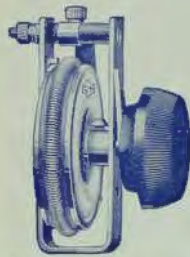


Friday, May 30, 1924.

WIRELESS WEEKLY



**The C-H Variable Grid Leak**  
Can be mounted on the tube socket—panel controlled. Adjustable for all grid condensers.



**The C-H Radio Potentiometer.**  
The potentiometer with the resistance unit that does not wear and cannot be displaced under constant usage.



**The C-H Radio Switch.**  
A push and pull switch, controlling and protecting batteries.

## Cutler Hammer

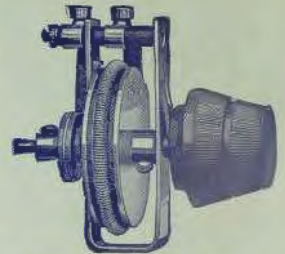
A COMPLETE LINE OF RADIO CURRENT CONTROL APPARATUS MADE BY THE MOST FAMOUS ELECTRICAL CONTROL ENGINEERS.

For more than a quarter of a century the name **CUTLER HAMMER** has been known throughout the world as a passport of technical efficiency.

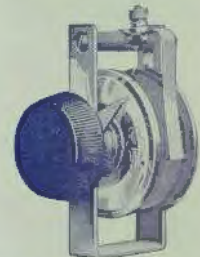
Their Radio parts are used in all laboratories where efficiency and precision are demanded.

We are glad to announce to the Public and Trade that we have a full and complete line of **CUTLER HAMMER** Rheostats, Potentiometers, Switches, and Amplifying Units.

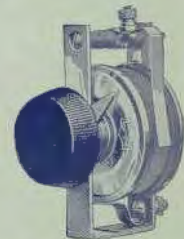
**CUTLER HAMMER** parts are stocked by all up-to-date Dealers.



**The C-H 4 ohm Vernier Rheostat.**  
Perfect detector tube control. Also furnished without vernier for amplifier tube control.



**The C-H 30 ohm Radio Rheostat.**  
For control of the 1/4 ampere, "UV201A-C301A" type receiving tubes and the "UV 199-C299" type. Some also with Vernier.



**The C-H125 ohm Radio Rheostat.**  
The rheostat that makes it possible to use a 6V storage cell with the UV199 or C299 tubes.

Are you Using

**UNITED** Honeycomb coils and coil mountings?

**UNITED** Transformers, & Condensers in your Set to obtain the greatest efficiency?

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## RADIOVOX SETS

28 Clarence Street, Sydney

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Official Organ of the Australasian Radio Relay League

Vol. 4.

Friday, May 30, 1924.

No. 7

## D.X. WORK.

The average run of experimenter is not so much interested in broadcasting as the reception of some obscure amateur transmitter situated several thousand miles away. There is nothing abnormal about a man who will sit for hours trying to tune in gramophone music from a 10 watt station in South Australia, while only a few miles away is a high power broadcasting station putting the music of actual artists on the air. It is simply a natural desire to overcome distance; a desire which all true amateurs know and appreciate.

There seems, however, no particular honour or glory in receiving amateur stations over long distances when we consider that a large number of those who claim extraordinary D.X. results use two or three stages of amplification in order to achieve them.

The tendency among the leading British and American amateurs is to, as far as possible, dispense with stages of amplification, and by careful design and construction of their sets to reduce to a minimum the high losses prevalent in every receiver, endeavour to carry out their D.X. work on one or two valves.

The building of such a receiver requires the most careful calculation, and necessitates a close study of every little detail of construction, insulation and placing of parts.

It provides a field for experimenting which has a fascination all its own, and which will undoubtedly be a feature of the most successful D.X. work of the future.

### Roster for Week ending 4th June, 1924

	7.30 to 8.0	8.0 to 8.30	8.30 to 9.0	9 to 9.30	9.30 to 10	10 to 10.30
Thur, May 29	2 RA 2 GR	2 IJ 2 JM	2 YI	2 UW	2 YG 2 VM	2 ZG
Friday, 30	2 IJ 2 GR	" "	" "	2 ZN "	2 ZZ	" "
Saturday, 31	2 RA 2 GR	2 IJ	" "	" "	" "	" "
Sunday, 1	2 RA 2 GR	" "	" "	" "	" "	" "
Mon., 2	2 RA 2 GR	2 IJ	" "	" "	" "	" "
Tues., 3	2 IJ	" "	" "	" "	" "	" "
Wednes., 4	2 RA 2 GR	2 IJ	" "	" "	" "	" "

**Wireless Weekly**  
**SUBSCRIPTION RATES**

Single Copies . . . . . 3d. net  
12 months (52 issues, 13/- post free.  
6 months (26 issues) 6/5, post free.

All communications to be addressed to the Editor, Wireless Weekly, 33 Regent St., Sydney.  
Telephone, Redfern 964.

All advertising and other matter for insertion should be in the hands of the Editor by Friday.

All copy must be written in ink or typed, and on one side of paper only.  
Advertising Rates on application.

## The Future of Radio Broadcasting

By Martin P. Rice.

Director of Broadcasting for the General Electric Company, U.S.A.  
(Courtesy Australian General Electric Company Ltd.)

Electricity as a servant of man was almost unknown fifty years ago, and its conspicuous achievements in lighting, traction, power, ship propulsion and communication are all within recent years. So the word "electric" has almost become a synonym for speed, progress, and accompaniment. Unlike other new developments which are frequently held back by their own limitations, the progress of electric application is limited chiefly by human inertia and conservatism.

Thus, while the incandescent lamp was invented by Edison in 1879, and has since been so perfected that it furnished the best light available and more economically than kerosene or candles, yet it is now used in less than half the houses in the United States. Electric locomotives capable of exerting greater power than any steam locomotive and operating so efficiently as to save enormously in coal consumption have been available for many years, yet only two per cent. of our railroad mileage has been electrified. The complete utilisation of water power which is practicable through electrification would be a tremendous factor in conserving our country's fuel resources, yet only one-fifth of our available water power has been developed.

In spite of the great strides which electricity has made, we must admit that with one notable exception, we have been relatively slow in realising its full possibilities. The notable exception is, of course, radio broadcasting. Never in the history of the world has any invention been so eagerly, so rapidly, and so universally adopted. Three years ago it was an almost unknown art. To-day, there are 600 broadcasting stations, and the receiving sets are numbered in millions. As a method of communication it has taken its place with the telephone, telegraph, and post office, but it is more than a method of communication. With the printing press and the moving picture it is one of the three greatest factors in forming and influencing public opinion.

What of the future of this marvelous invention which makes it possible for a speaker to address an audience of millions, reproducing sound so faithfully that a whisper or the rustle of a sheet of manuscript is projected

hundreds of miles and so rapidly that the voice may be heard across the continent before it reaches a hearer at the end of the room.

Forecasts may be of two kinds; first, the natural and logical developments of an art according to its known principles and laws, and, second, the imaginary extension of the art beyond these limits, and we may readily, although reluctantly dispose of the latter by predicting that the most fanciful flights of the imagination are probably inadequate pictures of the future of radio just as the fairy tales of the last century fell short of the actual accomplishments of the present day. In other words, we may consider the future of broadcasting as an economic force rather than try to foretell how invention may add to its further development.

The ability to communicate instantly and simultaneously with millions of people is not a power which will be lightly discarded as a fad or a passing fancy. It suggests, with no strain on the imagination, a universal language and the vehicle for complete mutual understanding among the peoples of all the civilised nations. Music is a universal language and fortunately music is the foundation of all broadcasting to-day. Undoubtedly it will continue to occupy an important part of the programmes, but it will be used with more artistic taste. The best in music will always be available, so that public appreciation will become more exacting and the inferior and mediocre will be eliminated. To music will be added the radio play, a form of drama introduced by Station WGY of the General Electric Company at Schenectady, New York, having characteristics as distinctive in the radio field as the screened play in moving pictures but preserving at the same time the complete realisation of literary form.

Religious services will continue to inspire the vast radio audiences and particularly to cheer and comfort those who are incapacitated through age or infirmity. In spirit they will assemble regularly "to meet the Lord in the air," and there will grow up a religion in which shades of creed will be subordinated to belief in great fundamental principles. Then there will be es-



### "Grodan" Loud Speaker Attachment

*Good Acoustics  
Fit any type of  
Head Phone*

**Price 30/-**

*All principal  
Radio Dealers.*

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Sydney.

established a unity of religious peoples which has never before existed.

Graded educational courses will be available at times convenient to those who labour in factories or fields so that the world's educational standards may be greatly advanced by providing opportunities even for those isolated from educational centres or otherwise prevented from attending school and college.

The use of radio for broadcasting news, market, stock and weather reports, will be greatly extended, supplementing these functions of telephone, telegraph, and newspaper.

These are some of the obvious developments of radio broadcasting which may be expected in the immediate future as they do not demand any radical advance in our present technical knowledge. They do, however, necessitate some consideration of the question:—

"Who will undertake to broadcast?" because broadcasting to-day involves a serious responsibility. Whether broadcasting develops along the line of its technical possibilities or remains stationary depends largely on those who undertake the job. The inquiry is particularly pertinent now when a score or more broadcasting stations are relinquishing their licenses every month and about an equal number of new stations are coming "on the air." This condition, which was predicted a year ago, results largely from a lack of understanding as to the cost and responsibility of broadcasting. A modern well-equipped high power station costs not less than 150,000 dollars and the annual cost of operation is approximately 100,000 dollars. Obviously a department store, newspaper, or other enterprise supported largely by local trade cannot afford to broadcast far outside the area it serves. Such stations will naturally be short-lived unless they limit themselves to low power and short programmes. Even then it is probable that better results for all concerned would be obtained in such cases by renting broadcasting facilities from those established to render such service.

We may therefore assume that the number of broadcasting stations will decrease rather than increase, and that the high power stations with daily programmes will be operated by interests of national scope. The Radio Corporation of America and the great electrical manufacturing companies will continue to broadcast on a large and expensive scale because the sale of receiving sets is dependent on the continuance of good broadcasting and al-

so because of the friendly relations which broadcasting may establish with the public.

Another development worthy of mention is the distribution of broadcasting over telephone or electric lighting systems. This plan is entirely practicable and may be employed to a considerable extent in metropolitan areas, but will never supersede general broadcasting which has gripped public interest in its universal freedom. It reaches everywhere and is free for all who supply themselves with receiving sets.

Thus, while broadcasting involves

an enormous expense without any direct returns, it may be expected to continue on an improved and more comprehensive plan, becoming an established means of disseminating news, music, education, entertainment and religious services. Fortunately most of the important broadcasting stations are quite conscious of the great responsibility they have accepted, and they are seriously studying the problems involved with the view of rendering the listening public a real and permanent service.

