stat

Use the Marshall-stat on
your Detector Tubes **10/6**

The Amperites— for all
Amplifying Valves **7/6**



OTHER ATTRACTIVE LINES.

VALVES SOCKETS, American	3/9, 2/9, 2/6, and	2/-
RHEOSTATS, Ajax, 30 or 6 ohms		2/3
RHEOSTATS, English, 6 ohms	1/6 and	1/3
BUS WIRE, Square Tinned Copper, in 2ft. lengths	doz.	11d
TRANSFORMERS, the K. & C. Supreme for quality reproduction		18/6
HEADSETS, The K. & C. Special	Were 32/-	Now 18/6

"Insulator comes to the "Economic"

SPECIAL ANNOUNCEMENT.

We beg to announce that for the benefit of our clients we have arranged for the well-known Radio Writer, Mr. W. L. HAMILTON, better known as "INSULATOR," to be in attendance each Friday Evening to advise you regarding your radio problems.

Mr. Hamilton will be located each Friday at our Sydney Store. His advice will be FREE, and there will be no obligation to purchase.

We pay freight on goods to the value of 10/- and over, except on Batteries, Loud Speakers, and Cabinets.

NOTE.—Country customers please note that all orders are carefully attended, goods checked, and Valves, Batteries and Apparatus most rigidly tested before despatch.

We have now inaugurated a "SAME DAY SERVICE."

Yours for Lower Prices.

The ECONOMIC RADIO STORES

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NEWCASTLE

B 5891

Phone, Newcastle 1622

ment battery in common with the grid return lead of the secondary coil, and was, therefore, affected by changes in the secondary circuit.

This semi-periodic coil was used for some time, but when "Uncle George" shot in his full power at the new station at Coogee he came in all over the place on the fixed plug-in coils arrangement, and he had to be severely dealt with.

There was nothing to do but to add a variable condenser to the aerial earth circuit, and this threatened to complicate the tuning for Mr. Listener-in, and was only resorted to as a last recourse.

Come to think of it, if a fixed condenser can be included in the aerial lead, and all the tuning done with the secondary condenser, there was no reason why the variable condenser could not be "fixed" as soon as the point was found that gave the requisite separation of the stations. And that is just what was done.

Following up the "constant aerial tuning" idea, for which all sizes of fixed condensers had been used from .0001 to .006 m.f.d., a variable condenser of the plain variety was included in the aerial lead. This condenser is denoted by C.1 in the diagram.

Various settings of this condenser were tried, and it was found that at 50 degrees on a 100 degree dial this condenser would separate the stations from long to short wave without further alteration.

We could make Mr. Listener-in happy once more, as all he had to do was to set this condenser according to the aerial in use, and then do all his tuning with the condenser C.2, a variable vernier of .0005 m.f.d. In other words, we were back once more to the single control receiver.

Whilst on the subject of condensers, C.3 and C.4 may be dealt with. C.3 is the grid condenser, and is of .00025 m.f.d. C.4 is a stopping condenser necessary to prevent "B" battery potential reaching the grid of the first audio amplifying valve V.2.

Continuing to deal with the smaller fry amongst the components, R.1 is a 6 ohm rheostat, and which controls filament supply to all three valves. Rank heresy. True, but the proof of the pudding is the stomach-ache caused thereby, and if a separate rheostat is added for the detector, and carefully compared with the one rheostat arrangement, it will be found that there is not the slightest difference, that is if quarter ampere valves are used, and who uses bright emitters in these enlightened days?

Then think of Mr. Listener-in, only one rheostat to fiddle with.

R.2 is a 10 megohm leak, variable, of course, and it is connected between the grid of the detector and the positive of the filament battery, not to the negative, as in the old days of the bright emitters.

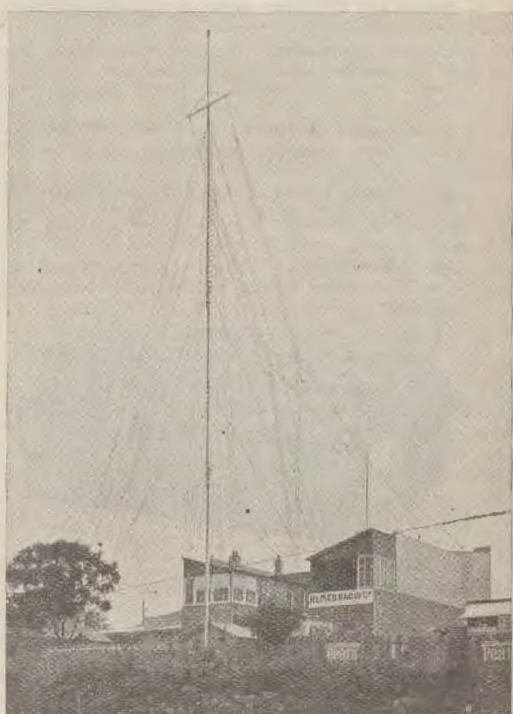
Nor is there any complication by having the leak variable, set once it stays put.

R.3 will get our readers guessing. The diagram is quite right, however, and R.3 is another variable 10 megohm leak, and can be done without on a pinch, but at the expense of distortion in the reception. It is connected between the grid terminal of the first audio amplifier and the grid terminal of the second one, V.3.

With this leak, every trace of distortion can be entirely eliminated, and perfectly pure reproduction enjoyed. Verb. sap., which being interpreted means a word to the wise.

It will be noticed that one stage of audio amplification is choke coupled and one stage transformer coupled. This arrangement was adopted as giving the greatest volume that could be needed, whilst preserving the purity of the reception.

Besides, we had only one transformer that was not burnt out on one side or the other, and some day



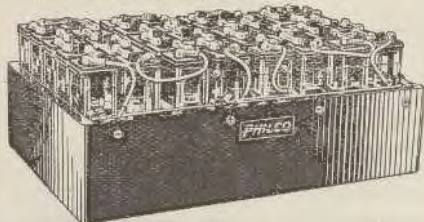
The mast shown in the illustration was erected by H. E. McIntosh, of Roseville. Its height is 136 ft. 6 ins., and is made in four sections.

PHILCO

DRYDYNAMIC RADIO
BATTERIES

The World's Finest "B" Battery AND ITS SEVEN POINTS OF EXCELLENCE!

- 1. ECONOMY.** These batteries will give trouble free service for years with only a minimum of attention. (See Point 4.) When dry batteries run down they are USELESS and are THROWN AWAY. The average Listener-in spends 25 per annum in Dry Batteries. Philco Rechargeable "B" Batteries CAN BE RECHARGED FOR A FEW PENCE. The initial cost plus a few pence a year for charging is the only cost.
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- 4. CHARGE INDICATORS.** Exclusive Philco Feature that tells all conditions of charge and discharge. No more bothering with old-fashioned hydrometer or guesswork charging.
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 83X (replaces 90 volt Dry Battery), 3000
 MAH. £8 15 0

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PHILCO BATTERY CO., 280 Castlereagh St., Sydney. 25/27 Queen's Bridge Street, Melbourne.
 26 Leigh Street, Adelaide.

a special article on burnt-out transformers will be included on our readers.

A transformer with the primary burnt out was chosen, as the secondary winding makes the better choke.

One end of this audio choke is connected to a tapping on the "B" battery, which is at 40 volts, this having been found most suitable for the quarter ampere valve in use.

The grid connection for V.2 is taken from that terminal of the choke to which the return lead of the detector plate coil L.2 is joined. Don't couple this in the wrong way round and then swear at this article.

Nothing special about the coupling in of the audio transformer marked T.R. in the diagram. Plate terminal to the plate of V.2. "B" battery terminal to 120 volts "B" battery, and same point to one connection of the loud speaker. Grid terminal on the secondary side of the transformer to the grid of V.3, and one connection of R.3 to the same terminal on the valve holder. The filament terminal of the transformer is connected to the negative of a 4.5 volts "C" battery, with the positive of this to the negative "A" battery.

The battery connections and polarity are clearly shown on the diagram, negative "B" to positive "A" and negative "A" earthed.

We have been travelling along the diagram until we now come to V.3, which is all but connected up, all except the plate which connected to the remaining unconnected terminal of the loud speaker.

L.S. means loud speaker. The term was invented with the circuit.

Now we have to switch back to the tuner.

The aerial-grid coil is in the middle. This position was chosen for two reasons, the first being that it permitted easier access to the tapped grid or secondary coil, and the next reason, quite an accidental one, that reaction on the aerial coil gives somewhat sharper tuning.

Details of Coils.

L.1, the aerial-earth coil, has 40 turns of No. 22 d.c.c. on a Grodan spider-web former, and is wound counter-clockwise.

L.2 has 100 turns of No. 20 d.c.c., and L.3 is wound with the same kind of wire and is tapped at 10, 40, 60, 80, and 100 turns, and finishes at 130 turns. To get the number of turns of No. 20 d.c.c. on the Grodan former, the wire is wound in every other slot. L.2 is also wound every two slots. Both are wound in a clockwise direction.

In operation L.1 and L.3 are never changed. In the case of L.3, tapping studs are fitted in the centre of the former, and a short switch arm makes con-

tact with any stud. The switch arm is connected to the upper connection of the coil, and the switch thus short-circuits any turns past those included up to the tapping used.

Fitted to a panel set, the coil holder may be placed inside with the control knobs of the coils extended to permit of manipulation from the front of the panel. Flexible leads from the tapped secondary coil can be brought to a set of studs and switch arm inserted in the panel, to admit of easy changing for the different wavelengths.

In operation L.1 and L.3 are brought close together, and L.2 is kept off a couple of inches. For the longer wavelengths L.2 will also be brought in close.

As has been intimated, the variable condenser C.1 is turned in to 50 degrees and left at that. A final adjustment of this condenser can be made when the wanted station has been tuned in.

Once the coils are set, turning C.2 will bring in 80 metres transmission when the switch arm is on the 10 tap. The short wave broadcasting stations are tuned in when the 40 and 60 turns taps are used, and for 2FC the whole of the 130 turns are included.

Tuning.

After the station has been tuned in with C.2 various settings of the coils should be experimented with until the best results are obtained. Just one point about the coils. There is no special reason for winding L.1 with No. 22 d.c.c. No. 20 d.c.c. may be used with advantage. On the other hand, L.3 and L.2 must not be wound with smaller wire than No. 20. If No. 22 is used for L.3, the damping is so great in comparison with No. 20 that tuning is flattened and EBL cannot be tuned out.

This about covers the requirements of Mr. Listener-in. A single control receiver that is easy to handle. Good loud volume combined with wonderful clarity. It is stable and selective, and, like the donkey in the story, it is always ready for work, provided the battery feed is up to working conditions.

HELPFUL TIPS.

