

Friday, July 25th, 1924.

WIRELESS WEEKLY

25/- IMPORTANT ANNOUNCEMENT 25/-

“ UNITED ”
25/- TRANSFORMERS 25/-

at all Dealers at the new price of 25s. each, both 5 to 1 and $3\frac{1}{2}$ to 1 ratio. This reduced price has been accomplished by placing an order for 20,000 with the **United Distributing and Manufacturing Co.**, of Chicago, Illinois. The quality is unsurpassed by any Transformer in the market, and is equalled by but few. “ UNITED ” Transformers are used by the leading manufacturers in the United States, and also in Australia.

We are Distributors of:—

UNITED TRANSFORMERS, 5-1, and $3\frac{1}{2}$ -1.

UNITED HONEYCOMB COILS, TRUE INDUCTANCES.

UNITED COIL MOUNTINGS, All Styles.

SIGNAL VARIABLE CONDENSERS, Plain and Vernier.

COLUMBIA VARIOMETERS, VARIO-COUPPLERS, Etc.

SIGNAL MICA CONDENSERS, All Capacities.

QUICKHEAT LEAKS, ALL CAPACITIES.

BRADLEYSTATS. BRADLEYLEAKS, BRADLEYOMETERS.

BALDWIN HEAD 'PHONES AND LOUD SPEAKERS.

MUSIC MASTER LOUD SPEAKERS.

ATLAS LOUD SPEAKERS.

SIGNAL LOUD SPEAKERS.

BRANDES' TABLE TALKER.

BRANDES' HEAD 'PHONES.

Q.S.A. CRYSTALS, at 1/6.

SIGNAL HEAD 'PHONES, Guaranteed.

FROST HEAD 'PHONES, Three Styles.

FROST JACKS AND PLUGS, Seven Styles.

FROST CUSHION SOCKETS, 4 Styles.

FROST RHEOSTATS AND POTENTIOMETERS, Thirteen Styles.

SEE ADVT. AND PRICES OF FROST LINE ON PAGES 4 and 5.

Home Assembly Sets One, Two, Three and Four Valves, See Advt. page 3.

United Distributors Ltd.

WHOLESALE ONLY

“ Applause ” Cards Furnished Dealers and Clubs Without Charge.

Manufacturers of

RADIOVOX SETS

A FEW TERRITORIES OPEN FOR AGENTS

28 Clarence Street, Sydney and at 592 Bourke Street, Melbourne

WIRELESS SUPPLIES LTD.

THE HOME OF "VOLMAX" RADIO APPARATUS

KEEP THIS LIST BY YOU FOR FUTURE REFERENCE.

MATERIALS AND COMPLETE AERIAL EQUIPMENT.—
Prices, erected, from 26/10/-

LET US KNOW YOUR REQUIREMENTS.

AERIAL INSULATORS—Porcelain Buttons (small).
Price 1/10 doz.
Porcelain, Reel, 1 1/4 in. Price 2/10 doz. or 3d. ea.
Brown Barrel small. Price 19/- doz.
Brown Barrel large. Price 21/- doz.
Ebonite Strain. Prices 2/6 and 3/6 each.

LEAD IN TUBES—Porcelain. Price. 3d. and 9d. each
Ebonite. Price 2/3, 2/0, 4/- each

WE STOCK ONLY "OPEN" SETS.

AERIAL EARTHING SWITCHES—Large, special switch,
500 amp., 100 amperes, on fireproof base. Price, 18/6 each.
SMALL CHANGE-OVER SWITCHES—On porcelain.
Price 2/9, 3/6

LIGHTNING PROTECTORS—As approved by the Fire
Underwriters. Price 5/6 each.

EARTH CLIPS—Prices 3d. and 6d. each

BATTERIES.

ACCUMULATORS FOR FILAMENT LIGHTING—
Exide. Amp. hour capacity 24 40 60 80 100
C.Z. 4 volt 42/- 52/- 66/- 77/-
C.Z. 6 volt 63/- 78/- 99/- 115/-
Geebo. 4in. 32/8 40/-
6in. 55/- 60/-

SPECIAL EXIDE—100 amp. hour capacity (continuous),
sealed in strong wooden case, with carrying handles;
automobile type, 6 volts. Price 29/15/-

"B" OR "H.T." BATTERIES—Hellsen, 45 volts.
Price 15/6
"Ever Ready," W. 30, 50 volts. Price 9/6
"Ever Ready," W. 40, 40 volts. Price 12/6
Hellsen 45 volts, 15/6; 60 volts, 21/-

BATTERY SERVICE: Our Customers' Batteries
are CHARGED FREE. Ask us about it.

ACCUMULATOR TYPE—Duthie, 50 Volts. Price. 50/-
"Exide," capacity, 1 amp. hours, 32 volts. Price 60/-
DRY CELLS—1.5 volts. Price 3/- each
3 volts. Price 4/- each
2/9, 4/6 each.

WET CELLS—Lubasco. See type, miniature, 1.5 volts
each, for making up "B" batteries. Complete with
charger. Price 2/3 each.
H2O Cells, Edison primary cells, for general or dry
cell valve use. Price 4/6 each

PANEL MATERIALS

BAKELITE SHEET—Highest insulation, fine finish, me-
chanically strong. Price, per sq. foot 10/-
1/8 in. thick. Price per sq. foot 10/-
3/16 in. thick. Price per sq. foot 15/-
Cut to your requirements.

SHOULD THIS LIST NOT INCLUDE WHAT YOU REQUIRE, WE HAVE IT NEVERTHELESS

WIRELESS SUPPLIES LTD.

Phone M 3378

21 ROYAL ARCADE, SYDNEY

We pay freight on all goods
except Batteries

All enquiries and orders have the direct supervision of our Mr. Ray Evans (late in charge Radio
Test Laboratory, Garden Island), who has been engaged professionally on Radio Work since 1912

VARIOCOUPERS—Manhattan. Price, each 35/-
Gibllian, 550 metres. Price, each 42/6
Gibllian, 1200 metres. Price, each 50/- and 65/-

KOTORS—For variocouplers. Wooden. Price 5/3
Ebonite. Price 4/0

VARIOCOUPLER PARTS—Price, per set 6/0
Variocoupler, spindle sets. Price, per set 1/0

RHEOSTATS—Creslay, 5ohm, plain. Price 4/11
"Gibllian," 5 ohm, brown bakelite 8/3
"Gibllian," 30 ohm, brown bakelite 8/3
"Gibllian," 6 ohm, vernier, brown bakelite 11/0
K and C, 6 ohm, vernier, black 10/8
Bestone, 6 ohm, with dial black 8/8

CUTLER HAMMER 6/9

POTENTIOMETRES—
"Volmax," brown bakelite, 200 ohms. Price 11/6

WE SPECIALISE IN QUALITY PRODUCTS.

COILS—
Honeycomb. Prices 3/-, 3/6, 4/6, 5/6, 8/6 to 18/6
Gibllian Membr. Prices 5/-, 5/6, 6/3, 6/9, 7/3 to 18/6

COIL FITTINGS—
Coil Plugs, for mounting coils. 2/9, 3/-, 3/6, 4/-
Panel Plugs 4/-
Coupling Plugs 5/6
1 Coil Fittings 18/0, 30/-, 42/6, 75/-
2 Coil Fittings, Polar, Vernier 21/-

VALVE SOCKETS—
English. Prices 2/-, 2/6 and 4/3
American. Prices 2/9, 3/9, 5/6 and 6/8
WD11. Price 6/8
UV200. Price 3/6, 4/6 and 6/6
Adaptors for UV199 Valve 6/6 and 8/-

VALVE SOCKET AND RHEOSTAT COMBINED—On
base, with wiring, grid cond. and terminals. Price,
each 36/8
"Gibllian," on brown bakelite bracket, for panel
mounting. Price 32/6

HEADSETS—
Trimm's Dependable, 2,400 ohms. Price 32/8
Trimm's Professional, 3,000 ohms. Price per set 45/-
Stromberg-Carlson, 2,000 ohms. Price per set 39/6
Western Electric, 4,000 ohms. Price 44/-
Western Electric, Special. Price 75/-
Pico, 2,200 ohms 25/-
NST, 4,000 ohms. Price 35/-
Brown's, 8,000 ohms 25/15/-
Brown's, Featherweight 22/7/-
Sterling, 4,000 ohms 44/8



STA-PUT PLUG—

Built to meet all requirements. Fits any tip. No tools necessary. PRICE:—

- Mar-Co Sta-Put Plug 2/9
- Mar-Co Junior 3/6



MAR-CO JACKS—

These Jacks are highly nickelled and insulated. Contacts are sterling silver. Extra washers allow wide range of panel adjustment. Construction makes short circuit impossible. PRICE:—

- Open Circuit 2/6
- Closed Circuit 3/9
- Double Circuit 3/6
- Single Filament 3/9
- Double Filament 4/3



KNIFE SWITCHES—

Hard rubber insulation, metal parts nickelled. PRICE:—

- Single Pole, Single Throw 4/3
- Single Pole, Double Throw 5/-
- Double Pole, Single Throw 6/3
- Double Pole, Double Throw 7/-



GRID LEAK—

Resistance, 1/5 to 5 megohms. Hard rubber base. Superior construction insures a life time of service. PRICE:—

- Variable Grid Leak 10/6



INDUCTANCE SWITCH—

For panel mounting. Only one drilling necessary. Insulated with hard rubber. Bakelite knob. Metal parts nickelled. Ratchet stop on switch arm. PRICE:—

- 5 Point Switch 7/-
- 7 Point Switch 8/9
- 9 Point Switch 8/9
- 11 Point Switch 10/6



SERIES PARALLEL SWITCH—

For panel mounting. Only one drilling necessary. Insulated with hard rubber. Bakelite knob. Metal parts nickelled. PRICE:—

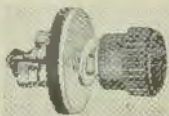
- Series Parallel Switch 8/9



MAR-CO D.P.D.T.—

For panel mounting. Only one drilling necessary. Insulated with hard rubber. Bakelite knob. Metal parts nickelled. PRICE:—

- Double Pole, Double Throw 8/9



FILAMENT BATT. SWITCH—

For panel mounting. Only one drilling necessary. Insulated with hard rubber. Bakelite knob. Metal parts nickelled. PRICE:—

- Filament Battery Switch 6/3

- RHEOSTAT, 30 ohms 7/-
- POTENTIOMETER, 600 ohms 13/9

Trade inquiries from

KEITH STOKES, 27 KING ST., SYDNEY

Mar-Co Products Obtainable at: Ramsay, Sharp; Colville Moore; Burgin Electric; Harrington's; Farmer's; Wiles'; Smith's; Wireless Supplies; Radio Co.; Mark Poy's; David Jones.

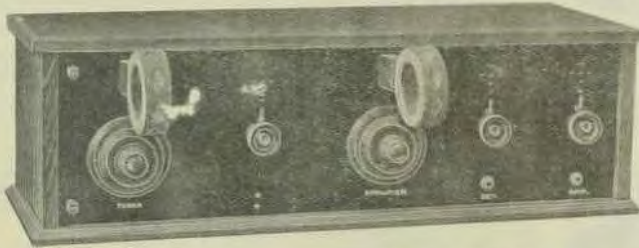
SIGNAL Home Assembly Sets



Model Phone Valve, £5/10/-



Model Q, 2 Valves, £9/9/-
Model R three Valves (Audio Freq.), £11/11/-



Model T, 4 Valves (Radio Freq.)
£11/11/-

Model S, 3 Valves (Radio Freq.)
£13/13/-

Make It Yourself

THE SIGNAL HOME ASSEMBLY SETS are designed to meet all demands for complete sets ready to be assembled. Simply constructed, and yet efficient. Each set contains all the parts necessary to construct the set proper. All contained in an attractive oak cabinet, mission finish, with engraved Bakelite panel all bored ready for mounting the parts.

INSTRUCTIONS and a clear diagram make it very easy to assemble these sets.

BOYS, YOUNG and OLD, here you can get all the thrill and satisfaction of MAKING YOUR OWN, and SAVE HALF THE COST

ASK YOUR DEALER FOR "SIGNAL"

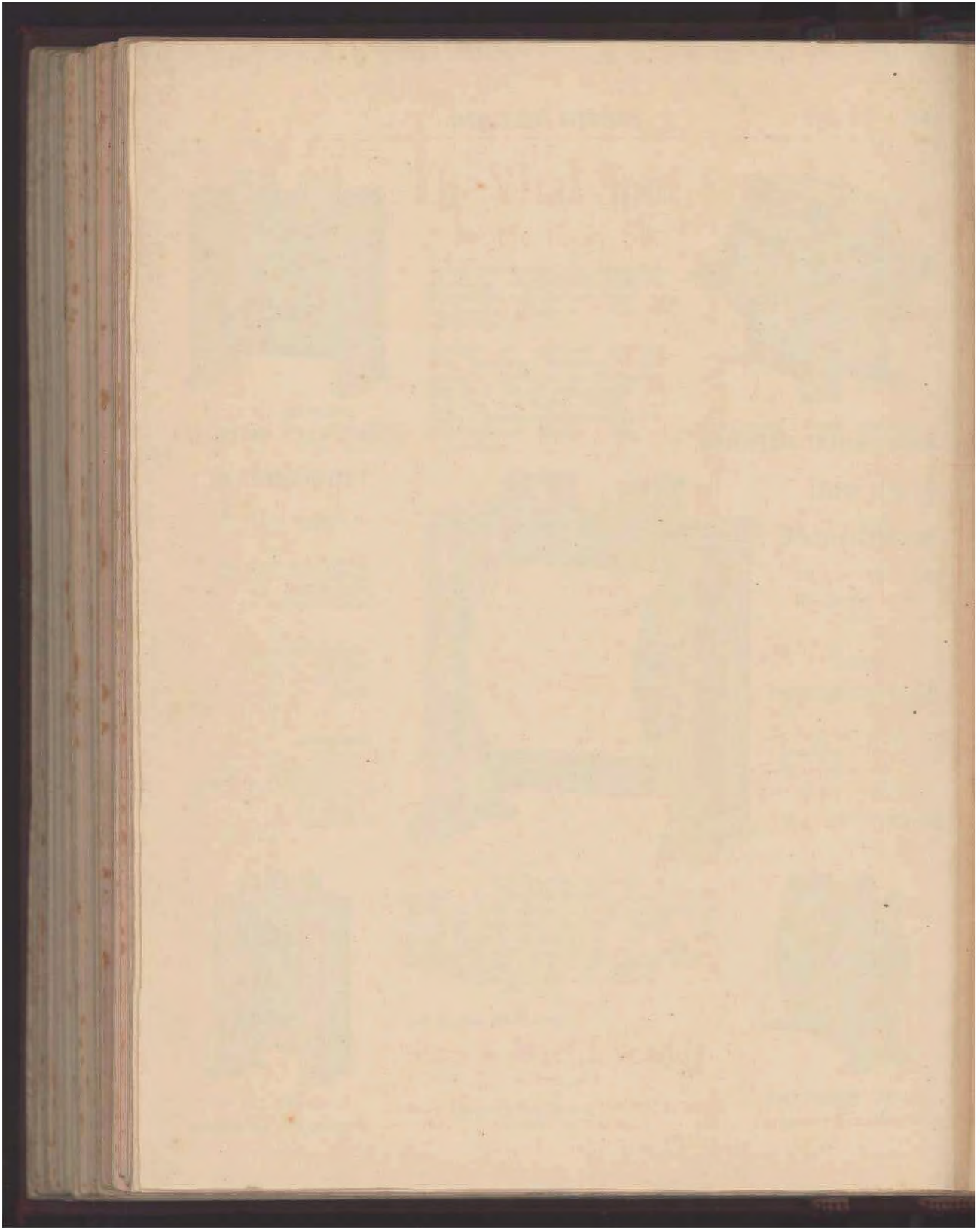
and if he has not yet stocked it write us

United Distributors Limited

(WHOLESALE)

28 Clarence-st., Sydney

592 Bourke-st., Melbourne



FAMOUS FROST PARTS

THE MOST COMPLETE LINE
RADIO PARTS EVER
ONE PRICE



FROST RADIO
No. 414. Bakelite Spring Plug, All
Sizing Points, Standard Wire, 100%
or 150% Insulation.

