

# THE BOYS' WIRELESS NEWS

Vol. I.—No. 7.

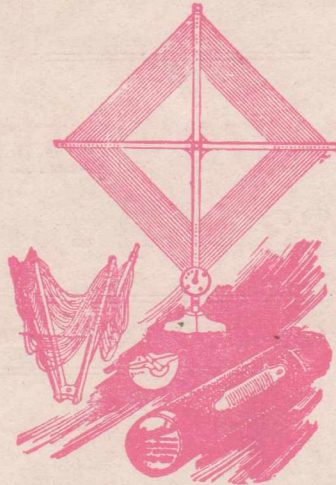
SYDNEY: SATURDAY, NOV. 22, 1924.



## The LINCOLN FOLDING LOOP AERIAL

The Ideal  
Loop for  
use with  
Super-  
Hetrodynes

At all Good  
Stores



Reflex and  
Radio  
Frequency  
Receivers

PRICE  
50/-

P. H. CLARK LTD. 38-44 Carrington St., SYDNEY  
Box 914 G.P.O. Wholesale Only Phone: City 8469

PRICE

Published Every Saturday

1<sup>p</sup>

# Radioelectric

## Detector Unit 22/6

Converts your Loose Coupler to a Regenerative Valve Receiver.

## Single Valve Amplifier Units £2 - 10 - 0

## Two Valve Amplifier £3 - 15 - 0

*Write for Price List of Complete Receivers and Accessories.*

# RADIOELECTRIC

Wireless Engineers

Wireless Supplies

10 Martin Place (Opp. G.P.O) SYDNEY

Tel.: B. 2666

# De Forest

The man who invented Broadcasting

## De Forest Valves



D.V. 3  
D.V. 2  
DE FOREST VALVES

D.V. 2—5 Volts at  $\frac{1}{4}$  amp  
Filament .. .. 30s. each

D.V. 3—3 Volts at .06  
amp Filament 30s. each

Both Types fit American Standard Sockets

## RADION

THE SUPREME INSULATION  
FOR RADIO PANELS

*Demand Radion*—High-grade Knobs and Dials, Knobs, Valve Sockets and Panels. Above goods are sold by all Radio Dealers

Ask your Dealer to show you these Goods.

WHOLESALE ONLY

## INTERNATIONAL RADIO Co. Ltd.

200 CASTLEREAGH STREET, SYDNEY, N.S.W.

Phone: MA 1387

Vol. 1; No. 7

The Boys' Wireless News

Saturday, Nov. 22, 1924

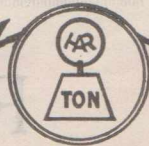
## CONTENTS

### OF THIS NUMBER

Editorial: "Let us Talk it over" ...	5	Competition ... ..	21
The A.B.C. of Magnetism and Electricity ...	7	How an Aerial Night Mail is Guided—2. ...	23
Honeycomb Coils: How to Make and Wind Them ... ..	9	Our Inquiry Corner ... ..	32
Honeycomb Coil Tables ... ..	12	A New Binding Post ... ..	27
Making Condensers ... ..	15	A Great Pioneer ... ..	27
The Adventures of the Glory Boys: 7—The Adventures of the Vanishing Message ... ..	16	The Skinderviken Button ... ..	29
This is where we blush ... ..	20	Results of Fourth Weekly Competition ...	30
		Story of the Telephone ... ..	33
		Our Weekly Chat ... ..	34
		Radiumorous ... ..	34

**ADVERTISERS PLEASE NOTE**—All Copy or changes must be in the hands of the Manager not later than Wednesday of the week preceding the week of Issue.

**CORRESPONDENCE**—All Business Communications should be addressed to the Manager, "The Boys' Wireless News," 304 Ken Street, Sydney. Editorial Communications should be addressed to the Editor. Our Phone number is **B 5729**.



## Don't Buy Radio Parts!

Until You Visit **OUR** Radio Store

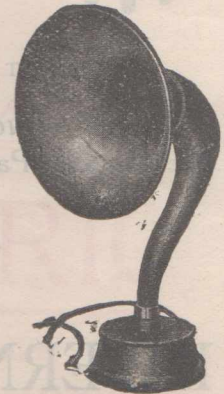
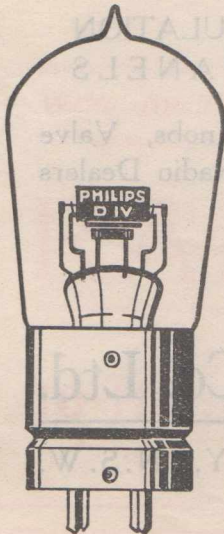
- PHILIPS VALVES ... .. **18/6**
- MELLO PHONES 4000 ohms. ... **25/-**
- STERLING SPEAKERS ... .. **57/6**

ALL GILFILLAN RADIO PARTS  
CRYSTAL SETS and AMPLIFIERS  
MARCO RADIO PRODUCTS  
"IMPERIA" VALVE SETS

CALL OR WRITE TO

# Harringtons <sup>LD</sup>

**386 GEORGE STREET, SYDNEY**



KATOOMBA : Katoomba St.  
MELBOURNE : 266 Collins St.  
BRISBANE : 93 Queen Street  
ADELAIDE : 10 Rundle Street  
WELLINGTON, N.Z.  
AUCKLAND, N.Z.

# The Boys' Wireless News

Vol. 1—No. 7

SATURDAY, NOVEMBER 22nd, 1924

## *“Let us Talk It Over—”*

A Few Words from the Editor's Chair.

THE chief charm of wireless to boys lies in the fact that one never comes to the end of its interest. If we have made a crystal set, we are continually experimenting with it, adding improvements and trying new circuits and new accessories. If we then consider we have exhausted the interest of the crystal set, we turn to the valve set.

The amateur first tries his hand at a simple one-valve set. Inspired by this, he determines “to go in for” a multi-valve set. He then tries out on this all the new circuits he can hear of, adds to his amplification, tries a loud speaker, improves his circuit in all sorts of ways from the aerial to the ground. If he is still satisfied that worlds remain for him to conquer, he will tackle some of the more elaborate refinements—he may hope to solve the still vexed problem of eliminating static. Or he may experiment with directional aerials or indoor aerials or “ground” aerials. The field is endless. No one alive can say that he knows all there is to know about wireless. Possibly no one ever will be able to say that. And this is its charm. It is the sense that there is so much still undiscovered that lures many of us on.

Quite a large number of boys have even tried their hands at constructing transmitting sets—and have succeeded, in some cases, quite as well as the experts. There is no reason why they should not, of course, except for the mere lack of experience that is the penalty of being young. But wireless has taught us that there are boys who have even managed to overcome lack of experience—which seems to me to be “one in the eye” for their elders. Few fathers can now say: “When I was your age . . .” We all know the rest. If they try to “come that over us” we can always introduce a few judicious remarks about that multi-valve set we constructed.

THE EDITOR.

# Wireless Experimenters

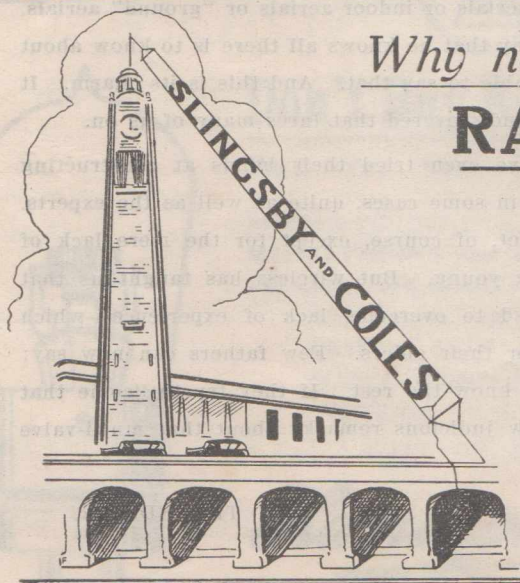
*Large Stocks of Parts now on Hand*

**N. P. OLSEN**

*The Recognised Radio House of the North*

18-22 Hunter Street, Newcastle

## Under the Railway Clock Tower



*Why not make this a Real*

## RADIO XMAS

Give Radio Goods to Your Friends—they will appreciate your thought.

For One Week Only we are holding a **Special 10% Sale**. So come where the Best Value is to be obtained for your Money.

**482 Pitt Street :: 1 York Street**

(Retail)

(Wholesale)

# The A.B.C. of Magnetism and Electricity

A Series of Articles, explaining in Clear Language What We Know About Electricity and Magnetism  
with Special Reference to Wireless

By L. E. Merton

## V.: ELECTRICITY.

WE have now an understanding of the magnet, and know something about its more important properties. We have discussed shortly what is meant by an electro-magnet. The next step in our investigation will be a consideration of what is meant by electricity.

Everybody knows what "matter" is. The whole visible universe, the air around us, the stars, the sea—these things are all forms of matter. Scientists have investigated this "matter" and have found that it may be reduced to a number of different substances—about eighty of them—called "elements." All substances are made up of combinations of these elements.

Gold, silver, copper, oxygen, nitrogen, zinc, carbon, phosphorus, sulphur, potassium and chlorine are examples of elements. That is, they are substances which cannot be separated by any means into substances simpler than themselves, of which they are made up. Water is not an element; it is a "compound" made up of two elements, hydrogen and oxygen. Now, if we were to take an element, say, gold, and break it up until we had the smallest particle of it that we could possibly get, that particle would be called an "atom" of gold. An atom is the smallest possible quantity of any element, which keeps the properties of that element. Thus an atom of gold is the smallest possible quantity that has the hardness, metallic shine, colour, and chemical properties of gold. If we obtained a smaller quantity of this element and it had lost those properties, it would not be gold. It would be something else.

So we see that all matters consists of elements, and all elements are made up of atoms. Now, although atoms cannot be divided into anything smaller and remain atoms, yet they may be divided into "things" smaller than themselves—at least in our heads, for they are far too small to be seen with the most powerful microscope. Atoms can be divided into something smaller, but the things of which they are made up are no longer like the atoms. They are what is called "electrons," and the electrons that make up an atom of gold, for instance, are not in the least like gold. It is only when a certain number of electrons are

arranged together that they give the impression of being gold. As electrons they are just like all the other electrons in the world. If a certain number of electrons are associated together they form an atom of gold; a different number of electrons will form an atom of silver, a different number an atom of hydrogen, and so on. It is simply the number and arrangement of the electrons that make up different atoms, and therefore different elements, and therefore different substances. The whole material universe, the heavens, the earth, the sea, plants, animals, ourselves, are all, at bottom, made up of electrons.