The use of four small air cushion feet, such as are used on typewriter machines, under the corner of the cabinet is an improvement to any set. They will stop undesired ringing noises from microphonic pick-up action, and also prevent audio sound feedback through the table carrying the set and the loud speaker. The cushion feet can be attached without the use of screws.

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Means putting your money where it brings you the best results.

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That 1925 Set is not up to today's standard, but there is no need to scrap it. Improve it with the latest parts. Here are the latest 1926 Radio Productions:

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AT LAST—A NON-DIELECTRIC STRICTLY LOW-LOSS CONDENSER.



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MARCONI, the Marconi Co., of Canada, after exhaustive tests, adopted the new HEATH Condenser. Shipments of these Condensers have just arrived.

Prices with micrometer, geared vernier, .001 35/6, .0005 30/-.
.00025 27/-.
Without geared vernier, 7/- less.
Dials, 4/- extra.

Remember, a Condenser with a geared vernier plate is more selective than one without. Improve your Set with Heath Non-dielectric Condensers. Heaths are obtainable at Farmer's, David Jones', Radio House, Swain's, Coiville-Moore, Wiles.



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N.S.W. Div. Inc.

Incorporating the Affiliated Societies and The Australian Radio Relay League

W.L. Carter, Hon. Sec.
Box 3120 G.P.O. Sydney
Phone B2235
AJT Ferreit Publicity Officer

Experimental Research.

Have you made your plans for the New Year? What line of experimental research do you propose to take up? What co-operation are you receiving from other experimenters?

These are all questions which should be occupying the minds of all genuine hams at the present time. There are many avenues which can be explored, and to start to enumerate even the most important would take more time and space than can be spared in these notes. Each experimenter, however, has his own ideas on this subject, and he should get busy and put these ideas into execution. There is one suggestion, however, which may be made, which possibly has not occurred to many of the experimenters. It is that full use should be made of the Traffic Branch of the Experimental Research and Traffic Bureau, one of the most important objects of this Bureau is the facility of the work of the individual experimenter by being the means of rapidly communicating the results of experi-

ments from observers in the far corners of the Commonwealth or even outside its boundaries. If you are in any doubt as to the way in which the Bureau will be of service, get into touch with the Traffic Manager, Mr. W. P. Renshaw, and he will be pleased to show you the multitudinous ways in which the benefit and co-operation can be obtained.

The following additional agreement forms have been received at headquarters, and everyone who has not sent in their completed form should do so now without the least possible delay. Be in at the start and reap the benefits that are bound to follow:—W. J. M. Cottrell, 2ZN; H. E. Rose, 2HR; C. H. Clark (vigilance work); G. Galeffi, 2OL; Lelehardt District Radio Society, 2LH; Waverley Radio Club, 2BV; and Ilwarrna Radio Club, 2UI.

Static Observation Tests.
The reports in connection with the static observation tests are now complete, and are being tabulated and coordinated, and the results should be available for publication at an early date.

Round the Clubs

The asterisk denotes clubs affiliated with the Wireless Institute of Australia (N.S.W. Division).

NEWCASTLE WIRELESS SOCIETY.

On Tuesday night, Dec. 29, 1925, the Wireless Society of Newcastle held their weekly meeting, at which there was the usual good attendance. The business of the evening having been discussed, Mr. Swain commenced a series of lectures dealing with elementary electrical principles, to enable several members who have expressed their intention of sitting for the amateur's proficiency certificate to get a good theoretical foundation.

It was decided to take W. James' "Wireless Valve Transmitters" as the text book, and to work through this book.

On Saturday, Dec. 19, several of the members made a tour of the Sulphide Corporation Ltd. Works at Cockle Creek. Although the temperature was somewhere near boiling point, our host took us within a few feet of a rotating furnace, in which the temperature was somewhere about 1800 Fahr. They were taken over their cement plant, electricity plants, etc., and despite the heat had a very interesting and instructive afternoon.

The transmitter is now on the air on about 220 metres, and although some very favourable reports locally are to hand, it is hoped to improve transmissions very shortly. Reports on these transmissions may be addressed to 49 Everton Street, Hamilton.

A set is standing by on 90 metres, ready for relay work.

Inquiries addressed to Mr. L. Wilson, c/o W. G. Watson, 29 Hunter Street, Newcastle, will receive prompt attention.

THE LEICHHARDT AND DISTRICT RADIO SOCIETY.* (Licensed Experimental Transmitting Station 2LH.)

On Tuesday, Dec. 29, 1925, members of the Leichhardt and District Radio Society held their 157th general meeting at the clubroom, 176 Johnston Street, Annandale.

The attendance was quite good enough to justify the decision previously made to hold a meeting on this date, in spite of the fact that it was in the midst of the Christmas and New Year vacation, and the main business of the evening consisted of a lecture by Mr. Wm. J. Zech under the title "The Morse Code and the Procedure Adopted in Its Use." Mr. Zech dealt fully with the mastering of the code itself, and later explained in detail the procedure adopted by commercial stations when using the code. The lecture was most interesting, and was much appreciated by those present, and after a number of questions had been replied to at its conclusion a vote of thanks was carried by acclamation.

This lecture was the first of Syllabus No. 5, which is now taking definite shape, and next Tuesday evening the third lecture will be delivered by Mr. J. C. Pinnall, who will lecture on "Magnets and Magnetism." Although of an elementary nature, this is a subject which can be made very interesting, and it is expected that all who attend next Tuesday's meeting will be well repaid. The fourth lecture, entitled "Aerial Mast Designing," will follow on Jan. 19, when Mr. J. G. Arkell will officiate.

The society has entered upon its New Year activities with every confidence in the future, and if its members work together in union this year as they have done during the twelve months just concluded, then the society cannot help but be successful in every way.

Its membership has shown a wonderful increase of late months, but there is still ample room for further expansion in this direction, and all interested are invited to address their inquiries to the Hon. Secretary, Mr. Wm. J. Zech, 145 Booth Street, Annandale.

ANSWER TO CORRESPONDENT.

LQU: As a general rule we don't place any faith in letters from anonymous correspondents, but we feel your letter is sincere. Thanks for your criticism and your suggestions, and you'll be glad to learn we already have them in hand for early execution. Here's wishing you all the best for 1926.

FOR SALE

ONE WEEK ONLY

Factory built, short wave, radiophone transmitter. Completely self-contained and works direct from power point. Kenetron rectification and Heising modulation. Weston meters are used throughout, including 0-1.5 thermoammeter; 0-100 milliammeter; 0-15 a.c. voltmeter, and 0-500 voltmeter. R.C.A. parts and Radiotron valves.

This transmitter cost the present owner £98, but owing to his failure to qualify for a license is being sacrificed for **£45**—less than the price of the parts.

Remember this transmitter is not an amateur job, but a real commercial instrument capable of good and consistent DX.

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THREE RADIO OUTFITS

AMERICAN AUXILIARY YACHT KAIMILOA,
KFUH.

Visit to Auckland.

Extensive wireless equipment is carried by the pleasure yacht "Kaimiloa," owned by Mr. M. R. Kellum, formerly of Florida, and now of Honolulu, which arrived in Auckland harbour on December 10. The yacht is a large four-masted schooner, and has been comfortably fitted up as an ocean pleasure craft by the owner, who with his wife and two daughters have been voyaging in the Pacific since October, 1924. They propose to proceed to the Far East after spending three months in New Zealand waters.

The radio room houses a short-wave transmitter of 1 k.w. input, a U.S. Navy type spark transmitter, and a 1 k.w. vacuum tube transmitter for I.C.W. work. With this comprehensive range of apparatus the operator on the yacht has found the world open to him. At Tahiti communication was maintained with the MacMillan Arctic Expedition in Greenland, 10,000 miles away while the yacht's signals have been heard in Britain, France, Italy, South Africa and even in Bagdad. Interesting short-wave communication was carried out with R.M.S. "Aorangi," and many New Zealand amateurs have been worked, including 2AC, 2XA and 2BK.

The vessel might be described aptly as an "electric ship," so extensively is this giant harnessed to minimise labour and add to the comfort of those aboard. Even the sails are handled by electricity; while power is used also to operate the laundry, ice-plant, winches, etc., with which the ship is fitted. Power is derived from two 110 h.p. Diesel engines, which can drive the schooner at seven knots, and a 40 h.p. engine and dynamo. The main engines are also fitted with dyamos, so that the large batteries may be charged wherever the engines are running; these batteries provide ample power for lighting, heating, and the radio when none of the three engines are running.

Amateurs should look out for the yacht's signals on wavelengths from 20 to 80 metres under the call sign KFUH.

Swear words are almost as handy as electric soldering irons when building one's own receiver.

You can have "Wireless Weekly"
mailed direct to your home for
twelve months for—13/-

Amateur Notes

By Q.T.C.



Warne A. Wilson's station A-3RY is very well known amongst the amateurs of N.S.W. both for the fine modulation of his fone work, and the undoubted kick that his signals carry. 3RY is situated in the pleasant city of Ballarat, his wave radiating from a lonely 5-watt bottle. The aerial is a 90 ft. cage "T," and is used in conjunction with a six wire fan shaped counterpoise. The aforementioned kick comes from a six hundred volt generator, driven by a quarter horse power motor. It is interesting to note that the modulation for which Mr. Wilson is justly famous is controlled on the grid leak principle. 3RY's DX includes all States, New Zealand and America.

Rumour has it that old Z-4AA has been heard in America on five metres. If this is correct very F.B., o.m. Z-4AA certainly is the "dog's night-shirt" at making wireless history as the waves come tumbling down.

Talking of the Zedders reminds me of Z-4AR. This station blossomed into an international some time ago, and has been going strong ever since. His note is fairly D.C. and breaks through the QRM very nicely, also is QSA, and naturally has a big DX list.

Spanish station E-AR has been reported in Australia of late; reputed to be fairly strong with a very nice QSB.

G-2LZ of England, and O-A4Z of South Africa, recently forged the first ties of two-way work between their respective countries. The Englishman radiated on 44 metres and A4Z on 34.

Signals from A-2TM come in here with terrific intensity, and the effect of his signals is considerably amplified by the fact that his QSB is low. The resultant sound is terrific, and leaves one gasping, especially if there are a couple of valves in action.

A-5BG has developed an enormous punch during the last couple of months, whether through increased power or efficiency I do not know. The strength of his signals quite outrivals some of the local 250 watters. How is this, o.m.?



A HUMOROUS HEADING.

Above is shown the novel cartoon used as a heading for the W.O.A.W. Bulletin issued regularly by the Woodmen of The World, Life Insurance Association, operating and controlling broadcasting station W.O.A.W., Omaha, Nebraska.

A RADIO PARADISE. Wireless in Japan.

Japan is a listener-in's paradise, where radio supplies are ridiculously cheap.