For those who want a complete pack
of these standard quality sockets,
the construction is identical with
the separate sockets, except for lower
cost price, or table convenience.



FROST RADIO
No. 410. Precision Made, Frost
Rheostat or Potentiometer.

These are specified in the best world
of first class precision, capable of
withstanding the most severe
conditions of use. They are made of
laminated brass, nickel plated and
finished with a fine, smooth
surface. They are made to
order, and are available in
any quantity. They are made
to order, and are available in
any quantity. They are made
to order, and are available in
any quantity.

MADE BY THE ABOVE WITH
VENTILATION

FROST SOCKETS

| | |
|--|------|
| 116 SINGLE SOCK ASSURE SOCKET, for Standard Valves | 4/2 |
| 117 SINGLE SOCK ASSURE SOCKET, for CV250 and CV300 | 4/2 |
| (All above sockets are made of Bakelite and have sponge rubber padding) | |
| 118 BAKELITE SOCKET, for CV250 and CV300 Valves | 5/- |
| 119 BAKELITE SOCKET, for Standard Valves | 10/- |
| 120 3 GANG SOCK ASSURE SOCKET, for Standard Valves | 10/6 |
| 121 3 GANG SOCK ASSURE SOCKET, for CV250 and CV300 | 10/6 |

FROST RHEOSTATS & POTENTIOMETERS
COMPLETE WITH TAPERED BLACK BAKELITE KNOBS
METAL PARTS THICKLY NICKELPLATED, KNURLED TERMINI-
ALS TECHNICALLY FINISHED.

| | |
|--|------|
| 122 RHEOSTAT, 5 ohm (Maxon Bakelite) | 7/6 |
| 123 RHEOSTAT, 10 ohm (Maxon Bakelite) | 9/6 |
| 124 RHEOSTAT, 20 ohm (Maxon Bakelite) | 11/6 |
| 125 RHEOSTAT, 30 ohm (Maxon Bakelite) | 13/6 |
| 126 RHEOSTAT, 50 ohm (Maxon Bakelite) | 15/6 |
| 127 RHEOSTAT, 100 ohm (Maxon Bakelite) | 17/6 |
| 128 RHEOSTAT, 20 ohm (Maxon Bakelite) | 19/6 |
| 129 RHEOSTAT, 30 ohm (Maxon Bakelite) | 21/6 |
| 130 RHEOSTAT, 50 ohm (Maxon Bakelite) | 23/6 |
| 131 RHEOSTAT, 100 ohm (Maxon Bakelite) | 25/6 |
| 132 RHEOSTAT, 20 ohm (Maxon Bakelite) | 27/6 |
| 133 RHEOSTAT, 30 ohm (Maxon Bakelite) | 29/6 |
| 134 RHEOSTAT, 50 ohm (Maxon Bakelite) | 31/6 |
| 135 RHEOSTAT, 100 ohm (Maxon Bakelite) | 33/6 |

FROST MISCELLANEOUS

| | |
|---|------|
| 136 EXTENSION CORD, lengths 10ft, 15ft, 20ft, and 25ft, 30ft | 12/6 |
| 137 LAMP COUPLER or Receiving Transformer | 7/6 |
| 138 OPTICAL FOCUSING COIL SLIDER (TYPE ADJUST) | 3/6 |
| 139 RADIO JACK BOX (for 1 plug) | 2/6 |
| 140 ADAPTER, for CV250 or CV300 | 5/6 |

"Apply" Cards Furnished Dealers and Clubs Without Charge.
United Distributors Ltd.
(WHOLESALE ONLY)
MANUFACTURERS OF "RADIOFOX" SETS
A FEW TERRITORIES OPEN FOR AGENTS

28 Clarence St. Sydney Hobart

LIKE POSTAGE STAMPS— USED EVERYWHERE

OF GUARANTEED QUALITY
OFFERED IN AUSTRALIA
ALL DEALERS

FROST JACKS AND PLUGS

| | |
|--|-----|
| NICKEL PLATED, FORMICA INSULATION, RICKERS SIL- VER CONTACT SPRINGS, PURE SILVER CONTACT POINTS | |
| 131 OPEN CIRCUIT JACK | 4/6 |
| 132 DOUBLE CIRCUIT JACK | 5/6 |
| 133 CLOSED CIRCUIT JACK | 5/6 |
| 134 FILAMENT SINGLE JACK | 6/6 |
| 135 FILAMENT DOUBLE JACK | 6/6 |
| 136 SUBSTITUTION CIRCUIT JACK | 6/6 |
| 137 PLUG, DOUBLE (10 connections) | 8/6 |
| 138 PLUG, SINGLE | 4/6 |

FROST MISCELLANEOUS

| | |
|--|-----|
| 139 RESISTANCE UNIT, 10 ohm (to increase resistance) | 3/6 |
| 140 INDUCTANCE UNIT (to increase wave length) | 5/6 |
| 141 POTENTIOMETER SWITCH | 5/6 |
| 142 PARALLEL SWITCH | 5/6 |
| 143 PUSH-PULL BATTERY SWITCH | 6/6 |

FROST HEAD FONES
STANDARD THE WORLD OVER

| | |
|---|------|
| 144 FONE (Automatic Head Piece), 500 ohm | 21/6 |
| 145 FONE (Automatic Head Piece), 1000 ohm | 23/6 |
| 146 FONE (Maxon Bakelite Head Piece), 500 ohm | 25/6 |

THE MAGNETS IN FROST FONES ARE TREATED WITH
OIL TO PREVENT CORROSION BY MOISTURE AND SALT
AIR.

"Apply" Cards Furnished Dealers and Clubs Without Charge.
United Distributors Ltd.
(WHOLESALE ONLY)
MANUFACTURERS OF HOME ASSEMBLY SETS
SEE ADVERTISEMENT ON PAGE 3

Perth Brisbane Adelaide Melbourne



FROST RADIO

FROST COMBINATION
POTENTIOMETER-
RHEOSTAT

COMPLETE WITH KNOWN
ALL HAVE RUBBERED WIND-
ING POST CONNECTIONS
AND ARE TECHNICALLY
PERFECT.

147 TUBE CONTROL UNIT, a
combination of a 20 ohm
Variable Rheostat and 100
ohm Potentiometer 17/6

148 TUBE CONTROL UNIT, a
combination of a 5 ohm
Variable Rheostat and 100
ohm Potentiometer 17/6



FROST RADIO

No. 410, 100% Pure Bakelite, 100% Insulation

FROST

SPECIAL

CRYSTAL CABINET SET complete with Phones, Aerial Wire, Insulators and Condenser. Guaranteed and Tested. Equal in Signal strength to Single Valve.

Only £5 10s. Complete

In Polished Mahogany Cabinet, All Parts Nickel Plated.

ELECTRICITY HOUSE

387 GEORGE STREET

J. S. MARKS, 2 G R Manager

The Open Set is Here !

MAKE YOUR OWN

COMPLETE SET OF PARTS FOR CRYSTAL SET

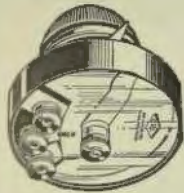
| | s. | d. |
|---------------------------------------|----|----|
| 4 ozs. 24 Enamel Wire | 1 | 1 |
| 2 Wood Ends | 1 | 6 |
| 1 N.P. Slider and Rod | 3 | 0 |
| 1 Mounted Detector | 3 | 6 |
| 1 .002 mfd. Phone Condenser | 1 | 6 |
| 1 Galena Crystal | 1 | 9 |
| 1 Piece Bakelite | 1 | 6 |
| 4 N.P. Terminals | 1 | 8 |
| 1 Cardboard Former | 1 | 6 |
| 100ft. 3/20 Aerial Wire | 3 | 0 |
| Insulators | 2 | 0 |
| Earthing Switch | 2 | 9 |

WRITE FOR OUR LATEST PRICE LIST. £1 2 9

The Home Electric 106a King Street
SYDNEY

CALL AND INSPECT OUR VALVE SETS

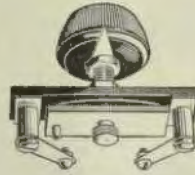
PHONE B5565



Price, 12/6.

Dont Choke Your Set

C.R.L. Potentiometers have a Graphite resistor, no wire. The resistor is completely enclosed and non inductive. There is no choking or retarding of radio-frequency current, no racket when you move the knob.



The C.R.L. Adjustable Grid Leak, another C.R.L. product, provides smooth adjustment through complete range, 0.6 megohms.

Double your Range by using C.R.L. Products

OBTAINABLE FROM

Price, 10/6, with Condenser.

THE UNIVERSAL ELECTRIC COMPANY

108 MARKET ST.

"Where your money goes the furthest."

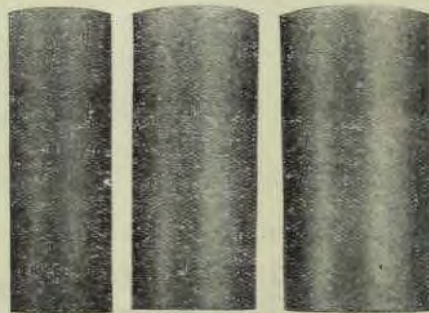
M 3411

PENNY WISE BUT VERY FOOLISH

is never better exemplified than when you purchase cheap Cardboard Tubes for your receiving set. Grodan Brand have given complete satisfaction in thousands of crystal sets. Accept no other.

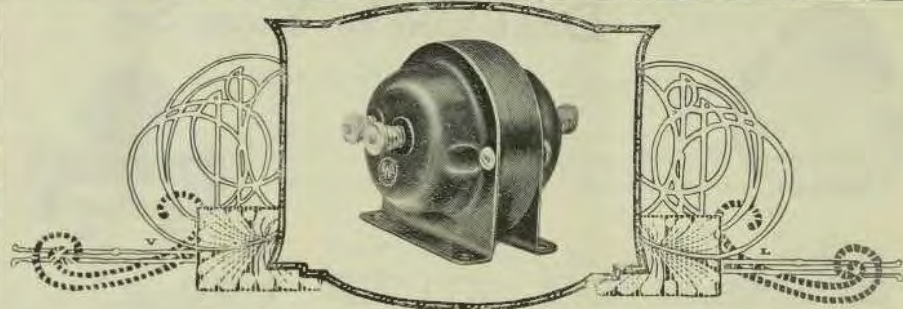
Grodan Tubes for Better Service.


Guaranteed to give the Maximum result.



Made from non-conductive material, no leakage. These tubes show infinity when tested on the megger.

ALL DEALERS — GROSE & DANIELL, SYDNEY



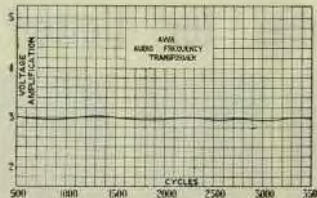
Announcing the

 Audio Frequency Transformer

The Perfect Transformer

The vital part of your Receiving Set is the low frequency inter-valve transformer. Perfect reception depends upon the efficacy of your transformer to faithfully transform the incoming signals.

The A.W.A. transformer is the product of scientific research, and it is so designed as to give uniform amplification over the widest possible range of frequencies. The special grade of iron used in its construction, the high current carrying capacity of its windings, and the perfect insulation throughout, conduce to make the A.W.A. the ideal transformer for the most complex of modern circuits.

Price, 37/6.



Characteristics. Primary and secondary ratio 1-3 1/2. The current carrying capacity of each winding is 10-12 milliamperes. D.C. resistance of Primary is 1000 ohms, and of Secondary 6000 ohms. Test voltage between windings and between windings and core, 300 volts at 60 cycles. Useful frequency range, 10 to 3500 cycles.

Procurable from all Radio Dealers

Amalgamated  Wireless
 (Australasia) Ltd.

Clarence Street, Sydney

Collins Street, Melbourne



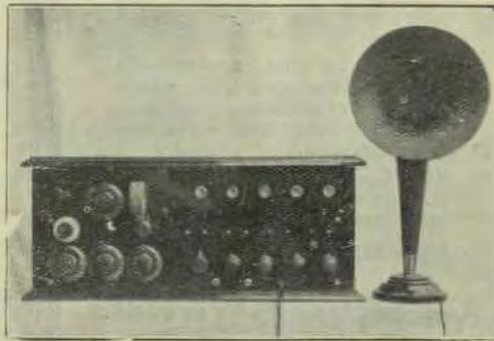
RADIO IN THE HOME



Every tone, every note clear and sweet. You can almost see the musicians swaying in time to the music. It's just as if the orchestra was right in the room with you.

"COL-MO" Broadcast Receivers are the last word in sensitivity, selectivity and simplicity. You need only to switch on the valves and set the dials for the station you want. The cabinet is of highest finish mahogany or walnut, and includes compartment for dry batteries.

The COL-MO is the ideal Radio Receiver for the home.
Crystal Sets, complete with 'Phones, Aerial Wire, Insulators, £3/10/- and £5.
Valve, complete with all Batteries, 'Phones, Loud Speaker, Aerial Wire, £14 to £75



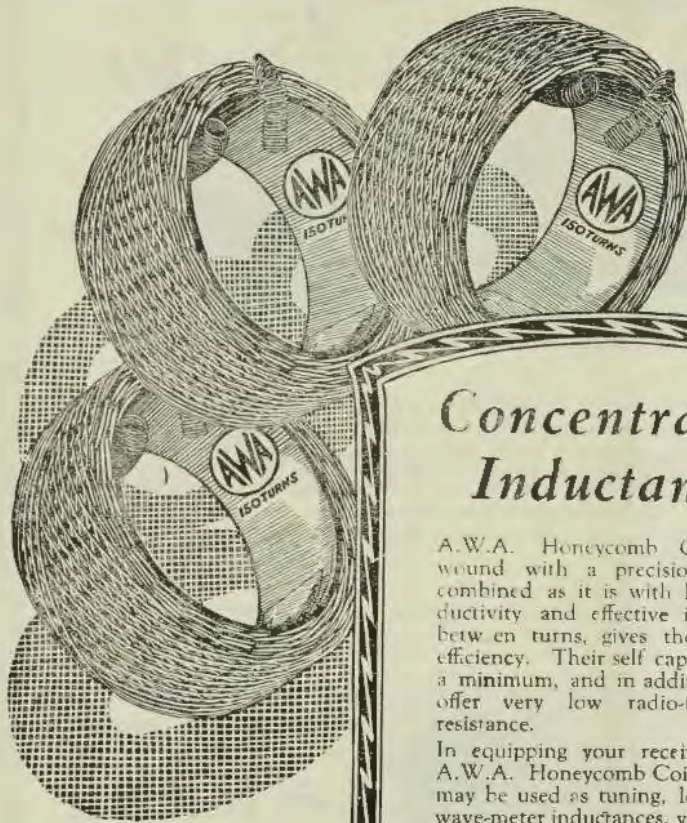
Radio Broadcasting

*Solves Your Home
Entertainment Problems*

The Colville-Moore Wireless Supplies Ltd.
10 ROWE STREET, SYDNEY

Phone : B2261. Sales and Office.