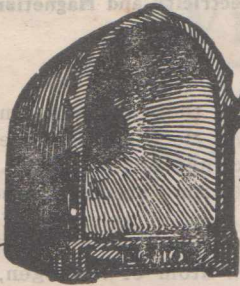
Now the atom, as we have seen, is so small that no one has ever seen one. But the electron is very much smaller still. Someone has compared the size of an electron, compared to that of an atom, as a fly compared to a cathedral. That is quite accurate. An atom, small as it is, is many millions of times bigger than an electron. An atom only has a comparatively small number of electrons in it, and these are continually circling round and round at incredible speed. In fact an atom, if we could see it, would appear very much like our solar system—the sun, with planets circling round it—all, of course, on a very tiny scale.

There are "vast" spaces in the atom, therefore (there are also vast spaces between the atoms themselves)—that is to say, vast spaces compared to the electrons. The spaces are quite as big as the spaces in our solar system. It is just as far between two electrons in an atom, taking their sizes into consideration, as it is from the earth to the sun. So that it would not be far from the truth to say that most substances were mostly space!

Now a great many of these electrons get loose from atoms and just lie about waiting for something to happen. When "something" happens to them they rush violently along the easiest path—and that is what we call an electric current. An electric current is the swift passage of large numbers of "free" electrons along a path which they can easily travel. How they are "pushed" or "pulled" we shall see in our next article.

(To be continued.)

# Loud Speakers



Choose one of these!

Improve the quality of your reception. Here are provided the means of doing so and of giving every member of the family the opportunity of hearing radio at its best.

**THE MUSIC MASTER**—The De Luxe Loud Speaker, gives to radio life and beauty. It is not just a loud speaker, but a true speaker, a clear speaker, a pleasing musical instrument. It has an amplifying bell of natural, resonant wood. As illustrated on the right . . . . . £12

If you require a really good Loud Speaker at a cheaper price—why not one of these?

**ATLAS LOUD SPEAKER**—"The Musician of the Air," scientifically designed to compensate for any shortcomings of broadcasting. It eliminates distortion or howl . . . . . £7/10/-

**SIGNAL LOUD SPEAKER** — As shown above, a quaintly shaped Speaker of unique merit. Strong and sweet . . . . . £4/15/-

**BRANDES' TABLE TALKER**—"Known the World Over," a Loud Speaker of excellence . . . . . £4/15/-

*All Radio Dealers can supply you!*



THE MUSIC MASTER

## United Distributors Limited

(Wholesale Only)

72 CLARENCE STREET, SYDNEY

592 BOURKE STREET, MELBOURNE

And at Brisbane, Perth, Adelaide, Hobart and Wellington



# Honeycomb Coils

*How to Make and Wind Them*

**E**FFICIENT tuning coils of the basket type can be wound by amateur wireless experimenters in quite a simple manner which will

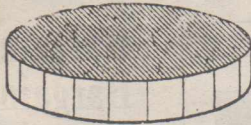


Fig. 1.—Wooden Disc.

be found equally useful for spark, continuous wave, or telephonic reception in the following manner. Practically the only expense involved is the initial cost of the wire and a small quantity of white shellac varnish.

**The Former.**—The necessary former for winding these coils on can be made up by first securing a wooden cylindrical disc measuring

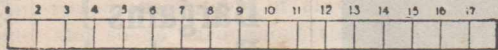


Fig. 2.—Divided Paper Strip.

about 2 inch in diameter, and 7-8 inch wide, as shown by Fig. 1. This disc must be divided and marked off into seventeen equal parts round the periphery. The best method of doing this

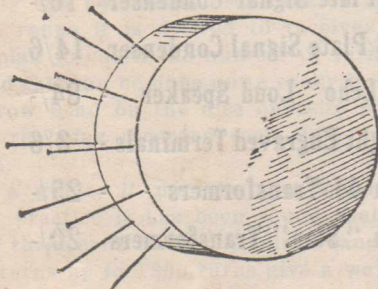


Fig. 3.—Pins Inserted into Disc.

is to cut a strip of paper the same width as the edge and just sufficiently long to go round the circumference of the disc. The paper strip

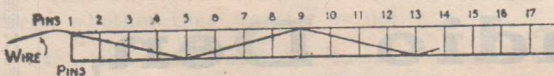


Fig. 4.—Method of Winding.

can then be marked off into seventeen equal parts quite easily whilst flat (see Fig. 2) and then be gummed on to the edge of the disc.

Next procure thirty-four ordinary pins and press two into each division opposite to each other (see Fig. 3).

**Winding.**—All that is now necessary is to wind on the wire. No. 32 gauge double or single-silk-covered copper wire is suitable. Of

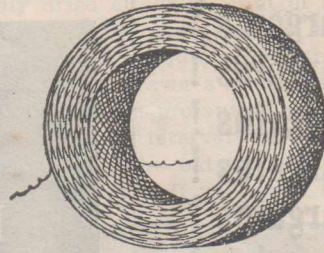


Fig. 5.—Finished Coil wound by method explained in this article.

course, a larger gauge wire can be used, but where space is to be considered the smaller gauge is preferable.

To wind the coil, take the bobbin containing the wire and place it upon a suitable support, so that when the wire is pulled it will unwind

## W. AYLING

### for your Valve Sets

- 1 Valve P.I. - £6/15/-
- 3 Valves P.I. - £16/-/-
- 4 Valves - - £23/-/-

Best Components Used

**5% Discount on Cash Sales**

1st Floor

**119 KING STREET**  
(Opposite Proud's)

# RADIO

Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !

**PRICE'S**  
 WONDERFUL  
**Radio Prices**  
 220 OXFORD ST.  
 WOOLLAHRA  
 Wav. 451

Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !  
 Bargains !

Brandes Phones 4,000 ohm - 30/-  
 Murdock 2,000 ohm Phones - 22/6  
 Murdock 3,000 ohm Phones - 25/-  
 Mel-low 4,000 ohm Phones - 22/6  
 Frost 2,000 ohm Phones - 30/-  
 U.V.201a. Radiotron Socket 30/-

001 43 Plate Signal Condenser 16/-  
 0005 23 Plate Signal Condenser 14/6  
 Signal "Echo" Loud Speaker - 84/-  
 Set of Eight Engraved Terminals - 3/6  
 Jefferson 41 Transformers - 25/-  
 Jefferson "Star" Transformers 20/-

PRICE leads the way for Cheaper Radio — the City  
 will follow, you watch. Purchase parts from  
**PRICE REDUCER PRICE**

## Price's Radio Den,

220 Oxford Street, Woollahra. 170 New South Head Road, Double Bay  
 'Phone: Wav. 451.

quite readily. Now take the former in the left hand, the wire in the right hand, and after leaving a sufficient length from the end, say 10in., commence to wind it on as shown dia-

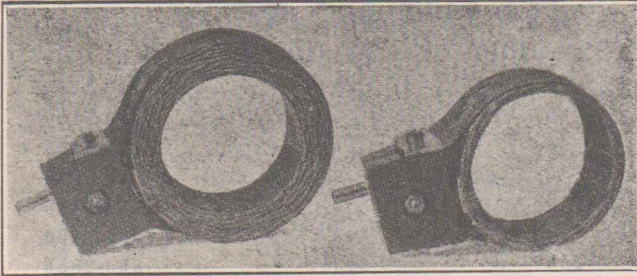


Fig. 6.—Mounted Honeycomb Coils.

grammatically by Fig. 4; that is, commencing with pin No. 1 pass round on the outside, then to the inside across to pin No. 5 on opposite side, round the outside of pin No. 5, then to the inside across to pin No. 9 on the opposite side, round the outside of pin No. 9 to the inside, and so on throughout the whole winding of the coil, going forward to the fifth pin ahead each time on each side alternately. The first layer should lie flush against the edge of the disc. If the pins are numbered the operation will be facilitated.

By this means a coil of any size up to about 1in. in width and of comparatively low self-capacity can be wound, according to the wave-length range it is desired to receive. It is a good plan to count the number of turns wound on, and this can be done quite easily by marking an arrow head on the disc opposite pin No. 1, one turn being recorded each time this pin is passed.

As a guide, it may be mentioned that in actual practice it has been found that a number of these coils having windings ranging from forty turns up to 1200 turns give a wave-length range of from 300 to 25,000 metres with a suitable aerial tuning condenser in the circuit.

**L**OOK after your accumulators. Don't "drain" them utterly. Have them charged regularly, whether they want it or not.

Use clean rain water for them if you can't get distilled water. Don't add acid to water. It's bad for your health.

A wireless receiver has been installed in the leper colony at Cabras Island in South America.

When the desired number of turns has been wound on the former the free end of the wire should be temporarily twisted round the last pin and cut after leaving, say, 10in. spare. A small quantity of shellac varnish should then be poured into a flat tin and the whole coil and former laid into it for a few seconds to allow the varnish to soak in. The coil should then be removed and suspended by the wire for a few minutes to drain, after which it must be thoroughly dried either in front of a fire or in a moderately heated oven. When dry the wire will be found to be quite rigid and the pins can be easily withdrawn and the coil removed from the disc. As a precaution, it is advisable to bind the coil at intervals of 1in. with fine thread to prevent the outside ends from slipping. The finished coil will have the appear-

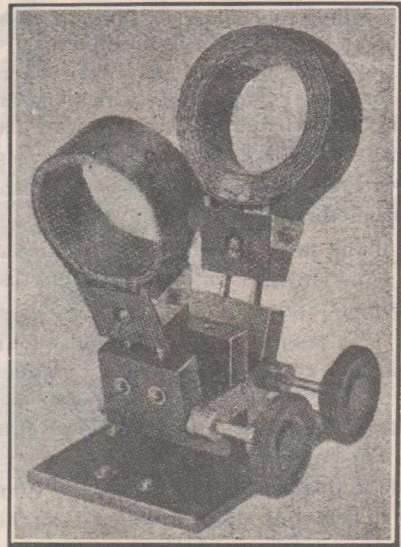


Fig. 7.—Honeycomb Coils in Use as Tuner.

ance shown by Figs. 5 to 7. If desired, the two 10in. ends can be taken to suitable plugs or studs of a tuning switch to facilitate the insertion of the coil in the receiving circuit.

French amateurs besides having to pay an annual tax of ten francs, have to comply with more than seventy State regulations. But we wouldn't mind complying with a few regulations for a tax as low as that, would we?

A professor declares that special schools of training are necessary for singers who wish to be broadcasted, so as to produce the best results.

# Honeycomb Coil Tables

**T**HE honeycomb coil marks a distinct advance in the design of tuning inductances. It is exceedingly compact and portable, and the losses are lower than in any other type, as the manner in which it is wound reduces the distributed capacitance to a minimum. No other kind of inductance will cover the whole range of wave lengths so effectively. Some experimenters still adhere to the opinion that the vario-coupler, variometer style of inductance is best for short wave-lengths, say, from 200 to 500 or 600 metres, but, taken all round, the honeycomb coil has its advantages for short as well as long wave-lengths.