That is one of the discoveries made by Mr. R. C. Marsden, the well-known amateur radio transmitter, who has just returned to Sydney from a tour to the East.

The annihilation of distance by radio was demonstrated by Mr. Marsden while ashore in the Philippines. Using a short-wave transmitting set, he was able to call up Mr. Phil Nolan, another radio devotee at Coogee, and have a chat.

"All the short-wave radio work in both the army and navy in Japan," Mr. Marsden explained, "is being carried on by amateurs. Wireless is simply booming in Japan, and in Tokio a forest of bamboo aerial masts may be seen anywhere. Material is dirt cheap."

Broadcasting from all the big stations, Mr. Marsden explained, was carried out in both the English and Japanese languages. Each sentence was repeated.

When placing the valves in the sockets, be careful how they are handled. Many valves have been injured through rough usage. The valves will not stand the rough treatment given them by many people. The tips are sometimes broken, and thus make poor contacts. Do not take the valves out of the sockets any oftener than is absolutely necessary.

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PAYMENT £1 *will insure immediate delivery in the Metropolitan Area*
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- (1) By purchasing a Single Valve Unit Set you secure the foundation of the most up-to-date 4 Valve Set
- (2) The Second Unit gives more volume.
- (3) By fitting the Third Unit full Loud Speaker volume is secured
- (4) The Fourth Unit combines the previous results with distant reception.
- (5) A Built-in Loud Speaker is fitted in the Cabinet with the Single Valve Set
- (6) A Low Loss & Broadcasting Receiver in one
- (7) Each Unit is complete with the necessary accessories
- (8) Not a penny wasted Add to your Foundation Receiver at will and you don't have to scrap your previous Set
- (9) We show you how to work it, and it is guaranteed.
- (10) Crystal Clearness—Simplicity of Operation throughout



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SET on an exclusive unit system

This set is built in a handsome foundation cabinet and has a 1-valve set with headphones and a loud speaker permanently built in.

Applicable to all classes of reception. Extra valves can be added to a full strength 4 valve set without reconstruction.

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 Balance 5/- weekly.

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 388 George St., Sydney
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Broadcasting



4QG

QUEENSLAND RADIO SERVICE.

Wavelength, 385 metres.

FRIDAY, JANUARY 8.

Midday Session:

12.55—"Tune-in" Signal.

1—Market Reports supplied by the Council of Agriculture; Stock Exchange Information supplied by the Committee of the Brisbane Stock Exchange; Weather Information supplied by the Commonwealth Weather Bureau; "Daily Standard" News Service. Close down.

Afternoon Session:

2.55—"Tune-in" Signal.

3—By courtesy of the Directors of Harnamark Theatre Limited, an hour's programme of Music played by the Tivoli Operatic Orchestra of 20 performers (under the baton of Mr. C. Groves) will be relayed from the Tivoli Theatre and broadcast by station 4QG.

4—Close down.

Night Session:

6—"Tune-in" to the Tivoli Theatre.

6.5—From the Studio. Baritone solo: "Mule-tee of Malaga," Mr. Stuart Partridge; Duo Art selection: "Beverly" (by request); tenor solo: "Rose of my Heart" (Lohel), Signor Corti; ten minutes of humour by Miss Carter; soprano solo: "A Summer Night" (Thomson), Miss Victoria Down; instrumental number: selections from "Sally" (Ker), The Studio Trio; baritone solo: "The Yeoman's Wedding Song" (Donajkowski), Mr. Stewart Partridge; recitativo: "Widow—some hints about Batteries," Mr. J. W. Robinson; soprano solo: "A Pearl" (Bunning), Miss Victoria Down; instrumental number: "Macushla" (McMurrugh), The Studio Trio.

9—Weather Information officially supplied by the Commonwealth Weather Bureau.

9.5—Announcements.

9.10—From the Tivoli Theatre. A quartet of an hour's music by the Tivoli Operatic Orchestra.

9.25—From the Studio. Soprano solo: "Life's Garden" (Coddell), Miss L. Brown; cello solo: Selected, Miss Petropoulos; tenor solo: "I call thee love as in a Dream" (Ellis), Signor Corti; Aeolian selections, Fox trots (a) "Oh Mabel" (Kahn-Fiorito); (b) "Albany Bound" (Henderson) played by Ben Selvin and his orchestra; soprano solo: "Wair" (D'Hardelot), Miss L. Brown; instrumental number: "Ole South," The Studio

Trio; bass solo: (a) "The rolling Stone" (Hamblin); (b) "Clare Props" (Charles), Mr. Norman A. Cooling.

10—"The Daily Mail" News Service. Close down.

SATURDAY, JANUARY 9.

No Midday Transmission.

THE CHILDREN'S HOUR.

A Children's Bedtime Story Session is held each Monday, Wednesday, and Saturday evening. At a later date this session will be made a nightly feature, but in the immediate present, while transmission is being effected under temporary conditions, it is held three times weekly.

6.25—"Tune-in" Signal.

6.30—"The Children's Hour," Nursery Rhymes and Music Bedtime Stories by "The Sandman."

7.15—Close down

Night Session.

8—"Tune-in" to the Tivoli.

8.5—From the Studio. Contralto solo, "My Dear Soul" (Sanderson), Miss Ivy Rogers; eleocutionary number, "Moonrise," Miss Beryl Holmes; baritone solo, "Sea Fever" (Irish), Mr. R. W. Dimming; aeolian selection, "North Star" (Rimmar); soprano solo, "Reconciliation" (Del Riego), Miss Vera Morcom; eleocutionary number, "How the Chestnut Horse Came Home," Miss Beryl Holmes; contralto solo, "Take Pity" (Woodford-Finden), Miss Ivy Rogers; duo art selection, fox trot, "Rose Marie" (Friml); baritone solo, "Sun of my Soul" (Carry), Mr. R. W. Dimming; soprano solo, "Bowl of Roses" (Clarke), Miss Vera Morcom.

8.50—Weather information officially supplied by the Commonwealth Weather Bureau.

8.55—Announcements.

9—From Lennon's Hotel: By courtesy of the proprietors of Lennon's Hotel, an hour and a half's dance music played by Miss May Dobbyn's Vice-Regal Orchestra will be relayed from Lennon's Ballroom.

10.30—From the Studio: "The Sunday Mail" news service. Close down.

SUNDAY, JANUARY 10.

Morning Session.

The morning service from the Ann Street Presbyterian Church will be relayed by Station 4QG.

10.55—"Tune-in" signal.

11—Morning service from Ann Street Church. Preacher, the Rev. Jas. Cosh, B.A., B.D. Organist, Mr. Arthur Day.

12.15—Close down.

Afternoon Session.

The band concert provided in the Botanical Gardens will be relayed.

3.10—"Tune-in" signal.

3.15—Band concert.

4.30—Close down.

Night Session.

The complete evening service from the Ann Street Presbyterian Church will be relayed.

7—Organ, Mr. Arthur Day.

7.30—Evening service. Preacher, the Rev. Jas. Cosh, B.A., B.D.

8.40—At the conclusion of the evening church service, the band concert provided by the Greater Brisbane Municipal Concert Band will be relayed from Wickham Park and broadcast by 4QG. Overture, "The Barber of Seville" (Rossini); waltz and aria from "Tutti in Masherin" (Pedrotti), clarinet solo by Mr. D. Williamson; song, "I Love You" (H. Archer), Mr. Maurice Goldhill; selection from "La Traviata" (Verdi); Valse Triste (Sibelius); song, "Bill Jim's Aussie Song" (McLennan), Mr. Maurice Goldhill; selection, selected.

9.50—Close down.

MONDAY, JANUARY 11.

Midday Session.

12.55—"Tune-in" signal.

1—Market reports supplied by the Council of Agriculture; Stock Exchange information supplied by the Committee of the Brisbane Stock Exchange; weather information supplied by the Commonwealth Weather Bureau; "Daily Standard" news service. Close down.

Afternoon Session.

2.55—"Tune-in" signal.

Burgess—"They're used throughout the United States Navy"—Batteries

3.—By courtesy of the directors of Haymarket Theatres Ltd., an hour's programme of music played by the Tivoli Operatic Orchestra of 30 performers, under the baton of Mr. C. Groves, will be relayed from the Tivoli Theatre and broadcast by Station 4QQ.

4.—Close down.

Night Session.

8.—Tune-in to the Tivoli Theatre.

8.5.—From the Studio: Tenor solo, "Good Company" (Stephen Adams), Signor Corti; the Motorists' Corner, a talk on "The Electrical Equipment" by Mr. W. J. Donehoo; contralto solo, "Three Fishers" (Hullah), Mrs. Charles Willey; elocutionary number, "The Doll's Weaving" (Field), Miss Fae Todd; soprano solo, "The Net Mender" (Clark), Miss Lottie Richter; soulful selection, fox trot, "Sing a Song," composed by Charlie Chaplin; tenor solo, "Till Death I Love You" (Masccherani), Signor Corti.

8.45.—From the Tivoli Theatre: A quarter of an hour's music by the Tivoli Operatic Orchestra.

9.—From the Studio: Weather information officially supplied by the Commonwealth Weather Bureau.

9.5.—Announcements.

9.10.—Soprano solo, "Break o' Day" (Sanderson), Miss Lottie Richter; duo art selection, fox trot, "Linger Awhile" (Rose); contralto solo, "Love's Devotion" (Tate), Mrs. Charles Willey; elocutionary number, "Spotty" (Hennequin), Miss Fae Todd; soprano solo, "So Seran Rose" (Arditi), Miss Beryl Huntington; soulful selection, "With You, Dear, in Bombay" (composed by Charlie Chaplin); soprano solo, "Sing, Joyous Bird" (Phillips), Miss Beryl Huntington.

9.55.—From the Tivoli Theatre: A quarter of an hour's music by the Tivoli Operatic Orchestra.

9.50.—From the Studio: "The Daily Mail" news service.

10.—Close down.

TUESDAY, JANUARY 12.

Midday Session.

12.55.—Tune-in signal.

1.—Market reports supplied by the Council of Agriculture; Stock Exchange Information supplied by the Committee of the Brisbane Stock Exchange; Weather Information supplied by the Commonwealth Weather Bureau; "Daily Standard" news service. Close down.

Night Session.

8.—Tune-in to the Tivoli Theatre.