### Progress of Wireless Weekly

*On account of the wonderful support given to "Wireless Weekly" by experimenters and the thousands of others interested in wireless we have been able to enlarge the paper by four pages. The popularity of "Wireless Weekly" is rapidly growing, and the circulation, which extends to every State in the Commonwealth and to New Zealand, is rapidly climbing. In thus presenting twenty-four pages of reading matter for the small sum of threepence we want to again convey our appreciation to those whose support has made this step possible.*

"The other day I went fishing, and caught one of those great big fish—let's see, what is it you call them?"

"Oh, you mean a whale?"

"No, that couldn't have been it; I was using whales for bait."—"Pitt Panther."

Private advices from Los Angeles state that arrangements are under way for testing with Australia by K.H.J., the broadcasting station of the Los Angeles Times.

### The New Regulations!

*Section I, Part IV: "... and owing to the economic conditions prevailing, amateurs are compelled, on seeing his offerings, to purchase their radio requirements from the Woollahra Radio Specialist."*

#### JUST A FEW:

Murdock 3000 Phones	£1/8/-
K. and C. Vernier Rheostats	9/6
K. and C. 20 ohm. Rheostat	7/11
Unfeld 30 Ohm. Rheostats	5/-
Jefferson (41) Transformers	£1/14/-
Freshman Leak and Condensers	4/9
U.V. 199 Radiotron Valves	£1/10/-
W.D. 12 Dull Emitter Valves	£1/10/-
Marconi D.E.R. Valves	£1/16/-
Marconi "R" Valves	£1/5/-
Expanse "B" Double Fil.	£1/6/-
Quarter Ebonite Selected Pieces	1d.
Three Valve Receiving Sets	£22/10/-

### " P R I C E ' S " LICENSED RADIO DEALER

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"MELLO" Phones. 25, Set, 4,000 ohms, ALL BRITISH MANUFACTURE — COL-MO, 10 Rowe Street, Sydney.

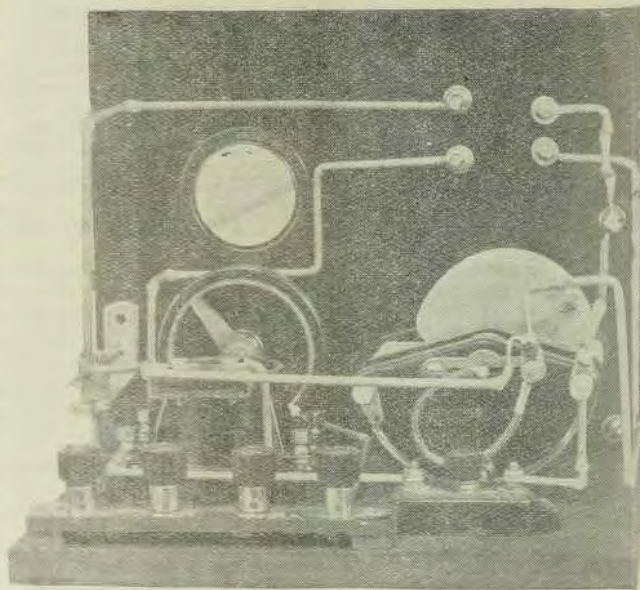
# The Flewelling Circuit

BY THE LITTLE AMERICAN.

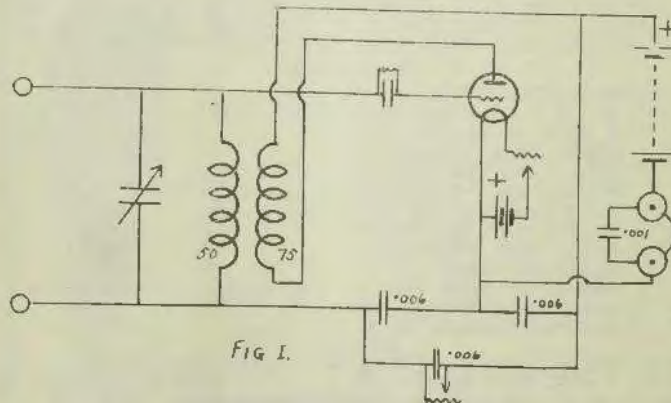
Here is a circuit which is extremely interesting to the experimenter and which has been called the Flewelling circuit. It is essentially a regenerative receiving circuit to which some auxiliaries are added. Its behavior is very much like the Armstrong Super-regenerative circuit and in fact it probably makes use of super regeneration in its operation. The principal tuned circuit is identical with that of a single circuit regenerative receiving set. There is also a feedback or tickler coil connected in the plate circuit and coupled with the inductance of the tuned circuit to give regeneration. The aerial and earth connections are brought to the two terminals of the tuning condenser.

There are two hook-ups. The first and original one required three fixed condensers of .006 microfarad capacity each, and a high resistance which may be a grid leak of .5 megohm. In addition it is necessary that the grid leak resistance used with the customary grid condenser be a variable one.

The receiver may be set up by the diagram but I will describe the second as it is a simplification of the first.



Block No. 1



- The parts consist of the following:-
- 1 panel 7 1/2in x 6 1/2in.
  - 2 Honeycomb coil mounts, one fixed, one movable.
  - 1-50 turn H.C. coil.
  - 1-75 turn H.C. coil. (These coil sizes according to wave length received.)
  - 1-.005 Vernier condenser.
  - 1- grid condenser .0025.
  - 1-leak 4 to 1 megohm.
  - 1 fixed condenser .006.
  - 1- valve and socket.
  - 1- rheostat 20 ohms and dial.
  - 8-binding posts, spaghetti and wire.

By following panel layout and diagram the set can be made very neat and compact. It is not easy to handle this circuit as it will require time and patience before read results are obtainable. Care should be taken not to let it oscillate as it has the disadvantage of interfering seriously with the reception of signals by others who operate

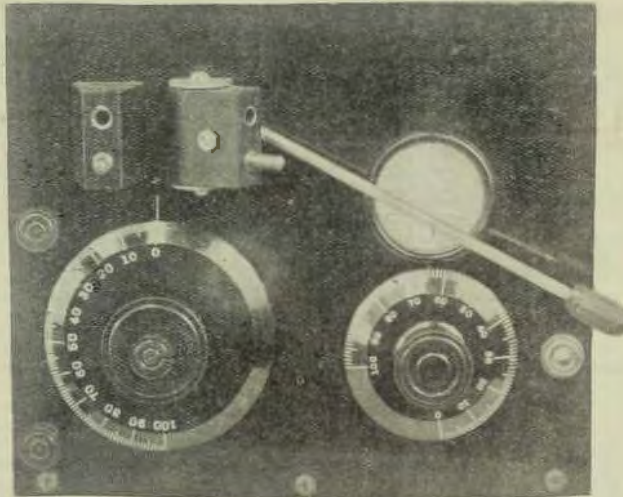
receiving sets near by. On the latter account it is not to be recommended for continuous use, but is an interesting circuit for trial and experimentation.

If W.E. 216 a valves are used, it is desirable to have the "B" battery voltage of 120 volts. Average valve at 90 volts and 199 valves at 45 volts.

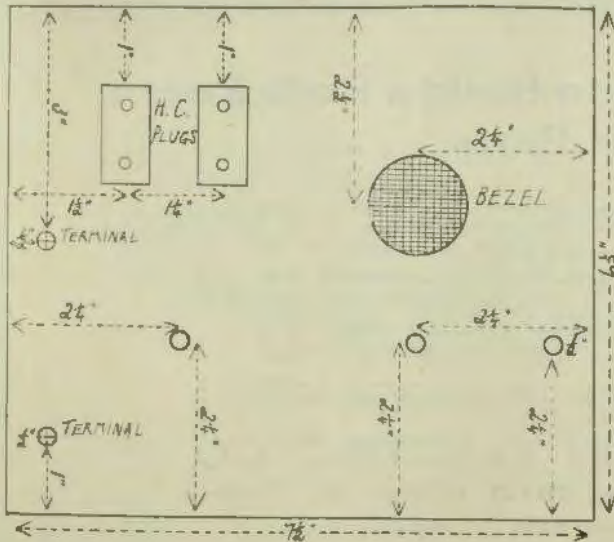
The next set to be described is the Autodyne.

- No. 1. Back view of Panel.  
 No. 2. Front view of Panel.  
 No. 3. Panel Lay-out.

Fig. 2. will be seen on Page 6



Block No. 2.



Block No

**Wireless Experimenters**

Call or write for full particulars of Long-range 2-Valve Sets, from £12 to £16. A special line of 1-Valve Sets at £8/10/- each. The above are complete in cabinets, with valves, phones and batteries. These sets are equal to any purchased elsewhere at double the price. Demonstrations every evening 7 till 10. A. E. Clarke, "Marsden," 34 Botany St., Waverley, near Bondi Junction.

**FOR SALE:** Beautiful 3 valve set, in Black maple cabinet, with loud speaker, head 'phones, (2) 40 volt B batteries, (2) 6 volt. 60 amp. and A battery switches, panel volt meter, aerial, complete to every detail. Come and have a demonstration. Extra coils supplied for Farmer's wave length. Really worth inspecting, and cheap. City 8806. R. H. Evans, Mid Lorne, 21 Thomas St., Ashfield.

Up-to-date RADIO EQUIPMENT, of the First Quality, at Competitive Prices. "COL-MO," 10 Eowe St., Sydney.

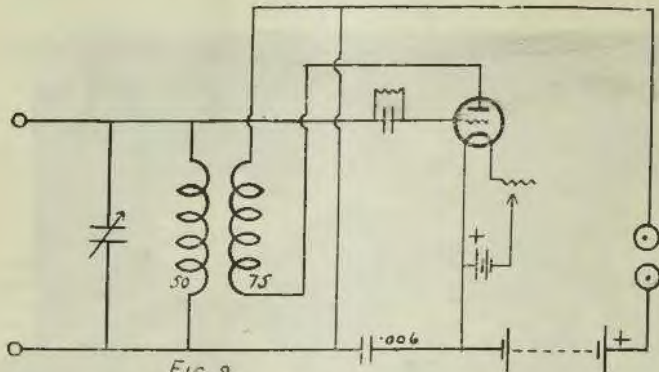


FIG. 2.  
Flewelling Circuit.

### Counterpoise and Aerial Hints.

The purpose of the counterpoise is to reduce the resistance of the aerial system and the losses due to a poor earth. This is specially advantageous where the aerial is erected over dry and rocky or sandy soil and the

the ground has poor conductivity. The counterpoise is really another aerial of suitable type supported a few feet above the ground, but insulated from it and should extend at least one-fourth wave length in all direc-

tions for the best results. This tends to concentrate the flux in the immediate vicinity of the aerial. If a real good earth is available the resistance system will not be much reduced by using a counterpoise, but this can only be determined by experiment. The best test is a comparison of signal strength.

