



WIRELESS WEEKLY

January 12th, 1923

WONDERFUL WIRELESS INVENTION.

NO LEVERS NO EXPERIENCE NO FAILURES.

WITH THE JUNIOR WIRELESS RECEIVING SET

A Wireless Set in Every Home at a Nominal Cost of 22/6 !

THE SMALLEST AND SIMPLEST SET IN THE WORLD—Measuring 3 x 3 x 1.

Solid Cedar Cabinet, Ebonite Top. Every Part made in Australia. Lasts a Lifetime, and Brings Wireless Signals to Every Home.
 No Experience or Examination Necessary.
 No Batteries or Upkeep.
 The First Cost, the Only Cost. Before Ordering a Big Set from your Dealer, Buy a "JUNIOR" Outfit from him for 22/6, and Learn to take Signals Every Night in your Own Home, from Ships and other Operating Stations. Outfit Guaranteed.

If you Post your 22/6, plus 1/- postage, YOU will receive your Outfit in due course from the Inventor—

Alexis V. Graham,

Phone City 8821.

7th Floor, Culwulla Chambers, Castlereagh Street.
 SYDNEY.

WHOLESALE DISTRIBUTORS:—

RADIO COMPANY,

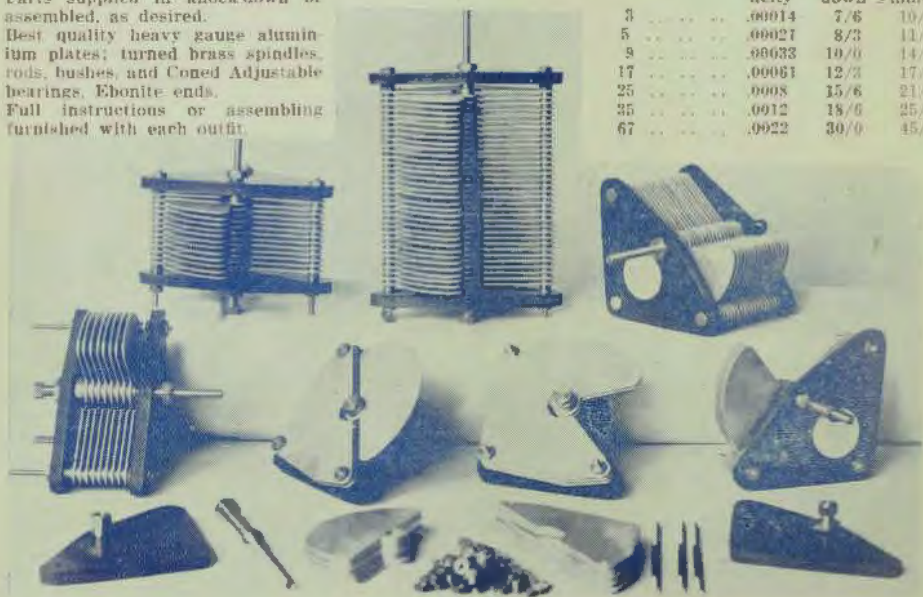
INQUIRIES INVITED FROM THE TRADE.

LANG AND GROSVENOR STREETS.

BUILD YOUR OWN CONDENSER.

No technical experience necessary. Parts supplied in knock-down or assembled, as desired. Best quality heavy gauge aluminium plates; turned brass spindles, rods, bushes, and Coned Adjustable bearings, Ebonite ends. Full instructions or assembling furnished with each outfit.

Plates	Cap-acity	Knock-down	As-sembled
3	.00014	7/6	10/-
5	.00027	8/3	11/-
9	.00033	10/0	14/-
17	.00061	12/3	17/-
25	.0008	15/6	21/-
35	.0012	18/0	25/-
67	.0022	30/0	45/-



"COL-MO" Apparatus is 100 per cent. efficient.

THE COLVILLE-MOORE WIRELESS SUPPLIES—

10 ROWE STREET, SYDNEY.

January 12th, 1923

WIRELESS WEEKLY

1

RADIO COMPANY.

To Amateurs:

Before making your set, both Transmitter and Receiver, consult us for Designs and Novel Apparatus.

SEE OUR WINDOW DISPLAY OF THE FAMOUS "SCOUT" RECEIVER.