Works : B1721



Concentrated Inductance

A.W.A. Honeycomb Coils are wound with a precision which, combined as it is with high conductivity and effective insulation between turns, gives the utmost efficiency. Their self capacity is at a minimum, and in addition, they offer very low radio-frequency resistance.

In equipping your receiver with A.W.A. Honeycomb Coils, which may be used as tuning, loading or wave-meter inductances, you secure maximum all-round efficiency.

Each Coil is attractively boxed, a wave-length table being printed on every carton.

Procurable from all Radio Dealers

Amalgamated Wireless
(Australasia) Ltd.

97 Clarence Street, Sydney
"Collins House," Collins St., Melbourne



PRODUCTS



Vol. 4.

Friday, July 25th, 1924.

No. 15.

ADVERTISING.



HE burning question of whether it pays to advertise is shortly to be tried out per medium of the microphone. Advertising items (to be announced) will be wafted to the ears of those who pay a yearly subscription in return for the privilege of listening to Broadcasting.

So far as Australia is concerned, there is nothing new in this. The I.C.S. talks from 2 B.L., and the pianola talks from 2 F.C. were advertising purely and simply, but conducted in such a way as to be entirely unobjectionable and even interesting to listeners. A very little of it, however, goes a very long way.

Quite recently, in the United States, discussion was invited from the public to ascertain whether the Broadcasting of advertising matter would meet with a friendly reception. Almost as one man the public turned it down flat.

It is generally conceded that the mere announcement of a firm's name over the air is good publicity, and this form of advertising is not objectionable from the listener's point of view. But if it is proposed to go further, and announce the merits of the firm's products, then a point is reached where it *does* become objectionable.

The public pays for *Broadcasting*. This term includes all items which may legitimately be described as Broadcasting. It seems difficult to see just where advertising can be placed under this heading, no matter how attractive and interesting it can be made.

While a certain number undoubtedly will be interested in advertising items, there can be no doubt that if put to the vote the majority of people would express themselves as definitely opposed to the inclusion of these items in the programmes—at any rate, during regular Broadcasting hours.

Roster for Week ending 30th July, 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, July 24 | 2 RA 2 GR | 2 IJ 2 JM | 2 YI | 2UW | 2 YG 2VM | 2 ZG |
| Friday, 25 | 2 IJ 2 GR | " | " | ZN | " 2 ZZ | " |
| Saturday, 26 | 2 RA 2 GR | 2 IJ | " | " | " | " |
| Sunday, 27 | 2 RA 2 GR | " | " | " | " | " |
| Mon., 28 | 2 RA 2 GR | 2 IJ | " | " | " | " |
| Tues., 29 | 2 IJ | " | " | " | " | " |
| Wednes., 30 | 2 RA 2 GR | 2 IJ | " | " | " | " |

From 6.55 p.m. until 7 p.m. every Saturday and Sunday, time Signals are sent by 2MU on a wave-length of 200 metres

Commonsense Talks.

By F. Basil Cooke, F.R.A.S.

OF all the wonders of this wonderful age, by far the greatest is Broadcasting. Never in history has there been such a tremendous increase in human knowledge as there has been during the past 50 years; indeed, the march forward has been so rapid that many important ideas must of necessity have been left undiscovered.

This applies very forcibly to wireless reception. Wireless lends itself to so many manifestations that we have barely seen one before another presents itself.

In 1915 the Ventura came into Sydney and Mr. Ormiston, the senior operator startled the wireless fraternity of Australia by picking up Frisco and Tuckerton (U.S.A.) in Sydney Harbor. This was the introduction of the valve.

In those days there were two known circuits or hook-ups, one to receive "spark" and the other to pick up C. W. Soon, however, Major Armstrong brought out his 3 coil regenerative cir-

cuit which gave at all decent reproduction, and every time "Nazareth" is played Mr. Reed and the writer will think of this beginning of broadcasting.

Mr. MacLurean was one of the first to make a serious attempt at broadcasting, and his wonderful success is so well known to need no further comment.

These few reminiscences are now past history, but the present quickly growing popularity of wireless marks its beginning from those early experiments. There were, of course, many scoffers who condemned broadcasting as a fad which would last only a few months—these scoffers are now silent for lack of argument—broadcasting is here, and here to stay. The fact that it has not only survived but progressed in spite of every obstacle an inefficient Government could devise, is the strongest surety of its worth.

Wireless is growing too quickly for the inertia of a Government who can only waste public money and time arguing on confidence motions and the like, instead of doing something real—the Government has not only done nothing to help on what promises to be one of our largest industries, but has deliberately imposed every conceivable restriction possible. However, there is a silver lining to every dark cloud, and to-day we have at last been presented with another set of regulations which, although by no means perfect, at least remove some of the irksome restrictions pertaining hitherto.

Returning now to the question of circuits. To-day there must be many hundreds of thousands; each one has been either accidentally found or developed for a specific purpose. Judging from American and English publications it is difficult for the uninitiated to determine which is the best to use, and it is the object of these lectures to frankly criticise several of the most well known circuits.

There is very little doubt that most of the circuits have been evolved in America for trade purpose entirely. A certain firm will think out a new circuit and make up apparatus accordingly; then start a regular publicity campaign—they will give demonstrations and get the circuit well written up in magazines and daily papers, until finally this circuit becomes the latest craze, and every other circuit obsolete.

There is no doubt that the Neutro-

dyne, Super Hetrodyne, Super Regenerative, etc., were all brought into being in this manner. There is one good aspect of this class of business in that it means an army of workers constantly trying to develop the science, and eventually some of the ideas thus found will be of great importance, but, so far, all these circuits are more or less freak circuits, and only useful for those ardent experimenters who want to duplicate what has already been done—any circuit which can only be handled by an expert is useless for broadcasting.

More of this anon—next week the writer proposes to say a few words on the Super Hetrodyne.

THE NEW BURGLAR.

T. Whitcomb, 124 Ashley Street, Chatswood, tells us a hard luck story which has somewhat shaken our faith in human nature. He says some people will pinch anything. Some weeks ago he constructed a counterpoise out of some old No. 16 D.C.C., the value of which was practically nil. On going out into the yard to feed the fowls a few days ago, he noticed to his utter horror that the counterpoise was missing. After regaining consciousness he made a closer inspection, which revealed that the wire had apparently been hurriedly bitten off by somebody, torn savagely from the insulators and transported to regions unknown. An examination of a few loose teeth which were lying about seemed to indicate that the thief was probably somewhere between ten and fifty years of age. The neighborhood has been scoured by blacktrackers and bloodhounds, but all that could be found were some footprints on the sand at Coogee. As there seems a likelihood of these having been caused by winter bathers, and as there were some thousands of them, there is no immediate prospect of an arrest.

In sympathising with Mr. Whitcomb, who quite fairly and generously states that it was not the value of the wire, but the inconvenience that mattered, we would like to point out the urgent necessity for the Police Department to arrange for a "Counterpoise Guard" for the proper protection of the amateur.

This sort of thieving may lead to a serious crisis in the future, and trouble will certainly result—especially if the offender is caught.

Mr. Whitcomb's harrowing experience reminds us of an occasion when we left a five pound note on the seat of a tramcar. When we returned some hours later, we found, to our surprise and indignation, that it was gone.

This article by Mr. F. Basil Cooke, F.R.A.S., (Director of David Jones Ltd. Radio Services) is the first of a series which will be published every week in this paper. Mr. Cooke is Vice-President of the Wireless Institute of Australia, and has had many years' experience in wireless. His articles, which are mainly designed to remove some of the misunderstanding and mystery surrounding the "ultra" form of receiver will be of material assistance to the beginner and to the prospective purchaser of a wireless receiver.

cuit, and from then onwards there has been an almost insane desire for more and yet more circuits. Amplification (Cascade) very soon followed.

About this time wireless engineers were beginning to focus their attention on the possibilities of the valve as a generator and as a means of radio telephony.

The writer and J. Reed carried out many experiments in primitive radiotelephony—the few experimenters of those days will probably remember hearing that beautiful song "Nazareth" much distorted and repeated hour after hour, day after day. It just

READ PARTICULARS OF THE NEW FROST LINES ON PAGES 4 & 5.

Wireless Regulations.

At the meeting of a sub-committee of the Wireless Traders, held on July 14th, under the auspices of the Electrical Employers' Association of N.S.W., the new regulations were discussed by the members present. Those present represented practically all radio trading interests and general satisfaction was expressed that the question of regulations had now been finalised.

Traders have for some time past been endeavouring to secure an amendment of the regulations which would enable them to meet the public demand for radio sets free from restrictions and more in keeping with the practice in other parts of the world, where reception of radio broadcast programmes form such an important part of the domestic life of a very large portion of the community. The opinion was freely voiced at the meeting that the interests of the buying public have been generously taken care of under the regulations as published in the press, and that there are now no obstacles in the way of traders supplying sets from which the public can obtain all the benefits accruing from this, the latest application of science for the education and entertainment of the community in general. The following telegram has been dispatched to the Prime Minister:

"At meeting of sub-committee of wireless traders held under auspices of Electrical Employers' Association of N.S.W., general satisfaction was expressed regarding amended wireless regulations which will remove the difficulties that traders have had to contend with and will enable the public to take up wireless, confident that they can obtain maximum benefits therefrom, without restriction and with minimum of expense. (Signed) R. Burgin, Chairman, President Electrical Employers' Association of N.S.W."

FOR SALE, 5 Watt Transmitter complete, transformer, rectifiers, etc.; first reasonable offer. Particulars from 5 Watter, c/o "Wireless Weekly."

Audio and Radio Frequency.

(By G. Maxwell Cutts.)

What is the difference between Audio and Radio frequency? Here is a simple non-technical explanation, which makes it quite clear.

Every sound is composed of vibrations of different frequencies per second, which range from 200 to 1000.

For instance, a banjo string being struck emits a note which is caused by the vibrations of the string in the air.

Frequency plays a very important part in all Radio work.

Each different wave length has a corresponding frequency; for instance, 600 metres has a frequency of 500,000 cycles per second. The ordinary electric light has a frequency of 50 to 60 cycles per second. Many have heard the low hum of the latter.

Audio frequency currents have a frequency of below 10,000 cycles per second, and Radio frequency currents have a frequency above 10,000 cycles per second.

It is easily seen that Radio frequency is inaudible to the human ear and that Audio frequency is audible.

An easy way to remember which is Audio and which is Radio is this—Audio is something like *audible*, and audible frequencies can be heard, therefore they are low frequencies.

Radio is quick, therefore one can think the quick frequencies are Radio frequency. Wireless signals are sent out into the ether at Radio frequency.

All currents in the aerial circuit of a receiver are vibrating at Radio frequency, but once they are the other side of the detector they are at Audio frequency. The function of the detector is to detect or make audible Radio frequency vibrations.

Radio frequency amplifiers are always placed before the detector on the high frequency side of the receiver, and Audio frequency amplifiers are always placed behind the detector on the low frequency side.

Audio frequency, or as they are sometimes called low frequency, amplifiers are used merely to increase the volume of sounds, whereas Radio or high frequency amplifiers amplify the signals before they are converted into low frequency.

It is now seen that Radio frequency is employed when signals cannot be obtained loudly by use of detector and two stages of Audio frequency amplification.

Radio frequency amplification will

not make local stations louder, as the waves received are sufficiently strong to pass the detector with fair volume. Radio frequency amplifiers are used in conjunction with a loop aerial, because the waves which are received on the loop are very weak compared with the use of a good outdoor aerial. In the former case the weak signals picked up by the loop are amplified at Radio frequency, then detected.

In a circuit diagram Radio frequency transformers are shown as two inductively coupled coils, whereas in the diagram of an Audio frequency amplifying transformer it is shown with lines drawn in the centre of the coils, representing the iron coil.

HERE'S A GOOD ONE.

A certain department store in Sydney quite recently established a radio department. One day a "fan" stepped up to the counter and requested some spaghetti. The youth in charge, evidently new to the business, pondered the question a few moments, and then in a burst of inspiration, quoth: "Would you please take the elevator up to the restaurant?"

DID YOU KNOW THIS?

You can have a Wireless Set erected for £3/10/-, complete in every detail, and enclosed in a Polished Maple Cabinet. I also have other Sets as follows:—Crystal Set, No. 2, £4/15/-; Valve Set, No. 1, £6/15/-; Valve Set, No. 2 (Honeycomb Coil Type), £9/15/-; Two Valve Set, £14. All sets are complete with Honeycomb Coils, Valves, Batteries and Phones, and contained in Polished Maple Cabinets. Write for particulars to C. Wilkins, "Keira," Sutherland St., Lane Cove.

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HOME ASSEMBLY SETS. SEE PAGE 3.

The Audio-Frequency Panel of the Progressive Unit Panel Receiver

(By "Insulator.")

The panel is the note magnifying panel which was shown as No. 4 in the drawing of the layout as pictured in "Wireless Weekly" of the 4th inst. Although I have included only one of these panels in the design of the receiver, there is nothing to prohibit one from employing two or maybe three note magnifiers, provided, of course, that one's purse will stretch to the necessary length.

Sad to say my own purse is stretched right out of shape, so far so, as a matter of fact, that it is "busted." It is funny how troubles seem to all come at once. At least, it is so in my own instance, for this week I had to renew two valves (Monday, in fact), and on my arrival home at night Mrs. Insulator greeted me with the sad tidings that the cat had had a siesta on my wireless table, and on being reprimanded jumped hastily from the table, taking my 'phones with him. Result—well, the 'phones just didn't give results, so I had to purchase a new pair.

Wishing to give the new man, E. R. Cullen, a "turn," I journeyed to his

shop in Bathurst Street, and he sold me a T.M.C. (New Systems) headset. I am glad he did, for on trial I found them to be particularly good receivers, very rugged and, what is more, very comfortable. Their mellow tone has really captivated me, and, what is more, I have dropped them already and no harm has resulted. Oh, yes, I know I am away from my subject—thought I'd just tell you the 'phone story in passing.

Here is the list of components required for this week's unit:—

- 1 Piece Bakelite, 9 in. by 6 in.
- 1 ditto ditto, 6½ in. by 3½ in.
- 1 Marco 30 ohm rheostat.
- 1 Jefferson No. 41 transformer.
- 1 United Standard Socket.
- 10 Bakelite top terminals.
- 11 inches of ½ x 1/16th in. brass strip (for brackets).

Screws, nuts, baseboard, etc.

The construction of this panel will not present any great difficulties. The first job to tackle is to make the brackets. Grip the ½ in. brass strip in the vice and saw off 2 separate inches.

Three-sixteenths of an inch from each end of these drill a hole to accommodate the screws for attaching to the bakelite. Grip again in vice and bend to an angle of 90 degrees. The completed bracket is shown in Fig. 7(a).

The remaining brass is now cut in two and each piece is shaped like (b) in Fig. 7, the holes in this instance being ¼ of an inch from the ends, and the bends ¼ and ¾ of an inch from their respective ends. Your attention should now be devoted to the smaller piece of bakelite. Trim edges, mark out and drill to accept the fixing screws of the Jefferson, valve socket, and brackets. Fig. 8 will give you the necessary measurements. When this is completed you have the shelf which holds the Jefferson and socket, their respective positions being shown in Fig. 7. This figure is expected to define the layout of apparatus, and is a side view. For clearness I have purposely left out the terminals, and I hope the omission is justified. Note carefully that allowance is made for a baseboard of 7 inches by 6 inches by ½ inch.