The action of the counterpoise can be considered the same as that of two condensers in series. A capacity effect exists between the aerial and the counterpoise and the ground. Also a smaller capacity effect exists between the aerial and the ground direct.

In selecting the kind of wire to use in the aerial the points to be taken into consideration are: resistance, corrosion, strength and the ease of handling.

Standard wire as a rule offers a greater resistance than solid wire, but is a good conductor of high frequency currents, due to the tendency of the currents to travel on the outside of the wires. Litzendraht makes an excellent conductor for this use, but it is not practical for outdoor use, as the fine strands are easily broken.

Bronze wire is very strong and the

## Attempting to Build a Rolls Royce from Ford Parts.

Sounds ridiculous, doesn't it? Yet it is no more ridiculous than attempting to build an efficient Wireless Receiver from cheap and second rate accessories.  
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The wonderful results obtained on our famous "BURGINPHONE" RECEIVERS has proved this. To obtain the Best Results, you must use the best equipment, **AND WE HAVE IT.** We have a very Representative Stock at prices that are reasonably competitive.

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resistance is only slightly increased, due to corrosion, but it is hard to handle. Aluminium is lighter and stronger than copper, but not as good a conductor.

Copper and good copper clad steel are better conductors than aluminium or bronze. Soft drawn copper is amply strong enough for the average aerial and easy to handle. No. 12 copper enamelled wire makes an excellent aerial.

Copper, copper-clad and bronze wires soon acquire a green or black coating that serves as a protection against further corrosion, and does not seem to increase the high frequency very much. Aluminium is not affected after the first thin film is formed, and remains a good conductor. In localities where soft coal fumes and chemical fumes predominate, the aerial wire suffers greater corrosion, and aluminium is the least affected. Enamelling the wire prevents corrosion until the enamel is destroyed.

The insulation of the aerial is a matter requiring careful attention. If an insulator is defective, dirty or wet, the energy radiated from the aerial will be considerably reduced. Defects of insulators may be caused by breakage after installation or faulty manufacture,

such as small cracks or other openings through which the insulator may absorb water. Porcelain is one of the most satisfactory materials for use in constructing insulators because of the large voltages which it will stand without brushing, and its low capacity, but is not suitable under severe mechanical vibration. The design should be long and narrow and placed in series with the source of high potential to cut down the capacity losses.

Aerial insulators are often made of compositions, such as "electrose," and come in various shapes, and usually have eyebolts moulded in. Strain insulators of the "egg" type, when connected in the guy wires to prevent re-radiation, should be of good grade of porcelain, and care should be taken to see that the glazing is good. When connecting through the hole of the strain insulator, always use a large wire, or run the wire through a small piece of quarter-inch copper tubing formed to fit the hole.

Remember that aerial insulators are subjected to high voltages at radio frequencies, and materials that are satisfactory for ordinary house wiring and sixty-cycle alternating currents would not stand up in the aerial.

**PALAIS ROYAL MUSIC**

To be Broadcasted by 2BL.

On Wednesday, May 29th, the occasion of the 83rd anniversary of the firm of David Jones Ltd. (Sydney) the employees of that firm will gather at the Palais Royal to commemorate the first milestone. In addition to a varied programme of music, there will be fancy dress competitions, a grand march, and a big feature in the way of an address by Mr. C. L. Jones, Chairman of Directors. Mr. Jones will deal with the new store which is in course of erection for the firm, after which he will briefly review the position of commerce in Australia; past, present and future.

The Western Electric Company (Aust.) Ltd., have kindly made arrangements whereby their public address system will be installed in Palais Royal so that all of the items will be perfectly audible to the audience of 3000 which it is estimated will be present.

By special arrangement with 2BL (Broadcasters (Sydney) Ltd.) the Palais Royal will be "on the air" (350 metres) via the medium of that station, so that listeners-in will have the privilege of tuning in an evening's entertainment which will be unique in the history of Australia.

**ANNOUNCEMENT**

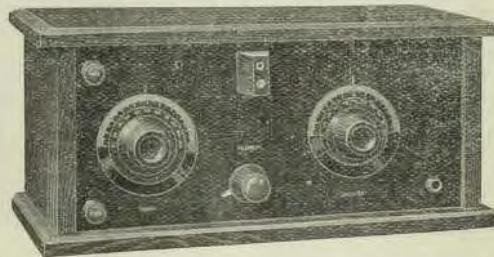
We are pleased to notify our customers, both Wholesale and Retail, that we are now ready to quote for the erection of aerial masts from 30ft. to 200ft. in either Wood or Iron, also for flags of any design.

**E. H. BRETT & SONS LTD.**  
LITTLE AVENUE, BALMAIN EAST  
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## Signal Knock-Down Sets.

Realising the need for an inexpensive yet efficient and simply operated receiver, the United Distributing Co., Ltd., have developed their Signal Knock-Down type—unassembled set, which admirably fills these requirements.

The set comprises all parts necessary for the construction of a single valve receiver which can be made either regenerative or non regenerative, merely by the alteration of a single lead, and assembly and general design has been so simplified that the set can be easily built and operated by anyone without the necessity of any technical knowledge. The set may be built to use either the UV 199 dry cell



tube, or the UV 201a, the only alteration being the use of a socket suitable for the type of valve employed.

With the use of dry cell tubes, provision has been made for the batteries to be enclosed in the cabinet of the set, making the whole very compact and neat, having only two external leads for aerial and ground connections.

The parts supplied are as follows:—

1. Cabinet, with grooves rebated in slides and bottom in which the panel fits firmly without the necessity of using screws.
2. Panel drilled to take all components and engraved as necessary.
3. United 23 plate variable condenser for tuning.
4. United 11 plate variable condenser, with panel assembly for terminals and grid leaks for mounting.
5. Signal rheostat.
6. Jack with sub-panel for mounting valve socket.
7. Signal valve socket.
8. Coil plug for standard united honeycomb coils.
9. Engraved terminals, quickheat 3 megohm leak mounting clips, tinned copper wire for connections.

### CONSTRUCTION.

Prints and instructions for assembly are supplied with each set.

The apparatus is mounted in the back of the panel as illustrated in the accompanying diagram and in positions as shown. "P" is the 23 plate tuning condenser, "S" the 11 plate condenser, with terminal board and assembly, and "R" the signal rheostat. This latter mounted with the connecting screws to the bottom, as shown, for convenience of wiring.

The coil plug is mounted on the front of the panel by means of the two screws shown.

For the sake of clearness of the wiring diagram the jack and the terminal

board are shown out of their correct positions, the jack being fastened in the hole in the lower left-hand corner, and the terminal board to the brackets in the condensers. Wiring is done by means of the tinned copper wire supplied, the points to be connected being indicated by the heavy black lines of the diagram.

For neatness all leads should be kept straight and all bends made at right angles. Wherever possible connections should be soldered, but when doing so acid or soldering paste containing acid as a flux should not be used, as this invariably causes corrosion and consequent trouble.

The circuit as shown is non regenerative. To obtain regeneration the terminal marked P of the valve socket is connected to the aerial side of the coil plug as shown by the dotted line.

### OPERATION.

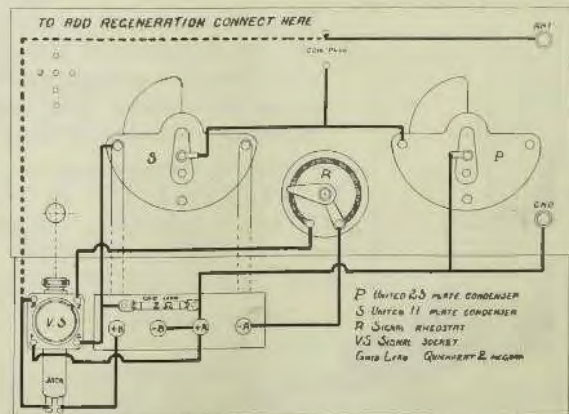
To use the set the batteries are connected to the terminals indicated, the B battery being a standard 40 volt dry battery, and the A battery being with a UV 199 tube, a 4 volt dry cell, and with a UV 201a tube a 6 volt accumulator.

The aerial is connected to the terminal marked "Ant" and the earth to the terminal marked "Gnd."

The valve is placed in the socket, the bayonet pin on the base ensuring correct connections with the contacts. The phones are of course plugged into the jack.

The Rheostat "R" is now turned on, the coil for the wave length required plugged in and the set is ready for tuning.

When the non-regenerative circuit is used, the condenser S may be left all in and tuning done by turning the dial of the condenser P. When signals are heard the rheostat is varied until signals reach their maximum strength.



When the regenerative circuit is used both condensers are required. On turning the dial marked "Amplifier" from zero a click will be heard in the phones caused by the set breaking into oscillation. The best position for the reception of music is immediately before this click is heard. To tune turn the dial marked "Tuner" and at the same time the dial marked "Amplifier" so that the set is just not oscillating, i.e. just not sufficient to cause this click to be heard. The effect of oscillating when receiving music is to cause distortion of the music while the carrier wave of the transmitting station will cause a whistle in the phones of the oscillating set. To stop oscillation turn the Amplifier dial out a little when the music will become clear.

What a difference the change of a letter makes! The most humorous misprint we can remember is this one, which went the rounds several years ago:—

"The doctor felt the patient's pulse and decided there was no hope."—  
"Boston Transcript."

## Remarkable Offer

**MONEY SAVED IS MONEY EARNED!**

Here is a Way to Save Money.

**T**HE LEFAX PERPETUAL RADIO HANDBOOK is published by officials of the United States Bureau of Standards. It is full of authentic Radio information, technical and otherwise. When you pay 30/- for a Lefax you become a registered subscriber and for one year you are mailed FREE every month the latest developments in Radio. After the first year you pay only 9/- annually, and each month you receive in loose leaf form, all the new ideas. These you can incorporate in your Lefax Handbook. Lefax is on the looseleaf system, is pocket size, and is beautifully illustrated and bound. Every subject is indexed with a linen tab. Lefax never grows out-of-date.