8.5.—From the Studio: Soprano solo, "Magdalene at Michael's Gate" (Lehmann), Miss Mabel Malouf; cornet solo, Caprice "Zelda" (Code), Mr. J. W. Burgemeister; contralto solo, "When My Ships Come Sailing Home" (Dorel), Miss Vera Parker; instrumental number, "Dainty Dandelils" (Mills), the Studio Quartette; soulful selection, soprano solos, (a) "The Robin's Song" (White-Parkins), (b) "Lo Here the Gentle Lark" (Shakespeare-Bishop), Miss Evelyn Scotney; radiouev, "I'm Gonna Bring a Watermelon," by "The Sparklers"; lecturette, "Station CCI," by Mr. F. W. Stevens, Chief Engineer of the Queensland Radio Service; tenor solo, "Lullita" (Perela), Mr. W. Stebbins; instrumental number, selections from "Sally" (Kern), the Studio Quartette.

9.—Weather information officially supplied by the Commonwealth Weather Bureau.

9.5.—Announcements.

9.10.—Contralto solo, "Ban Bolt" (Eglish), Miss Vera Parker; cornet solo, "I Hear You Calling Me," Mr. J. W. Burgemeister; soprano solo, "The

Dream of Home" (Arditi), Miss Mabel Malouf; instrumental number, "I Love the Moon" (Itubens), the Studio Quartette; radiouev, "What has become of Hinky Dinky Parley Vons," by "The Sparklers"; baritone solo, "Parted" (Tosti), Mr. L. R. Little; duo art selection, "Spring Song" (Mendelssohn); tenor solo, "Until" (Sanderson), Mr. W. Stebbins; baritone solo, "Where my Caravan has Rested" (Lohr), Mr. L. R. Little; instrumental number, "Mountains of Mourning" (Collison), the Studio Quartette.

9.55.—"The Daily Mail" news service. Close down.

WEDNESDAY, JANUARY 13.

Midday Session:

12.55.—"Tune-in" Signal.

1.—Market Reports supplied by the Council of Agriculture; Stock Exchange Information supplied by the Committee of the Brisbane Stock Exchange; Weather Information supplied by the Commonwealth Weather Bureau; "Daily Standard" News Service. Close down.

Afternoon Session:

2.55.—"Tune-in" Signal.

3.—By courtesy of the Directors of Haymarket Theatres Limited, an hour's programme of music played by the Tivoli Operatic Orchestra of 20 performers (under the baton of Mr. C. Groves), will be relayed from the Tivoli Theatre and Broadcast by station 4QQ.

4.—Close down.

THE CHILDREN'S HOUR.

A children's bedtime story session is held each Monday, Wednesday and Saturday evening. At a later date this session will be made a nightly feature, but in the immediate present while transmission is being effected under temporary conditions, it is held three times weekly.

6.25.—"Tune-in" Signal.

6.30.—"The Children's Hour," Nursery Rhymes and Music. Bedtime Stories by "Little Miss Brisbane."

7.15.—Close down.

Night Session:

8.—Tune-in to the Tivoli Theatre.

8.5.—From the Studio. Contralto solo, "Through You" (Forster), Miss Bianche Jensen; instrumental number, "A Japanese Sanct" (Deppen), the Studio Quartette; dramatic soprano, "Lovely Spring" (Coenen), Miss

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ADVERTISING IN "WIRE-
LESS WEEKLY" BRINGS
BIG RESULTS.

Victoria Down; flute solo; selected, Mr. B. Kelly; mezzo soprano solo: "Love's a Merchant" (Molly Carow), Miss Eileen McLennan; lecture: "Organized distribution of Farm Products." A session for the country listener, the first of a second series by Mr. R. Wight; baritone solo: "Absent" (Metcalf), Mr. D. Beadfield; Aeolian selection: band number, "The Guard's Patrol" (Williams); Picture Show News.

8.55—Weather information officially supplied by the Commonwealth Weather Bureau.

9—Announcements.

9.5—Contraalto solo: "Marschla" (McMurrough), Miss Blanche Jensen; instrumental number: waltz, "Wonderland of Dreams" (Abbott), The Studio Quartette; dramatic soprano "O my Garden full of Blossom" (Clark), Miss Victoria Down; violin solo (by request): "The Holy City" (arr. Henley), Mr. H. Scott McCallum; baritone solo: "Jogging Along the Highway" (Samuela), Mr. R. Bradfield; pianoforte solo: selected, Mr. Arthur Sharran; mezzo soprano solo: "Love's Own Kiss" (Frioli), Miss Eileen McLennan; radiovic: Ten minutes of harmony and march by "The Sparklers."

9.55—"The Daily Mail" News Service.

10—Close down.

THURSDAY, JANUARY 14.

Midday Session:

12.35—"Tune-in" Signal.

1—Market Reports supplied by the Council of Agriculture; Stock Exchange information supplied by the Committee of the Brisbane Stock Exchange; Weather information supplied by the Commonwealth Weather Bureau; "Daily Standard" News Service. Close down.

Night Session:

8—"Tune-in" to the Tivoli Theatre.

8.5—From the Studio, Soprano solo: "Beyond the Dawn" (Sanderson), Mrs. K. G. Allen; vocal duet: "City of Laughter, City of Tears" (Nicholls), Messrs. J. Trevis and N. Brown; instrumental number, spanish fox trot: "Amazilia" The Studio Quartette; lecture: "Immigration" by Canon Garland; tenor solo: "Down by the Old Mill Stream," Mr. J. Trevis; sobrette: "Moonlight and Roses," Miss Sylvia Post-Mason; Aeolian selection: "Hawaiian Love Nest" (Sherwood); baritone solo: "Island must be Heaven" (Fisher), Mr. N. Brown; flute solo: "Holdo Adieu" (arr. Stockman), Mr. B. Kelly; soprano solo: "Caprice" (Farrell), Mrs. B. G. Allen; Duo Art selection: "Peize Pan"; baritone solo: "The Land of Yesterday" (Fox), Mr. N. Brown.

9.55—Weather information officially supplied by the Commonwealth Weather Bureau.

9—Announcements.

9.5—Instrumental number: "Tulips" (Miles), The Studio Quartette; sobrette: "Titina," Miss Sylvia Post-Mason; tenor solo: "Dull" (Sanderson), Mr. J. Trevis.

9.20—From the Centennial Hall. By courtesy of the lessee of the hall, half an hour's dance music by the Centennial Hall Orchestra will be relayed from the hall.

9.50—From the Studio. "The Daily Mail" News Service. Close down.

2KY

WEEKLY BROADCASTING PROGRAMME.

TRADES HALL.

Call Sign, 2KY. Wavelength, 380 metres.

FRIDAY, JANUARY 8.

Afternoon Session.

2.30—A varied musical and vocal programme, closing down at 4.45.

Children's Hour.

6.30—"The Man in the Moon."

Evening Session.

7.45 till 10—Andro Addison with his query instrument; Mrs. Hampel, contralto; Miss Esau Diell, pianist; Mr. Frank Rodman, monologues; Miss Edith Welch, soprano; and others to be announced.

SATURDAY, JANUARY 9.

Evening Session.

7.45—Mrs. Draper, soprano; Mrs. Cannon, pianist; Herbert Beaver, humorist; and others to be announced.

MONDAY, JANUARY 11.

Afternoon Session.

2.30—A varied musical and vocal programme, closing down at 4.45.

Children's Hour.

6.30—"The Man in the Moon."

Evening Session.

7.45 till 10—Miss Amy Ruud, contralto and novelty entertainer; Miss Johnstone, soprano; Mr. S. Strain, tenor; Mr. J. Davidson, baritone; Mr. J. S. Garden, lecture, "My Visit to Russia"; and others to be announced.

TUESDAY, JANUARY 12.

Afternoon Session.

2.30—A varied musical and vocal programme, closing down at 4.45.

Children's Hour.

6.30—"The Man in the Moon."

Evening Session.

7.45 till 10—Miss Nellie Graves, soprano; Mr. Call, tenor; and others to be announced.

WEDNESDAY, JANUARY 13.

Afternoon Session.

2.30—A varied musical and vocal programme, closing down at 4.45.

Children's Hour.

6.30—"The Man in the Moon."

Evening Session.

7.45 till 10—Cec Morris and his Bluebirds; P. Bergstrom, violin; A. Newlands, piano; and others to be announced.

THURSDAY, JANUARY 14.

Afternoon Session.

2.30—A varied vocal and musical programme, closing down at 4.45.

Children's Hour.

6.30—"The Man in the Moon."

Evening Session.

7.45—Miss Marie Muir, lyric soprano; Miss Beekie Jones, contralto; Miss Ethel Muir, pianist; Mr. Tom Borden, violin; and others to be announced.

2BL

BROADCASTER (SYDNEY) LTD.

Call Sign, 2BL. Wavelength, 353 metres.

FRIDAY, JANUARY 8.

Afternoon Session.

3—G.P.O. clock and chimes; weather report and social notes from "The Sun."

3.15—Music from the studio.

3.30—G.P.O. clock and chimes; a talk on "Modern Psychology" by Mr. J. M. Pringle.

3.4—Music from the studio.

4—G.P.O. clock and chimes; music from the studio.

4.30—G.P.O. clock and chimes; serial story entitled "The Black Cat" by Louis Tracey.

4.45—Music from the studio.

4.55—Late market reports from "The Sun."

5—G.P.O. clock and chimes; "The Sun" news service.

5.15—Close down.

Early Evening Session.

6—G.P.O. clock and chimes; Pavilion Dinner Orchestra under the direction of Mr. Cec Morrison.

6.30—Sporting resume from "The Sun"; Uncle George and the kiddies.

7.45—Late stock, hides and market reports by courtesy of Pitt, Son and Badger.

7.55—Close down.

Evening Session.

8—Variety programme from the studio. At 9 there will be a lecture by Mr. H. C. Morgan, and at 10 "Bound the World Travelogue" by Mr. J. M. Pringle.

SATURDAY, JANUARY 9.

Afternoon Session.

2—G.P.O. clock and chimes; special sporting information broadcast direct from "The Sun" office; music from the studio.

5.15—Close down.

Early Evening Session.

6—G.P.O. clock and chimes; Pavilion Dinner Orchestra under the direction of Mr. Cec Morrison.

6.30—Sporting resume from "The Sun"; Uncle George and the kiddies.

7.45—A talk on roads.

Evening Session.

8—Popular concert from the studio, featuring the Smart Set Diggers. At 8.30 Mr. W. Fitzpatrick will talk on "Life at Sea," and at 9.30 Brings will speak about the aborigines.

SUNDAY, JANUARY 10.

11—Presby broadcast from Chalmers Presbyterian Church.

5.30—Concert from the studio.

7—Presby broadcast from Chalmers Presbyterian Church.

MONDAY, JANUARY 11.

Afternoon Session.

3—G.P.O. clock and chimes; weather report and social notes from "The Sun."

3.15—David Jones Tea Room Trio.

3.30—G.P.O. clock and chimes; a talk on "A Course in English Literature" by Mr. J. M. Pringle.

3.45—Music from the studio.