Now that you are used to handling bakelite, drill your main panel. Study Fig. 5 for a few moments first. You will see that this panel is simpler in fashion than any other one in the set, and that this time I have placed the rheostat on the same level as the condensers in the other units. My reason is to balance the layout.

Assemble all your components, a simple little job, provided again that

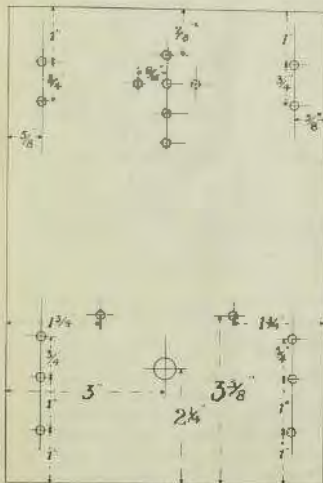


FIG 5

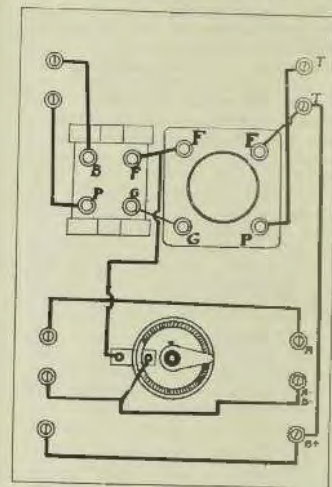


FIG 6.

you have followed me carefully. When I was putting mine together I fondled the Jefferson Transformer in a somewhat loving manner. I got it cheaply, as it had dropped out of a window four storeys high, and I accepted it "with all faults." The faults proved nil (Hooray!), and as a consequence I am wedded to them in future. I consider it is one of the best pieces of apparatus in my possession.

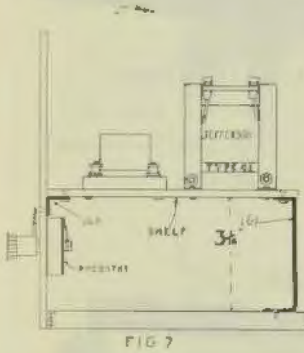
Everything fits into place alright? Good-oh! Now let us get on with the —no, not washing this time—but wiring.

To draw the wiring of the parts in their proper perspective is a somewhat difficult matter this week, so on Fig. 6 I have pushed the Jefferson and the

DEALERS WILL BE INTERESTED IN HOME ASSEMBLY SETS. SEE PAGE 3.

valve socket a little out of position, but I am sure this will meet with your approval, as it leads to a clearer understanding of the connections. And I am sure it is clear, as I had to draw it twice. The first time I had it back to front. Bad luck—and perhaps bad management. But I wonder why these errors are never noticed until everything is nicely lined in and all the pencil lines erased. Oh! well, never mind, old son. "If you don't succeed at first, try again."

However, don't any of you follow my example in erring, so I'll stress the importance of keeping in mind that Fig. 6 shows the back of the panel. In any case, I don't think it is possible



for any error to creep in in your case, as both the socket and the Jefferson are marked to denote the correct connecting terminals. Very handy, don't you think?

I am just thinking that while I am writing in this fashion you will be waiting to learn what to do next with the panel. Well, back it up to the Detector Unit and bridge across in a similar fashion to last week, excepting—now pay attention to me here—the bottom (B plus) terminal. This is not bridged across to the corresponding terminal of the Detector Unit, as the detector valve requires only about 40 volts high tension on the plate, whereas the amplifying valve will function better with a plate voltage in the regions of 80v. to 100v. Therefore, connect your batteries as follows:—Connect the A positive to the top terminal

of the three bottom terminals, attach both (A and B) the negatives to the middle terminal and the B positive of about 80 volts to the bottom terminal. This will supply the filament voltage to each valve, and the plate battery to only the amplifying valve, as the continuity of current is broken owing to the fact that you haven't linked across the B positive of the Amplifying Unit to the B positive of the Detector Unit. Consequently you have to take a tapping of the value of 4 volts to the B positive of the Detector Unit in order that the detector valve will be supplied with the plate voltage. Read this over again, so that you understand it thoroughly.

If you don't care to connect up in this fashion, it is permissible for you to add two other terminals to the Detector Panel, say, one above the A positive and alongside the grid leak, and the other on the other side alongside the rheostat. Take a wire from the terminal marked BX on Fig. 4 to the new terminal near the grid leak, and from thence across to the corresponding terminal near the rheostat. To pair with these terminals it will be necessary to add two more to the Audio Frequency Unit, one on each side, of course, and a wire connecting the two. Now link the two new terminals from unit to unit, and connect the 48 volt positive B Battery to the new outside terminal on the Audio Unit. This method may appeal to some, so I have included it (as an alternative) on the Blue Prints. I hope you all understand this paragraph.

Back again to our unit. Attach your telephones to the terminals T.T., and, granted that you have the valves in their sockets, you will now be able to tune in your favourite broadcasting station. Much louder than with the Detector Unit only, isn't it?

While you are listening in I want to have a word with you on the valve you are using in the Audio Frequency Unit. I hope it is a C301a, for you will remember I advised this particular valve in the opening article of this series, stating that it is, "in my estimation, the finest audio amplifying valve." This I still maintain, and I am pleased to say that they are now obtainable again in Sydney. Oh, by-the-way, the U.V. 201a is just the same valve, so don't refuse it if it is offered when you ask for the C301a.

Now, before we part—Blue Prints. I have been inundated with orders,

and I must say that the demand has already exceeded the supply. Those readers who haven't received their little lot I adjure patience. All orders will be executed shortly—that is, of course, provided the local P.M.G. doesn't run me in on suspicion of

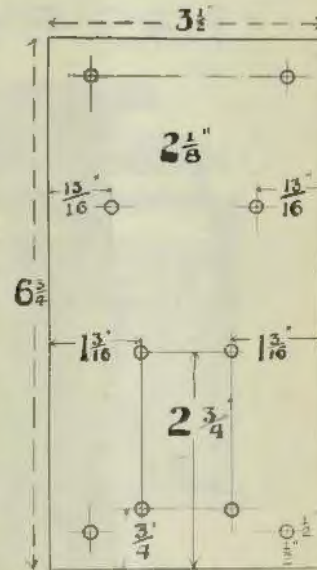
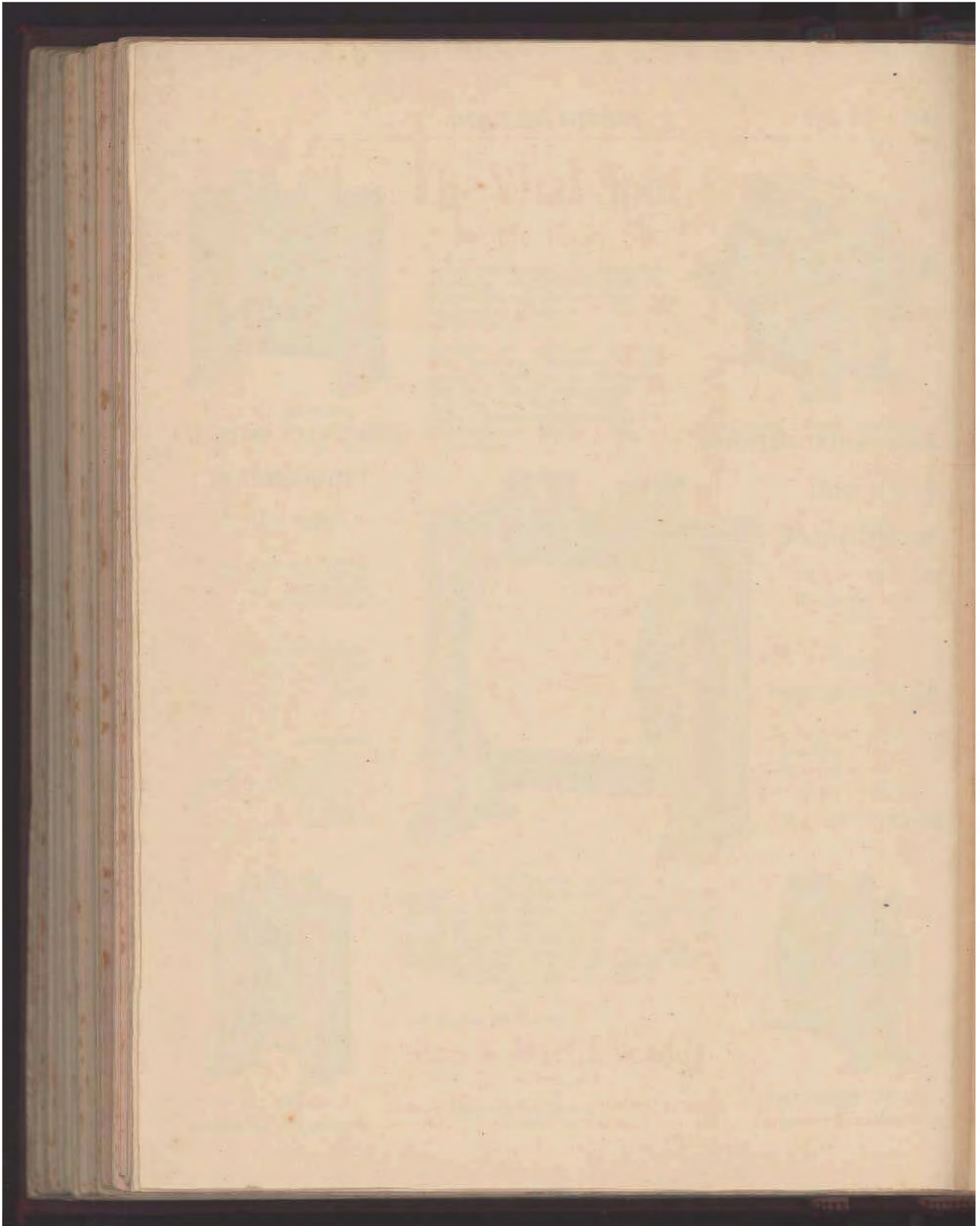


FIG 8

being a sweep organiser, considering the number of half-crown postal notes I have been cashing recently. And I earnestly thank the many people who have written me telling me of the help these articles have been. This information is very pleasing to me. I like to know that my efforts are appreciated.

So long till next week, as I am tired out to-night.

Tell your friends about
"Wireless Weekly"



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Friday, July 26th, 1924
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 1 AB.—Penny, Victor George, Auckland; 5 watts, 140 metres.
 1 AC.—Späckman, Leonard Storkey, Auckland; 20 watts, 155, 165, 175 metres.
 1 AH.—Hartle and Gray, Auckland; 50 watts, 175, 165, 155 metres.
 1 AL.—Goodwill, Charles Seivier, Hamilton; 5 watts, 140 metres.
 1 AK.—Claxton, William Harry, Thames; 5 watts, 140 metres.
 1 AM.—Hamilton Amateur Radio Club, Hamilton; 50 watts, 155, 165, 175 metres.
 1 AO.—White, Russell Garland, Auckland; 5 watts, 140 metres.
 1 AQ.—Sommerville, Aymer Alexander, Thames; 5 watts, 140 metres.
 1 AR.—Hobbs, Frank Beesely, Hamilton; 5 watts, 140 metres.
 1 AS.—Grainger, Ralph Eric, Auckland; 5 watts, 140 metres.
 1 AU.—Aubin, Rolf Ernest Lempriere, Auckland; 5 watts, 140 metres.
 1 AV.—Bingham, John Merton, Auckland; 50 watts, 160, 170, 180 metres.
 1 AW.—Maxted, Robert, Thames; 5 watts, 140 metres.
 1 AZ.—Sherson, James Reginald, Hamilton; 5 watts, 140 metres.
 1 FC.—Burrell, Robert Frederick Douglas, Auckland; 50 watts, 160, 170, 180 metres.
 1 FF.—Williams, Vincent John, Auckland; 5 watts, 140 metres.
 1 FH.—Steel, James, Auckland; 5 watts, 140 metres.
 1 FL.—Batty, Herbert William, Auckland; 5 watts, 140 metres.
 1 YA.—Auckland Radio Service, Ltd., Auckland; 500 watts, 260 metres.
 1 YB.—Pearson, Charles Henry (on behalf of Newcombe, Limited), Auckland; 500 watts, 260 metres.
 2 AB.—Wilkinson, Dan, Motueka; 1 to 5 watts, 140 metres.
 2 AC.—O'Meara, Ivan Henry, Gisborne; 50 watts, 155, 165, 175 metres.
 2 AD.—Stevens, Percy Ronald, Gisborne; 5 watts, 140 metres.
 2 AE.—Patty, Robert James, Gisborne; 5 watts, 140 metres.
 2 AF.—Sinclair, William John, Gisborne; 50 watts, 150, 165, 175 metres.
 2 AH.—Wanganui Amateur Wireless Club, Wanganui; 50 watts, 155, 165, 175 metres.
 2 AI.—Harrison, Walter Leslie, Wellington; 5 watts, 140 metres.
 2 AJ.—Bransgrove, Thomas Henry, Stratford; 5 watts, 140 metres.
 2 AK.—Rowson, Leslie, Hawera; 5 watts, 140 metres.
 2 AL.—Edwards, Walter George, Shannon; 5 watts, 140 metres.
 2 AM.—Buist, William Frederick (Dr.), Hawera; 50 watts, 180, 170, 160 metres.
 2 AO.—Brunette, Gordon Albert John, Opunake; 5 watts, 140 metres.
 2 AP.—Collier, Percy Charles, Wellington; 5 watts, 140 metres.
 2 AQ.—Coutts, Morton William, Taihape; 50 watts, 155, 165, 175 metres.
 2 AR.—Clarkson, Thomas Reynolds, Hastings; 5 watts, 140 metres.
 2 AS.—Simpson, Albert Edward Huia, Wellington; 15 watts, 160 and 170 metres.
 2 AU.—Innes, Ian Joseph, Nelson; 50 watts, 160, 170, 180 metres.
 2 AW.—Clarke, Cecil Roy, Wellington; 5 watts, 140 metres.
 2 BA.—Bierre, Eric Warburg, Wellington; 5 watts, 140 metres.
 2 BF.—The Wilkins and Field Hardware Coy., Ltd., Nelson; 50 watts, 160, 170, 180 metres.
 2 BH.—Barsham, Paul, Hastings; 5 watts, 140 metres.
 2 BI.—Shrimpton, Harry Neville, Nelson; 5 watts, 140 metres.
 2 XB.—Victoria University College, Wellington; 50 watts, 395 metres.
 2 YB.—Wellington Broadcasters, Ltd., Wellington; 500 watts, 275 metres.
 2 YK.—Dominion Radio Company, Ltd., Wellington; 500 watts, 275 metres.
 2 YM.—Gisborne Radio Company, Gisborne; 500 watts, 335 metres.
 3 AA.—Orbell, Reginald John, Christchurch; 50 watts, 155, 165, 175 metres.
 3 AB.—Vincent, Francis, Christchurch; 20 watts, 155 and 175 metres.
 3 AC.—Radio Society of Christchurch (Inc.), Christchurch; 15 watts, 155, 175, 300 metres.
 3 AD.—Blake, Robert George Frederick, Greymouth; 5 watts, 140 metres.
 3 AF.—Ball, Leonard Francis, Christchurch; 5 watts, 140 metres.
 3 AH.—Courtis, Henry Bural, Timaru; 5 watts, 140 metres.
 3 AK.—Reynolds, Ernest, Ashburton; 5 watts, 140 metres.