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## Experimenters

**Now is your opportunity to obtain "Federal" Transmitting Apparatus at Low Prices.**

Radiation Meters, Thermal Type, 0-500, M.A.,	£3/5/-; 0-1 amp.,	£3/10/-; 0-3 amps.,	£4/8/-; 0-5 amps.,	£5/7/-
D.C. Ammeters and Milliammeters, 0-50, M.A.,	£3; 0-100, M.A.,	£3/7/-		
D.C. Voltmeters, 0-50 volts,	£3/10/-; 0-600 volts,	£5/5/-; 0-1500 volts,	£14/7/-	
A.C. Voltmeters, 0-15 volts,		£4/7/-		
Grid Leaks, for transmitting non-inductive,	5,000 ohms,	12/6; 10,000 ohms,	£1/1/-	
Choke Coils		£2/2/6		
Modulation Transformers		£2/7/-		
Microphones, panel type,	£1/10/-; Hand type	£1/12/6		
Clapp-Eastman Bend Receive Switch		£4/18/6		
Helixes		£2/7/6		
Radiotron, U.V. 202, 5 watt valves, with sockets		£2/10/-		

WE STOCK A COMPLETE RANGE OF RECEIVING APPARATUS, AND WILL BE GLAD TO FORWARD PRICE LIST ON APPLICATION.

**The Home Electric 106a King Street**

Phone: B5565.

OUR SPECIAL .. MANHATTAN PHONES .. .. . £1/10/-.

WRITE FOR  
OUR FULL  
PRICE LIST

# See These Prices

SPECIALISTS  
IN COMPLETE  
RECEIVERS

**ACCUMULATORS.**—Expanse, 2V, 22 act. amp., £1/1/-; Exide, CZ, 26 x 40 amp. hours, £3/3/6.

**DRY CELLS.**—“B” Batteries, 42v., Eveready, 12/6. Red Seal, 1.5v. . . . . 2/9.

**TRANSFORMERS.**—United, A.F. Transformer, £1/17/6. R.C.A.A.F., U.V. 712, £2/5/-. Igranic, A.F., £1/15/-. R.C.A.R.F., 200-500-5000, £3/3/6.

**LOUD SPEAKERS.**—Amplion, A.R., 19, Dragon, £8. Magnavox, R., 3 . . . . . £10/10/-

**TELEPHONES.**—Baldwin Mica Diaphragm, £4/18/6. Murdock's, 2000w., £1/10/-. Frost, 2000w. . . . . £1/15/6

**SUNDRIES.**—Aerial Wire, copperweld, per 100ft., 4/6. Earth Arrestor Spark Gaps, 8/6 and 13/6. Clips, each, 8d. S.P.D.T. Switches, 4/6. Clips for “V24” Valves, per set, 3/6. Insulators, White Egg, each, 6d. Insulators, Lead-in Tube, 1/-. Ducon Electric Light Adaptor, 12/6. Coil Mountings for 3 Coils, £1/5/-. Honey-comb Coil Plugs, Remler, No. 40, 4/6. Variocoupler, Remler, £1/10/-. Variometer, Remler, £2/10/-. Rotors, small, 4/6. Variometer, assembly parts, 2/6. Variocoupler, assembly parts . . . . . 1/3.

**CONDENSERS.**—United, .001 mfd., 43 plate, £1/6/6. Master, .001mfd., with vernier (complete with dial and knob), £2/8/6. Master, .001 mfd., with vernier, £2/5/6. United, .0005 mfd., with vernier, £2/5/-. United, .00025 mfd., plain, 11 plate, 18/-. United, .00013 mfd., plain, 5 plate, 16/-. United, .00008 mfd., plain, 3 plate, 14/6. Condensers, fixed, signal (5 capacities), each . . . . . 1/6

**SUNDRIES.**—Cardboard Tubes, set of 2, 1/-. Wooden Ends for same, 3/-. Base Boards, 2/6, 3/6, 4/6. N.P. Sliders, “X,” 4/-. N.P. Sliders, 4in., brass, 2/9. Brass Sliders, 1/10. Expanse, Morse Key, N.P., 12/6. Sterling Volt Meter, 0-50v., 19/6. Freshman Grid Leak and Condenser, 6/6. Freshman Grid Leak, only 0.5 meg., 6/6. Bezels or ventilators . . . . . 1/3.

**VALVES.**—Expanse, “B,” £1/10/-. Marconi, “D. E.R.,” £2/2/6. Marconi, “Q,” £1/17/6. Marconi, “QX,” £2/7/6. Marconi, “V24,” £1/17/6. Marconi, “R,” £1/5/-. Cunningham, “C300,” £1/15/-. “X,” Traudion, £1/4/6. Mullard Ora,

£1/1/-. Ediswan, “A.R.,” £1/2/6. Ediswan, “A.R.D.E.,” £1/15/-. Ediswan, “A.R.,” .06, £2/2/6. Ediswan, “R.,” £1/2/6. Radiotron, U. V. 200, £1/15/-. Radiotron, U.V. 201A, £1/15/-. Radiotron, U.V. 199, £1/15/-. Radiotron, W.D. 11 and 12 . . . . . £1/15/-.  
**WINDING WIRE.**—24 Enamel, per lb., 3/6; 26, 4/-; 28, 4/6; 30, 5/6; 36, 8/6; 38, 11/6; 40, 18/6. 24, S.S.C., 7/-; 26, 7/10d; 28, 8/9; 30, 10/-; 36, 15/9; 38, £1/2/6; 40, £1/9/6. 24 D.S.C., 9/-; 26, 9/6; 28, 10/6; 30, 12/-; 36, 18/9; 38, £1/7/6; 40 . . . . . £1/15/6.

**HONEY COMB COILS FOR ALL WAVE LENGTHS.**

Turns.	Wave Length with 001 Condenser.	Price Unmounted.
19	95-324	3/-
30	120-450	3/-
40	195-577	3/-
40	200-725	3/-
74	280-1150	3/6
102	425-1525	3/6
135	500-1850	4/-
172	650-2500	4/-
225	1100-3095	4/6
420	1750-6100	6/-
990	3500-15500	12/6
1250	4000-16500	14/-
1500	5500-22000	15/-
1600	8000-25500	17/6

**KNOBS AND DIALS.**—Remler, No. 100, 3in., 5/6. Master, D, 202, 3in., 5/-. Master, D, 203, 2 1/2in. (Rheostat), 4/-. Master, D, 205, 2 1/2in. (Potentiometer) . . . . . 4/-

**KNOBS ONLY.**—“X,” 3d., 4d., 6d., 1/-, 1/3. Signal, 2in., 1/6; 3in., 2/3; 3 1/2in. . . . . 2/6

**JACKS AND PLUGS.**—Sure Grip Phone Plug, 3/6. Murdock Multiple Plug (4 'phones), 12/6.

**JACKS.**—Open Circuit Jack, 6/-. Fibre Strip for mounting honey-comb coils (4ft. lengths), per ft., 3d. Q.S.A. Crystals, each . . . . . 1/6

**SOCKETS.**—English, 2/-. English, U.V. 199 Valves, 6/6. English, U.V. 199, Phosphor Bronze, 3/9. Series Parallel Switches, 13/-. Switch

**POINTS,** per doz., with nut, 2/-. Rheostats, Bradleystat . . . . . 12/6

**SWAIN'S LIMITED**

119-123 PITT STREET,  
SYDNEY

## BROADCASTING TRANSMITTERS

Modulating panel and oscillatory circuit panel of the half k.w. broadcast transmitter, manufactured at the RadioElectric Works of Amalgamated Wireless (A sia), Limited. Eight of these sets are in course of manufacture, and will shortly be installed to operate in the broadcasting stations now being constructed in various parts of Australia. These are the first broadcasting panels manufactured in Australia, and as showing the stage of development of Australian wireless manufacture it may be stated that panels of a like nature have not been produced outside of England, United States, France and Germany.

The equipment comprised in the modulating panel (left-hand side of picture) is as under:—

On the top is seen the aerial circuit inductance, consisting of main winding coupling coil and variometer with the necessary wave-change plugs.

Mounted on the top section of the panel are meters indicating the plate supply to the modulators, filament voltage of the sub-modulator valves, and the grid current meter for modulator valves.

The centre section of the panel houses the 3 Marconi type E9B modulator valves, each having a plate voltage of 2,000; filament voltage 12.5, and filament current of 5.1 amps.

The plate voltage is supplied by a special high tension generator, designed to be as free from commutator ripples as possible.

The sub-modulator valves are located on a small horizontal panel immediately in front of the main modulating valves.

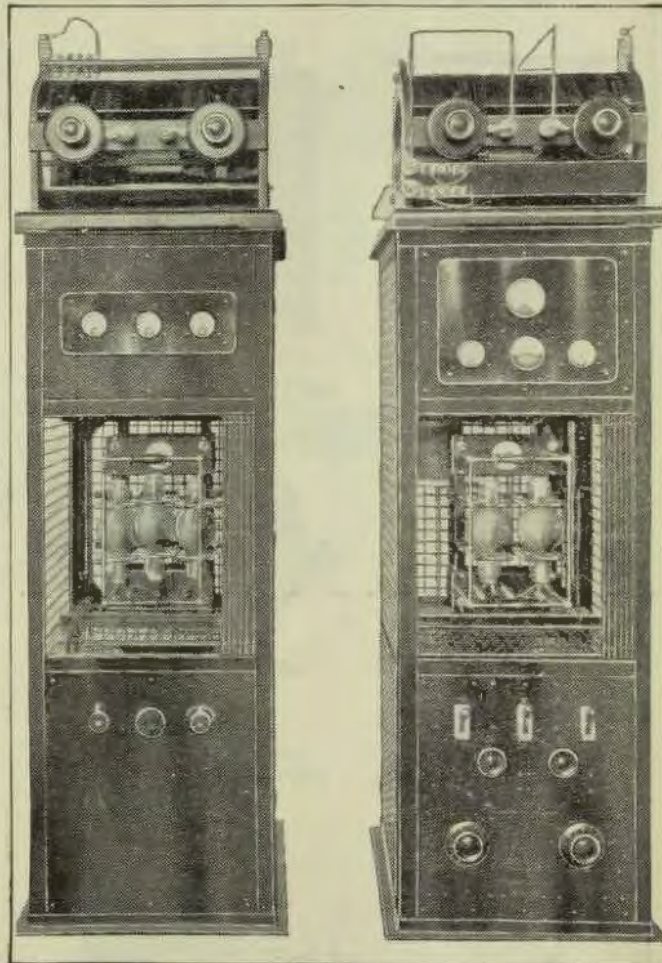
The lower section of the panel contains three controls, viz:—

- (a) Switch for cutting in spare sub-modulator in case of emergency.
- (b) Filament resistance for sub-modulator.
- (c) Grid bias control for main modulating valves.

The right hand panel constitutes the oscillatory circuit of the half k.w. broadcast transmitter.

On top of this panel is mounted the closed circuit inductances, consisting of a main winding variometer and reaction coils with wave length changing plugs.

On the top section of the panel is mounted the electro-static voltmeter for high tension supply, plate current



milliammeter, filament voltmeter and closed circuit thermo-coupled ammeter.