The usual regenerative circuit has three honeycomb coils, primary, secondary and tickler, and they are mounted in that order on a stand or panel mounting, which permits the primary and tickler to swing away from the secondary to a maximum of a 45 degrees angle. They can also be used in a two-coil circuit, or as variometers, and as choke coils.

From the table given below the amateur can select coils suitable for the wave-lengths which he desires to cover.

For best results the tickler coil should have from 35 per cent. to 75 per cent. of the inductance of the secondary coil. The primary and secondary coils may have the same number of turns, but the condenser in the primary circuit should be furnished with a switch to place it either in series or shunt in order that the wave-length may be lowered if necessary.

In another articles in this issue particulars are given of a simple method of winding honeycomb coils. The size of wire used may vary from 24 gauge S.C.C. copper wire to 32 S.S.C. wire. **Coils of from 25 turns to 150 turns** No. 24 wire is suitable. From 200 to 500, No. 25 wire, and from 600 to 1500 turns, No. 28 or No. 32. Many prefer to use cotton covered wire for all sizes of coils.

In the following table, with an average aerial, the wave-length of the various coils is based on the assumption that the condenser in the primary circuit will be one of .001 mfd capacity, and that of the secondary circuit .0005 mfd.

## SIZES OF COILS AND WAVE-LENGTHS.

No. of turns	Millihenries inductance	Wave-l'gth. in metres
25	.040	170-375
35	.075	200-515
50	.15	240-730
75	.3	330-1030
100	.6	450-1460
150	1.3	660-2200
200	2.3	860-2850
250	4.5	1120-4000
300	6.5	1340-4800
400	11.	1860-6300
500	20.	2340-8500
600	40.	2940-12000
750	65.	3100-15000
1000	100.	5700-19000
1250	175.	7200-25000

## COMBINATIONS OF COILS FOR VARIOUS WAVE-LENGTHS.

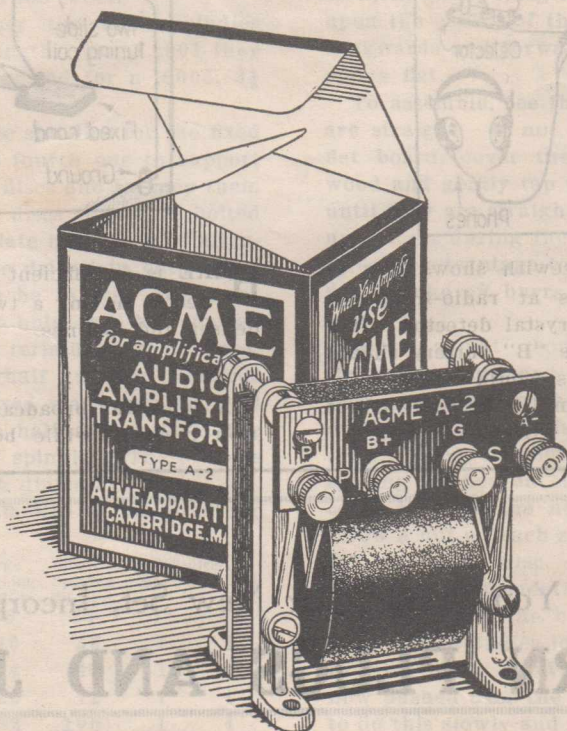
Wave-lengths	Number of turns of coils for—		
	Primary	Secondary	Tickler
140-240	25	25	35
550-700	75	100	50 or 75
900-1400	100	150	75 or 100
1650-2750	300	300	100
8000-15000	600	750	300-400 or 500
10000-20000	1000	1250	300-400 or 500
18000-25000	1250	1500	400-500 or 600

An alternative table of coil combinations is as follows:—

Wave-lengths	Number of turns of coils for—		
	Primary	Secondary	Tickler
145-350	35	25	35
305-710	75	50	35
635-1660	150	100	75
854-1970	200	150	100
1420-2850	300	250	150
2550-4250	500	300	200
4200-6300	500	300	200
6250-14500	1250	1000	400
13600-21000	1500	1250	500

From the above particulars the experimenter may devise numerous circuits for either the two-coil or three-coil mounting.

# ASK YOUR NEIGHBOR —HE KNOWS!



**ACME A-2  
for volume**

**AT ALL  
GOOD  
STORES**

**Price  
35/-**

ACME transformers are used by thousands of radio owners to get increased range and louder, clearer radio. ACME transformers give maximum amplification without distortion. Each transformer is tested and carries a guarantee tag. The name ACME is a guarantee of best results.

USE ACME TRANSFORMERS IN THE SET YOU BUILD.

LOOK FOR THEM IN THE SET YOU BUY.

## P. H. CLARK LTD.

*(Wholesale Only)*

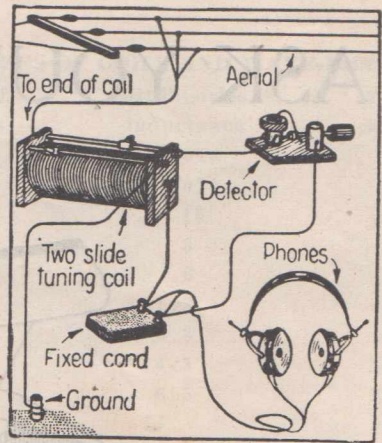
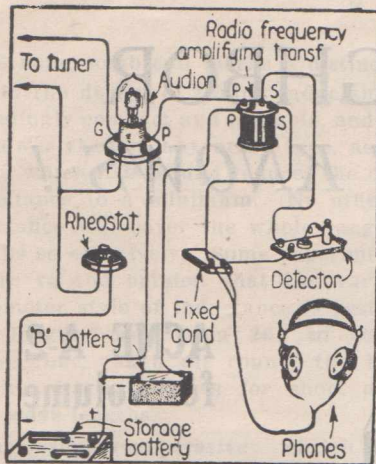
**38-44 Carrington Street, Sydney**

**Phone: City 8469**

**Box 914 G.P.O.**

**A RADIO-FREQUENCY AND CRYSTAL COMBINATION.**

**AN EFFICIENT TWO-SLIDE TUNER CIRCUIT**



THE circuit diagram herewith shows how to amplify radio signals at radio-frequency and detect them with a crystal detector. If a detector valve is used, the "B" battery should be of the same voltage as would be used for the valve detector, if an amplifying valve is put in circuit, 45 to 80 volts will be correct.

HERE is an efficient circuit for a crystal detector having a two-slide tuner, fixed condenser and 'phones.

A song was broadcasted from a London station recently while being sung in Esperanto.

When You Build Your New Set, Incorporate  
**SATURN PLUGS AND JACKS**

ALL Radio Enthusiasts expect the very best from their sets, but do they always pay attention to every detail? Now in the modern set a jack is a necessity, and SATURN JACKS stand supreme. Ask your dealer to show these lines and demonstrate them.

Obtainable from any Radio Dealer or the  
**WELBY RADIO COMPANY**

(Wholesale Only)

Sole Agents and Direct Importers.

13 ROYAL ARCADE, SYDNEY.

# Making Condensers

## II

The spindles for the fixed plates in all sizes of condensers are screwed for the whole length; one cannot conceive why. They should be screwed three-quarters of an inch at each end only.

As to the length of the fixed plate spindles, some trouble is experienced in this connection, as they are often supplied too short.

For a .0015 condenser the fixed spindles should be  $5\frac{1}{2}$  inches in length. For a .001 they should be  $4\frac{1}{4}$  inches long, and for a .0005,  $3\frac{1}{4}$  inches.

In addition to the three spindles for the fixed plates there should be a fourth one to support the opposite sides of the discs and to keep them rigid and true. The two discs should be bolted together with the fixed plate holes in true alignment and the fourth hole drilled in both discs, simultaneously, so as to be in true alignment also. In the top disc two holes will be required to allow the connecting terminals to be fixed. One of these should be half an inch outwards from one of the outer fixed plate spindles, and the other one should be half an inch from the fourth or strengthening spindle. These holes should be one-eighth inch diameter.

The following materials will be required for the various sizes:—

Size of Condenser.	Fixed Moving		Large Spacing Washers.	Small Spacing Washers.	Spindles.	
	Plates.	Plates.			Moving.	Fixed.
.00015	5	4	6	24	1	4
.0003	9	8	10	36	1	4
.0005	13	12	14	45	1	4
.001	22	21	22	72	1	4
.0015	30	29	32	100	1	4

And two 4in. x  $\frac{1}{4}$ in. ebonite discs in each case.

One or two extra large and small washers or spacers have been allowed in all cases, for the purpose of top and bottom connections.

The tools required will be a small pair of pliers, of the cutting variety for preference, a three-inch "ward" file, a six-inch fine file with one side half-round, a screwdriver, a soldering iron, solder, and a tin of "Fluxite." As these tools are handy for all purposes, they need not be charged up to "condenser account."

The ward file is the type used for cutting keys for locks, and has a very fine cut.

Having procured the materials, the ward file is laid flat on a table, and each spacing washer, large and small, is rubbed on the ward file until all burrs are rubbed off and a good, bright surface is obtained on both sides.

The plates are punched out of a number of thicknesses of aluminium and have, therefore, a rough edge on all sides and around the holes. Each plate must be laid flat on a table and the six-inch fine file used on the flat side to gently remove the rough edges. Next heat up the family flat-iron to a good hot degree, place each plate in turn upon a perfectly flat piece of board or thick glass, bring the centre of the iron down upon the centre of the plate and twist the iron backwards and forwards a few times to get the plates flat.

To assemble, see that the fixed plate spindles are straight. If not, place them on a piece of flat board, cover them with another piece of wood and gently tap them with a light hammer until they are straight, turning the bulging part uppermost during the process. It will be found to be an advantage to rub the nuts on the ward file to take off burrs and to give a bright surface.

Screw a nut about 3-8ths. of an inch up from the bottom end of each fixed plate spindle. Pass the spindles through the bottom ebonite disc (make sure it is the one with the 3-16in. centre hole), but before doing so place a small spacing washer on each spindle so that it will come between the nut and the disc, and then screw a nut on each spindle on the other or bottom side of the disc. A second nut can be added to lock the last-mentioned nut in position. You will now have the bottom disc with the three fixed plate spindles locked in position and ready to receive the fixed plates. The first plate is now pushed over the three spindles, taking care to do this slowly and without buckling the plate. At this point it will be a considerable help to level the disc and first plate with a small spirit-level. This done, the spirit-level can be applied to each plate as it is put on, and will ensure that all the plates are truly parallel. On top of the first plate place three of the small spacers or washers, but first compare the three washers and select three of the same thickness. The washers will vary slightly, but if they are placed in position in threes of equal thickness, the parallelism of the plates may be maintained. When the last plate has been put on top of the pile, place a small spacer on each spindle and then on the top of each spacer, a nut. Giving equal turns to each nut, gradually tighten up the fixed plates on their spindles until they are rigid; but care should be taken not to apply so much pressure as to strip the threads of the spindles.