- 3 AL.—Dawson, Wilfred Milne, Ashburton; 5 watts, 140 metres.
 3 AM.—Withers, Bernard Tyndall, Christchurch; 5 watts, 140 metres.
 3 AQ.—Smail, James Ingram, Christchurch; 15 watts, 160, 170, 180 metres.
 3 AR.—Buchanan, David William, Ashburton; 50 watts, 160, 170, 180 metres.
 3 AS.—Paterson, Ian James McLean, Timaru; 5 watts, 140 metres.
 3 CA.—Puxley, Henry Waller Lavallin, Ealing; 5 watts, 140 metres.
 3 CB.—Taylor, Clyde Romer Hughes, Christchurch; 5 watts, 140 metres.
 4 AA.—Bell, Frank Dillon, Waitema; 50 watts, 171, 161, 151 metres.
 4 AB.—Otago Radio Association Incp., Dunedin; 50 watts, 160 and 300 metres.
 4 AC.—Robinson, Robert Edward, Dunedin; 50 watts, 155, 165, 175 metres.
 4 AD.—Jordan, Arthur Edward, Invercargill; 50 watts, 175, 165, 155 metres.
 4 AG.—Slade, Ralph, Dunedin; 3 to 5 watts, 140 metres.
 4 AH.—MacDonald, Ian Sinclair, Dunedin; 5 watts, 140 metres.
 4 AJ.—McGeorge, Claude Norman Douglas, Dunedin; 5 watts, 140 metres.
 4 AK.—Shiel, William Lalor, Dunedin; 5 watts, 140 metres.
 4 AL.—Grubb, Arnold Henry McLeod, Dunedin; 5 watts, 140 metres.
 4 AM.—Crockett, William McGill, Dunedin; 3 to 5 watts, 140 metres.
 4 AO.—Scott, Thomas Edward, Dunedin; 5 watts, 140 metres.
 4 AP.—Invercargill Radio Club, Invercargill; 15 watts, 160, 170, 180 metres.
 4 AQ.—Arundel, Norman, Dunedin; 50 watts, 160, 170, 180 metres.
 4 AR.—Wilkinson, William Grey, Dunedin; 5 watts, 140 metres.
 4 XO.—Professor Robert Jack (for University of Otago), Dunedin; 50 watts, 395 metres.
 4 YA.—British Electrical and Engineering Coy., Dunedin (F. J. O'Neill); 500 watts, 370 metres.
 4 YO.—Radio Supply Coy., Dunedin; 500 watts, 370 metres.
 In addition to the above, the following commercial stations may be heard on 600 metres:—VLA, Awanui; VLB, Awarua; VLC, Chatham Islands; VLD, Auckland; VLW, Wellington.

AFFILIATED RADIO CLUBS

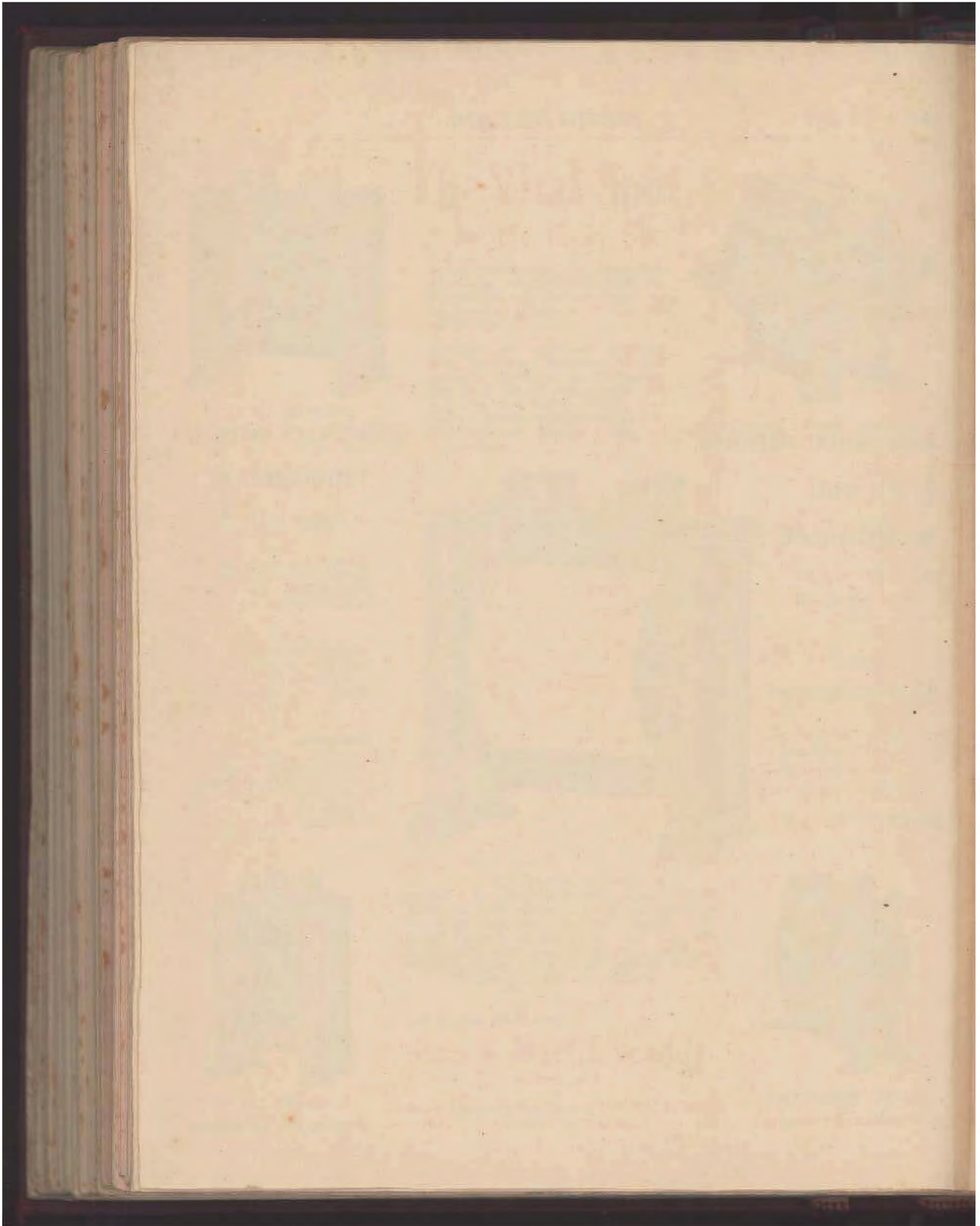
The following is a list of Radio Clubs which have affiliated with the Wireless Institute of Australia. The list is complete to July 15th, 1924, and shows the names and addresses of the Secretaries of the Clubs.
 Concord Amateur Radio Club.—A. Smith, 47 Shaltesbury Rd., Burwood.
 Croydon Radio Club.—G. Maxwell Cutis, "Carwell," Highbury Street, Croydon.
 Northbridge Radio Club.—A. F. Cameron, "Ogilvie," Clanwilliam Street, Chatswood.
 Balmain and District Radio Club.—F. W. Riccord, Western House, 77 Grove St., Balmain.
 Postal Institute Radio Club.—James F. Nichol, 7 Australia St., Croydon.
 Leichhardt and District Radio Club.—Wm. J. Zech, 145 Booth Street, Annandale.
 Railway and Tramway Radio Association.—W. L. Carter, Box 14, General Post Office, Sydney.
 Artarmon Radio Club.—Myles Ariel, 22 Hampden Rd., Artarmon.
 Katoomba School of Arts Radio Club.—B. V. Stewart, "Keldholme," Murri St., Katoomba.
 Marrickville and District Radio Club.—A. W. Hemming, 23 Central Av., Marrickville.
 Wentworth Radio Club.—R. Spencer Nolan, 152 Bellevue Road, Woolahra.
 Campsie and District Radio Club.—E. R. Mawson, "Daisydale," Wongo St., Campsie.
 Newcastle and District Radio Club.—L. T. Swain, 49 Everton St., Hamilton, Newcastle.
 Waverley Radio Club.—Ralph H. Howell, "Hazelnell," 71 Curlew St., Bondi.
 Illawarra Radio Club.—W. D. Graham, 44 Cameron St., Rockdale.

- SOUTH AUSTRALIAN TRANSMITTING LICENSES TO DATE**
 5 A.C., V. R. Cook, Johns Road, Prospect, S.A.
 5 A.D., A. R. Snowell, Harris Street, Exeter, S.A.
 5 A.E., J. M. Honnor, Alpha Road, Prospect, S.A.
 5 A.H., I. L. Williamson, Degnetterville Terrace, Kent Town, S.A.
 5 A.I., H. H. Lloyd, Trinity Street, College Town, S.A.
 5 A.V., C. E. Ames, Grange Road, Hindmarsh, S.A.
 5 A.Q., Bro. Joseph, Sacred Heart College, Glenelg, S.A.
 5 A.W., University, North Terrace, Adelaide, S.A.
 5 B.L., School of Mines, North Terrace, Adelaide, S.A.
 5 B.D., F. E. Sarle, Bakewell Road, St. Peters, S.A.
 5 B.F., F. G. Miller, Murray Bridge, S.A.
 5 B.G., R. A. Kauper, Gurney Road, Dulwich, S.A.
 5 B.N., H. L. Austin, Parade, Norwood, S.A.
 5 B.P., R. B. Caldwell, Hughes Street, Unley, S.A.
 5 B.Q., L. C. Jones, Sussex Terrace, Westbourne Park, S.A.
 5 D.H., S. R. Buckerfield, Regent Street, Parkside, S.A.
 5 D.N., L. C. Jones, Rundle Street, Adelaide, S.A.
 5 C.B., Newton and MacLaren, Leigh Street, Adelaide, S.A.
 5 C.M., E. N. Sagar, Railway Terrace, Largs Bay, S.A.
 5 F.T., J. Fitzmaurice, St. Andrews Street, Walkerville, S.A.
 5 G.B., G. Bailey, Commercial Street, Mt. Gambier, S.A.
 5 H.R., H. Rhodes, Kadina, S.A.
 5 R.B., R. Bedford, Kyancutta, S.A.
 5 R.S., Bedford Park, Sanatorium, Adelaide, S.A.

THINGS I WANT TO KNOW.
 By "Digger."

Where is ZZG these days? Has he lost his punch?
 Who is "Insulator" who nobly instructs the readers of Wireless Weekly into the mysteries of radio?
 Has anybody heard K.G.O. on a crystal yet?
 Whether our friend Mr. Forsyth, of 2BF, gets the wind up when he climbs up the ladder to the top of the Strathfield Radio Club's masts?

LEFAX Perpetual Radio Handbook **25/-** Distributed by Welby Radio Co 13 Royal Arcade, SYDNEY



Page Twenty WIRELESS WEEKLY Friday, July 25th, 1925 (Friday, July 25th, 1925) WIRELESS WEEKLY Page Twenty-two

Hello Everybody!

Wiles' Wonderful Wireless

SAME QUALITY SAME PRICES SAME SERVICES

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23 PITT STREET, CIRCULAR QUAY

Construct your own Receiving Set. We supply complete building instructions and advice with each order

SINGLE SLIDE CRYSTAL SET

150 to 1200 Meters

| | |
|------------------------------------|--------|
| 1 Impregnated D.R. Tube | 0 10 0 |
| 2 Maple Cases | 0 1 0 |
| 1000 24 Enamel Wire | 0 1 0 |
| 1 N.P. Slider and Bar | 0 1 0 |
| 2 N.P. Terminals, Aerial and Earth | 0 0 0 |
| 1 N.P. Detector Unit | 0 0 0 |
| 1 Guaranteed Crystal | 0 1 0 |
| 2 Extra Phone Terminals | 0 0 0 |
| 1 piece Spools | 0 1 0 |
| 1 Phone Condenser | 0 1 0 |
| Aerial Equipment | 0 1 0 |

£1 2 0

DOUBLE SLIDE CRYSTAL SET

Similar parts to Single Slide Set

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|-------------------------------|-------|
| 1 2 2 | 0 5 0 |
| Additional Part 1 N.P. Slider | 0 1 0 |

£1 6 0

Construct your own Amplifier to connect to your Crystal Set in order to use a loud speaker.


1 STAGE AMPLIFIER

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|---------------------------|--------|
| 1 Electric Panel | 0 2 0 |
| 1 Valve Holder | 0 1 0 |
| 1 Resistor | 0 1 0 |
| 1 Transformer | 1 7 0 |
| 2 Terminals | 0 2 0 |
| 1 Panel Wire and Solder | 0 1 0 |
| 1 Amplifying Valve | 1 15 0 |
| 1 Full Size Radio Cabinet | 0 15 0 |
| 1 S. Battery | 0 10 0 |
| 1 Battery | 0 12 0 |

£5 2 0

Complete parts for 2 Stage Amplifier, giving double the amplification of a one Valve.

£8 12 0



RADIO HEAD SET.

RADIO HEAD SETS.

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|-------------------------------|--------|
| Foot 2000 ohms | 1 15 0 |
| Foot 3000 ohms | 1 10 0 |
| Murphy's 4000 ohms | 1 10 0 |
| New System's 4000 ohms | 1 10 0 |
| Robins 4000 ohms | 1 10 0 |
| Holograph 4000 ohms | 2 2 0 |
| Brown's 4000 ohms | 0 8 0 |
| Standard 4000 ohms | 2 4 0 |
| Brown's 8000 ohms, adjustable | 0 10 0 |
| Johnson | 0 10 0 |
| Truman's Professional | 2 0 0 |
| Truman's Dependable | 1 10 0 |
| Western Electric 4000 ohms | 2 4 0 |
| Western Electric 8000 ohms | 2 4 0 |
| Beanda's Matched Tone | 3 10 0 |
| Nabtag 3000 ohms | 0 10 0 |
| Halditch with New Designers | 4 9 0 |
| Doherty Single Unit | 1 17 4 |
| Mel. Single Head Trip | 0 14 0 |

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100 to 1200 Meters

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| 1 piece Electric | 0 4 0 |
| Cardboard Tube Mount | 0 0 4 |
| 1000 24 Enamel Wire | 0 1 0 |
| N.P. Contact Studs | 0 2 7 |
| N.P. Switch Slugs | 0 0 8 |
| N.P. Terminals | 0 2 0 |
| N.P. Induction Switch | 0 2 0 |
| N.P. Detector Arm | 0 4 0 |
| N.P. Crystal Cap | 0 1 0 |
| Guaranteed Crystal | 0 1 0 |
| Phone Condenser | 0 1 0 |
| 1000 24 Enamel Wire and Solder | 0 0 0 |
| 1000 24 Enamel Wire | 1 0 0 |
| 1000 24 Enamel Wire | 0 7 5 |

£2 0 4

LOOSE COUPLER CRYSTAL SET

100 to 1200 Meters

| | |
|-----------------------------------|-------|
| 1 pair Cardboard Tubes | 0 1 0 |
| 1 Set Maple Unit | 0 4 0 |
| 1 Maple Base Board | 0 4 0 |
| 1000 24 Enamel Wire | 0 1 0 |
| 1 N.P. Slider and Bar | 0 1 0 |
| 10 N.P. Contact Slugs | 0 1 1 |
| 2 N.P. Switch Slugs | 0 0 4 |
| 1 N.P. Induction Switch | 0 2 0 |
| 1 piece Electric | 0 1 0 |
| 1 N.P. Detector Unit | 0 2 0 |
| 1 Guaranteed Crystal | 0 1 0 |
| 4 each Aerial and Earth Terminals | 0 0 0 |
| 2 Extra Phone Terminals | 0 2 0 |
| 1 Piece Condenser | 0 1 0 |
| 2 Secondary Rude | 0 2 0 |
| 1 Slider Support | 0 0 4 |
| 1 good Flexible | 0 0 0 |
| Aerial Equipment | 0 7 5 |

£1 14 1

Please address all communications to our Head Office, 30-32 Goulburn Street

OUR GUARANTEE

It is our intention that every article in this list shall be truthfully described. Therefore, we guarantee everything you buy from us to be satisfactory to you in every detail. You take no risk whatever in sending us your orders, for unless you are completely satisfied with the goods and your saving, you may send back everything you buy from us and we will promptly return your money and all transportation charges you have paid.