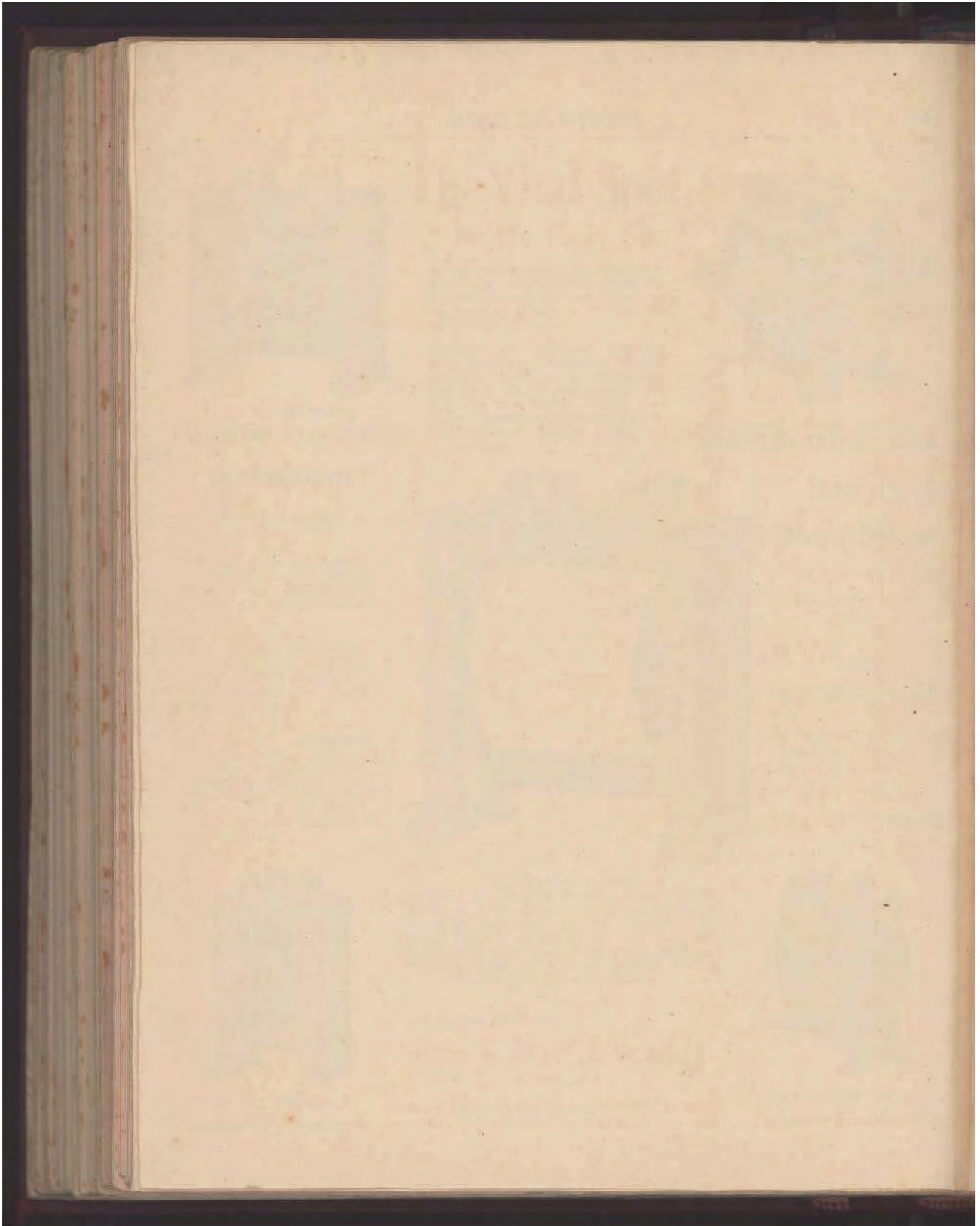
The centre section houses the 2 Marconi type E9B oscillating valves.

In the bottom section are the power control switches for the filament supply, motor starter and high tension cut out relay. The two dials beneath these

switches control the high and low tension fields of the D.C. generator, which supplies both high and low tension currents for the valves in the oscillator and modulator. Where alternating current supply is available, the filament current is obtained from this source by

Continued page 14, col. 1

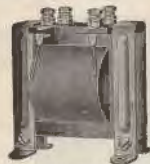
TRUE, DISTORTIONLESS MUSIC IS A FEATURE WITH N.H.M. CRYSTAL RECTIFICATION.



# THE VITAL SPOT in the Radio Set

## FOUR Reasons Why?

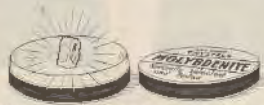
- i. A Jefferson is unobtrusively designed.
- ii. The windage and control by adjustment is perfect. But our real amplifiers—they are not built up to a ratio.
- iii. The Jefferson can withstand a variety of conditions to meet every demand—the Radio and the Radio Dispenser type.
- iv. As pioneer manufacturers of amplifiers, Jefferson Engineers designed such amplifiers long before the world's most popular amplifier. You will appreciate Jefferson's 25000 years of experience.



"No. 41" JEFFERSON AMPLIFYING TRANSFORMER



Introducing Jefferson "STAR" AMPLIFYING TRANSFORMER



MOLESWORTH STANDARDISED CRYSTALS MOUNTED—GALVANA, A.C. HERBERT'S SOLVEMENTS IRON, COPPER AND BISMUTHAL PYPHENS. SPECIALLY SELECTED AND GUARANTEED.

is the transformer. The advantages of using JEFFERSON TRANSFORMERS are acknowledged by hundreds of thousands of users the world over. Stability of operation; Freedom from Distortion; Maximum Amplification! These are characteristics demanded of Transformers and they are the qualities which have made JEFFERSON TRANSFORMERS these popular among experimenters!

### As You See at the Stars

The gentle calm of a bright starry fills us with mystery. Little did we dream a while back that to-day and wide in the unknown, thousands of voices, hurled by electrical rays, are rushing at usward of speed through space to all points of the globe. A person here, a group there, begin a million or more homes people are anxiously tuning in on their sets, groping in the air, hoping to catch the sound of a far-away station, here it comes, a slight buzz, a faint noise, another adjustment and clearer comes voices; a quartet is singing; so clear and distinct the soft gentle melody that the listeners close their eyes, the stage seems to be in the very room with them. If you desire clearer reception, more volume and the elimination of howling and distortions, install JEFFERSON transformers in your set. THERE'S A JEFFERSON TRANSFORMER FOR EVERY CIRCUIT. Write for amplification data and interesting descriptive literature.

### Buy an AMPLIFIER

For what it will do - The Service it will render - The tone of volume it will produce RESULTS COUNT You introduce higher cent. scientific efficiency into your set when you install

### Jefferson Transformers

Sole Agents for Australia:

## Fox & MacGillicuddy

Limited  
Daily Telegraph Building, KING STREET, SYDNEY  
Telephone 2965



### What's Inside

The most interesting feature of this transformer is the fact that it is built up to a ratio of 100 to 1. This means that it can handle 100 times as much power as a transformer of the same size built up to a ratio of 10 to 1. This is why it is so popular among experimenters.

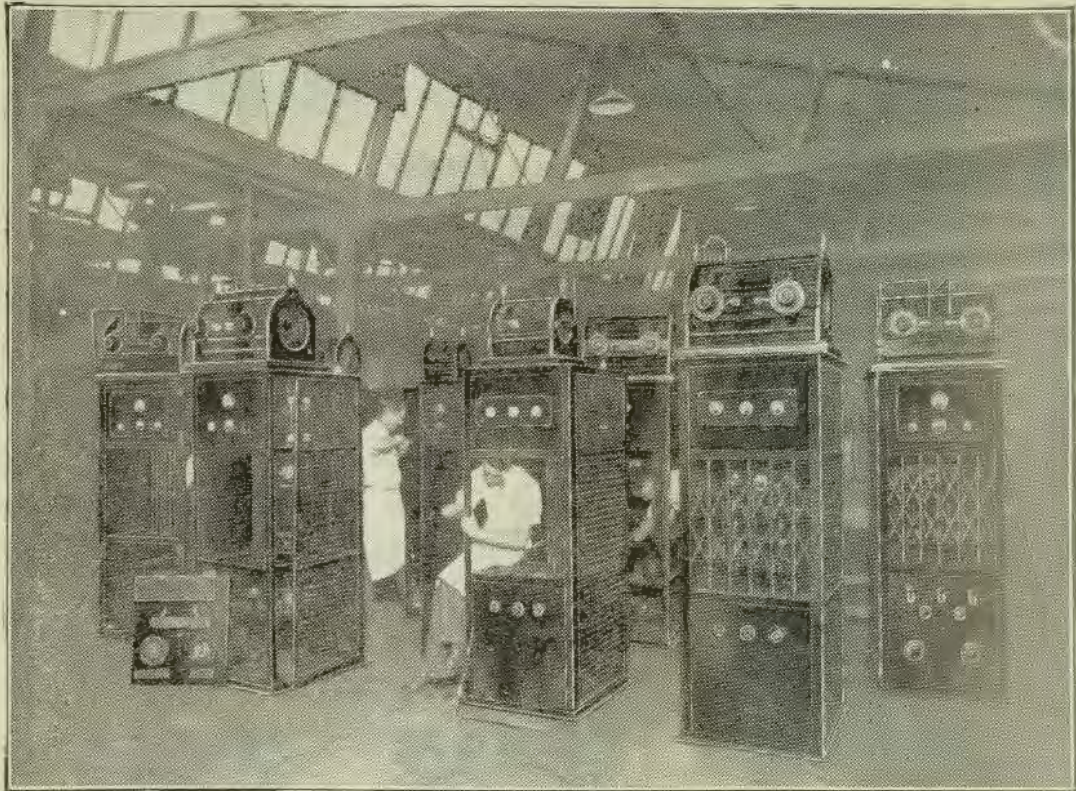


"No. 41" JEFFERSON Amplifying Transformer



JEFFERSON RADIO Frequency Transformers

World's Leading Transformer, stocked by Scientific Supply, Radio House, Radio Co., E. Hayden, and Sons, Stanley Sharp, Universal Electric, Wireless Services, J. G. Rice, Wiley, David Jones Ltd., Mark Day Ltd., Wireless Sales Co., and Retail and Jobbing Hardware, Melbourne; J. C. Page, Brisbane; Adelaide, Radio Co., and all leading Wireless Stores throughout Australia.



BROADCASTING TRANSMITTING PANELS IN COURSE OF MANUFACTURE AT THE RADIO-ELECTRIC WORKS OF AMALGAMATED WIRELESS (A/SLIA) LIMITED, SYDNEY.

Eight of these sets are in course of manufacture, and will be installed by the company in broadcasting stations throughout Australia.

Continued from page 11

means of a step down transformer. The regulating switches for this transformer are at the bottom of the lower panel, and give a coarse and fine adjustment of voltages between 10 and 20 volts in steps of .2 volts.