PRICE - - - - - 22/6

We have Crystal and Valve Sets. Transmitting and Receiving Stations built to Specification. Prices on application.

COUNTRY ORDERS SPECIALLY CATERED FOR.

Don't forget our address :: ::

18 ELIZABETH STREET,

(Four doors from Hunter Street).

RADIO COMMUNICATION IN MINES

Experiments designed to demonstrate the possibility of radio communication between the shaft head and the lowest workings of a mine have been recently carried out in England by a party of Birmingham radio amateurs. The colliery used for the tests was chosen because its main shaft is one of the deepest in that country, nearly 700 yards. The receiving set employed in the experiments was of the three-tube type, and a temporary antenna was made by suspending a length of insulated copper wire between the top of the steel hoisting gear above the shaft, and an adjacent railway bridge. The ground connection was made by clamping a wire to one of the rails of the permanent way. From this makeshift arrangement, messages were heard from the station at Bordeaux. The portable transmitting set was first installed in the steel cage of the shaft, the aerial being insulated wire suspended in a lattice pattern across the roof the cage, the ground be-

ing a connection to the steel floor. It was expected there would be much "screening" on account of the steel framework of the cage, and by the structural steel work built inside the shaft for a depth of more than 100 feet. This did affect the first transmissions, which were begun from the cage at the top. As it slowly descended, however, signals became much stronger. When the cage was at a point 300 yards or so down, the maximum signal strength was attained, and this remained undiminished until the cage reached the bottom. When the bottom was reached—and here there was more steel work—the signals became inaudible. The transmitting set was therefore taken from the cage and a new aerial made by suspending the wire between pit props. The ground was improved by attaching the wire to a length of cable laid along the ground. The new arrangement resulted in faint signals being received above. A distance of nearly three-quarters of a mile was spanned by the radio set, working through solid earth. Radio telephony was tried and worked quite well.

NAUEN'S LATEST IMPROVEMENTS

Good progress is being made with the extension of the radio station at Nauen, in Germany, according to "The Engineer." It is expected that by the beginning of next year it will be possible to establish permanent communication with the new Argentine station at Monte Grande, near Buenos Aires. Four of the existing masts at Nauen, which are more than 300 feet in height, have been removed and replaced by a series of seven towers 688 feet in height, which provides four additional antenna circuits, each of which is served by a high-frequency alternator. The new antennas will be used for American, British, Canadian and European services. The distant stations, such as Cape Horn, South America, two or more antennas may be used together. The transmitting installation has been improved and enlarged, and the system of grounding connections has been extended.

 * * * * *
 * A TALK WITH "WIRELESS WEEKLY." *
 * * * * *

Has there been any move yet to get any kind of broadcasting scheme going?

"Wireless Weekly" has not heard of any such move, and we are beginning to wonder what forces, if any, are at work to prevent broadcasting.

Since this journal first made its appearance, it has strongly advocated that something should be done in this direction, for it is the only thing that will bring amateur wireless to the level at which it should be, and educate the general public to the advantages of the science.

It is common knowledge that

Sydney and Melbourne firms have sought permission to broadcast, but evidently this permission has been withheld by the authorities. We want to know why.

When the radio boom appeared in England, the authorities realised that there would have to be broadcasting, and they took steps to organise it. But here, in Australia, it seems useless to expect the authorities to make the first move in any matter, so the sooner those interested get the work the better it will for amateur wireless.

We suggest that all firms or companies willing to broadcast get together and thrash out the whole matter. There is surely some ar-

range ment that can be made with the authorities, under which there can be plenty of music in the air.

It costs money to run a broadcasting station, and as the regulations forbid radio as a means of advertising, no firm could be expected to send for the love of the thing alone.

The majority of amateurs are willing to pay a small sum toward the upkeep of broadcasting stations, and the amount of the method of collecting it could easily be decided upon.

Such a scheme is now in operation in England, why not try it here?

Get Your Wireless Gear at
ELECTRICITY HOUSE

387 GEORGE STREET (OP. STRAND). TEL. 2961 CITY
 Condenser Plates, 2/- per doz.; Condenser Spindles, 2/9 per set;
 Condenser Ends, 1/9 pair; Honeycomb Coils, from 3/6; Honeycomb
 Mountings, 3/- each; Filament Resistances, 7/6 each; Calibrated Dials,
 1/6 each; Knobs, 1/6, 2/-, 2/6 each; Contact Studs, 1/9 per doz.;
 Switcharms, 3/-, 4/6; Terminals, 6d. each; Phone Condensers, 1/6;
 Grid Condensers, 1/6; Variable Condensers, 25/-, 30/-.