Showing the three Wireless Stores of W. Harry Wiles, Sydney. Top, 60/62 Goulburn Street. Left, 23 Pitt Street. Right, 384 Pitt Street.

Careful Selection of Parts Insures Satisfaction!



R675.—VARIOMETER.
Embodying the highest electrical efficiency. Moulded brown bakelite, split bronze bearings. Obtainable in two sizes.



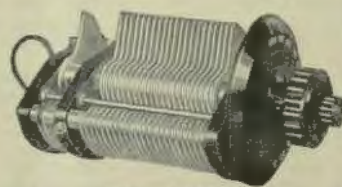
R650.—VARIOCOUPLER.
The finest that can be produced. Moulded brown bakelite, split bronze bearings, winding tapped at 15 points for very close tuning. Obtainable in two sizes.



R700.—POTENTIOMETER.
Moulded of heat brown bakelite. Resistance unit machine wound with highest grade resistance wire. Provided with solder lugs for attaching wires.



R475.—DETECTOR UNIT.
Combining tube socket, filament rheostat, binding posts, solder lugs, knob and dial. The most compact unit made.



R725.—CONDENSER.
With Vernier and pigtail connection. Obtainable in 4x plate, as above, and 2x plate sizes.

Of course the set you build is to be better than any owned by friends—and it can be. Avoid their mistakes — profit by experience — and build a set to be proud of. The difference in cost between a makeshift assembly and a good one is nominal—but the difference in reception results obtained is tremendous. For best results,

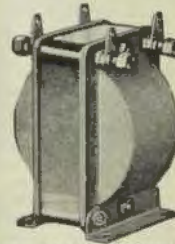
Gilfillan Radio Parts

(Units of Recognised Quality)

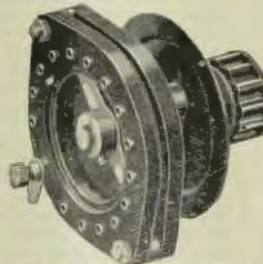
offer the most at least cost. Ask your dealer for these better parts. If your dealer does not handle *Gilfillan*, write us for name of nearest dealer, descriptive folder and list.

Harringtons Ltd

386 George St., Sydney



R1125.—AUDIO FREQUENCY TRANSFORMER.
Exceptionally well made and dependable. Completely shielded in metal case.



R950.—PRIMARY INDUCTANCE SWITCH.
15 point. For mounting on back of panel. Moulded brown bakelite, black knob and dial. R909.



R925.—TUBE SOCKETS.—R500.
R. 300.—Any standard amplifier or detector tube. Phosphor bronze positive contact springs. Terminals marked; with binding posts and solder lugs.
R. 925.—Adapter for 109 tube, fits any standard type socket.
R. 500.—Small tube socket to take 109 tube.

BRINY REMINISCENCES.

By Brasso.

(Continued from Last Week.)

There was a bloodcurdling yell, and a scuffling of feet down the ladder, and after that a brooding peace settled upon the roof top. Its denizens were seen no more.

When about half-way to Aden, an event occurred which put the wind up the whole convoy. About 3 p.m. one day there hove gradually into view on the horizon, two grey funnels and two masts of a ship travelling on a parallel course. During the speculation as to her name, the yarn got quickly around that she was probably a German raider. Captain Brewis came hurriedly into the Marconi room, and upon being told that no signals had been heard from her, instructed me to make the signal, "What ship is that," and to spell it slowly. This evoked no response from the suspect, whereupon a code message was sent to A.E.3. The submarine then dropped her tow line and moved over towards the vessel until she was lost to view. All hands awaited the distant roar of guns, and I sat with the 'phones clamped tight to my ears. By and by the thin piping of the coil set on the A.E.2 came in, calling A.V.B., and he shot me a short code message. Shortly after this was received, the news leaked out that the stranger was the "Hardinge," auxiliary cruiser of the India Marine. She favoured us with her escort as far as Aden.

The old station of Aden Radio (V. P.I.), which later was converted into a modern outfit, shall always be green in my memory as the most horrible note I ever heard. It was a 1½ K.W. prehistoric Marconi transmitter, with a fixed gap discharger which made a noise like the tearing of cloth. No one was more pleased than I was, when after steaming for three or four days we finally lost his rattle.

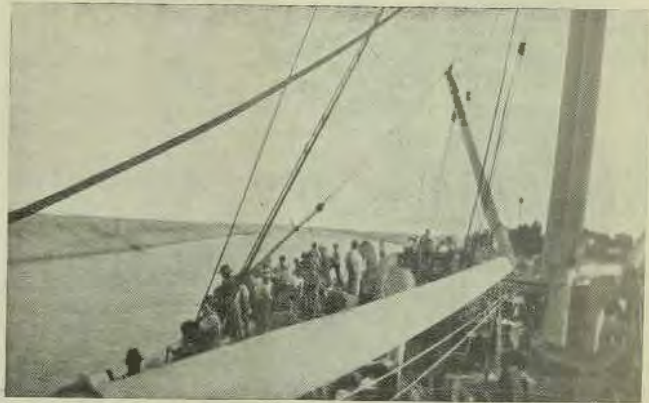
Our next point of radio communication was B.X.W., a British cruiser lying at Port Said, which was controlling the enormous amount of official wireless traffic around the Suez Canal. I have heard some remarkably busy stations since, but never yet any station which for the volume handled, efficiency and rapidity of working, could be compared with B.X.W. Hour after

hour he kept going at lightning speed with never a break or a mistake; clearing the traffic from one station and jumping immediately on to another; no repeats and only one sending. When my turn came with him I had occasion to be glad of the several years land line experience which enabled me to keep pace with him. After taking a batch from him, I shot him my own hunch in my best Morse, whereupon he snapped back one "R" at me, and within a few seconds was in the middle of a message to someone else.

The passage through the Canal, past miles of entrenchments occupied by the A.I.F. and New Zealanders, was a wonderful sight to all except Tim. He gazed casually for a few moments at the snouts of guns sticking out from the Canal bank, and then took himself

hand, he entrained for Suez to join the "Kyarra." In response to my broken "Good-bye, old man," he stifled a yawn, said "So long," and was borne swiftly away without even so much as a backward look. Boredom had settled on him again. So that was the last I ever saw of Tim. Years later I learned he had gone down to the pack ice with the Shackleton Relief Expedition, but whether he stayed there bored to tears or decided to return, I never heard.

I returned from the station to the Hotel Majestic, very down-hearted indeed. Next day, while down near the water-front, rubbering at the German interned ships, I heard a deep bellow, and there gliding swiftly out the entrance was the "Ulysses." Although, a few days later I departed further



THROUGH THE CANAL.

off to the more entralling occupation of tooting on the flute.

After spending one night at Port Said, we steamed out into the Mediterranean, and so arrived at Alexandria, our destination. Here, both Tim and myself were signed off the articles at the British Consul's office. Tim was ordered back to Australia, and the last I saw of him was when, bag in

afield, and since then have visited many countries, I shall never forget the gloom which settled upon me as the tall blue funnel faded slowly from view over the horizon until all that was left was a faint blur of smoke from—my first ship.

Continued on page 27

SEE ANNOUNCEMENT OF HOME ASSEMBLY SETS ON PAGE 3.

DAVID JONES' SALE



Ends on Saturday 26th

Amazing Radio Reductions

BIG SAVINGS

On Loud Speakers

Now is the time to secure one of the well-known "Western Electric Junior Loud Speakers" at a big reduction. Usually they sell at 75/-; For the Sale 59/6

The "Atlas"—a very popular Loud Speaker offered at a price that makes it a splendid bargain, and less the further discount for cash. Usually, £7/15/-; Sale Price .. £4/19/6

"Magnavox M.I." The finest Loud Speaker there is. Buy the premier speaker at this new low price. Usually they are £10/10/-. Sale Price £9/10/-

Each Less 2/- in the £ for Cash.

SOME HALF PRICED

Standard Parts

The famous "Remler" Tube Socket Adaptors, offered for half price. Usually 6/6. Sale Price 3/3
"Remler" Dry Cell Tube Sockets at a big reduction. Usually 6/6; Sale Price 3/9

"Framingham" Sockets, usually they are 6/-; Sale Price 4/-
Porcelain Sockets: Usually 4/3; Sale Price 3/-
5 ohm. "Fada" Rheostats; Usually 6/-; Sale Price 4/-

"Master Vernier" Rheostats, 12 ohm. Usually 10/6; Sale Price 7/6
"Baldwin" Ear Phones; Usually 98/6; Sale Price, pair 77/6

Each less 2/- in the £ for Cash

DAVID JONES'

RADIO DEPT., 282 YORK STREET, SYDNEY



Radio Company

Limited
15 LOFTUS STREET
Circular Quay
SYDNEY



**WHY NOT ASSEMBLE YOUR OWN SET?
OUR STAFF WILL ASSIST YOU IN THE SELECTION OF APPARATUS AND INSTRUCTION IN THE ASSEMBLING OF SAME.**

Or for a small fee we will assemble your apparatus, guaranteeing the results.

| | £ | s. | d. |
|---|---|----|------|
| Bakelite (for panels), per sq. inch | | | 1 |
| Rheostats | | 4 | 6 |
| Giblin Remler Coils | | 4 | 6 |
| Atlas Coils from | 0 | 7 | 6 |
| Insulators | | | 3 |
| Valve Sockets, English | | 2 | 0 |
| " " American | | 3 | 9 |
| Telephones | 1 | 5 | 0 |
| Transformers, Jefferson, 41 | 1 | 12 | 6 |
| " " Star | 1 | 6 | 6 |
| " Marle | 1 | 5 | 0 |
| " United | 1 | 10 | 0 |
| " Airway (large) | 1 | 19 | 6 |
| Contact Studs, with nuts | | | 1 0 |
| Extra Nuts, doz. | | | 4 |
| Battery Clips | | | 6 |
| Terminals | | | 4 |
| Ebonite Slider | | | 1 6 |
| Valves, WD11 | 1 | 15 | 0 |
| " WD12 | 1 | 15 | 0 |
| " UV200 | 1 | 15 | 0 |
| " UV201A | 1 | 15 | 0 |
| " UV 199 | 1 | 15 | 0 |
| Dry Cells | | | 2 9 |
| Accumulators | 1 | 1 | 0 |
| Condensers, Variable | | | 15 0 |

PRICE LIST ON APPLICATION.
Bakelite Ordered Drilled Gratis.

RADIO CO., LIMITED
15 LOFTUS STREET, CIRCULAR QUAY, SYDNEY

*Bring Reminiscences.**Continued from page 4.*

THE Hotel Majestic was full of New Zealand Army officers and here I bumped my old pal of New Zealand Telegraph Department days, Major Clyde McGill. When I remember how the boys in the Auckland Telegraph Office used to poke fun at big Clyde prancing off to his Saturday afternoon military manoeuvres the fact that he subsequently died of illness is rendered all the more pathetic. One could always imagine him going out in a burst of glory and I can easily picture him lying there chafing and fuming at the disease which eventually caused his death.

After ten days wandering aimlessly around the filthy streets of Alexandria and frequently witnessing scraps between the huskies of the U.S.S. "Tennessee" (then engaged in running Armenian refugees down from Smyrna) and bands of wild Aussies, a curt note from the S.N.O. reached me and I duly reported to that august personage, whom I found to be the Honorable something-or-other sitting almost on top of a coal fire. It was midwinter, and I defy anybody who has experienced the delights of winter in Alexandria to take any further interest in the Sheik or those misguided high-spirited English damsels who wander into the desert with some romantic Caliph. Those stories by Conan Doyle, "Egypt of the Egyptians" which were at that time running in "Nash's Magazine," painted a bald picture of that much misrepresented land as I actually found it to be, devoid of romance, yet full of dirt, flies and poverty. In all my experience, Egypt was the hardest bump I ever got, and my stays in Cairo and other places only served to further disillusion me. Egypt is simply a playground for novelists who have never been there and the non-romantic streets of Woolloomooloo are infinitely preferable to many Egyptian places which are wrapped in a beautiful cloak of romance by fiction writers.

However, the S.N.O. after remarking that it was damn cold, told me to go down and report to the captain of H.M.A.T. "Bakara," shortly due to sail for Liverpool. The instructions were simply verbal, such was the fine old spirit of Naval efficiency, and when I reported to Captain John Buchanan of the "Bakara" he refused to entertain me without something in writing. This I went back for, but after four hours hunt for my friend the S.N.O. (probably he had died of



H.M.A.T. "Bakara"

cold) I gave up the ghost, returned to the "Bakara" and after much argument was signed on the articles.

Captain Buchanan was one of those fiery Scotch spirits who had entered into the war as though the whole thing had been framed up against him personally. Anybody whose origin wasn't quite clear to him was a Hun and for some months he had me sorted out as a possible German spy and I had to watch my P's and Q's. Aside from these queer notions he was a fine old chap and in the months we were together he showed many sterling qualities which endeared him to the whole crowd on board.

The "Bakara," formerly the "Cannstatt," was one of the enemy vessels captured in Australia and her wireless equipment consisted of a 2½ K.W. Telefunken quenched gap transmitter and the well known two coil crystal tuner. The aerial was a twin wire T type. The operator (she was a one man ship) before me had been unsatisfactory and had been returned to Australia, so I had something to live down. An examination of the papers failed to disclose her British call sign. The Captain did not know it—the S.N.O. was equally ignorant, and I was just beginning to get worried when I met the operator of another Australian transport ("Boorara"). His ship was on the point of sailing and he was hurrying down the quay to get aboard. He mentioned he had a list of the new call signs on board and told me to listen in on 600 metres for mine. Sure enough, about half an hour later as the "Boorara" was moving out I heard the three letters V.J.S. spelt out slowly three times, to my great relief. Thus we were allotted a call.

The officers, of whom there were four, had been hurriedly recruited in Sydney just prior to sailing, and their uniforms represented the principal steamship lines trading on the coast. They were a most homely and friendly crowd and there was an entire absence of the formality and etiquette which had characterised the proceedings on the "Ulysses".

So, two days after my joining, we slid out from the gun laden quay at Alexandria and, after dipping the ensign to the cruiser "Tennessee", passed silently out of the entrance into the chilly dusk of the Mediterranean, and the delights of dodging submarines, of whose merry exploits the Gipps papers had been full.

The ship early developed a peculiar, jerky, see-sawing motion which, combined with the effects of a choppy cross sea, led to my very first attack of mal-de-mer, and a large portion of the first night I spent communing with nature over the side of the ship. To this day I pride myself that when put to the test I did my duty like a man, the subdued chuckles of the officer on the bridge above only serving to add fresh vim to my efforts. So passed the most frightful night I ever spent. In response to the tender inquiries after my health next morning I only went on toying with a chop, the tempting flavour of which merely aroused in me a passionate yearning to dangle my head over the side again. However, after about twenty-four hours of this purgatory I recovered and was able to join in the conversation of the saloon table.