(To be Continued)



By WARREN GRAVES.

## 7. The Adventure of the Vanishing Message

THE Glory boys were back at school.

That is to say that Masters Jack and Robert Glory, cousins, were keeping Milton House in a continual ferment by their interminable quarrels. It would not be fair to them to say that they had a battle every day. They didn't. But they seemed to do their best to reach that ideal.

Still, on the day this chronicle begins they were (strangely enough) not quarelling. On the contrary, "Bluey" (which is what Jack's red hair seemed to make his friends call him) was busy tending the wounds received by his cousin "Darky" (as they called Bob) in honourable battle with a common enemy, one William Rixon, an, apparently, pleasant enough boy of about sixteen years, to whom the cousins, for some reason, both objected. On this occasion, if we are to accept the verdict of trial by battle, the Glory boys were hopelessly in the wrong. "Bricks" (short for "Bill" Rixon) had given Darky a thoroughly bad time of it. Which made Darky tend rather to like him for the first time in his life. Which shows how strange we all are.

Bluey, however, not having yet been beaten by Bricks, still maintained that he was a "dud"—the latest equivalent for the "rotter" of our fathers' schooldays.

"Oh, he's not such a bad old stick," said Darky, ruefully feeling a nose that was changing its shape and colour with alarming rapidity.

"Well, he's not coming into the wireless club, anyhow," said Bluey.

That was the real and immediate cause of the quarrel with Bricks.

Bricks had asked to be admitted to the school wireless club, and some of the members (among them the Glory boys) had decided to exclude him on the ground that he wasn't serious, and didn't have a real interest in wireless. Darky had unfortunately happened to act as the club spokesman in putting forward their views. He had not done this with any remarkable tact—and the present state of his more prominent features was the result.

"I don't know whether we shouldn't let him come in, after all," said Darky, out of the new respect that was born in him of defeat. "He has a pretty nifty left. What has the crowd got against him, anyhow?"

"I know what I've got against him," said Bluey. "He would simply mess everything up. You know how he's always fooling about, making an ass of himself. We'd never get anything done. And to let him in just as we are making the new set would be howling lunacy. He's not coming in, if he fights every member of the club, one after the other."

"But that's not fair," said Darky. "Give him a chance."

At that moment in came Bricks. They were in the dormitory.

Bricks grinned as he saw the bowl of water and the towel, and noted Bluey's kindly minis-



trations. He had overheard the last remark.

"Yes, what about it?" he asked. "I want to come in, and I'm going to. All the Glories in the universe won't stop me. Tell you what I'll do, Bluey. I'll bet you I can stop you listening-in whenever I want to, and you won't be able to find out how I do it. Is that a deal? If you have to come to me to ask me to stop, I become a member. If not, I will stop out of the measly thing."

Bluey thought a moment. He rather prided himself on his knowledge of wireless, and he thought that if Bricks could do anything that he couldn't spot—well, he deserved to be in the club!

So he agreed on condition that Bricks did not damage their apparatus in any way. To this Bricks cheerfully assented, and promised to replace anything he damaged. Bluey was puzzled, but held to his bargain and induced his fellow-members to agree to it also. They then promptly forgot all about it.

A week later the club had finished the construction of its new set. They were all very proud of it, and tried it out at the very first opportunity.

It worked beautifully, and they were congratulating themselves on a neat piece of work, well finished, when there was a sudden change of expression on the face of every boy in the room. They had six pairs of 'phones connected to the set, and, as it happened, there were only six boys present. They had all been listening to a piano solo and admiring not so much the skill of the pianist as their own skill in receiving the music with such clarity and volume. Suddenly there was a sharp "howl" and the instrument went "dead." They were all startled. What could have happened? One minute the reception was perfect. The next and there was not a sound.

The boys spent about half an hour going carefully over every connection. Everything was right. They were forced to give it up for the night, and determined to find out what was wrong next morning.

As they were trooping up to bed, "Sus" Pender (that wasn't his name—or at least the Pender part was, so the boys gave him the "Sus" to "complete it," as Bluey said) suggested that perhaps the whole thing may have been due to Bricks. The others had all forgotten about Bricks and his threat. This made them think. They decided to try and find out what he had done.

Next day all six boys made a thorough examination of the whole circuit. They thought something might have been done to the aerial, but, although they examined minutely all the insulations, they could find nothing wrong. They followed out all the leads, and made an examination of the "earth." They found everything in apple-pie order.

While they were going into these matters, Bricks strolled past.

"Anything wrong?" he inquired.

"You get out of this," said Bluey, "or I'll give you another hiding."

"Another?" asked Bricks, in some justifiable surprise. "That's the sort of beating I don't mind getting every day. When do I get it? Now?"

He didn't get it then. The others stopped it, and a bell rang in time to prevent a general melee.



*Father Does his Duty Nobly and Well*

That night the mysterious happening of the previous night was repeated. They would get clear, beautiful reception for about twenty minutes and then there would be a sudden stop. Night after night the same thing happened. After the third night one of the boys would rush out as soon as the stoppage occurred, to look for Bricks. He was always in some conspicuous place, and had a clear alibi. He had always been about for quite a long time before they came to seek him.

At the end of a week the club was desperate. They had tested every part of their apparatus. Everything seemed perfect. They could not imagine by what magic Bricks (for they were sure it was he) could possibly time any part of their apparatus to make it stop functioning when they were in the middle of their "sitting."

**0 BOYS!** *What Price this Chance for*  
*:: One Shilling in the ::*

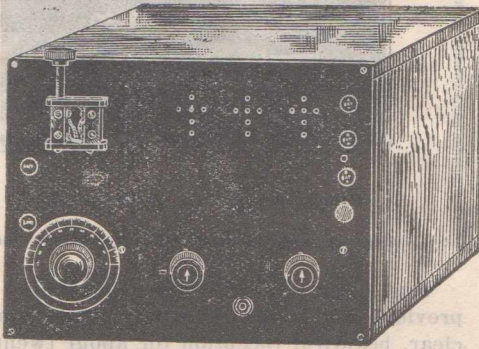
# N.S.W Ambulance FIFTH ART UNION

By Permission of the Attorney General.

54 Prizes, value in all, £3211 19s. from £625 to £4

11th Prize, Value £35

## "Simolian" Three-Valve Receiving Set



THIS high-class set is a product of Mick Simmons Ltd., Haymarket, George Street, Sydney, makers of the well-known "Simolian" Receiving Sets. It consists of a detector with two stages of audio frequency amplification, and is supplied complete in every particular including headphones, valves, batteries, aerial, lightning arrestor, and loud speaker.

Only first-grade apparatus is used in its construction, and the workmanship is of the highest order.

Under normal conditions it has a telephony range of 500 miles on the headphones and 250 miles on the loud speaker. To those who possess a knowledge of the Morse Code it is pointed out that this set is capable of picking up all the high-powered stations in England, Europe and America.

**54 PRIZES** Value in all **£3211/19/-** from **£625** to **£4**

1st Prize	"Austin" Touring Car	-	£625 0 0	8th "	"Merley" Pianoforte	-	100 0 0
2nd "	"Buick" Touring Car	-	395 0 0	9th "	Tennis Set, Complete	-	48 0 0
3rd "	"Dodge" Touring Car	-	390 0 0	10th "	Tortoiseshell Toilet Set, in case	-	40 0 0
4th "	"Dodge" Single Seater	-	380 0 0	11th "	Complete Wireless Set, with		
5th "	"Dodge" Light Delivery Truck	-	350 0 0		Aerials and Amplion	-	38 0 0
6th "	"Morley" Player Piano	-	225 0 0		Special (last prize) Complete Linen Chest	-	100 0 0
7th "	"Gulbransen" Player Piano	-	220 0 0				

**Drawing Sydney Town Hall, Friday, February 13, 1925**

TICKETS

**1s.**

All you have to do is send a stamped and addressed envelope with 1/- in stamps, to  
**AMBULANCE STATION, COOGEE**  
 and you will receive your Ticket by return post, or you can get a whole book of  
 25 tickets for 1/-

TICKETS

**1s.**

One night, as they were leaving the room, one of the boys noticed a cap on the floor. It had Bricks' name in the lining. Inspired by a new fervour, the members of the club spent their days worrying their heads about the mystery. They knew it was Bricks' doing, but they could not understand WHAT he was doing.

"Well," said Bluey, at last, when their set had stopped dead for the twelfth night in succession, "I suppose we'll have to let him in. It is a bit awful to have to give in to the insect, but he seems to have us by the short hair this time."

The others were inclined to agree. They thought that if Bricks had been clever enough to keep them all mystified for a fortnight, they must have been mistaken in him. He would probably prove an acquisition to the club, rather than a hindrance!

Bluey was generous enough to lead the way.

They found Bricks in the "play-room," playing a game of "Bobs."

"You win," said Bluey, rather shamefacedly. "Show us how you did it, old thing, and you're a member."

"Wait until to-morrow night," said Bricks. And nothing that they could say would move him. They simply had to wait.

Next night the news had spread, and about thirty boys were waiting in the club room for the "demonstration."

Bricks insisted on the boys going through their programme as usual.

They did so. As usual, the messages came clearly and loudly. At about ten minutes to eight, Bricks led the whole party upstairs to the dormitory. Wondering, they followed him.

He made them wait. In a few minutes one of the maids came in and slowly went round the dormitory closing every second window. Just as she came to the sixth Bricks stopped her. The other boys looked on curiously. Bricks closed the window slowly, and, as he did so, he asked Bluey to watch carefully. Bluey saw at once what he was expected to see. There was a black thread, almost invisible in the night, coming in the window and attached to the frame with a tack. As the window came down it snapped the thread. The boys trooped downstairs and Bricks led them to the aerial. Walking up to it, he moved along the ground directly under it, with his arms outstretched. Presently he came to a halt and began to haul at something apparently stretching up into the air and on over the aerial wires. In a few moments there was a swish and the wire was on the

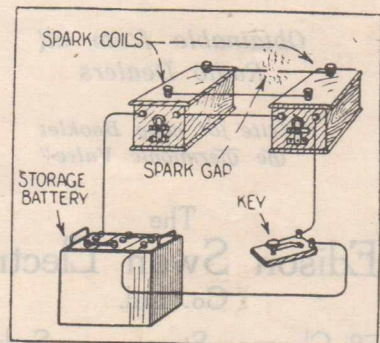
ground. He led them inside and showed them a long copper wire, with a weight attached to one end. The explanation began to dawn on his astonished observers. He had "tapped" their aerial.