All valves are protected by means of sliding lattice doors which operate gate switches on the extreme left, just visible by the small button. When a gate is open this switch disconnects the high tension supply at the point of entry to the transmitter and thereby renders the whole apparatus "dead."

Have you heard this one? Wee Willy Weston with Wiles Wonderful Wireless will work wonders. Say it quickly.

#### NOTICE TO READERS.

Frequently we receive letters asking us to publish curious circuits and diagrams. Unfortunately we cannot do this on account of the limited space at our disposal. We are glad to do anything we can to assist any reader with his problems. All that we ask is that when requiring drawings or detailed information a stamped, addressed envelope be enclosed with the request. This will facilitate a reply, and will assist us greatly.

The most extensive stock of Wireless Sun Trics is at 10 Rowe Street, Sydney.

"Sandy" Burns, although half intoxicated, was trying to play his daily game of golf. He had been in trouble on every hole until the short fifth; by some stroke of luck he made a one. The caddy rushed back to him, "It's in the hole, Mister! It's in the hole!"

To which "Sandy" replied, "Damn the luck, give me my niblick."—Harold Russel, in "Judge."

Customer (looking doubtfully at box from which he is being served): "These cigars are much smaller than they used to be."

Shopman: "Yes, sir. You see, the manufacturer noticed that the last inch of the cigar is always thrown away, so he's making them that much shorter!"—"London Answers."



# Broadcast Receiving Sets and License Forms

Together with the FREE SERVICE of Broadcasters (Sydney) Limited may be obtained from the following

---

**L. P. R. Bean & Co. Ltd.**  
229 Castlereagh St., Sydney.  
Telephone: City 353.

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**United Distributing Coys. (N.S.W.) Ltd.**  
(Wholesalers)  
28 Clarence Street, Sydney.  
Telephone: City 3566.

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**W. Harry Wiles**  
60-62 Goulburn Street Sydney.  
Telephone City 3688      1 door from Pitt St.

---

**Wireless Supplies Ltd.**  
21 Royal Arcade, Sydney  
Telephone: M 3378.

---

**E. R. Cullen**  
96 Bathurst Street  
Telephones: City 869, 2596.

---

**Radio House**  
619 George Street Sydney  
Telephone: City 1487.

---

**Colville-Moore Wireless Supplies**  
10 Rowe Street Sydney.  
Telephone: B2261.

---

**Ramsay, Sharp & Co. Ltd.**  
217 George Street, Sydney.  
Telephone: City 3176.

---

**The Home Electric**  
106a King Street, Sydney.  
Telephone: B 5565.

---

**Swains Ltd.**  
119-123 Pitt Street, Sydney.

# Portable Single Valve Set.

By Insulator.

Howdy, folks! Here I am again, but I am writing with the taste of a thermometer in my mouth and a hazy recollection of sometime recently saying "ninety-nine."

Say this little set is a beauty, in fact the circuit is the best for a single valve that I have yet seen. I believe it is known as the PL, but whatever the appellation it is good. It is also cheap as the list here will show. And further, it can be made very easily and very quickly.

While nothing is crammed it is nevertheless very compact; the over-all measurements being 8in. x 7 1/2in. x 3 1/2in. Now as to results, a friend of mine employing the same circuit successfully operates a loud speaker with it on both 2BL and 2FC. This is not exaggeration but perfectly true, as I myself have heard it.

Now to the drawing. I have lettered the various parts, so I will itemise them.

B—1 filament rheostat (Nutmeg)	6 0
C—1 switch arm, 1 1/2in. Nutmeg	2 9
D—1 "R" holder	2 6
M—1 grid condenser and leak	1 9
E—Ebonite strip 7in x 1in x 1/8 in.	0 5
F—1 woodblock, 2 1/2 x 1 1/4 x 5/8in.	0 1
A—1 variable condenser	3 6
8 terminals	2 8
9 contact studs and nuts	0 9
4ozs. No. 28 D.C.C. wire	0 9
Sundries, screws, hinges, etc.	1 6

£1 2 8

Suppose you purchase a D.E.R. valve at £2/2/6, a dry cell, 2/9, and a "B" battery at 12/6, and allowing 3/7 for timber for making the box, it will be thus seen that the complete set will only cost £4/4/- (I know you have phones and an aerial).

The whole is contained in a neat little box, G,H,I,J,K,L, made of 1/4 in. wood such as maple. Here are the measurements:

The top and bottom G and L are 8 in x 3 1/4, ends I and J are 7in. x 2 1/2in., sides H and K are 7 1/2 x 7 in.

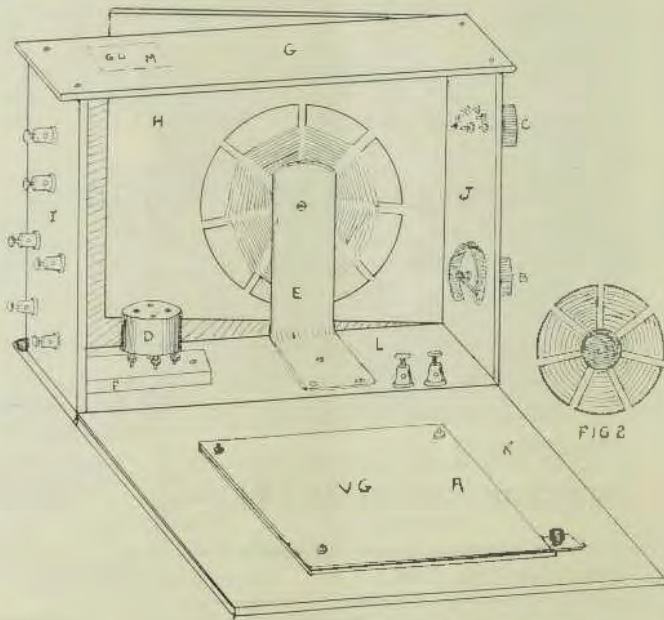
Side H swings on hinges from end J and side K is hinged to bottom L. To K it will be seen that variable condenser A is attached while H supports the re-action coil which is not shown on diagram.

The coils to be used are spider webs, which are very easily made as Fig. 2, a view of the former will prove. It will be noticed that I have stipulated a Nutmeg rheostat, because I know this is one which only requires a single 3/8in. hole for fixing. Oh, no, I don't get one free for recommending this brand.

The variable condenser is made from 2 pieces of bakelite, 4in. x 4in., x 1/16

or 1/8 in.; 3 pieces of mica, 2 pieces of 4in x 4in., and 1 piece of 4 1/2 x 3 1/2in. Tinfoil forms the plates, the whole being very compact and cheap, yet efficient.

Next week I will describe in detail the construction of this set; I can't this week for I can hear Mrs. Insulator alternately shaking a medicine bottle and calling, "Aren't you ever coming to bed?" Well I am!



The bug-bear of the "chaotic broadcasting conditions of the United States," that was given much publicity in this country last year, when it was quoted as a powerful argument for sealed sets, was also raised in Germany for the same purpose. Germany, surrounded by countries deep in the enjoyment of broadcasting, stands splendidly isolated, because in conformity with the true ideals of "progress," the German public is obliged to listen-in on sealed receivers.

According to advices, the Govern-

ment have seized upon this new thing as a heaven sent means of separating the people from more of their loose change, and the high cost of radio runs neck and neck with that of living. One regulation is that listeners may not receive other than German programmes.

The amateur is practically non-existent, and his activities are crippled by the ruling that they may interfere with commercial services. The average type of receiver is priced so high that it is quite out of reach of all save those who are financially well off.

Friday, May 30, 1924.

WIRELESS WEEKLY

17



*Radio Company*

*Limited*  
15 LOFTUS STREET  
*Circular Quay*  
SYDNEY



### THE DEMAND

for Radio products has been such that we have been compelled to enlarge our shop space.

**Satisfied** customers have caused this. Are you one? If so we thank you and of course will see you again. If not we invite you along.

With your difficulties large or small we will help you. We have just landed exclusive stocks from America and England.

### COMPLETE SETS

installed by us are giving satisfaction in many parts of the State, and we are permitted to refer you to any of our customers, the names of whom we will be glad to supply on request.

We pay all railage and postage throughout the country on Sets and Parts.

**RADIO CO., LIMITED.**

15 LOFTUS STREET, CIRCULAR QUAY, SYDNEY.

## How to Buy a Receiving Circuit Condenser.

If, in buying radio apparatus we were as discerning as our wives are in buying vegetables, or a choice cut of meat, we would have less trouble, and many of our radio ills would disappear. But we are not. Some of us want too much for too little, and most of us pay too much for too little. If we had better ideas of values our "phones" would "phone" better, our rheostats would "stat" better, and our condensers would "condense" better. In the radio business most manufacturers are honest, but some do not know how to make good apparatus. Others are honest, and do know how to make good apparatus.

These are cold facts, and for our own protection it is important that we know the good and bad points of design when parting with our hard-earned cash in the radio shop. We can only subject the prospective purchase to optical examination, but if we use our eyes such a scrutiny can be a good guide to the value of the article.

Take condensers. We can see a fixed condenser, but cannot observe its action. However, laboratory experiments and our own experiences have shown us what to avoid in the way of makeshifts. Do you know that, in audio-frequency circuits the currents actually have a tendency to tear the tin-foil away from the surface of the dielectric? If the condenser is not sturdily built and is loosely assembled, the materials in it will actually vibrate in sympathy with the current. We can prove this by connecting a condenser to a 500 cycle circuit. It will hum merrily. Let us in future refrain from buying condensers that feel soft and spongy between our fingers. They are inefficient, current-eating monsters with an insatiable appetite for juice and are tireless dissipators of the energy we try to coax into our 'phones.

There are many points to watch in buying a variable condenser. The rush into radio manufacturing has pro-

duced variables and variables, and the prospective purchaser cannot be too careful in his selection of this, one of the most vital parts of his receiver. Almost invariably a customer will first look at the edges of the plates of the variable. If the delicate rubbing of the fingers along the edges detects a burr, then the manufacturer has been careless in not removing the sharp points that will dissipate our carefully guarded currents. Has the condenser been fitted with brass or bronze bearings for the shaft? If not the end pieces will wear in time and the moving plates will fall out of line and may even short circuit on to the stationary plates. Metal bearings carrying the shaft will give you a long-lived condenser. What are the end-pieces made of? Are they of good insulating material? If they are moulded of "mud" with a large helping of carbon colouring matter in it we cannot expect any kind of efficiency in radio-frequency circuits. The moving plates must be well insulated from the stationary plates. Fibre does not come up to the standards of high dielectrics in insulating strength. It is a moisture-absorbing substance treacherously in-

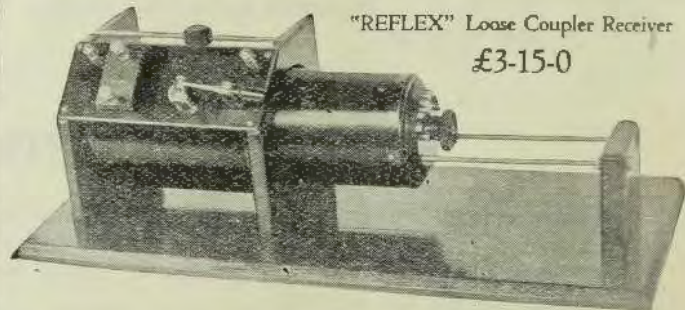
*Continued on page 24*

OUR SPECIAL  
LINE

PEERLESS  
Head Phones

2000 Ohms.

30/-



"REFLEX" Loose Coupler Receiver

£3-15-0

Complete Set of Parts to make the above Set 36/6

Postage 1/6

RADIO HOUSE  
619 George Street, Sydney



Friday, May 30, 1924.