- 4.—G.P.O. clock and chimes; David Jones' Tea Room Trio.
 4.15—Music from the studio.
 4.30—G.P.O. clock and chimes; serial story entitled "The Black Cat," by Louis Tracey.
 4.45—Late market reports from "The Sun."
 4.45—Music from the studio.
 4.55—Late market reports from "The Sun."
 5.—G.P.O. clock and chimes. Close down.
 Early Evening Session.
 6.—G.P.O. clock and chimes; Pavilion Dinner Orchestra, under the direction of Mr. Cec Morrison.
 6.30—Sporting resume from "The Sun"; Uncle Jack and the kiddies.
 7.—"What's On?" A guide to visitors and citizens of Sydney.
 7.45—Late stock, hides and market reports by courtesy of Pitt, Son and Badgery.
 7.55—Close down.
 Evening Session.
 8.—The Ambassadors' Instrumental Salon Quartet, under the direction of Mr. Claude McGlynn; comedy sketch by Frank Shepard & Co.; the Ambassadors' Jazz Orchestra, under the direction of Mr. Hammett; well known vocalists from the studio; the Ambassadors' Jazz Orchestra until midnight.

TUESDAY, JANUARY 12.

- Afternoon Session.
 3.—G.P.O. clock and chimes; weather report and social notes from "The Sun."
 3.15—Music from the studio.
 3.30—G.P.O. clock and chimes; a talk on "The Musical Outlook" by Mr. J. M. Prentice.
 2.45—Music from the studio.
 4.—G.P.O. clock and chimes; music from the studio.

- 4.30—G.P.O. clock and chimes; serial story entitled "The Black Cat," by Louis Tracey.
 4.45—Music from the studio.
 4.55—Late market reports from "The Sun."
 —G.P.O. clock and chimes; "The Sun" news service.
 5.15—Close down.
 Early Evening Session.
 6.—G.P.O. clock and chimes; Pavilion Dinner Orchestra, under the direction of Mr. Cec Morrison.
 6.30—Sporting resume from "The Sun"; Uncle George and the kiddies.
 7.35—Late stock, hides and market reports by courtesy of Pitt, Son and Badgery.
 7.55—Close down.

- Evening Session.
 8.—G.P.O. clock and chimes; Mr. Norman Wright, tenor; Mr. Bryce Carrier, cello solos; Broadcasters' Trio; and Miss Myra Gillon, contralto. At 8.30 Mr. W. Patterson will talk on "Care and Preservation of the Light," and at 9.30 Mr. J. M. Prentice will talk on "Foreign Affairs" and reply to any telephone question on the subject.

WEDNESDAY, JANUARY 13.

- Afternoon Session.
 3.—G.P.O. clock and chimes; weather report and social notes from "The Sun."
 3.15—Broadcasters' Trio.
 3.30—G.P.O. clock and chimes; special musical session.
 2.45—Broadcasters' Trio.
 4.—G.P.O. clock and chimes; Broadcasters' Trio.

- 4.30—G.P.O. clock and chimes; serial story entitled "The Black Cat," by Louis Tracey.
 4.45—Broadcasters' Trio
 4.55—Late market reports from "The Sun."
 5.—G.P.O. clock and chimes; "Sun" news service.
 5.15—G.P.O. clock and chimes—Close down.

- Early Evening Session.
 6.—G.P.O. clock and chimes; Pavilion Dinner Orchestra, under the direction of Mr. Cec Morrison.
 6.30—Sporting resume from "Sun" Newspapers; Uncle George and Uncle Jack with the kiddies.
 7.45—Late stock, hides and market reports by courtesy of Pitt, Son and Badgery.
 7.50—Close down.

- Evening Session.
 An overture by Hoyt's Imperial Orchestra, under the direction of Mr. Lionel Hart, broadcast from Hoyt's Theatre; variety programme from the studio, featuring Elliott and Edwards in baritone numbers. At 8.30 Mr. M. G. Barnes will speak on "The Romance of Egypt's Kings and Queens," and at 9.30 Mr. Crab will continue his lectures on "Evolution the Master-Key."

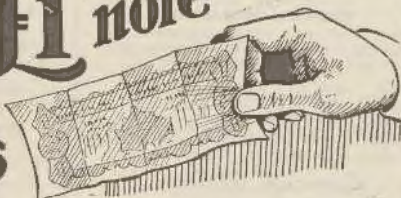
THURSDAY, JANUARY 14.

- Afternoon Session.
 3.—G.P.O. clock and chimes; weather report and social notes from "The Sun."
 3.15—David Jones' Tea Room Trio.
 3.30—G.P.O. clock and chimes; a talk on "Studies in English Poetry" by Mr. J. M. Prentice.
 3.45—Music from the studio.
 4.—G.P.O. clock and chimes; David Jones' Tea Room Trio.
 4.15—Music from the studio.
 4.30—G.P.O. clock and chimes; serial story entitled "The Black Cat," by Louis Tracey.
 4.45—Music from the studio.
 4.55—Late market reports from "The Sun."
 5.—G.P.O. clock and chimes; "Sun" news service.
 5.15—G.P.O. clock and chimes. Close down.

- Early Evening Session.
 6.—G.P.O. clock and chimes; Pavilion Dinner Orchestra, under the direction of Mr. Cec Morrison.
 6.30—Sporting resume from "Sun" Newspapers; Uncle Jack and the Kiddies.
 7.45—Late stock, hides and market reports by courtesy of Pitt, Son and Badgery.
 7.50—Close down.

- Evening Session.
 Popular programme from the studio, featuring Broadcasters' Instrumental Trio; Nollie Chadwick, dramatic soprano, and Glen Williams, baritone, in solos and duets. Dance music until midnight supplied by Ambassadors Orchestra, under the direction of Mr. Hammett. During the evening a lecture will be given by Mr. Algernon H. Lindo, and Mr. T. Alkin will speak on "Vitamines."

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NOW IS THE TIME WHEN AN EXTRA £1 OR TWO WILL COME IN PARTICULARLY HANDY.

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SATURDAY, JANUARY 9.

Morning Session (11 a.m. to 2 p.m.).
11—Time signal; express train information.11.8—Musical items by the Studio Orchestra.
12—Time signal.12.2—The Studio Orchestra.
12.30—"Argus" and "Herald" news services; Reuter's and the Australian Press Association cables.12.45—The Studio Orchestra.
1—Time signal.1.2—The Studio Orchestra.
1.45—"Herald" and "Argus" news services; Stock Exchange information; weather forecast; river reports.2—Close down.
2.30—Result of the Hurdle Race from the Sandown Park Race Meeting.Afternoon Session (3 to 5.15 p.m.).
3—Time signal.3.2—Result of the Two-year-old from the Sandown Park Race Meeting.
3.5—Musical items from the Studio.3.30—Result of the Sandown Plate from the Sandown Park Race Meeting.
3.45—Musical items from the Studio.3.55—Musical items from the Studio.
4—Result of the Sandown Park Handicap from the Sandown Park Race Meeting.4.3—Musical items from the Studio.
4.30—Result of the Sandown Turf from the Sandown Park Race Meeting.4.35—Musical items from the Studio.
5—All the sporting results; Reuter's and the Australian Press Association cables.

Progress results of all sporting events will be given throughout the afternoon as they come to hand, and the results will be given at each hour.

Evening Session (7.15 to 7.15 p.m.).
5.15—All sporting results, local, country and interstate.

6—Children's Hour. "Billy Bunny" stories by Mary Gumsfoot. For the little ones. "The Grizzly Bear," "Out in the Rain"; for girls, "The Heroine of Patriotism"; for boys, "George Stephenson," "Puffing Billy."

6.45—Sporting results; "Herald" and "Argus" news services; Reuter's and the Australian Press Association cables; market reports; closing Stock Exchange information; shipping movements; weather synopsis. Market reports by the Victorian Producers' Co-operative Co. Ltd. Grain, chaff, hay, straw, jute, dairy produce, potatoes, and onions.

Night Session (7.40 to 11 p.m.).
The Evacuation of Gallipoli. Speakers: Dr. J. A. Leach, Mr. J. Howlett Ross, The Studio Orchestra; musical director, Miss B. Gausson, Miss Doris McInnes, soprano; Miss Agnes Fortune pianiste; Mr. Walter Smith, conductor; Mr. Bobby Pearce, baritone; Mr. Syd. Exton, tenor.7.40—Dr. J. A. Leach, D.Sc., "Birds of Australia—Cathirals and Bower Birds."
8—The Studio Orchestra, "Pomp and Circumstance" (Egar).8.20—Mr. Syd. Exton and Mr. Bobby Pearce, "The Battle Eve."
8.25—The Studio Orchestra, "Light Cavalry" (Suppe).

8.35—Miss Doris McInnes, soprano, "Angels Guard Thee" (Godard), "Ave Maria" (Gounod).

8.42—Mr. Walter Smith, cornet solo, "Let me Like a Soldier Fall."
8.50—Mr. Bobby Pearce, baritone, "The Soldier's Song" (Mascaroni), "The Trumpeter" (Dix).8.57—Mr. J. Howlett Ross, "The Evacuation of Gallipoli."
9.17—The Studio Orchestra, "Martial Moments."9.47—Mr. Syd. Exton, tenor, "Sound an Alarm" ("Judas, Maccabeus").
9.44—Miss A. Fortune, pianoforte solo, "Military Polonaise" (Chopin).9.54—"Argus" and "Herald" news services.
10—Miss D. McInnes, soprano, "There's a Land" (Allitsea), "Homing" (del Rio).

10.7—The Studio Orchestra, "Menant—Military Symphony" (Haydn), "Turkish March—Ruins of Athens" (Beethoven), "War March" (Mendelssohn).

10.27—Mr. Bobby Pearce and Mr. Syd. Exton, "Watchman, What of the Night?"
10.33—"The Studio Trio, "March Militaire" (Schubert).10.42—Mr. Syd. Exton, "Queen of the Earth," "Australia Will Be There."
10.49—The Studio Orchestra, "Soldiers' Chorus—Faust" (Gounod).

11—"God Save the King."

SUNDAY, JANUARY 10.

Morning Session (1 a.m. to 12.15 p.m.).
Morning service from the Salvation Army City Temple.Afternoon Session (3 to 4.30 p.m.).
Pleasant Sunday Afternoon Service, Wesley Church, Central Mission.

3—Orchestral selection, conductor—Mr. G. M. Williams; hymn, "Thou whose Almighty Word" (Gregg, Ev. J. H. Cain); hymn, "Master, speak Thy servant's heart"; solo, Madam Ethel Ashton, "The Lament of Isis" (Bantock); orchestral selection; solo, Madam Ethel Ashton, "Pleading" (Egar), "Heart's Worship" (Holst); notices and offering; address, Rev. W. Harris, President of the Methodist Conference; National Anthem; Benediction; orchestral selection.