"It was simple enough," said Bricks. "All I had to do was slip up to the dorm. as soon as we had finished dinner, when you lads were busy skylarking about, throw the weighted end of the wire into the poplar tree. You will notice that it is right opposite the window and the aerial wire comes between it and the window, at the end where it is attached to the house. The slack end of the wire I let down to the ground and attached the thread to the wire so as to keep it clear of the aerial wire. The thread was so arranged that it would be broken by the shutting window. I knew the maid shut every second window about eight o'clock each night, so I had a perfect alibi, and yet nobody had anything to do with it but myself. Of course, as soon as the wire connected your aerial to the earth you were gone! The greatest trouble was slipping out to collect the wire before we went to bed. But I managed it every night, and hid it in the gym. until next day, when I could find an opportunity of getting up and hiding it in my bed, ready for the next night."

Although the club was chagrined at the way in which it had been "done," yet the members could not but recognize that they had been fairly beaten. Bricks had his hand solemnly shaken by the Glory boys in succession, and was duly elected to the club. He proved a model member, and no doubt we shall hear of him again in due course.

(Another Glory Boys Story next week.)

### A BIGGER SPARK.



THE illustration gives a method of coupling two small spark coils to obtain a larger spark.

# This is Where We Blush

SOME LETTERS WE HAVE RECEIVED FROM OUR FRIENDS.

Ulmarra, Clarence River.

Dear Editor:

I heard a receiving set working for the first time four weeks ago, and I have been thinking wireless ever since. Having a liking for anything mechanical, I wanted to know how it worked. The chap that owns the set started to explain. He talked about valves and rheostats and grid leaks and circuits and condensers and the ——— knows what. When he had finished, I, who didn't know a valve from a loud speaker, was worse off than before, because I had all those new words in my head, with no meanings for them. The same friend who owns the radio set lent me 26 wireless periodicals. Well, I read them, and a lot more high sounding words were in my head and then I was in town one day on the look out for a book that would explain radio in a simple way, when I spotted the "B.W.N." Well, dear Editor, you know what I want to say, but, to cut it short,

I got more information out of two issues of the "B.W.N." than out of the 26 issues of the other paper. Hoping for more simple explanations,

I remain, Yours sincerely,

A.F.

95 Albion Street, City.

Dear Sir:

Just a word of congratulation for the wonderful success of the "Boys' Wireless News."

At first I was amazed that a paper like "The Boys' Wireless News" should be sold at ONE PENNY.

I have got all four copies of the paper, and I wish it a hearty success in the future.

I remain, Yours faithfully,

A.G.

AND ONE FROM BRISBANE.

"Lewthorne" Kelvin Grove Road,  
Kelvin Grove, Brisbane,

November 2, 1924.

Dear Sir:

So cheap and instructive is your new paper, "The Boys' Wireless News," which I obtained, that I think it my duty to congratulate you for printing such a paper. I do not think there is one thing out of place, and, as for the stories, I could be reading them always. I read your letter on license fees, and quite agree with what you say. I had made a complete crystal wireless set, had erected my aerial, and had applied for my license, when, after waiting a long time, I received the answer that it would be 35/-. Then, of course, I had to pull down everything. I am waiting for the 10/- license fees to come in.

I must congratulate you on your wonderful paper, and hope your efforts to help Australian amateurs will be crowned with the greatest success. You deserve nothing less.

I remain, Yours truly,

W.H.

Thieves in London recently took down and removed a 50ft. wireless mast and equipment!

*Hear Everything!*

AND USE

**"EDISWAN"**

VALVES

*Obtainable from all  
Radio Dealers*

*Write for copy Booklet  
"The Thermionic Valve"*

The  
**Edison Swan Electric**  
Co. Ltd.

58 Clarence Street - Sydney

BRITISH MADE

# Edison's Wireless

THOMAS A. EDISON, the great inventor, has armed himself with a wireless receiving set. But the invention is not new to Mr. Edison.



He has always been experimenting with anything that held possibilities of this sort. As far back as the 'eighties he was engaged in

tests for the transmission, without the aid of wires, of the ordinary Morse dot and dash signals.

He had an idea in his mind for an apparatus to enable people in a moving train to talk to friends on a land station.

However, he was advised at that time to drop the subject, as it then promised no particular advantage. Fewer people travelled by railroads then, and it was thought that they would not be inclined to spend extra money on sending messages by wireless when they could send one, at a cheaper rate, from the first stop that the train made. The difference of time saved would not be worth the money.

Edison's wireless was achieved by induction between metal strips placed on the roofs of the train, and a wire stretched between poles in a line running parallel to the railroad.

## Our Seventh Weekly Competition

### Cash Prizes for Your Suggestions

WHAT WOULD YOU LIKE US TO PUBLISH IN THE "BOYS' WIRELESS NEWS"?

We want our readers to send us in suggestions of what they would like us to publish. What sort of things do you want to know about wireless or allied matters? What would you like us to explain to you? What do you find difficulty in understanding? What practical difficulties would you like us to help you to overcome?

WRITE DOWN WHAT YOU WANT TO KNOW ON A SHEET OF PAPER.

ADD YOUR REASONS IN NOT MORE THAN FORTY WORDS.

ATTACH YOUR SUGGESTION AND REASONS TO THE COUPON BELOW AND POST THEM TO US.

For the Best Suggestions with the Best Reasons, we will give the following prizes:

FIRST PRIZE, 10/- Cash. SECOND PRIZE, 5/- Cash. THIRD PRIZE, 2/6 Cash. And TEN Consolation Prizes of 1/- each.

THIS, SEVENTH, COMPETITION CLOSES NOVEMBER 29th.

Results of Fifth Competition . . . . . November 29th  
Results of Sixth Competition . . . . . December 6th  
Results of Seventh Competition . . . . . December 13th

#### COMPETITION COUPON.

The Editor, "The Boys' Wireless News," 304 Kent Street, Sydney.

Dear Sir: On the sheet attached are my suggestion and reasons.

My Name is.....

My Address is.....

# ORMOND

RADIO GOODS *Have Landed*

**Compare these Prices**

Fixed  
Retail  
Price  
List.

## Ormond Line

English Make, Standard.

49 Plate, Vernier, .001, with Knob and Dial .....	18/6
27 Plate, Vernier, .0005, with Knob and Dial .....	16/-
15 Plate, Vernier, .0003, with Knob and Dial .....	14/-
11 Plate, Vernier, .00025, with Knob and Dial .....	13/-
49 Plate, Plain, .001, with Knob and Dial .....	14/-
37 Plate, Plain, .00075, with Knob and Dial .....	13/6
27 Plate, Plain, .0005, with Knob and Dial .....	11/6
15 Plate, Plain, .0003, with Knob and Dial .....	10/6
11 Plate, Plain, .0002, with Knob and Dial .....	9/6
DUO ANODE (Balanced Adjustment) .....	25/-
RHEOSTAT, 6 ohms .....	3/-

## Crystal Detectors

CRYSTAL DETECTORS on Cards, Nickel .....	1/9
CRYSTAL DETECTORS on Cards, Brass .....	1/9
LARGE BARREL GLASS ENCLOSED DETECTORS ..	4/6
MEDIUM BARREL GLASS ENCLOSED DETECTORS..	3/6
COLLINSON UPRIGHT DETECTOR .....	4/6
PERIKON DETECTOR (with two crystals) .....	4/6

## Fixed Condensers

ENGLISH MAKE, Capacities, .002, .001, .0005, .0003, .0002 .....	each 1/3
--	----------

## W. & M. Line

FIXED GRID CONDENSERS, .002, .001, .0005, .0003, .0002 .....	1/9
With GRID LEAK AND MOUNTING .....	3/6

Ask Your Dealer

Ask Your Dealer

Wholesale Only

**Corbett, Derham & Co. Pty. Ltd.**  
Melbourne

**Chas. R. Gabb & Company**

Managing Agents

39 Dixon Street, Sydney

# How an Aerial Night Mail is Guided

## II

The visibility of the lights is such that the speeding pilots of the night mail, even thousands of feet above the earth, will never be out of sight of one or another of the friendly beams. The big lights can be seen at a distance of fifty miles or more, and the smaller lights will be discernible thirty miles away. Leaving one behind him, the pilot will immediately pick up the next one so that his course will be marked beyond any possibility of his wandering off to become lost in the darkness of the great void. The land lighthouses will be electrically operated. Their giant shafts will always be moving slowly, steadily, in a huge aerial circle. Electrical mechanisms, which can be depended upon to run by themselves, will keep them moving round and round in their orbits.

Efficient, one-half horsepower motors will be installed on the larger lights, and one-sixth horsepower motors on the smaller ones. The large lights, on the five main towers, are to be high-intensity arc searchlights, with thirty-six inch projectors. The small lights are equipped with incandescent lamps and will have eighteen-inch projectors.

Illumination of the landing fields—the second big problem in operating an air service at night—has been studied for months. Nine definite objectives have been kept in view in lighting these fields. Definition of field limits, lighting of obstructions, indication of landing levels, illumination of landing stages, definition of the taxi strip, indication of wind direction, beacon (orientation) lighting, field identification markings, and emergency lighting.

The landing field beacon light at the permanent landing fields will be mounted on the same tower that supports the flying route beacon. It will be a searchlight of the same intensity, 325 million candle power, with a thirty-six inch projector. This beam will be directed downward, upon the field, instead of upward, into the air. The fields themselves will be outlined in light. Chimneys, poles, towers and high buildings in the neighborhood will be lighted, and other objects will be made to stand out, so that the pilot can gauge the landing levels and the landing stages or areas in which he can put the wheels of his plane upon the ground, all will be clearly marked by light. An illuminated weather-cone will show the aviator the wind direction on the field.

Guided, protected, welcomed, aided by light, by many lights, the government pilots that fly up into the air for each long hop of the long route across America's miles, will find every possible assistance to their alert outlook when they enter the night section of the route. The lights are what will make the night air mail service possible. Without the lights, and without lights of tremendous power, this new and daring proposal of man to diminish his natural limits of space and time would be futile and fatal.

The lights, which will shoot upward in rotating columns, standing out clear and bright against the unbounded immensity of black space, will actually bring to pass mail delivery between New York and San Francisco on a twenty-eight hour schedule. Mail will leave New York at noon on one day and reach San Francisco by evening of the next day, and from San Francisco to New York the same eagle-swift passage will take place.

For this lights are indispensable—the lights on the course of the swift night mail—the lights that will transmute a poet's dream into reality.

## Special Prices!

### WHY PAY MORE?

LOOSE COUPLER SETS, something special, 45/-

HEAD 'PHONES, 4000 ohms. Made in France. 25/-

N.H.M. Super-sensitive CRYSTAL 1/6 each.