WIRELESS WEEKLY

19

The  
**UNIVERSAL**  
Electric Company

Announce the opening of their new and up-to-date  
**RADIO SHOP**  
on June 2nd, 1924 at 108 MARKET ST. (between Pitt and Castle-  
reagh Sts.,) SYDNEY.

*We wish to thank our many customers for the support accorded to us in the past, which has been responsible for such an increase in our business that it has now become necessary to move into larger and more commodious premises at the above address. A cordial invitation is extended to all our old customers and wireless experimenters in general, to call in and inspect our new stocks, which we feel sure will be of the utmost interest to them. A few of our new and varied lines are mentioned below.*

JUST LANDED FROM AMERICA. THORDARSON AUDIO TRANSFORMERS  
(America's best), both Radios 6-1 and 3-1.

THE FIRST SHIPMENT OF PUSH PULL TRANSFORMERS.

PATHE LOUD SPEAKERS.

EDISON "B" BATTERIES.

FROST PRODUCTS.

THE WELL-KNOWN "CENTRAL RADIO LABORATORIES" COMPLETE  
RANGE OF PRODUCTS.

"C.R.L." ADJUSTABLE GRID LEAKS.

"C.R.L." NON INDUCTIVE POTENTIOMETERS, 400 and 2000 ohms.

BRADLEYOMETERS · BALDWIN TELEPHONES · "C.H." RADIO SWITCHES,  
UNIVERSIERS · · · AND A LARGE ASSORTMENT OF NEW APPARATUS  
WHICH IS ENTIRELY NEW IN AUSTRALIA.

**The Universal Electric Co.**

"Where your money goes the furthest"

108 Market Street, Sydney

TEL.: CITY 230.



**THE LEIGHARDT AND DISTRICT RADIO SOCIETY.**

Members of the Leighardt and District Radio Society held their eighty-first general meeting in the club-room, 176 Johnston St., Annandale, on Tuesday, May 22nd. The attendance was all that could be desired, and in accordance with arrangements made beforehand, a "sale and exchange" evening was conducted. A large quantity of gear was disposed of by those present, it being arranged that a portion of the proceeds should be set aside to be added to the Society's funds. The results were highly satisfactory to all concerned, and it was generally agreed that the meeting was a very successful one.

As Mr. F. Lett had signified the possibility of his absence from Sydney on

the following meeting night, it was announced that Mr. F. Thompson's lecture on Audio Frequency Amplification would be delivered in place of that on "Radio Frequency Amplification" set down on the syllabus for delivery by Mr. Lett.

Next Tuesday night the Society will hold its 21st monthly business meeting when a number of applications for membership will be dealt with, and other business transacted.

The Hon. Secretary of the Society, Mr. W. J. Zech, of 145 Booth St., Annandale, will be pleased to receive inquiries regarding its activities.

**CONCORD AMATEUR RADIO CLUB.**

The usual weekly meeting of the above club was held at the club room, "Euripedes," Wallace St., Concord on Thursday, May 22nd.

The Vice-President, Mr. Stephenson, occupied the chair.

The minutes of the previous meeting were read and confirmed.

The main business of the evening was the question of raising sufficient funds to complete transmitter now in course of construction.

any suggestions were thoroughly dis-

cussed and ultimately it was decided that all members pay a half year's subscription in advance to enable the construction committee to go ahead with the work. A notable feature during the discussion was the whole-hearted interest shown by the members and in the course of the next few weeks the club hope to be able to have the transmitter complete.

We again stress the point that the club room is situated at Wallace St., Concord, and not at "Quondong," La Mascotte Avenue, as previously reported.

Intending members are requested to get in touch with the Secretary, W. H. Barker, "Euripedes," Wallace St., Concord, from whom all particulars can be obtained.

This club is one of the oldest in existence and it is hoped that all who are interested in its work will join up without further delay.

The matter of affiliation with the Wireless Institute of Australia was also dealt with and it was unanimously decided to complete the bond of affiliation so that the Club could be represented from the inauguration of the Affiliated Council.

The popular questions and answers

**JUST ARRIVED!**

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Radio Section, 252 York Street, Sydney

Friday, May 30, 1924.

## WIRELESS WEEKLY

21

period proved quite a treat to those who were in doubt.

The full business then being finished the meeting adjourned minus the supper, which had been previously relished by all present.

## WAYERLEY RADIO CLUB.

The meeting of May 26th opened with Mr. W. Anderson in the chair. After the usual business, Mr. E. Bowman mentioned the Saturday afternoon work that the club was putting in for the erection of the new mast, aerial and counterpoise. He objected strongly to the practice of some members promising to attend, and then not putting in an appearance.

Discussion then took place on the matter of the club's affiliation with the new council. It was decided not to sign the bond until one or two points were made clear.

Mr. A. Borrowes gave a short talk on "The Difference between sound and other waves." Interesting discussion followed, which ranged from meteors to magnetic compasses.

## MARRICKVILLE AND DISTRICT RADIO CLUB.

The usual weekly meeting of the above club was held in the School of Arts, Illawarra Rd., Marrickville, on Monday, 19th inst. Mr. W. L. Hamilton, presiding.

A very interesting lecture entitled: "Tuned anode versus Transformer Coupling," was delivered by Mr. W. F. Allworth in a very able manner.

The publicity officer announced that he was preparing a syllabus of lectures for the coming season.

Intending members are invited to communicate with Secretary, A. W. Hemming, of 23 Central Avenue, Marrickville, who will furnish particulars of membership.

## NORTHBRIDGE RADIO CLUB.

The members met for the first time in the remodelled club room, on 21st instant. It was decided to hold an open night on Monday next, 2nd June, to enable residents of the district to see what the club is doing, and give a demonstration of amateur transmission and reception.

After reading over the articles of association of the Wireless Institute of Australia, N.S.W. Division, it was decided that the club complete the bond of affiliation and forward same to the Institute for approval.

Mr. Forsythe (2BF) demonstrated his 10 watt transmitter, and four-valve receiver. Those present were able to

hear the items before they were radiated, and during the transmission, and so compare them. Owing to heavy atmospheric the amateurs were not very audible on the loud speaker so the members settled down to code practice for half an hour.

Local experimenters or anyone interested in wireless are asked to come along to the next meeting at "Hoylake," Sailors' Bay Road, Northbridge, on Wednesday next, 4th June.

Any enquiries regarding the club may be addressed to Hon. Sec., A. Cameron, "Ogilvie," Clunwilliam St., Chatswood.

## CONCORD RADIO CLUB.

The above club held its usual weekly meeting at the club-room, "Eutripides," Wallace St., Concord, on Thursday, 15th May, when a very enjoyable evening was spent.

The attendance was very fair, several members were back from holidays.

The meeting opened at 8 p.m. sharp. The president, Mr. A. Smith, presided.

Business was entered upon straight away; the minutes being read and confirmed.

The correspondence was then read. Several members commented upon the fact that license renewals were a long time in returning.

The members then entered upon the usual quarter of hour question and answer period. After buzzer practice had been finished the members talked upon the general topics.

The meeting adjourned at 9.55 p.m. All information regarding club's activities will be supplied by the Hon. Secretary W. H. Barker, "Europides," Wallace St., Concord, to whom enquiries should be addressed.

## CAMPSIE AND DISTRICT RADIO CLUB.

A meeting of the above club was held in the club room, "Graveur's Hall," Beamish St., Campsie, on Wednesday, 21st, at 8 p.m.

The President, Mr. R. Shelton, occupied the chair.

The minutes of the previous meeting were read and confirmed. There being no further business to discuss, it was decided to proceed with the second of a series of lectures on Electricity and Magnetism, conducted by two members of the Club, Messrs. Rogers and Mawson.

Amateurs residing in the district are invited to attend this very interesting series of lectures.

Experimenters interested may obtain particulars of the club from the Hon. Secretary, F. R. Mawson, "Daisydale," Wonga St., Campsie.

## ILLAWARRA RADIO CLUB.

The 48th meeting, held on the 20th inst, was responsible for a fair attendance, and the addition of another new member to the club.

Further developments in connection with forthcoming club entertainment were explained, and some little time was occupied in issuing tickets and hand bills for the show to those not already supplied. Everything is now going with a swing, and with the active assistance of the majority of members, we may look forward to every success attending this venture.

After many entertainment details had been further discussed, the meeting resolved into a "questions and answers" affair. Experimental questions were invited, many contributing, and each was debated in turn. Many interesting points were raised, resulting in some enlightening discussion.

The Committee have lately been fully occupied with the approaching club event, but something attractive may be expected in the near future in the way of lectures, etc. The club receiver is at present receiving attention at the hands of the Technical Committee, and will be back in its accustomed place in the club room shortly, much improved in efficiency, we hope.

The next meeting, which will be the last before the club entertainment, will be held at club room on Tuesday, 3rd June, at 8 p.m. All members are particularly requested to attend.

This club is always ready to welcome new members. Applications for membership or requests for information will receive attention if addressed to the Hon. Sec., Mr. W. D. Graham, 44 Cameron St., Rockdale.

## BOOKS ON WIRELESS

More Practical Valve Circuits, by J. Scott Taggart. Price 4/10, posted.

Wireless Sets for Home Construction, by E. Redpath. Price 3/9, posted.

600 Wireless Questions Answered, by C. Kendall. Price, 3/9 posted.

Pictorial Wireless Circuits, by O. Rankin. Price 2/3, posted.

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**NEWCASTLE DISTRICT RADIO CLUB.**

The usual fortnightly meeting of the above club was held at the Club-room, 25 Winship St., Hamilton, on Wednesday night, 21st inst.

There was a good attendance of members, and Mr. Seward, the President, occupied the chair.

After the usual buzzer practice, Mr. Swain gave a lecture on adjustment of experimental transmitters with particular reference to the club's own set.