Evening Session (6 to 8.45 p.m.).
6—Children's Hour. "Billy Bunny" stories, "Bible Battles" and other stories.
6.45—Close down.Night Session (7 to 10 p.m.).
Evening Service from the Collins Street Baptist Church. Sanctus (unannounced); Invocation; Lord's Prayer (choral); hymn; Scripture; chant; Scripture; notices; offertory; offer hymn prayer; anthem; prayer; hymn; hymn, Benediction; Vesper. From the Studio: Music, song, story.

Speaker, Mr. J. Howlett Ross. Mr. Herbert Browne, "Lilac Time"; Miss Rowena Ronald, "Lilac Time"; Miss Jill Manners, "Lilac Time"; Miss Bessie Gausson, violinists; Mr. Harold Rogers, accompanist.

5.70—Miss Rowena Ronald (by permission of J. C. Williamson Ltd.), pianoforte solo, "Moonlight Sonata" (Beethoven).
8.40—Mr. Herbert Browne, tenor (by permission of J. C. Williamson Ltd.), "O Lucerna to Stella" ("Tosca" (Hedrick).

8.47—Miss Bessie Gausson, violin solo, (a) "Waltz in A major" (Brahms), (b) "Rondino" (Kreisler).

8.54—Miss Jill Manners, soprano (by permission of J. C. Williamson Ltd.), "Villonelle" (del Aquas), "Lullaby" (Cyril Scott).

9.1—Mr. J. Howlett Ross, "Famous Australians—Sir William Lyne."
9.21—Mr. Herbert Browne and Miss Jill Manners, vocal duets, "Mira la bianca luna" (Rossini), duet from "Persian Garden" (Lehmann).9.28—Miss Rowena Ronald, pianoforte solo, "Venzlia" (Leschetitzky).
9.33—Mr. Herbert Browne, tenor, "Mirzava" (Adams).9.37—Miss Bessie Gausson, violin solo, "Mazurka" (Milyarski).
9.44—Miss Jill Manners, soprano, "Sing, Sweet Bird" (Gaux).9.47—"Argus" and "Herald" news services.
9.50—Mr. Harold Rogers, pianoforte solo, "Rhapsodie Hongroise" No. 13 (Liszt).

10—"God Save the King."

MONDAY, JANUARY 11.

Morning Session (11 a.m. to 2 p.m.).
11—Time signal; express train information.11.8—The Studio Orchestra.
12—Time signal.12.2—The Studio Orchestra.
12.30—"Argus" and "Herald" news services; Reuter's and the Australian Press Association cables.12.45—The Studio Orchestra.
1—Time signal.1.2—The Studio Orchestra.
1.45—"Herald" and "Argus" news services; Stock Exchange information; weather forecast; river reports.2—Close down.
2.30—Result of the Hurdle Race from the Sandown Park Race Meeting.Afternoon Session (3 to 5.15 p.m.).
3—Time signal.3.2—Musical items by the Paramount Theatre Orchestra, under the baton of Signor Vincent Ricci.
3.40—3-Strin Morshard on "Infant Welfare."3.55—Musical items by the Paramount Theatre Orchestra.
5—"Argus" and "Herald" news services; Reuter's and the Australian Press Association cables.5.15—Close down.
Evening Session (6 to 7.15 p.m.).
6—Children's Hour. "Billy Bunny" stories, nursery rhymes, "A Magical Trip," "Houses of the Eagle."

6.45—"Herald" and "Argus" news services; Reuter's and the Australian Press Association cables; market reports; weather synopsis; closing Stock Exchange information; shipping movements. Market reports by the Victorian Producers' Co-operative Co. Ltd.; Haymarket sales, poultry, grain, chaff, hay, straw, jute, dairy produce, potatoes and onions.

Night Session (7.20 to 11 p.m.).
Speakers: Mr. G. M. Wallace, M.A., Mr. C. R. Long, M.A., Miss Jessie Smith, contralto, Mr. Frank R. Thomas, baritone (Colong City Band, Ford and Phillips, harmony duo).7.20—Mr. G. M. Wallace, M.A., "Shakespeare's Plays."
7.40—Mr. C. R. Long, M.A., "The Poetry of Australian Women."
8—Miss Harriet Bennett in the 1st act of "Lilac Time," transmitted from the Theatre Royal by permission of J. C. Williamson Ltd. Opening chorus and dance: trio, "Till and Will and Lill Veit," Mascotte Balston, Mabel Gibson, and Harriet Bennett; quartette, "Howdy Do," Jolly Brothers; Noel Allan, Herbert Browne, Harry Ratcliffe, and Claude Fleming; solo and quartette, "Hark, Hark, the Lark," John Balston, Noel Allan, Herbert Browne, Harry Ratcliffe, Claude Fleming; minuet, "Underneath the Lilac Bough," John Balston, Noel Allan, Herbert Browne, Harry Ratcliffe, and Claude

- Flourishing; duet. "A Kiss in the Rhythm of It"; Harriet Bennet and John Rakston; female.
- 8.55—Coburg City Band, march, "Gladiators' Farewell"; waltz, "Flowers by the Wayside."
- 9.10—Mr. Frank R. Thomas, baritone, "Brian of Glenara" (Graham), "Vale" (Russell).
- 9.17—Coburg City Band, fantasia, "Minstrel Melodies."
- 9.27—Miss Jessie Smith, contralto, "The Elfin Man" (Wells), "Boat Song" (Ware).
- 9.34—Coburg City Band, fox trot, "If You Know Sasin"; serenade, "La Paloma."
- 9.44—Ford and Phillips, harmony duo, "When the Harvest Moon is Shining," "Why Do They Always Say No," "Hula Loo."
- 9.54—Coburg City Band, grand march, "Silver Trumpets."
- 10.1—Mr. Frank R. Thomas, baritone, "To-morrow" (Keel), "The Star" (Rogers).
- 10.11—Coburg City Band, selection, "La Fianza de Seggiamento."
- 10.14—Miss Jessie Smith, contralto, "All Thru' the Night" (Welsh), "Danny, Boy" (Irish).
- 10.25—Coburg City Band, two step, "I Miss My Swiss"; "Intermezzo" (Gael).
- 10.35—Ford and Phillips, harmony duo, "Hard-hearted Hannah," "Tram—Tram," "Glorious Sunshine."
- 10.45—Coburg City Band, waltz, "Military"; march, "Washington Grays."
- 11—"God Save the King."

TUESDAY, JANUARY 12.

- Morning Session (11 a.m. to 2 p.m.).
- 11—Time signal; express train information.
- 11.3—Musical items by the Studio Orchestra.
- 12—Time signal.
- 12.2—The Studio Orchestra.
- 12.36—"Argus" and "Herald" news services; weather forecast; river reports; closing Stock Exchange information; shipping movements; Market reports by the Victorian Producers' Co-operative Cables.
- 12.45—The Studio Orchestra.
- 1—Time signal.
- 1.2—The Studio Orchestra.
- 1.45—"Herald" and "Argus" news services; Stock Exchange information; weather forecast; river reports.
- 2—Result of the Trial Handicap Hurdle Race from the Warrambool R.C. Meeting.
- 2.1—Close down.
- 2.30—Result of the Trial Handicap from the Warrambool R.C. Meeting.
- Afternoon Session (3 to 5.15 p.m.).
- 3—Time signal.
- 3.1—Musical items by the Paramount Theatre Orchestra, under the baton of Signor Vincent Riccio.
- 3.10—Result of the Royal Steeplechase from the Warrambool R.C. Meeting.
- 3.13—Paramount Theatre Orchestra.
- 3.2—"An Pair" of Buckley & Nunn Ltd., in a fashion talk.
- 3.55—Result of the Summer Handicap from the Warrambool R.C. Meeting.
- 4—Paramount Theatre Orchestra.
- 4.14—Result of the Lady Bay Hurdle Race from the Warrambool R.C. Meeting.
- 4.18—Paramount Theatre Orchestra.
- 4.50—Miss Flora Pell, Supervisor of Domestic Arts, Education Department, in a talk on "Domestic Economy."
- 5—Result of the Park Handicap from the Warrambool R.C. Meeting; "Herald" and "Argus" news services; Reuter's and the Australian Press Association cable news.
- 5.15—Close down.

- Evening Session (6 to 7.15 p.m.).
- 6—Children's Hour. "Billy Bunny" stories by Mary Gumleaf. For the little ones, "The Nugly Baby," "Four Little Knobs on My Bedpost," "Saint Joan," a talk about early railways.
- 6.45—"Herald" and "Argus" news services; Reuter's and the Australian Press Association cable news; market reports; weather synopsis; closing Stock Exchange information; shipping movements; Market reports by the Victorian Producers' Co-operative Co. Ltd.; Graymarket sheep sales, poultry, grain, chaff, hay, straw, jute, dairy produce, potatoes and onions.
- 7—Night Session (7.15 to 11 p.m.).
- A popular programme. Speakers: Mr. G. A. Sinclair, Mr. J. M. Ward, Mr. C. R. Long, M.A., Dr. Loftus Hills, D.Sc. Miss Doris McInnes, soprano; Miss Grace Jackson, contralto. The Studio Orchestra, musical director, Miss Bessie Gannon, Miss Agnes Fortune, accompanists. Bert Howell and his Concert Orchestra.
- 7.15—Mr. G. A. Sinclair, under the auspices of the New Settlers' League, "Forming in the Mallee."
- 7.30—Mr. J. M. Ward, Supt. of Horticulture, Dept. of Agriculture, "Control of Insect Pests."
- 7.45—Mr. C. R. Long, M.A., "Australia's Contribution to the Poetry of the War."
- 8—The Studio Orchestra, "Our Miss Gibbs."
- 8.15—Miss Grace Jackson, contralto, "Down Here" (Dance) (Molloy), "Down Here" (Brabe), "Down at the End of the Garden" (Brabe).
- 8.58—Miss Doris McInnes, soprano, "The Perfect Love" (J. Ardelt), "Forming in the Mallee" (Sprigg).
- 9.35—The Studio Orchestra, "The Last Waltz" (Strauss).
- 8.45—Miss Grace Jackson, contralto, "That's All" (Brabe), "The Call of Maytime" (Brabe).
- 8.52—Dr. Loftus Hills, D.Sc., pianoforte, "Bivulet" (Mendelssohn).
- 8.57—Miss Doris McInnes, soprano, "The Dove" (L. Ronald), "Tis Time" (L. Ronald), "Popular Beverages, Temperance Drinks."
- 9.18—Transmitted from the Victory Theatre, St. Kilda, Bert Howell and his Concert Orchestra.

WEDNESDAY, JANUARY 13.