To be Continued

Sensitive Receivers

(By Don Lippincott, in "Radio," San Francisco.)

A brief comparison and clarification of nomenclature of the fifty-seven varieties of receivers is here given. It should be of special value to the prospective purchaser or constructor. It is completely unbiassed in its statements.

The best radio set is the one which is most sensitive, most selective, gives the best volume of signals with least distortion, does not interfere with other receivers, is easiest to tune, is not critical in adjustment, and is reasonable in price. It does not exist.

Any radio receiver is a compromise designed to include as many of these desirable features as possible. These features are to a certain extent incompatible. Hence any set has certain advantages and certain limitations. It is for you to decide from your own situation and natural preferences which is the best for you.

All modern sensitive sets amplify the incoming signals *before* they are detected—i.e., at "radio frequency." It is the method by which this is accomplished that determines the type of the set.

Of all the types in use the most numerous are the "single circuit regenerative." These are easy to tune, low in cost, sensitive, and give good volume. On the other hand, they are not very selective, if improperly operated they distort the voice or music, and because they differ only in size—not in principle—from a transmitting set, they may cause a tremendous amount of disturbance in the neighbourhood. The squeals, howls and "bloops" which are familiar to every listener, are almost all due to this type of set. For the dweller in the country it is ideal, but in a crowded neighbourhood, near to a powerful broadcasting station, its disadvantages become much more noticeable.

There are three varieties of this type. They have in common the characteristic that radio-frequency amplification is accomplished by the detector tube itself, a part of its output being fed back to the input to reinforce the incoming waves. The antenna forms a part of the input circuit of the tube. They differ in manner in which the feed-back is accomplished, and are designated as tickler feed-back, tuned plate circuit (or capacity feed-back), and direct feed-back. The first is least critical in adjustment, and broadest in tuning. Capacity feed-back is a bit more difficult to handle, but tunes a trifle sharper. The direct feed-back

circuit—known also as ultra-audion, Colpits, Gibbons, phantom, autodyne, and no one knows how many other titles—is very sensitive and tunes very sharply, but is very critical as to circuit constants and adjustments. As a radiator it is one of the worst offenders.

The chief drawback to all of these sets is their lack of selectivity. This defect may be remedied by connecting the aerial to the tube through a "vario-coupler," making it a "three-circuit" set. This increases selectivity and decreases radiation if properly handled, but to gain these advantages we have sacrificed something in sensitivity, signal strength and ease of tuning.

Anyone familiar with a regenerative set is familiar with the sudden momentary increase in strength of signal at the instant the set "slops over" or starts to oscillate. The "super-regenerative" receivers manage to operate at this point constantly, by stopping the oscillation immediately and letting it start all over again. This is done about 10,000 times per second. This type of set, with one tube, will operate a loud speaker over a range of from 50 to 100 miles on a small loop. The advantages are a combination of power and portability. The disadvantages are extremely critical adjustment, a tendency to howl and to distort, a rather limited range of reception, and the generation of much interference. Flewelling and Autoplex circuits are of this type.

The next important group of receivers is that using radio-frequency amplification by one or more tubes before the detector tube. When long waves, such as are used for trans-oceanic telegraphy, are to be received, the construction and operation of such amplifiers is not difficult. For reception of broadcast waves, however, efficiency in the amplifier circuit involves regeneration in the amplifier tubes, and the problem is to keep these tubes from oscillating—"stabilising" them.

Radio-frequency amplifiers are known as "tuned" and "untuned." The untuned circuits are more readily stabilised, less noisy, and simpler to handle. The tuned circuits are much more selective and given to greater

amplification per stage. The Neutrodyne is a form of tuned radio-frequency using a special patented form of stabilisation. Most of the other "dyne" sets on the market copy the method of stabilisation as well as the name which describes it.

A properly designed and constructed "R.F.A." set will consistently bring in greater distance than will a regenerative set. It is very easy, however, to lose in stabilisation the gain that properly should be obtained from the tubes, and the tendency to oscillate may also prevent full regeneration being used on the detector. All radio-frequency amplifiers are critical of adjustment, and their cost is greater than the regenerative set. The fact that they are non-interfering is their chief advantage from the standpoint of the community at large. A properly operated R.F.A. endears you to your neighbours.

Mention has been made of the comparative ease and efficiency of amplification at the longer wave lengths. This is taken advantage of in the "Super-Heterodyne" receiver. Two tubes are used to change the short waves to long ones, two or three tubes to amplify the long waves, a detector to change the long waves to voice frequency, and then the usual audio-frequency amplifiers. The difficulties which this type of receiver are almost wholly those of design and construction. Once built and working properly, it has capabilities possessed by no other receiver. Settings are critical, it is true, but stability is perfect there is great selectivity, and the sensitiveness exceeds all other types. The high cost is the principal drawback, this being due both to the large amount of material used and to the difficulty of construction and adjustment.

"Reflex" sets are those in which one tube performs two functions, i.e., amplifies at both radio and audio-frequencies. Their advantage is a saving in tubes required to do a given work. Their disadvantage is that they are somewhat less selective than sets in which each tube has but the one function to fill, and they are apt to be noisy.

Friday, July 25th, 1924. WIRELESS WEEKLY Page Twenty-nine



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.
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THE LEICHHARDT AND DISTRICT RADIO SOCIETY.

On Tuesday, July 15th, members of the Leichhardt and District Radio Society held their 89th general meeting at the clubroom, 176 Johnston St., Annandale. The attendance was exceedingly good, and all present spent a very enjoyable and instructive evening as a result of hearing Mr. J. N. Edmonds deliver a lecture entitled "Esperanto: Its Relation to Radio." Mr. Edmonds illustrated in many striking ways how the use of Esperanto could be applied in connection with wireless communication, and his lecture proved so interesting to those present that he was called upon to reply to a considerable number of questions at its conclusion. A vote of thanks by acclamation followed.

It was announced that, at the following meeting, a special lecture on "Tuning" would be delivered by Mr. R. C. Caldwell, a member of the Society.

Next Tuesday night, the 91st general meeting will be held, and on August 5th, the Society will hold its 22nd monthly business meeting, when a number of new applications for membership will be dealt with, and other formal business on hand disposed of.

Every business meeting sees a further increase in membership, and the Society would like to see every experimenter in the district enrolled. Inquiries addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Booth St., Annandale, will receive prompt attention.

CROYDON RADIO CLUB.

The club held its second social at "Rockleigh," Lang Street, Croydon, on Saturday, July 12th, at 8 p.m., there being about 50 present, including members of the Waverley Radio Club. Mr. Burrows, on their behalf, gave an invitation to the Croydon Radio Club, which was accepted.

Mr. Botton rendered several delightful selections on the piano, which were thoroughly enjoyed by his audi-

**LATE MR. F. L. MOORE.
TRIBUTE FROM
AMERICA.**

In connection with the fund which was organised by "Wireless Weekly" some months ago for the relief of the widow of the late Experimenter F. L. Moore, we have now received a contribution of 26 dollars (£5/17/5) from members of the American Radio Relay League.

The letter we print below bears eloquent testimony to the fact that the spirit which binds Experimenters together is a living, vital force the world over.

The American Radio Relay League.

*Hartford, Connecticut,
June 5th, 1924.*

*Editor, "Wireless Weekly,"
33 Regent Street,
Sydney, N.S.W.,
Australia.*

*Dear Sir,—
On behalf of members of the headquarters staff of the American Radio Relay League, I wish to transmit bank draft for 26 dollars in the equivalent of your currency toward the "Moore Fund" recently mentioned in your publication. This is the result of individual contribution, and not the gift of the organisation.*

You have our best wishes for the success of such a worthy movement.

*Yours sincerely,
C. A. SERVICE, Jr.,
Assistant Secretary.*

ence; followed by a demonstration on radio concert reception.

Mr. G. M. Cutts, the hon. sec., briefly outlined the club's progress and work during the past twelve months. This was followed by Mr. Slade's lecture, entitled "Popular Wireless."

Prizes were awarded to the winners (Messrs. Craig and Bundle) in the recent transformer competition.

Miss Walshaw entertained the company with two humorous monologues at the piano, and Mr. Bowman (Waverley Radio Club) gave a recitation.

During the evening those present engaged in games and dancing. For the latter Mr. Botton kindly provided suitable music.

Votes of thanks were passed to Mrs. Ashby and Miss Sutton for providing refreshments and also to the various artists who so kindly helped to make the evening the success it was.

This brought to a close a very enjoyable night.

All intending members are respectfully invited to communicate with the hon. sec., Mr. G. M. Cutts, "Carwell," Highbury Street, Croydon.

BALMAIN DISTRICT RADIO SOCIETY.

The attendance and interest displayed at meetings for some time past have been excellent.

The new syllabus of lectures, etc., arranged by the hon. sec. are both instructive and interesting, and up to date. The following have been delivered:—"Capacity," "Electro-Magnetics," "Audio and Radio Frequency Currents," "The Methods Used in the Transmission and Reception of Damped and Undamped Waves," "The Advantage of Inductively Coupled Receivers over Direct Coupled Receivers," and "The Telephone Receiver, its Construction and Action."

The next subject on the syllabus to be delivered next Tuesday night is "The Electronic Valve, its Action and Application to Radio Circuits."

Much time has also been devoted to short wave reception tests, and the following N.S.W. and Tasmanian stations were logged during the past three weeks:—2AR, 2AY, 2BF, 2BK, 2BM, 2BN, 2CL, 2CM, 2DS, 2GR, 2HF, 2HJ, 2IM, 2JM, 2LO, 2MR, 2RA, 2UW, 2YG, 2YI, 2LG, 2ZM, 2ZZ (N.S.W.), 7AB (Tasmania).

Any Society or experimenter conducting transmitting tests and wishing reports of same are invited to write the hon. sec.

All residents in Balmain interested in Wireless, whether they possess a transmitting or receiving set or not, are also invited to write the hon. sec. for particulars regarding membership. All correspondence is answered.

Write to P. G. Stephen, hon. sec., "Riverina," 18 Clifton Street, East Balmain.

POSTAL INSTITUTE RADIO CLUB.

The sixth meeting of the Postal Institute Radio Club was held in the Institute Rooms, Haymarket, on July 18th, when the election of officers for the ensuing twelve months took place. The members who had held the executive positions during the previous period since 29/4/24, were elected unopposed. An interesting item was set down for the evening, namely, a lecture on "Aerials," by Mr. L. Forsyth, of Northbridge, who proposed to transmit his lecture from Northbridge. However, conditions were unfavorable, owing to the broad tuning of several short wave stations "on the air." Mr. T. Armstrong, Assistant Radio Inspector for N.S.W., gave members a talk on the choice of tuning elements which was much appreciated, and then the evening finished with a demonstration of loud speaker reception by Mr. E. R. Mawson, per medium of a Pt set and W.E. loud speaker, kindly loaned by Messrs. Harry Wiles, of Goulburn St., Sydney. The club in conjunction with the Institute, is starting a class for instruction in radio with Mr. Armstrong, Assistant Radio Inspector, as instructor, and any member attending will be able to at the end of the course to apply for a transmitting and receiving license. The class starts on Tuesday, 15th July, and is open to all members of the State or Commonwealth Public Service on joining the Postal Institute. Fee, 10/- per annum.

Further particulars may be obtained from Mr. C. C. Jones, Correspondence Section, G.P.O., or Mr. J. F. Nichol, Club Secretary, Telephone Shops, Pier St., Sydney.

STRATHFIELD AND DISTRICT RADIO CLUB.

A very pleasant and instructive evening was conducted by the Club on Tuesday last, the 15th of July, at the Kingsburgh Hall, Strathfield, the programme consisting of a lecture by that well known experimenter Mr. W. L. Hamilton, of the Marrickville Club, suitably illustrated by items from Broadcasters (Sydney) Ltd.

Mr. Hamilton's lecture was most enjoyable, and he outlined the progress of wireless from the very beginning, when the coherer, and magnetic detec-

tors reigned supreme, to the stage of introduction of the first valve. He spoke at length of the various improvements, which paved the way, and made possible the telephony Broadcast and high speed telegraph of to-day an established fact.

At 9 p.m. our old friend, Mr. George Saunders, of Broadcasters Ltd., addressed (per medium of the ether, and 2BL) a few remarks to the large and attentive audience. He advised all who could to join up with the Club, and thus help to further the movement.

Our President, Mr. Jacobs, then made an appeal for new members, with the result that six new members were enrolled.

A vote of thanks was then passed to Mr. W. L. Hamilton, for his interesting lecture, and also to Mr. Kemp for his kind assistance, in attending to the receiving side of the entertainment. This was carried by hearty acclamation, and after suitable responses by Messrs. Hamilton and Kemp, the audience wended its way home.

17th General Meeting.

The 17th general meeting of the club was held at the club room, Albert Rd., on Thursday, July 17th, Mr. Jacobs being in the chair. After the minutes, together with correspondence, and financial report were dealt with, a large amount of general business was brought forward.

A pleasant feature of the evening was the advent of six new members, together with those enrolled at the lecture, making a grand total of 12 new members for the week, which is very gratifying to the officials of the Club.

The Club cannot thank its benefactor, Mr. Powell, Sen., enough for his wonderful assistance. Any improvement or suggestion that is made by the Club is immediately taken up by Mr. Powell.

It is the Club's intention to give a prize at the end of the year for the member who becomes most proficient in the receiving and sending of the Morse code, as it is the aim of the Club to make every member capable of taking and transmitting 20 words a minute.

The masts and aerials are a landmark in the district, and are the envy of all the budding radio fans.

As the membership of this Club is limited to 100 members, it is up to you enthusiasts to get in right now, so come right along any Thursday night to the Club-room, situated at the corner of Albert Road and Duke St., Strathfield, or get in touch with the

Secretary, Mr. M. Wraxall, "Almor," Long St., South Strathfield. Vice-President Mr. J. Rourke, "Moroo," Beresford Rd., Homebush (Phone U 6210) will also attend to enquiries.

SYDNEY HIGH SCHOOL RADIO CLUB.

The usual weekly meeting of the Sydney High School Radio Club took place at the Sydney High School on 15th July, 1924.

A good deal of business was dealt with, and among other things it was decided to lower the entrance fee and monthly subscriptions to the Club.

On Thursday, 17th, Mr. Allsop, of the New System Telephones Ltd., gave a loud speaker demonstration at the school on a four valve regenerative receiver, using one stage of radio amplification, with tuned anode, and reaction on the anode of the high frequency valve. This set, except for the absence of another stage of radio frequency amplification, is similar to the one on which he received London some weeks back.

There was a large attendance of over one hundred, and all appeared to be satisfied with the results, although conditions are adverse to good reception in this area, owing to the proximity of power lines, and the screening effects of the buildings around.

NEW RADIO CLUB.

A radio club has been formed at the Crown Street Depot of the Metropolitan Board of Water Supply and Sewerage. At a meeting held during the lunch hour on July 9th, at which over 50 of those interested were present, the following committee was elected to draw up the constitution.

Mr. E. Leemke (Elec. Branch), Mr. J. Connell (Water Branch), Mr. T. Lerode (Metro. Branch), Mr. H. A. Stowe (Elec. Branch), with Mr. W. Thompson (Water Branch), as secretary.

The meeting was very enthusiastic, and a further one is to be held on Tuesday, 15th, when officers will be elected and the club formally launched.