GALENA CRYSTALS 6d.

LOOSE COUPLER SETS, complete wound coils ready to assemble, 22/6

## N.S.W. Electrical and Radio Co.

Mockbell's Buildings,  
21 Macquarie Place, Sydney.  
Off BRIDGE STREET

## Our Weekly Chat about Wireless Supplies

### AMALGAMATED WIRELESS.

THIS is what the "Bulletin" had to say about this famous Australian enterprise in its issue of 6th November last:

Amalgamated Wireless (A/sia), Ltd., has not done much for itself so far, but it has done fine things for Australia. Only a few years ago there was a pretty general idea that the Australian might make a rough pair of boots, perhaps, and a wine that you might drink if you weren't at all particular; but as for producing goods that demanded high skill, accuracy or taste—well, what could you expect? This company decided that it could expect of Australians what it could expect of anybody else; and when it announces that to-day it is employing 800 people and paying in wages and salaries more than £150,000 a year, the "Wild Cat" leaves off figuring long enough to wireless three cheers and the hope that next year it will have to write at least a 10 per cent. in the dividend column.

MR. CORNWALL, of Ediswon Swan Electric Co., Ltd., tells us that they are fast recovering from the effects of the recent disaster that overtook them in the form of a fire. Business is pouring in, so they simply had to recover—and that is the sort of cure that overcomes a good many business illnesses!

MR. PRICE, of 220 Oxford Street, Woollahra, is attracting the serious attention of enthusiasts by his care in satisfying his many wireless friends and by his efficient and up-to-the-minute methods. Mr. Price knows his business and gives his friends the benefit of his knowledge. They appreciate it.

MR. ATHERSTONE, of Messrs. Corbett, Derham, Ltd., 39 Dixon Street, showed us a sample of the new "Ormond" variable condenser. This is a fine piece of work, extremely well turned out, and listed at a rather surprisingly low price. We know this condenser will go among wireless fans like hot cakes.

EACH week one of our Representatives is calling on all Radio Suppliers to obtain news of what is going on in the Wireless World. This is an important feature, and every boy should read it. It will help you to discover the best places to get what you want.

MESSRS. P. H. CLARK, of 38-44 Carrington Street, showed us a batch of letters they have been receiving from highly satisfied users of their "Acme" transformers and lowest loss condensers. They are full of enthusiasm, and we heartily echo it—we know "Acme" products from experience, and are not surprised at the verdict of buyers.

MESSRS. KEITH STOKES PTY. are the agents for the well-known R.P.M. Radio Equipment. We saw a set the other day made up of R.P.M. parts—and we must say it looks fine. It will pay amateurs to ask their nearest radio store about these parts. While we were there we saw samples of the famous "Add-A-Unit" line, and we can speak of them with confidence as worth the serious consideration of every amateur.

MR. FORREST, of The International Radio Co., 200 Castlereagh Street, has adequate stocks of his "de Forrest" valves—which need no recommendation from us. And note, when you think of the name of this firm, you should think "Radion."

MESSRS. HARRINGTON'S, LTD., of George Street, have constructed (so Mr. Fleming, the manager, tells us) a seven-valve set for the Children's Hospital. We hope to be able to give a complete description of this set next week, with photographs. It is a very fine piece of work.

MESSRS. NEIBECK CRYSTAL CO., of 26a George Street North, Sydney, have a very satisfactory range of crystals of all sorts. This company deserves and receives every encouragement as an Australian concern, and the buyer can always feel secure that every crystal that leaves their hands is RIGHT.



**M**R. HUNT, of the N.S.W. Electrical and Radio Co., of 21 Macquarie Place, has everything that the wireless enthusiast wants. One of the prime features of Mr. Hunt's establishment lies in that. You rarely have to go anywhere else to get what you want. It is a valuable reputation for a business man to get.

\* \* \*

**M**ESSRS. WELBY RADIO CO. are carrying a new line in crystal detectors. The workmanship in these instruments is perfect, and from a trial we are convinced that they would be a fine adjunct to a reflex set. This company is to be complimented on the acquisition. We wish it every success—it deserves it.

\* \* \*

**B**OTH Mr. Hapgood and Mr. Rudolph, of the United Distributors, Ltd., are at present in Melbourne, looking things over. Not that they need much looking over at present—there is something of a boom in wireless in Vic. at present, and everybody is interested. The Melbourne address of this firm is at 592 Bourke Street.

**M**ESSRS. SLINGSBY & COLES, of 482 Pitt St. ("Under the Railway Clock Tower") are featuring their 10 per cent. discount sale. Our readers will no doubt be considering their Christmas purchases, and this is the time to consider them. Messrs. Slingsby & Coles' values have always appealed to wireless enthusiasts, and this sale emphasizes what can be obtained for the least possible expenditure.

\* \* \*

**M**R. OLSEN, of 18-22 Hunter Street, Newcastle, has rightly styled his business the "Recognized Radio House of the North." Amateurs and enthusiasts of the northern districts have long known where to turn to find out all their want to know and to receive cordial and considerate aid in achieving their objects—better reception. Mr. Olsen's position in the north is enviable.

In 1923 there were one and a half million receiving sets in use in the U.S.A.

## **Important Announcement** to our Readers

Next Wednesday Evening 26th, November,  
at 7-15

and Every Wednesday Evening After That

**Messrs. Farmers' Ltd. (2 F.C.)**

Wavelength 1100 Metres

**Will Broadcast Answers to Technical Inquiries**  
sent to the

**"BOYS' WIRELESS NEWS"**

Send Your Inquiries In Now

# Speaking about Sound Wireless Information

They say that

## The Australasian Wireless Review

is the finest and biggest publication of its kind in Australasia.

It gives more real, practical and ALL-AUSTRALIAN INFORMATION than any other magazine. It was first in the field, and has always maintained its lead.

### JUST A WORD

The Wireless Literature of the whole world is searched for you, month by month, and anything new in circuits, hints, or kinks finds its way into the "Review." But not until it has been tested and found practical and suitable for Australasian conditions.

#### IN ADDITION

Our own Research Laboratory is constantly at work furnishing data for articles and interesting experiments, construction of efficient receivers, etc.

#### "THE REVIEW"

is certainly the best shilling's worth obtainable in Australasia.

**REMEMBER!** It is Published on the 15th of each Month.

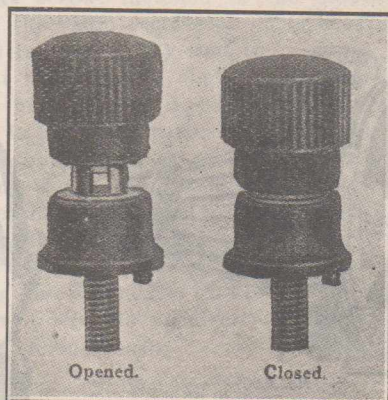
*Obtainable at all Booksellers.*

## A New Binding Post

**I**N electrical work it is often seemingly little that makes a great difference in operation, and perfection in details has a great effect on the attainment of results. There is nothing more aggravating than a poor binding post. The new binding post which we illustrate presents various features of superiority; there is practically nothing about it to wear out; it will receive a wire and hold it firmly without marring it; and as regards its appearance the illustrations speak for themselves. These posts are particularly recommended where perfect connections which will resist vibration are to be made. The contact surfaces between which the wire is gripped are practically the full width of the post, and the opposed faces, gripping the wires, are accurately parallel. These binding posts are highly recommended for testing laboratories and in general wherever really good work is to be done. They are made in various sizes, the largest passing a 150 ampere current. Nothing is more aggravating than binding post troubles. Here we have an evident attempt to get rid of them.

Some radio experimenters have the habit of

clamping the wire terminals to wood or other bases simply by curling the wire under a washer held down by a wood screw. Such connections are liable to give rise to an "open circuit" at



any time, especially when a long-distance record is sought by the radio experimenter. The use of suitable binding posts always pays in the end.

**Make This a RADIO CHRISTMAS**

## A Great Pioneer

**O**NE of the greatest pioneers in wireless work was the late Professor David E. Hughes. Years before Senatore Marconi had begun to



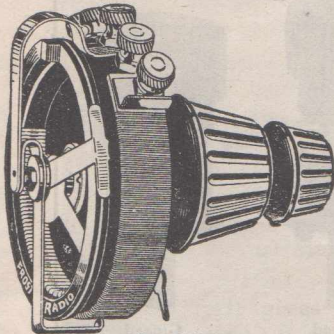
experiment in wireless, Hughes struggled along, firm in the belief that wireless communication was possible.

His rough-and-ready apparatus may be seen to-day in the Science Museum at West Kensington. Crude as his instruments are, they are historical relics, for with them Hughes "picked up" signals from a clockwork transmitter up to a distance of 300 yards. In the days of his early experiments, Hughes, like many other great inventors, received but little sympathy or help, and once, in 1880, when he was explaining his experiments before the President and some Fellows of the Royal Society, he was laughed at, and told that "the whole business is absurd."

If Hughes could have seen the effects of the present-day wireless boom he would, perhaps, have felt that his life had indeed not been lived in vain.

# FROST GUARANTEED PARTS

*The most Complete Line of Guaranteed Radio Parts  
ever offered in Australia*



No. 610

**FROST-RADIO BAKELITE TUBE CONTROL UNIT**

Called for Short: "Pot-Rheo."

Made of maroon bakelite. Combines in one unit rheostat with vernier, and potentiometer, with two-knob control. All controls works with extreme smoothness. A valuable addition to any set.

- No. 607.—6 ohm Vernier and 200 ohm Potentiometer .... 17/6
- No. 610.—35 ohm Vernier Rheostat and 400 ohm Potentiometer ..... 17/6

**FROST-RADIO RHEOSTATS AND POTENTIOMETERS**

Precision Adjustment. Pieces of Apparatus that Reflect Quality.

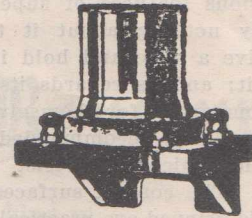
- No. 650-2.—Maroon Bakelite 6 and 35 ohm Rheostats ..... 7/3
- No. 651-3.—Same with Vernier ..... 9/6
- No. 654.—Maroon Bakelite 400 ohm Potentiometer ..... 9/6
- No. 600-2.—Metal Frame 6 and 35 ohm Rheostats ..... 5/6
- No. 601-4.—Same with Vernier . . . 7/6
- No. 603-5.—Metal Frame 400 and 200 ohm Potentiometers .... 5/6



FROST FONES

Made with watch-like precision, to respond to the extremely small electrical currents of radio reception. While remarkably sensitive, they also are sturdy enough for many years of use.