- Morning Session (11 a.m. to 2 p.m.).
- 11—Time signal; express train information.
- 11.2—Musical items by the Studio Orchestra.
- 12—Time signal.
- 12.2—The Studio Orchestra.
- 12.30—"Argus" and "Herald" news services; Reuter's and the Australian Press Association cable news.
- 12.45—The Studio Orchestra.
- 1—Time signal.
- 1.2—The Studio Orchestra.
- 1.45—"Herald" and "Argus" news services; weather forecast; river reports; closing Stock Exchange information.
- 2—Close down.
- 2.15—Result of the Handicap Trial Stakes from the Warrambool A.T.C. Meeting.
- Afternoon Session (3 to 5.15 p.m.).
- 3—Time signal.
- 3.2—Result of the Handicap Hurdle Race from the Warrambool A.T.C. Meeting.
- 3.5—Musical programme by the Paramount Theatre Orchestra, under the direction of Signor Vincent Riccio.

- 3.30—Result of the Summer Handicap from the Warrambool A.T.C. Meeting.
- 3.43—Paramount Theatre Orchestra.
- 4—Result of the Welter Handicap from the Warrambool A.T.C. Meeting.
- 4.1—Paramount Theatre Orchestra.
- 4.20—Sister Peck of the Victorian Baby Health Centres Association, on "Mothercraft."
- 4.45—Result of the Handicap Pony Race from the Warrambool A.T.C. Meeting.
- 4.48—Paramount Theatre Orchestra.
- 5—Result of the Plying Handicap from the Warrambool A.T.C. Meeting; "Herald" and "Argus" news services; sporting results; Reuter's and the Australian Press Association cables.
- 5.15—Close down.
- Evening Session (6 to 7.15 p.m.).
- 6—Children's Hour. "Billy Bunny" stories; nursery rhymes, "The Magical Trip," "House of the Eagle."
- 6.50—Mr. T. J. and John and James Mitchell in month organ selections.
- 6.45—"Herald" and "Argus" news services; sporting results; Reuter's and the Australian Press Association cable news; market reports; weather synopsis; closing Stock Exchange information; shipping movements; Market reports by the Victorian Producers' Co-operative Co. Ltd.; New market sales, cattle, pigs, carcass meat, grain, chaff, hay, straw, jute, dairy produce, potatoes and onions.
- 7—Night Session (7.15 to 11 p.m.).
- "The Charm of Variety." Speakers: Mr. O. A. Mendelsohn, B.Sc., Mr. R. McClelland, Mr. P. W. Pearce, Capt. C. H. Peters. The Studio Orchestra; musical director, Miss Bessie Gannon, Miss Alys Watson, soprano; Mr. Robby Pearce, baritone; Mr. Max Ashton, humorist. Accompanists, Miss Agnes Fortune.
- 7.15—Mr. O. A. Mendelsohn, B.Sc., "The Chemistry of Bread Baking."
- 7.30—Mr. R. McClelland, Staff Officer for Transportation, Victorian Railways, "Impressions of a Railwayman Gathered Abroad."
- 7.45—Mr. P. W. Pearce, "Physical Culture in an Old World Garden."
- 8—The Studio Orchestra, "Lull Time" (Clutsum), "The Kingdom of Flowers."
- 8.15—Miss Alys Watson, soprano, "Joy of the Rose" (Carbon), "Violets."
- 8.22—The Studio Orchestra, "Trailing Arbutus" (Corhart).
- 8.37—Mr. Robby Pearce, baritone, "Kisses, Roses, Everywhere" (Trotter), "Absent" (Metcalf).
- 8.44—"The Star of Christmas," "Valse des Fleurs" (Tschakowsky).
- 8.54—Captain C. H. Peters, "Jocks, Wise and Otherwise."
- 9.9—Mr. Max Ashton, humorist, "Thanks, Very Much, And Yet I Don't Know."
- 9.17—The Studio Orchestra, "The Lightning Switch" (Alford).
- 9.32—Mr. Max Ashton, humorist, "The Girl on the Stage," "The Fact Is, Gens from Popular Opera."
- 9.39—The Studio Orchestra, "Tavina 4a" (Verdi).
- 9.59—Miss Alys Watson, soprano, (Mussorgsky's Song) "La Pollema" (Puccini), "Romance" "Faust" (Gounod).
- 10.8—"Argus" and "Herald" news services.
- 10.12—The Studio Orchestra, "Tales of Hoffmann" (Offenbach).
- 10.37—Mr. Robby Pearce, baritone,

- "Largo al factotum della Gitta"—
"Barber of Seville," "Il Balcon"—
"Provezioni" (Verdi).
10.30—The Studio Orchestra, "Waltzes
of Other Days" (Strauss).
11—"God Save the King."

THURSDAY, JANUARY 14.

- Morning Session (11 a.m. to 2 p.m.).
11—Time signal; express train information.
12—Musical items by the Studio Orchestra.
13—Time signal.
12.45—The Studio Orchestra.
12.50—"Argus" and "Herald" news services; Reuter's and the Australian Press Association cables.
12.45—The Studio Orchestra.
1—Time signal.
1.2—The Studio Orchestra.
1.45—"Herald" and "Argus" news services; Stock Exchange information; weather forecast; river reports.
2—Result of Breakwater Hurdle Race from Warrnambool Racing Club Meeting.
2.5—Close down.
2.30—Result of Corinthian Handicap from Warrnambool Racing Club Meeting.
3—Time signal.

- Afternoon Session (3 to 5.15 p.m.).
3—Time signal.
3.1—Musical programme by the Paramount Theatre Orchestra, under the baton of Signor Vincent Riccio.
3.10—Result of Beach Steeplechase from Warrnambool Racing Club Meeting.
3.15—Paramount Theatre Orchestra.
3.45—Result of Lindsay Cup from Warrnambool Racing Club Meeting.
3.50—Paramount Theatre Orchestra.
4.15—Result of Pony Race from Warrnambool Racing Club Meeting.
4.20—Paramount Theatre Orchestra.
5—Result of Final Handicap from Warrnambool Racing Club Meeting; "Argus" and "Herald" news services; Reuter's and the Australian Press Association cable news.
6.15—Close down.
Evening Session (6 to 7.15 p.m.).
6—Children's Hour. "Billy Bunny" stories by Miss Gumbel. For the little ones, "Toby," "Somebody Singing," and a special story; for girls and boys, "Abraham Lincoln—from Log Cabin to White House."
6.45—"Herald" and "Argus" news services; Reuter's and the Australian Press Association cable news; market reports; weather synopsis; closing Stock Exchange information; shipping movements. Market reports by the Victorian Producers Co-operative Co. Ltd.: Haymarket sales, cattle, pigs, curate meat, grain, chaff, hay, straw, jute, dairy produce, potatoes and onions.

- Night Session (7.20 to 11 p.m.).
Speakers: Madame S. E. Soward, Mr. A. E. McEicken. The Studio Dance Orchestra; musical director, Miss Beattie Gausman. Miss Billie Jones, soprano; Mrs. E. Hilton, entertainer; Mr. Norman Bradshaw, tenor; Mr. Bert Hopping, comedian.
7.30—Madame S. E. Soward, French talk, "Le Double-six."
7.40—Mr. A. E. McEicken, Librarian, City of Perth, "Omens."
8—The Studio Orchestra, fox trots, "More," "Toy Drum Major."
8.10—Mr. Norman Bradshaw, tenor, "Come into the Garden, Maude" (Björke).
8.15—The Studio Dance Orchestra, one steps, "Savoy Scottish Medley."
"I'm Gonna Bring a Watermelon."
8.27—Miss Billie Jones, soprano, "Sky

- it with Music," "In an Oriental Garden."
8.34—The Studio Dance Orchestra, waltzes, "In Shadow Land," "I Miss You Most at Dawning."
8.44—Mrs. Ernest Hilton, entertainer, "My Diary" (Heary), "Our Sub-bub" (Jaxson).
8.15—The Studio Dance Orchestra, fox trots, "A Japanese Sunset," "Biddy."
9.1—Mr. Bert Hopping, comedian, "Caroline's Rolling Stone," "My Days Are Over."
9.8—The Studio Dance Orchestra, one steps, "Charley My Boy," "I Miss My Swiss."
9.14—Mr. Norman Bradshaw, tenor, "Songs of Araby" (Clay), "Mary of Araby" (Old Scotch).
9.25—The Studio Dance Orchestra, waltzes, "Silly," "Honest and Truly."
9.35—Sonora recital of two new records, "The Lilac Tree" sung by Harold Williams, "Parade of the Tin Soldiers" played by Westminster Military Band.
9.42—The Studio Dance Orchestra, fox trots, "Bamboula," "See, But I'm Lonesome."
9.52—Miss Billie Jones, soprano, "I'm Nobody's Sweetheart Now," "O Katharina."
9.59—"Argus" and "Herald" news services.
10.3—The Studio Dance Orchestra, waltzes, "Mississippi Ripples," "When I Dream of the Last Walk With You."
10.18—Mrs. Ernest Hilton, entertainer, "Aren't Men Funny?" (Bertram), "Dingie Dongle Dell."
10.23—The Studio Dance Orchestra, fox trots, "I'm a'longin' for You," "Poolooos."
10.30—Mr. Bert Hopping, comedian, "When the Yiddisher Band Played an Irish Tune," "My Egyptian Mummy."
10.37—The Studio Dance Orchestra, waltzes, "Close Your Eyes," "Green a Little Lullaby."
10.47—Miss Billie Jones, soprano, "If You Knew Susie," "Mello Cello."
10.54—The Studio Dance Orchestra, fox trots, "Learn to do the Strut," "An Orange Grove in California."
11—"God Save the King."

- 5.5—Close down.
Evening Session:
7.15—The Georgian Orchestra.
7.15—The Children's Corner, by Uncle Peter.
8—Time Signal.
8.15—Dance Night. The Maison De Luxe Rhythmic Dance Orchestra. Under the direction of Mr. George Lewis, relayed from the Maison De Luxe, Broadway, St. Kilda.
9.30—Track and wireless information. Railway information, supplied by the Victorian Railways Department, Tramway information, supplied by the Tramways Board. Road information, supplied by the Royal Automobile Club.
9.30—The Maison De Luxe Rhythmic Dance Orchestra.
11—National Anthem and Close down.

SATURDAY, JANUARY 16.

- Morning Session:
10.30 The Bells from St. James' Old Cathedral.
11—Service from the Independent Church, Collins Street. Preacher: The Rev. Nicholas Richards, B.D.
Afternoon Session:
3—Time Signal.
3.1—Concert from the Studio. Miss May Dixon (contralto); Miss Stewart (soprano).
4—Close down.
Evening Session:
6.20—The Bells from St. James' Old Cathedral.
7—Service from the Independent Church, Collins Street. Preacher: The Rev. Nicholas Richards, B.D.
8.30—Mr. Colin MacCabe will give a talk on "Opera."
9—Time Signal.
9.1—The Eclipse Grand Orchestra. Under the direction of Mr. George Heary, relayed from the Eclipse Theatre, Port Melbourne.
9.30—The Age News Bulletin, exclusive to 3AR.
9.55—National Anthem and Close down.