It was decided to call a special general meeting for Wednesday, 4th June to make some necessary alterations to the club's rules.

One club member reports the reception of American amateurs, while several nightly copy N.Z., 3, 5 and 4 district hams.

**WIRELESS INSTITUTE OF AUSTRALIA.**

**NEW SOUTH WALES DIVISION. DELEGATES COUNCIL MEETING.**

By the time this issue is in the hands of readers, the first council meeting of delegates of the affiliated societies will have been held. The importance of this movement cannot be emphasised too much, while it seems unnecessary to point this out, every club should be linked up with this movement.

The action of the Wireless Institute

in fostering this movement is one which calls for commendation, as without doubt the time is now ripe for the unification and consolidation of the experimental movement throughout New South Wales.

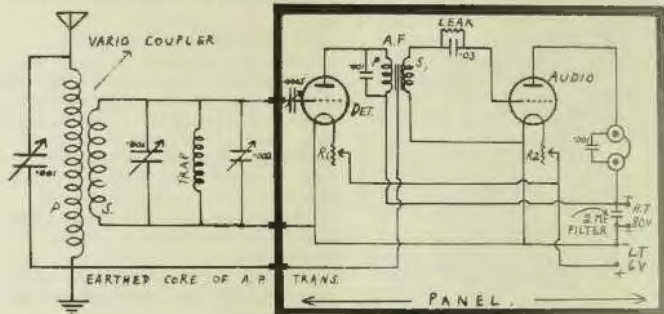
It is most important that amateurs may be so organised that they can speak with one voice at short notice if

occasion should arise demanding such action.

While it is to be regretted that all clubs have not yet completed their bonds of affiliation, it should be remembered that by doing so now, they will still be able to have a voice in the management of affairs practically from the start.

**TRAP CIRCUIT.**

The diagram shows a two valve receiver employing variocoupler, one stage low frequency trap circuit, and a filter condenser across the H.T. Battery. The method of placing the trap circuit is clearly shown. This should consist of about 17 feet of Litzendraht stranded wire, wound on a three inch tube for wave lengths of from three hundred to six hundred metres. It will be noted that the core of the audio transformer is earthed. This circuit has been successfully used by D. Prendergast, of Double Bay.



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K. & C. variable condensers come in all sizes from 3 to 63 plates, from .00003 mfd. to .0015 mfd. They will stand comparison with any manufactured. They will stand comparison with what you yourself think a condenser ought to be. They have bronze bearings mounded in the end plates which eliminates possibility of wear and short circuits between plates; pigtailed, meaning direct connections and not friction resistant, noisy contacts; insulated mounting screws insuring permanency of the spacing of the stationary plates and a minimum of "body capacity"; two plate verniers for broad movement on fine adjustments, and last tension adjustments controlling the freedom of movement of the rotor plates on both main and vernier movements.

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## The International Morse Code

### How to Learn it in an Hour

The following interesting and remarkably efficient system of learning the code has been reprinted from the new radio list of W. Harry Wiles. A brief perusal will show that it possesses many quite new features, which make it of considerable value to those treading the laborious trail of dots and dashes:—

The Morse Code, which is used in wireless telegraphy, consists of dots and dashes. To learn this code, the following method will be found both simple and easy. Anyone with a good memory should not experience any difficulty in mastering it in a very short time.

The memorising of short sentences or words in everyday use is the foundation of this simple method.

A word or syllable of not more than three letters constitutes a dot, and a word or syllable of four or more letters stands for a dash.

E.g., the sentence Good—morn—ing constitutes dash, dash, dot . . . or the letter G in Morse.

The word Re—peat—er constitutes dot, dash, dot . . . or the letter R in Morse.

The one exception is the letter L.

It will be seen that words and sentences commence with the letter which they represent.

A	At ease.	N	Nois y.
B	Brown to bac co.	O	Once twice thrice.
C	Coun ty Crick et.	P	Pre paid postage.
D	Dash it all.	Q	Quick march to place.
E	EH.	R	Re peat er.
F	Fif ty fire men.	S	So and so.
G	Good morn ing.	T	Thanks.
H	Ho no lu lu.	U	Uniform.
I	In it.	V	Vi a let rays.
J	Jet makes fine beads.	W	We want work.
K	King at arms.	X	Xant is un known.
L	Lin o le um.	Z	Young and handsome.
M	Mess mate.	Y	Zeal zeat and vim.

1	2	3	4
5	6	7	8
9		0	

Numerals can be memorised without the aid of the above method.

In a recent issue we published the call sign of E. C. Sheldrick, Launceston as 7BN. This should have read 7BH. Add to list of Tasmanian calls, 7AB, Arthur Smith, 21 High St., Launceston.

#### COILS USED.

UNITED 50 Turn coil mounted,  
UNITED 150 Turn coil mounted.

This type of set has proved very successful both in Great Britain and its introduction into Australia has been entirely effected by United Distributing Coys Ltd. The fact that the price of the outfit will only be in the region of £5 10/- shows that this progressive concern is setting a pace which will awaken keen competition on the part of other concerns.

Later on, this one valve set will be followed up by 2 and 3 valve receivers along the same lines.

A Kentucky blacksmith was elected justice of the peace. The first case he tried was litigation involving the ownership of a cow. The lawyers on both sides were young, ambitious and elo-

quent. For once Pignochet allowed himself a flutter on the racecourse. He found a bookmaker who took his bet.

What luck! The horse he backed was an outsider, which won at great odds. More luck! The bookmaker had not bolted, but was still at his stand. He counted out to Pignochet a bunch of bank notes.

"What was the matter?" he asked when he saw his client examine them with care. "Do you think they are bad ones?"

"They are excellent," replied Pignochet, "but the one I gave to you wasn't, and I wanted to be sure you haven't passed it back on to me."—Sans Gene (Paris).

Several hunters in the Canadian woods had so enjoyed the coffee made by their guide that when the trip was over they asked for the recipe.

"Ver' easy," he said. "Dere bin only one way to make coffee. Take trip into woods, build fire vid pitch pine knots, put on quart of water and two handfuls of coffee in pot, an' sit on cover so she can't boil over. Ven cover gets too hot for seat of pants, coffee she done."—"Sample Case."

Readers will be glad to learn that "Insulator" is now sufficiently recovered from his recent illness to carry on with his series of articles. In another portion of this issue will be found his article, which is a fore-runner of a series, which are specially designed for the benefit of those who are more or less at the beginner's stage. These articles will be helpful, constructive and simple, so be sure not to miss them.

To the many who have written for further particulars, "Insulator" wants us to say that replies will reach them this week.

The elevator boy was green at the job. Two passengers, a man and a woman, got on at the street floor. "Ninth," said the latter once they were fairly started. "Sixth," said the man. The car sped by the sixth floor and stopped at the ninth. On the way back the man said: "Why in thunder d'dn't you stop at the sixth floor? The sixth is lower than the ninth."

"I know that," said the elevator boy, "but the lady said 'Ninth' first."—"Sample Case."

## WIRELESS APPARATUS

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*Continued from page 19*

efficient for this purpose. The end-pieces should be of bakelite, formica, or some other good insulating compound. Do the plates turn easily? If we mount a condenser in a horizontal position will the plates stay put? A screw should be provided for easy adjustment of a tension spring controlling the rotor plates. Are any of the plates touching? This can be determined by holding the condenser close to the ear and turning it.

A scraping sound shows two or more of the plates are making contact. Good condenser plates are made of hard aluminium, which has a certain amount of spring to it. Thus if we bend the plates they should spring back to their original position when released. Pluck one of the plates with the finger and if it vibrates with a clear-cut ring it is hard aluminium. Soft aluminium will not be springy, and will give a dull note. You cannot test the distance between plates unless you have your micrometer with you, but the salesman will tell you most good condensers are guaranteed accurate to two-thousandths of an inch in plate spacing. We should also note if the corners of the plates are left sharp. The careful manufacturer always rounds the corners. Except for the shaft no iron or steel should be used in the condenser. When provision is made for panel mounting the screws for this purpose should be in line with the shaft for facility in mounting. They should not be also used for holding the condenser plates, which should be locked in position at the factory, and their rigidity should never be disturbed. Most modern condensers have the "straight line" curve which gives gradual and uniform change of capacity. About the last, and perhaps the most important point is to be sure that permanent connection with the rotating plates has been provided. Most modern condensers are equipped with pigtail connections clamped and soldered at both ends to prevent breaking off as the plates rotate. These pigtails insure 100 per cent of contact efficiency at all times. If the connection to the rotating plates is made only through a bearing or by means of a sliding contact against the end of the shaft, you are asking for trouble when you buy such a con-

denser, for in any electrical connection not soldered there is a certain amount of resistance, and when the bearings or contact points become dirty from use, the minute received currents may not be able to force their way through a high-resistance sliding contact. This will be evidenced by a rasping sound in the phones when the rotating plates are turned. Poor contact with the rotating plates will be a very weak point in your set, and to it you may attribute many of the "radio noises" blamed on static or a defective high-tension battery. In buying condensers it is also well to see that other condensers made by the same manufacturer will fit the holes in the panel so that the various sizes will be readily interchangeable at a later date, should it be necessary to substitute a larger or smaller condenser for the one originally mounted. If you bear these points in mind when next you buy a variable condenser you will not be paying too much for too little, but will be getting honest value for your money.

**ELECTIONEERING BY RADIO AND KINEMA.**

**FRENCH CAMPAIGN PLANS.**

Modern science is to be called upon to aid the coming electoral campaign in France. It is expected that wide use will be made of wireless and of the kinema. Under the French electoral system, if candidates wish to ensure the success of their list it is wise to visit every commune in their department; their work will be rendered more easy this year by the use of wireless. One business firm has prepared motor tractors drawing vans fitted with wireless receiving sets and loud speakers. The same firm is providing cars fitted with a kinema. Films portraying the candidates can be shown, while at the same time they can address the spectators by means of the loud speaker. Thus five candidates on the same list, for example, could be seen and heard successively in a village which they would never have had the time to visit.

New York Salesman: "I got acquainted with a fresh one last night. I asked to see her home."

St. Louis Salesman: "What did she say?"

New York Salesman: "Said if I'd give her my forwarding address she'd send me a picture of it."—"Sample Case."

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2 Maple End Supports . . . . .	2	0			
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1 Q.S.A. Crystal . . . . .	1	6			
4 N.P. Terminals . . . . .	1	8			
1 .001 m.f. 'Phone Condenser . . . . .	1	6			
				16	3
1 Pair 2000 Ohm. Murdoch Head 'Phones . . . . .	1	7	6		
100 ft. 3/20 Aerial Wire . . . . .		2	9		
2 Reel Insulators . . . . .				8	
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