CONCORD AMATEUR RADIO CLUB.

The usual weekly meeting of the Concord Amateur Radio Club was held at the club room, "Euripides," Wallace Street, Concord, on Thursday, July 17, at 8 p.m., when all business in hand was rapidly discussed and attended to.

The construction of the transmitter being finished, the members discussed a motion put forward by Mr. Wetton that a syllabus for the quarter be in-

Telephone Head Sets.

By F. Thompson

(This article was the subject of a lecture delivered at the Leichhardt and District Radio Club.)

THE origin of the telephone receiver as a means of recording impulses received on a wireless set is easily traced. Before the advent of the telephone receiver into the fields of wireless, recording was accomplished by means of a tape machine operated through a relay, which was energised by means of a coherer or magnetic detector. These methods were found rather cumbersome. The magnetic detector required re-winding frequently, and the coherer required too much attention.

Neither of these rectifiers was capable of recording at a high speed; also they were inefficient on long distance work. The next type of rectifier that was placed in use commercially was the crystal detector. This detector, it was found, would not satisfactorily operate the tape machines, so the telephone receiver as used on the ordinary telephone was placed in use. Of course these telephones were rather crude, being of low resistance and not nearly as sensitive as the type in general use now.

Up to the present day telephones have not been replaced by any superior recording device, excepting in the case of the high powered continental stations, where the speed used requires other types of recording. Telephones as used to-day are practically of the same design, all operating on the same basic principle; the only departure being in the case of super-sensitive instruments such as the Brown and the Baldwin types of receiver. These types are constructed with a metal reed (such as used on a buzzer) placed in the field of the telephone magnet coil, these being connected to an amplifying diaphragm by means of a metal pin. For every slight variation of the position of the reed the diaphragm is caused to vibrate.

This type has been found by actual test to be superior to the usual type of telephone with the flat diaphragm. The main changes in the construction of the telephone during the past ten or fifteen years have been in connection with the resistance. In years gone by the resistance used

was mainly from 60 to 120 ohms. It was found that by using this resistance there were insufficient turns of wire on the coil. By increasing the resistance of the telephones and using much finer wire it was found that there was no difficulty in placing from 2000 to 10,000 turns of wire on the bobbins of the telephone. By having this large number of turns weak signals created enough magnetic flux to operate the diaphragm.

The resistance of a telephone as is usually marked on the back of the ear piece is no indication of the sensitivity of the instrument. It merely gives one an indication of the number of turns on the coil. Of course resistance could be easily obtained by winding the coils with Eureka resistance wire or by placing a high resistance in series with the telephones in the circuit. Another point in the receiver that has been developed in the past few years is the field magnets usually placed around the inside of the receiver case. It will be readily understood that the energy rectified in a receiving set, especially in the crystal type is very minute, and is practically incapable of operating the diaphragm of the headpiece.

A magnet, which is strengthened according to the resistance of the phones, is placed in close proximity to the diaphragm, this has the tendency of placing the diaphragm under a heavy magnetic strain. When the impulses from the crystal or valve pass through the coils, they throw out a magnetic flux which causes a fluctuation in the fixed field of the telephone, thus causing the diaphragm to emit a buzz which corresponds in frequency to the note of the transmitter. It would not be out of place here to say a word or two on loud speakers. The majority of loud speakers are merely enlarged examples of a single telephone ear piece, with a specially designed sound box or horn placed over the aperture in the cap. The resistance is usually 2000 ohms, and the correct degree of taper of the horn should be about 12 degrees at the throat for about

half the length of the horn, and then gradually opening out to about 45 degrees at the mouth. In cases where loud speakers are used on a great number of valves it is always advisable to place a telephone transformer in between the set and the instrument. This also applies to telephone head sets. Another improvement is the introduction of a telephone condenser across the terminals of the ear phones. This has the property of smoothing out the impulses by storing them and re-discharging them at a slightly higher pressure.

STATIONS HEARD.

Lawrence E. Deane, "Boinbah," Havilah Rd., Lindfield, using one detector valve only, has logged the stations mentioned below. His aerial, 35 ft high and 125 ft. long, is badly sheltered in a valley:—

FONE—

N.S.W.: 2GQ, 2HM, 2CR, Wagga Wireless supplies.

Vic.: 3BU, 3XF, 3RY.

S.A.: 5LO, 5WJ.

C.W.—

N.S.W.: 2GQ, 2HM, 2CR, 2YA.

Vic.: 3BD, 3BF, 3BH, 3BL, 3BM, 3BQ, 3BU, 3DB, 3JH, 3LM, 3LS, 3RY, 3XF, 3XO, 3HL, 3OT.

S.A.: 5AD, 5DO, 5LO, 5WJ.

Tas.: 7AA, 7BK.

N.Z.: 4AA, 4AP.

All 2nd district country stations can be heard on 10 ft. of No. 28 enamelled copper wire strung across operating room.

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New or Second-hand,

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HOWELL'S

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OPEN TILL 9.30 FRIDAY NIGHT

HAVE YOU A HOME ASSEMBLY SET? SEE PAGE 3.

Wireless Demonstration at the Dill Macky Homes, Strathfield.

With the special permission of the Chief Manager of Telegraphs and Wireless, and Messrs Farmer & Co., having kindly granted the free use of their service; the children at the Dill Macky Homes, Strathfield, were given a treat last Saturday by hearing the Bedtime Stories and part of the evening programme of 2FC.

There were 61 children in the room beside those who were entertaining them, and much excitement was shown when "Uncle" at 2FC called them; they paid great attention to all he said and thoroughly enjoyed everything.



Set used at demonstration.

The set used (shown in the photograph) was an experimental three valve belonging to C. Mognie and a two valve power amplifier, with loud speaker, kindly lent for the occasion by the Western Electric Co.

This wonderful little piece of apparatus gave a very clear and powerful reproduction, working all the time at minimum with two valves of the tuning set plugged in and the coils touching the panel each side.

The results achieved with this amplifier were so satisfactory that it can be recommended with confidence to anyone who may have occasion to require one.

OUR SPECIAL LINE

PEERLESS Head Phones

2000 Ohms.

32/6



"REFLEX" Loose Coupler Receiver £3-15-0



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

Postage 1/6

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Three Valve Signal Set For Suitable Slogan

Example: "CULLEN CAN COMPETE"

Each entry from city or suburban readers to be accompanied by one of my cash dockets for any value. Country readers — no restriction whatsoever; post them in. Envelopes to be endorsed "Competition." The decision of the Editor of this Journal to be final. Entries close on August 22nd. Results in "Wireless Weekly," August 29th.

E. R. CULLEN

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"RAMSAY" CRYSTAL RECEIVER LOOSE COUPLER

COMPLETE, READY TO ASSEMBLE - £2 2s.

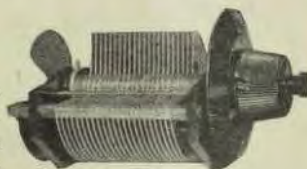
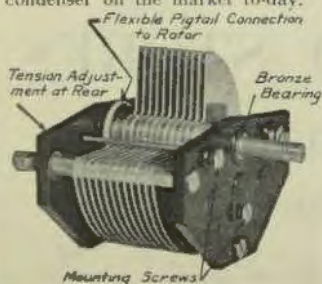
Consisting of Bakelite Detector Panel; N.P. Crystal Detector; Primary Tube Wound; Secondary to be Wound and Tapped; Maple Baseboard; Set of Maple Wood Ends; N.P. Sliding Contact; 8 Contact Studs; 2 Stops; N.P. Radial Switch; 2 N.P. Runner Rods; Runner Rod, support block; Q.S.A. Crystal; 4 N.P. Terminals; Phone Condensers.

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K. & C.

Your aerial receives too little energy to justify you in wasting any of it in high-resistance, sliding contacts in your condensers. Insist on pig-tailed connections, and avoid the noise and waste in frictional contacts. K and C is the best low-loss condenser on the market to-day.



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NEW RADIO STORE

VARIABLE CONDENSERS

From 16/-

TRANSFORMERS

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| Igranic | 35/- |
| Jefferson Star | 26/6 |
| Jefferson 41 | 32/6 |
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| All American | 35/- |
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| M.S.T. | 35/- |
| Trimm's | 32/6 |
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CRYSTAL SET PARTS.

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| Cardboard Tubes | 6d. |
| Tube Ends, Small | 4 1/2d. |
| Tube Ends, Large | 9d. |
| Sliders and Rods | 2/6 |
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| Wire, from | 1/9 |
| Detectors, from | 3/- |
| Crystals, from | 6d. |
| Insulators, | 3d. |
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| Honeycomb, from | 2/6 |
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Bakelite cut and drilled to order.

FREE ADVICE ON BUILDING YOUR SET.

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sured.

The motion was carried unanimously, and the following syllabus was agreed upon by all present.

This syllabus will commence on August 7—

- 1st Week: Circuit Night.
 - 2nd Week: Lecture, "Club Administration," by J. V. Stephenson.
 - 3rd Week: Competition Paper on above.
 - 4th Week: Lecture, "Aerial and Mast Construction," by W. H. Barker.
 - 5th Week: Lecture, "Thermionic Valve Operation."
 - 6th Week: Buzzer Night.
 - 7th Week: Lecture, "Electronic Theory," by E. Wetton.
 - 8th Week: Circuit Night.
 - 9th Week: Lecture.
 - 10th Week: Competition Paper on above.
 - 11th Week: Questions and Answers Night.
 - 12th Week: Construction Night.
 - 13th Week: Sale and Exchange Night.
- A social to be held during the quarter.

Questions and answers period was then proceeded with.

At 10.15 p.m. the club adjourned. This club will be transmitting as soon as possible, and its times of trans-

missions will be as follow:—Tuesday, 10-11 p.m.; Thursday, 10-11 p.m.; Sunday, 10.30-12.30 a.m. Anyone hearing these tests is requested to get in touch with the Secretary.

Persons interested in the activities of this club are invited to communicate with the Hon. Secretary, W. H. Barker, "Euripedes," Wallace Street, Concord, who will be pleased to supply any information required.

PICTURE PUZZLE COMPETITION.

The final entries in the Picture Puzzle Competition in "Wireless Weekly," June 20th, have now been received. The results will be announced next week.

The young man sidled into the jeweller's shop with a furtive air. He handed the jeweller a ring with the stammered statement that he wished it marked "with some names."

"What names do wish?" inquired the jeweller in a sympathetic tone.

"From Henry to Clara," the young man blushingly whispered.

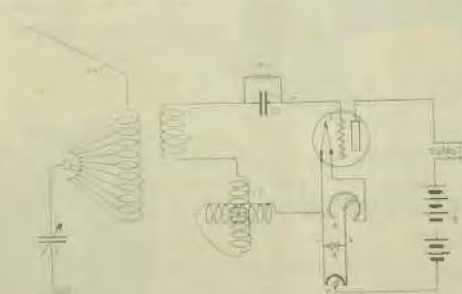
The jeweller looked from the ring to the young man and said in a fatherly manner, "Take my advice, young man, and have it engraved simply, 'From Henry.'"—"Argonaut."

**U.S.A. AGENCIES
TO WHOLESALERS**

Advertiser arriving in New Zealand on August 14th, represents several of America's leading Radio Manufacturers, and wishes to appoint agents to distribute such lines for the entire territory of New Zealand. Those interested please write to—

"REPRESENTATIVE,"
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33 Regent St., Sydney.

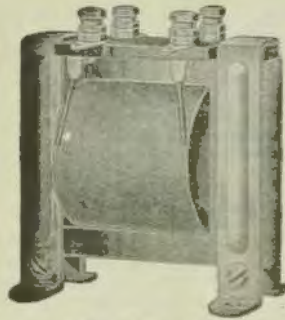
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A NON-REGENERATIVE RECEIVER**



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- SL. ROTARY SWITCH R225.
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THESE PARTS AND ALL RADIO SUPPLIES OBTAINABLE FROM

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"No. 41" JEFFERSON
AMPLIFYING TRANSFORMER

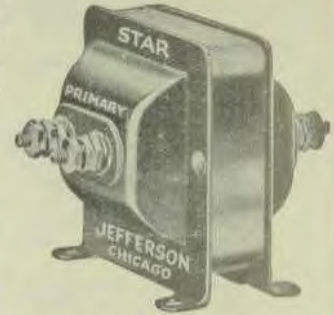
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- 1st.
A Jefferson is scientifically designed.
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The windings are carefully calculated to produce 100 per cent. amplification—they are not built up to a ratio.
- 3rd.
The Jefferson line embraces a variety of amplifiers to meet every demand—six Audio and two Radio Frequency types.
- 4th.
As pioneer transformer manufacturers, Jefferson Engineers designed audio amplifiers long before Radio reached its present popularity. You will appreciate Jefferson's extra years of experience.

**The Vital Spot
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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 the characteristics demanded of transformers, and they are the qualities which have made JEFFERSON TRANSFORMERS the most popular among experimenters!



Introducing Jefferson "STAR"
AMPLIFYING TRANSFORMER



What's Inside

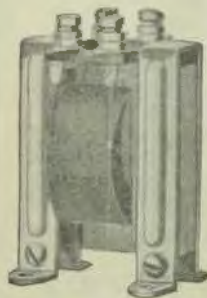
THE most important thing to know about an amplifier is "What's Inside." Obviously there is little vital difference. However there's all the difference in the world—the difference between cheap, mellow reception and pure reception full of sparks and squawks.
Many radioists unconsciously put the "works and squawks" into their set through the use of improper transformers. They have yet to learn that "BATIO" means absolutely nothing—that 10 to 1, 8 to 1, etc., do not equal maximum amplification.

**Buy an
Amplifier**

For what it will do—
The Service it will render—
The tone and volume it will produce—

Results Count!

You introduce 100 per cent scientific efficiency into your set when you instal



"No. 45" JEFFERSON
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World's Leading Transformers
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DeVeau Gold Seal Radio Head Set Cat. No. 843.



Framingham Inductance Switch.



Framingham Series Parallel Switch.



Framingham Vernier Rheostat.



DeVeau Two-Circuit Radio Jack Cat. No. 25.



Framingham "All Tube" Universal Rheostat.

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Complete Stocks of all Radio Goods.

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BRISBANE AGENTS: WIRELESS HOUSE, ADELAIDE STREET, BRISBANE.

A traveller in Indiana noticed that a farmer was having trouble with his horse. It would start, go slowly for a short distance, and then stop again. Thereupon the farmer would have great difficulty in getting it started. Finally the traveller approached and asked, solicitously:

"Is your horse sick?"

"Not as I know of."

"Is he balky?"

"No. But he's so danged 'traid I'll say whoa and he won't hear me, that he stops every once in a while to listen."—"Disston Crucible."

The witness had just been severely reprimanded by the court for having called the officer a jackass.

"You mean to say that it is a misdemeanor to call a policeman a jackass?" asked the witness.

"It certainly is," was the answer.

"Is it any harm to call a jackass a policeman?" queried the witness again.

"None whatever," smiled the judge.

As the witness left, he turned and said to the policeman, "Good-bye, policeman!"—"Yale Panel."

W.D. 12 VALVE.



W.D. 12. The W.D. 12 operates with 1.5 volts, on the filament with current consumption of only 25 amps. The special oxide coated filament gives a high electron emission at low filament temperature. A single 1.5 volt dry cell may thus be used for filament heating, and these valves are noted for their economical operation, uniform performance, and long life.

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"She don't say."—"Life."

"Your new partner's a terrible dancer, Dot."

"I know; but, oh, boy, how he can sit out!"—"Judge."

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