- No. 161.—Frost Fones, 2000 ohm, Aluminium Head Pieces .... 32/6
- No. 171.—Frost Fones, 3000 ohm, Aluminium Head Pieces .... 37/6
- No. 172.—Frost Fones, 3200 ohm, Maroon Bakelite Head Pieces 45/-



**FROST-RADIO**  
No. 618

**FROST RADIO SPONGE BASE SOCKETS**

- No. 618. — Moulded Bakelite Shock Absorber Socket for Standard Base Valves ..... 6/3
- No. 617.—Same for U.V. 199 Valves ..... 6/3
- No. 612. — Moulded Bakelite Vacuum Tube Socket, Bakelite Panel, maroon finish, for U.V. 199 Valves ..... 5/-
- No. 107. — Same for Standard Valves ..... 5/-
- No. 616.—Compact Gang of Three Shock Absorber Sockets, for panel or table mounting. For U.V. 199 Valves ..... 24/6
- No. 619. — Same for Standard Valves ..... 24/6

**FROST RADIO**

- Jacks, All Styles ..... 4/6 to 6/6
- Plugs, double and single, 4/6 and 5/-
- 621.—Parallel Switches ..... 5/-
- 608.—Push and Pull Battery Switches ..... 4/-
- 400.—Crystal Loose Couplers .. 75/-
- 410.—Crystal Tuning Coil Slider 27/6

*Your Dealer can Supply all These!*

## UNITED DISTRIBUTORS LIMITED

(Wholesale Only)

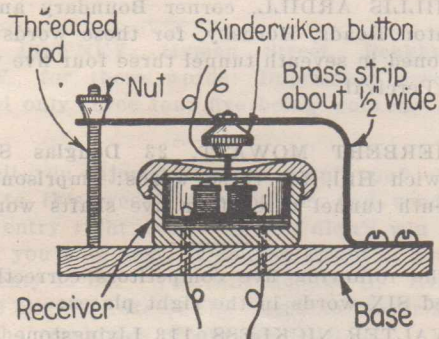
**72 CLARENCE STREET  
SYDNEY**

**592 BOURKE STREET  
MELBOURNE**

**And at Adelaide, Perth, Brisbane, Hobart, Wellington.**

# The Skinderviken Button

A SUGGESTION for mounting a Skinderviken button to be used for amplifying radio signals. By turning the nut the pressure between the button and the diaphragm of the receiver may be varied.



The Skinderviken button is a very small transmitter which works on the principle of varying the resistance of carbon grains when compressed and released. It may be used in any

place where an ordinary transmitter would be used, and will give satisfactory results.

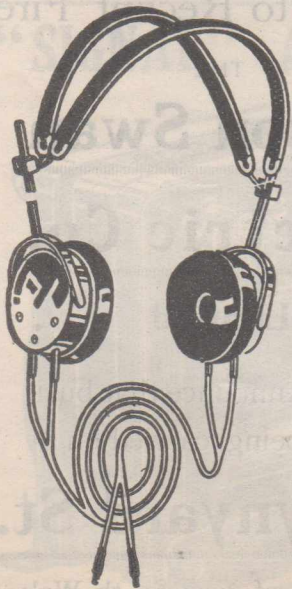
Could it be used to amplify radio signals?

You might try using it to increase the volume of signals from a radio set by placing the machine screw, fastened to the diaphragm of one of the radio receivers. This should be arranged in such a way that the amount of pressure at the point of contact may be varied to secure best results, a suggestion for which is shown in the accompanying cut. The transmitter button should then be connected to a local battery and to a 4-ohm telephone receiver. If you wish higher amplification, you might try connecting the button with a local battery, and the primary of a telephone transformer; connecting the secondary of the transformer to a 75-ohm telephone receiver (higher resistance than in former case).

A microphone is installed in the Italian Senate for broadcasting important speeches.

*Light and Comfortable for Summer!*

## “PICO” Head Phones



Choose “PICO” because they give you the maximum comfort and the maximum service.

They are strong, durable, reliable, yet wonderfully sensitive, and so adjusted as to deliver a perfectly natural rendition of the original voice or music.

They will get the most out of your set.

FULLY GUARANTEED

**25/-**

AT ALL RADIO STORES

**United Distributors Ltd.**

(Wholesale Only)

72 Clarence St., Sydney 592 Bourke St., Melbourne  
And at Adelaide, Perth, Brisbane, Hobart, Wellington

# Results of Fourth Weekly Competition

OUR first three competitions were successful enough in all conscience. But the results of the Fourth Competition have been absolutely staggering. Every mail brought us piles of entries, and the task of sorting them out was enormous. In this we have to carefully compare the entries, one by one, with the set of words as written by Mr. Graves, and choose those which came nearest to them in position and correctness.

Only one competitor struck the exact words in the exact order. He receives our congratulations, and by this he has received the pair of head-phones.

The correct words were, in the correct numbered order: (1) IMPRISONED (2) IN (3) SEVENTH (4) TUNNEL (5) THREE (6) FOUR (7) FIVE (8) BEING (9) WORKED.

The first prize of a pair of head-phones has been sent to A. REGINALD CROUCHER, "Marathon," 25 Richmond Street, Rockdale, N.S.W., for the words: Imprisoned in seventh tunnel three four five being worked.

The second prize of 5/- has been sent to KEN ARMSTRONG, "Broombee," 26 Clanalpine Street, Mosman, for the words: Imprisoned in seventh shaft three four five being worked.

Six competitors sent in seven words correctly placed. The first of these received obtained the third prize. The third prize of 2/6 has been sent to J. CLARKE, 2 Hornsby Street, Rozelle, for the words: Imprisoned in seventh tunnel three four five shafts working.

The following were the competitors who came nearest to the exact words in the correct order, and accordingly to each of them a consolation prize of 1/- has been forwarded:

JAMES GAPP, Railway Street, Moss Vale, for these words: Imprisoned in seventh tunnel three four five are working.

ALEX. BROWN, "Ivanhoe," West Pennant Hills, for these words: Buried in seventh shaft three four five being worked.

J. RAMON, High Street, Penrith, for these words: Imprisoned in seventh tunnel three other shafts being worked.

HILLIS ARDILL, corner Boundary and De Winton Roads, Hornsby, for these words: Imprisoned in seventh tunnel three four five working Percival.

HERBERT MOWATT, 23 Douglas Street, Dulwich Hill, for these words: Imprisoned in seventh tunnel three four five shafts working.

The following five competitors correctly divined SIX words in the right places:

WALTER NICKLESS, 113 Livingstone Road, Marrickville, for these words: Imprisoned in seventh shaft three four five working help.

FRANK PRINGLE, c/o. Newcastle and Hunter River S.S. Co., Ltd., Newcastle, for these words: Imprisoned in seventh tunnel adjoin-

Owing to Recent Fire

THE

**Edison Swan**

**Electric Co.**

**Limited**

Beg to Announce that business is being carried on at

**7 Wynyard St.**

Next Bank of New South Wales

ing tunnel not being worked. (It was a toss-up whether to give it to you, Frank. You did not get the sense of it at all. But no other competitor managed to get six words correct, except those who won prizes, so we let you slip in. Be more careful next time!)

EDWARD SCOTT, 73 Cameron Street, Edgecliffe, for these words: Imprisoned seventh funnel shafts three four five being worked.

E. DOWNEY, Hymen Street, Peakhurst, N.S.W., for these words: Imprisoned seventh tunnel only three four five being worked.

Well, you enjoyed that one, didn't you? Now turn to this week's competition and send in your entry right away. If you didn't win this week, you may next. Don't be afraid of giving us plenty to do. We really do like it. Everyone is eligible (except the members of our staff and the employees of our printers).

Results of the Fifth Competition will be published next week.

Results of the Sixth Competition published December 6th next.

Results of the Seventh Competition published December 13th.

### IMPORTANT.

A large number of entries were received on Monday, 10th, and Tuesday, 11th November. These were therefore disqualified. Several of these entries would have won prizes if they had

## Make This a Radio Christmas

been received in time. (For instance, A.P., 93 Fawcett Street, Newcastle, was the second competitor who got the words exactly right. But his entry did not reach us until Monday.) Please send entries in promptly for your own sake.

THE EDITOR.

### SOMEWHERE IN THESE PAGES

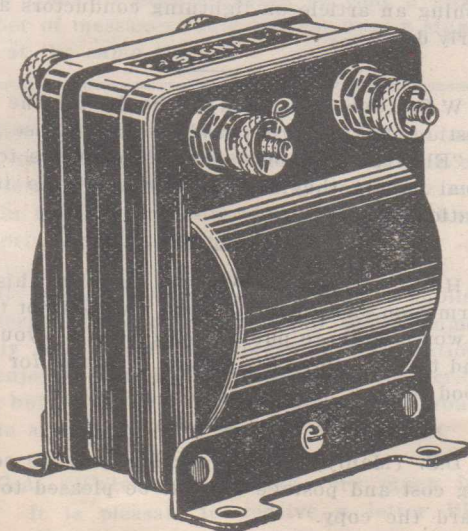
You will find whatever you want  
in wireless sets or apparatus. When  
you buy it mention

### "THE BOYS' WIRELESS NEWS"

It will help our advertisers as well  
as us and yourself.

*60 Per Cent. Cheaper but Equally as Good!*

## "SIGNAL" Audio-Frequency TRANSFORMER



Here is a product of which Australia may be justly proud.

It is equal in every way to any imported, yet you save 60% freight and duty on it. It is magnetically shielded in a shell of original design and finish—5 to 1 and 3½ to 1 ratios.

It is loud, but clear, without howl or distortion, giving you the full beauty of the original tone of the artist.

**£1 1s.**

*Your Dealer can supply you!*

Compare it with more expensive transformers.

### UNITED DISTRIBUTORS Ltd.

(Wholesale only)

72 Clarence Street, Sydney      592 Bourke Street, Melbourne

And at Brisbane, Perth, Adelaide, Hobart and Wellington.

## Our Inquiry Corner

Write and ask us to solve your problems for you. If a difficulty crops up when you are constructing, if you read anything that you do not understand about wireless, if you are not clear about any matter of theory or practice, write and let us know.

We have arranged for an expert to answer all questions and solve all difficulties. You can be sure of getting the very best advice that can be obtained.

**NOTE.**—We cannot answer anonymous letters. Give full name and address, not for publication, but as a sign of good faith. All inquiries will be answered in strict order of receipt.

**A.F. (Croydon):** We shall be publishing details of the construction of a portable receiver in the course of the next few weeks. Thanks for your kind wishes.

**G.M. (Chatswood):** We are preparing such a list of abbreviations at the moment, and it will be published as soon as ready.

**J.O. (Ashfield):** This will be described fully in our pages in a few weeks.

**A.M. (Guildford):** We are very glad you have found our weekly chat about wireless supplies so helpful, and thank you for your kind wishes. You would require more than a diagram to work by. We will try to publish full constructional details in the course of the next few weeks.