MONDAY, JANUARY 11.

- Morning Session:
12 noon—Time Signal.
12.1—1st Weather Forecast.
12.3—Events of the Day.
12.5—The Age News Bulletin.
12.15—Musical Selections.
12.30—Stock Exchange News.
12.35—Market Reports.
13.40—Musical Selections.
13.50—Mail Report. Shipping Movements.
Musical Selections.
1—The Georgian Cafe Orchestra.
2—Close down.
Afternoon Session:
3.30—Musical Selections.
3.45—Graphic News.
4—Time Signal.
4.1—2nd Weather Forecast.
4.2—The Georgian Cafe Orchestra.
4.45—Evening Amusement Guide.
5—Close down.
Evening Session:
6.15—The Georgian Cafe Orchestra.
7.15—The Children's Corner by Uncle Ned.
8—Time Signal.
8.1—Concert transmitted from Suttons Music Warehouse, Bourke Street, Melbourne. Vocal and instrumental items.
9.15—Miss Betty McCatley (contralto).
9.25—Miss Phyllis Shattock (solo pianiste). Romance from Tanhauser (Wagner-Liszt).
9.30—Mr. Stephen McDonald, Talk on Voice Production (2nd series).
9.40—Mr. Leslie Harrison (basso cantante).
9.54—Miss Phyllis Shattock (solo pianiste). Rondo, Sonata, Opus 26 (Beethoven).
10—Time Signal.
10.1—The Age News Bulletin, exclusive to 3AR.
10.15—The Georgian Cafe Orchestra.
11—National Anthem and Close down.

TUESDAY, JANUARY 12.

- Morning Session:
12 noon—Time Signal.
12.1—1st Weather Forecast.
12.3—Events of the Day.
12.5—The Age News Bulletin.
12.15—Musical Selections.
12.30—Stock Exchange News.
12.35—Market Reports. Foreign Exchange of the world, supplied exclusively to 3AR by Messrs. The Cook & Sons.
12.40—Musical Selections.
12.50—Mail Report. Shipping Movements. Musical Selections.
1—Close down.
Afternoon Session:
2.30—Result of the Hurdle Race, 2 miles.
3—Result of Two Year Old, 3 furlongs.
3.30—Result of Sandown Plate, 6 furlongs.
4—Result of Sandown Park Handicap, 1 mile.
4.40—Result of Sandown Purse, 1 mile.
4.15—Musical Selections.
4.35—Result of Trial Welter, 1 mile.
5—Result of Trial Welter, 1 mile.
5.5—Close down.
Evening Session:
6.15—The Georgian Cafe Orchestra.
7.15—The Children's Corner by Uncle Ned.
8—Time Signal.
8.1—Concert transmitted from Suttons Music Warehouse, Bourke Street, Melbourne. Vocal and instrumental items.
9.15—Miss Betty McCatley (contralto).
9.25—Miss Phyllis Shattock (solo pianiste). Romance from Tanhauser (Wagner-Liszt).
9.30—Mr. Stephen McDonald, Talk on Voice Production (2nd series).
9.40—Mr. Leslie Harrison (basso cantante).
9.54—Miss Phyllis Shattock (solo pianiste). Rondo, Sonata, Opus 26 (Beethoven).
10—Time Signal.
10.1—The Age News Bulletin, exclusive to 3AR.
10.15—The Georgian Cafe Orchestra.
11—National Anthem and Close down.

WEDNESDAY, JANUARY 13.

- Morning Session:
12 noon—Time Signal.
12.1—1st Weather Forecast.
12.3—Events of the Day.
12.5—The Age News Bulletin.
12.15—Musical Selections.

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SATURDAY, JANUARY 9.

- Morning Session:
12 noon—Time Signal.
12.1—1st Weather Forecast.
12.3—Events of the Day.
12.5—The Age News Bulletin.
12.15—Musical Selections.
12.30—Stock Exchange News.
12.35—Market Reports. Foreign Exchange of the world, supplied exclusively to 3AR by Messrs. The Cook & Sons.
12.40—Musical Selections.
12.50—Mail Report. Shipping Movements. Musical Selections.
1—Close down.
Afternoon Session:
2.30—Result of the Hurdle Race, 2 miles.
3—Result of Two Year Old, 3 furlongs.
3.30—Result of Sandown Plate, 6 furlongs.
4—Result of Sandown Park Handicap, 1 mile.
4.40—Result of Sandown Purse, 1 mile.
4.15—Musical Selections.
4.35—Result of Trial Welter, 1 mile.
5—Result of Trial Welter, 1 mile.

12.00—Stock Exchange News.
12.35—Market Reports.
13.30—Musical Selections.
13.30—Mail Report. Shipping Movements.
Musical Selections.

1.—The Georgian Orchestra.
2—Close down.
Afternoon Session:
3.30—Musical Selections.
3.35—Graphic News.
4.—Time Signal.
4.1.—2nd Weather Forecast. The Georgian Orchestra.
4.45—Musical Selections.
4.55—Evening Amusement Guide.
5—Close down.

Evening Session:
6.15—The Georgian Orchestra.
7.15—The Children's Corner, by Uncle Peter.
8.—Time Signal.
8.1.—Mr. Ernest Bond (narrator): "The Pre-significance of the New Moon."
8.15—Miss Margaret Goum (contralto).
8.25—Miss Margaret Stewardson (violinist).
8.30—Mr. Julian James (baritone).
8.35—Miss Yvonne Labr (clownianist).
8.42—Miss Gine Terry (soprano).
8.50—One Act play, "The Wooing Scene" from "The School for Scandal." Mr. Eric Kirk as Peter Teazle; Miss Yvonne Labr as Lady Teazle. The scene is laid on the Georgian period. Sir Peter is discovered in his drawing room soliloquising and reading.
Time: Evening.

9.5—Miss Elaine Mitchell (lyric soprano).
9.12—Miss Margaret Stewardson (violinist).
9.19—Miss Margaret Goum (contralto).
9.26—Mr. Eric Kirk (clownianist).
9.33—Miss Gine Terry.
9.40—Miss Nellie Dalachy (clownianist).
9.47—Mr. Julian James (baritone).
9.55—Miss Owen Mattingley (pianist).
10.—Time Signal.
10.1.—The Age News Bulletin, exclusive to 3AR.
10.15—The Georgian Cafe Orchestra.
11—National Anthem and Close down.

WEDNESDAY, JANUARY 13

Morning Session:
12 noon—Time Signal.
12.1—1st Weather Forecast.
12.35—Events of the Day.
12.5—The Age News Bulletin.
12.35—Musical Selections.
12.50—Stock Exchange News.
12.55—Market Reports.
13.30—Musical Selections.
13.50—Mail Reports. Shipping Movements.
Musical Selections.
1.—The Georgian Cafe Orchestra.
2—Close down.

Afternoon Session:
Warmanhood Races.
2—Result of Hurdle, 2 miles, 38 yards.
2.55—Results of Trial Handicap, 6 furlongs.
3.15—Result of Roosal Steeple, 2 miles.
3.20—Musical Selections.
3.45—Graphic News.
3.55—Result of Summer Handicap, 1 mile.
4.—Time Signal.
4.1.—2nd Weather Forecast. The Georgian Orchestra.
4.35—Result of Lady Bay Handicap 2 miles 38 yards.
4.45—The Girl Guides' Bulletin.
5.10—Result of Park Handicap, 6 furlongs.
5.15—Close down.

Evening Session:
6.15—The Georgian Cafe Orchestra.
7.15—The Children's Corner, by Mrs. J. Wallace.
8.—Time Signal.

8.15—The Advance Orchestra. Fox Tots, One Steps, The Waltzes.
8.15—Miss Marjorie Ford (soprano).
8.23—Mr. Gerald Wall (tenor).
8.30—Mr. Rupert Barnes (clownianist).
8.37—Miss Hermoine Trevillian (soprano).
8.44—Miss Maude Wigley (solo pianist).
8.51—Mr. Archibald Sharning (tenor).
8.58—Miss Marjorie Ford (soprano).
9.5—Miss Pearl Campbell (violinist).
9.12—Mr. Fruit (bass).
9.19—Miss Wigley (pianist).
9.26—Miss Hermoine Trevillian (soprano).
9.33—Mr. Gerald Wall (tenor).
9.40—Mr. Rupert Barnes (clownianist).
9.47—The Advance Orchestra. Varied Selections.
10.—Time Signal.
10.1.—The Age News Bulletin, exclusive to 3AR.
10.15—The Georgian Orchestra.
11—National Anthem and Close down.

THURSDAY, JANUARY 14

Morning Session:
12 noon—Time Signal.
12.1—2nd Weather Forecast.
12.35—Events of the Day.
12.5—The Age News Bulletin.
12.35—Musical Selections.
12.50—Stock Exchange News.
12.55—Market Reports.
12.40—Musical Selections.
12.50—Mail Notices. Shipping Movements.
Musical Selections.
1.—The Georgian Orchestra.
2—Close down.

Afternoon Session:
Warmanhood Races.
2.15—Result of Trial Stakes, 6 furlongs.
2.50—Result of Hurdle, 2 miles, 38 yards.
3.25—Result of Summer Handicap, 1 mile.
3.30—Musical Selections from the Studio.
3.45—Graphic News.
4.—Result of Walter Handicap, 6 furlongs.
4.30—Fashion Talk by Miss Rumbaull of Paris.
4.35—Result of Pony Race, 5 furlongs.
4.45—Musical Selections.
4.55—Evening Amusement Guide.
5.15—Result of Flying Handicap, 6 furlongs.
5.20—Close down.

Evening Session:
6.15—The Georgian Orchestra.
7.15—The Children's Corner by Uncle Peter.
8.—Lecturette: A trip through a Chocolate Factory.
8.15—Musical Selections from the Studio.
8.30—Weekly radio chat. Under the auspices of the Popular Radio Weekly, "Hades," Mr. John Bam will speak on "Low Loss Condensers."
9.—Dance Night. The Maison De Luxe Rhythmic Dance Orchestra, under the direction of Mr. George Lewis, relayed from the Maison De Luxe, Broadway, St. Kilda.
9.30—Musical Selections from the Studio.
9.50—The Maison De Luxe Rhythmic Dance Orchestra.
10.—Time Signal.
10.1.—The Age News Bulletin, exclusive to 3AR.
10.15—The Maison De Luxe Orchestra.
11—National Anthem and Close down.

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