**G.G. (Marrickville):** This will appear at an early date.

**S.G. (Marrickville):** The spider-web coil and circuits in which it may be used will be described at an early date. See article in our issue of October 11th on "How to Make a Crystal Receiving Set," for the constructional details of the primary and secondary.

**J.L. (Orange):** If you intend to construct the set yourself, you would have to decide on the type of receiver you would like. It would then be possible to arrive at the cost. If you wish to obtain an assembled set, write to a few of the firms who advertise in these pages for full particulars. If you are a beginner, tell them so, and they will be only too happy to advise you as to what they have in stock best suited to your purpose, or even to make up a set specially for you, if necessary. Refer

to our "Weekly Chat About Wireless Supplies."

The metre is a French measure of distance. It is a little longer than our yard (39.37 inches, in fact). The French system of weights and measures is used in all scientific work because it is so much easier to use than ours. For instance, there are 10 millimetres in a centimetre, 10 centimetres in a decimetre, 10 decimetres in a metre. This use of 10 as a multiplier in the French system makes scientific work much simpler than it would be otherwise.

**C.W.W. (Summer Hill):** Yes, you could make the horn in the same shape out of a stiff piece of cardboard. But watch our pages for others.—The distance between the wires has an effect on the capacity and inductance, and therefore on the signals. It is the practice to space the wires so that they will be mutually inductive, the distance between adjacent wires being not more than three feet.—If you forward us the cost, plus postage, we will forward the number you want.

**"Searcher" (Port Kembla):** We will be publishing an article on lightning conductors as an early date.

**W.C. (South Ashfield):** Thanks for the suggestion, but we are afraid we cannot use it.

**"Electron" (Haberfield):** If you write to the local agents they will give you all the information you require.

**H.W. (Auburn):** We will publish this information as soon as possible. We do not think it worth while to publish programmes—you will find them in the daily papers. Thanks for your good wishes.

**D.S. (Manly):** If you send us stamps covering cost and postage we will be pleased to forward the copy.



# The Story of the Telephone

## DR. GRAHAM BELL'S GREAT ACHIEVEMENT

WHAT would the world do to-day if the whole telephone system were suddenly destroyed?

Incalculable delays would result: business would be choked, and commerce held up. And yet very few pause to consider how this essential factor of modern life came into being.

The first faint cry of the baby telephone was heard, not in a spacious experimental laboratory, but in a poorly furnished garret, nearly fifty years ago.

In Boston there was an electrical shop, and in the attic of that shop, on June 3rd, 1875,



Dr. Graham Bell.

two men were working and puzzling over a clumsy piece of electrical mechanism.

They had in mind a telegraph which, instead of merely sending out clicking signals, would transmit musical notes, so that a large number of messages could be sent over a single wire at the same time.

"Listener" (Croydon): You never can tell what may happen under those circumstances, so it is safer to have a lightning conductor and refrain from listening-in when there is a thunderstorm actually raging.

R.G. (Granville): We shall be glad to publish the series you suggest, and will do so immediately we collect the necessary information. We enjoyed your letter. Thanks for the criticism, but we are afraid you would not find yourself in agreement with most of our readers.

R.G.A. (Waterloo): Thanks very much indeed. It is pleasant to receive a letter like yours.

It was no good. For weeks they had been trying, but, despite every effort, they could obtain no results.

Alexander Graham Bell and his assistant, Thomas A. Watson, were the baffled men; but their labors were most unexpectedly to be crowned with success.

Clock-spring reeds, vibrated by electro-magnets, were part of their experimental telegraph set, and when Watson, who was sending, pressed down the key to cause the clock-spring at the sending end of the wire to vibrate, the contact points fused together. Consequently, the spring was held down by electro-magnetic force, and Watson tried to pluck it free, with the simple result that it vibrated over the magnet.

But, though the result was simple, the developments were wonderful indeed. The telephone had spoken!

Bell, in a frenzy of excitement, dashed into the room, for his ear had caught the feeble sound which passed over the wire.

"What did you do then?" he shouted at Watson. "Don't change anything. Let me see."

By accident, the fundamental principle of the modern telephone had been discovered. It happened that the current was flowing continuously through the line and the electro-magnets, caused a variation in the current intensity, thereby throwing the corresponding clock-spring at the receiving end of the line into vibration. The rest was mere mechanical adjustment.

P.C. (Darlington): Perhaps the catwhisker is pressing too heavily on the crystal, or perhaps not heavily enough. Either condition would have that result. Are you sure the crystal is quite clean? You should not handle it with your bare hands, you know. If dirty, it may be cleaned with a brush and soapy water. Tell us if you find any improvement.

A London taxi-cab is plying for hire, with a portable receiver attached.

One of the London-to-Dover trains is fitted with a broadcast-receiving set.

## Radiumorous Remarks

### THE LATEST IN TOOTHBRUSHES.

Someone has invented an electric toothbrush, guaranteed to give the teeth a perfectly scientific brushing. The human race is one day nearer the electrically groomed man and the electrically gowned woman.

They say that Brown, the jockey who rode the winner of the Melbourne Cup has been suspended for riding "Backward." Now read that again and grin.

"Worried" writes: "What can I do to avoid the high cost of telegrams?" Wire less!

An amateur transmitter the other night remarked in the course of a lecture which he was broadcasting, that Manly was a "shingle" beach. An enraged inhabitant of that suburb wrote to him, pointing out his error, and concluding: "Look at the sand." The "Am." wrote back as follows: "Dear Sir: Look at the GIRLS, Yours, ———."

A.: How do electrons spend their time in summer?

B.: Surfing in the wave lengths.

"Inquirer" asks: "How many receiving sets are there in Japan?" Ask a Japanesey one!

### OUR OWN BROADCASTING PROGRAMME.

(To be broadcasted the first week we arrange our 70,000 Watt Station—27689.M.J.K.L.F.C.P.—in working order. You only need to connect up your sewing machine, using an old umbrella as an aerial.)

Monday: Bedtime story by Humpty-Dumpty: "Never sit on a wall." Followed by the nursery song: "Don't be an egg."

Tuesday: Professor Tin will teach the new dances, the "Salary Slide" and the "Wages Wiggle," originated on Friday and now a weekly favourite.

Wednesday: Lesson in concentration. Professor Si. Lentworker will count the revolutions of an electric fan for thirty minutes.

Thursday: The entire evening will be devoted to an illuminating lecture by Mr. Hi. Frequency, on wireless elementals, including valuable technical advice on "How to Insulate the Ground."

Friday: Mr. W. Owser will perform a Volte-face. (We may explain to the more ignorant of our readers that a "volte-face" is the new way of counting the amperes and singing "Ohm, sweet Ohm.")

Saturday: Mr. New Castle-Diamond, the coal merchant, who has just returned from Paris, with all the latest appliances for delivering his product, will explain to those interested how he delivers orders either a la carte, or cul de sac.

Sunday: (Roll your own!)

## The Wireless Society of Newcastle

THE WIRELESS SOCIETY OF NEWCASTLE met at the Society's Rooms in the Y.M.C.A., High Street, Newcastle, on the 5th inst.

The annual report of the doings of this energetic Society is good reading for the wireless amateur. For instance, we note that an experimental radio-phone was installed by the Society by the sensible procedure of raising an internal loan (among the members) of a sum sufficient to defray expenses. As a result, regular test transmission of telephony was made right up to June, and reports were received from Victoria, Queensland and New Zealand, thus placing the Society "in the unique position of being the only club whose transmitter

has been heard outside Australia."

The Society is fortunate in being provided with quarters in Newcastle free of rent by the Y.M.C.A.

This was one of the first societies to affiliate with the Delegates' Council in Sydney. It has been represented on the Council by Mr. Olsen, the enthusiastic Publicity Officer.

The annual report also announces that a new unit receiver covering two valves is at present in course of construction, and should soon be in operation.

The Newcastle Society is a good example of what can be done by the expenditure of a little energy and enthusiasm. Good luck to it.

# The Ears of Radio!

The consistent demand for good Head-phone value has contributed towards the great popularity of Murdock's Solid Head-phones, the quality and low price of which have been made possible by the reduction of overhead costs consequent upon big sales all over the world.

Shipments to date have failed to cope with the demand, and radio enthusiasts will be pleased to hear that supplies are now to hand and are available at all radio stores.

Comfortable, efficient, reliable—and at a reasonable price.

2000 ohms **27/6** 3000 ohms **30/-**

Amalgamated  **Wireless**  
(Australasia) Ltd.

97 Clarence Street,  
Sydney.

Collins Street,  
Melbourne.

# MURDOCK'S Solid Headphones

Standard since 1904

VL

RADIOKES

# IMPROVE YOUR SET

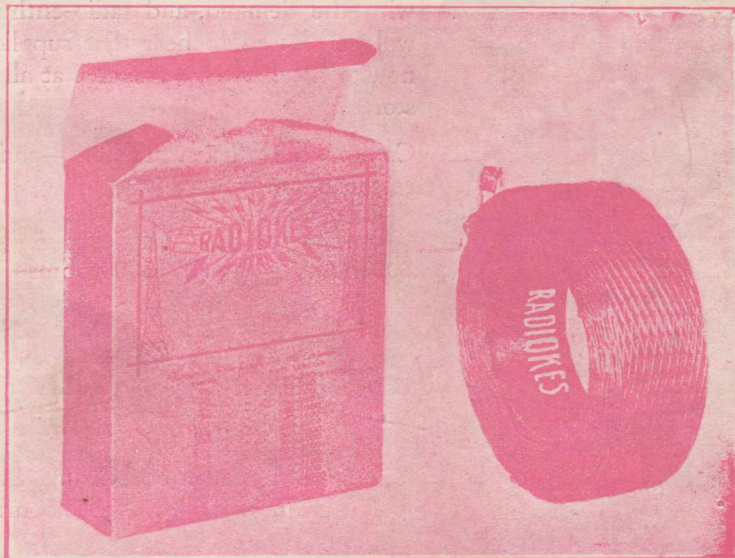
By Using

# Radiokes Honeycomb Coils

## Radiokes Coils

are wound to give ample spacing and are impregnated with special low-capacity compound

Ensuring



**Maximum Signal Strength**  
**Maximum Selectivity**  
**Maximum Mechanical Strength**

STOCKED BY LEADING RADIO DEALERS

TRADE ENQUIRIES :

**Keith Stokes Pty.**

**MONTANA HOUSE, 27 KING STREET  
SYDNEY**

Wholly Set Up and Printed in Australia by W. PIERPONT BLACK & CO., LTD., 304 Kent Street, Sydney, N.S.W., and Published by William Pierpont Black, Potts Point, for the Proprietors of "THE BOYS' WIRELESS NEWS, 304 Kent St., Sydney.