Murdocks Phones, 37/6; Myers Valves, 35/-.
 Catalogues, 9d. each including wiring and other diagrams. All makes of
 Telephones and Valves.

Crystal Cnps, 1/-; Detectors, 5/- each; Loose Couplers 45/-; Cabinets,
 Ebonite, Bakelite and all round materials.

INTERVALVE TRANSFORMER, 45/-.
 Closed Iron Core.

Works Manager: RAYMOND McINTOSH.
 Shop Manager: RAYMOND SHAW.
 General Manager: J. S. MARKS.

All communications to the Firm.

**SMALLEST RADIO SET
 IN THE WORLD.**

The smallest radio set in the world, contained in a ten-grain capsule, was on exhibition recently in the Woolworth Building, New York City, at the office of Dr. Miller Reese Hutchinson, formerly chief engineer for Thomas Edison.

Attached to a wire connecting it with an aerial extending from Dr. Hutchinson's office the entire program, broadcasted from WJZ in Newark, New Jersey, was distinctly heard by a number of radio enthusiasts who were present at Dr. Hutchinson's invitation.

WAVES AND THEIR MOTION.

BEATS AND THEIR FORMATION

By C. W. Mann.

In my last article I outlined the types of waves which can be formed, and their mathematical construction on the principle of Simple Harmonic Motion, S. H. M.).

The waves given out by spark machines are alternating, that is

with periods of lesser tone. These throbbings are known as "beats."

The same experiment can easily be arranged by means of two tuning forks of the same pitch (which also means of the same frequency and wave lengths). On the prong of

other, and the resultant amplitude is twice that of each of the component waves, and, remembering that the loudness of tone depends upon the amplitude only, we can thus account for the increased volume of sound.

This idea of superimposing waves is very important, and a clear understanding of it is necessary. Waves drawn accurately as in diagrams (Fig. 1 and 2) may be superimposed, and the resultant wave is represented by the algebraic sum of the component waves. If you will trace out the formation of the curve in Fig. 3, from the curves of Figs. 1 and 2, you will readily grasp the idea. Let us take, now, two waves having slightly different frequencies, and draw accurately the curve of their SHM., as in Figs. 1 and 2. The wave having the curve represented in Fig. 1 has a slightly shorter wave length than the wave of Fig. 2. Now draw the resultant wave curve by taking the heights of the waves above the axis at corresponding points in the axis, and add them (algebraically) calling the upward direction the positive (+), and the downward the negative (-). Plot these points and draw a curve as in Fig. 3. It is readily seen that at one position the curve has twice the amplitude of the components, and at another position the amplitude is about the

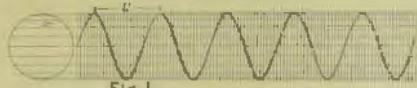


Fig 1.

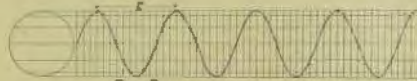


Fig 2.

to say, they surge backwards and forwards. The crystal rectified acts in such a way that only the impulses of one direction are allowed to pass on account of the high resistance to the passage of electrical surges, between the point and the crystal. Now, a good deal of energy is perforce wasted when the change of direction takes place in the formation of the wave-train. To obviate this loss and hence secure greater range, continuous waves having a constant amplitude are sent out by valve transmitters. These cannot be picked up by crystal receivers for a reason which can be explained later. The principle underlying the reception of C.W. by valve sets is based upon Beat-Reception or the Heterodyne.

Let us imagine what happens when two waves of slightly different lengths are given out. Suppose we take a zither or harp and arrange two adjacent strings so that they are slightly out of tune. This can be done easily by keeping one string constant, and altering the length of the other by the key used for tuning. If you pluck the strings and listen carefully, you will recognise throbbing, that is, periods of loud tone alternating

one of the forks place a small piece of wax, and then strike the two forks. Beats will be formed on account of the differences of frequency of the waves sent out by the forks. The conditions necessary for the formation of beats are (1) The waves must be nearly equal in length (must have nearly the same frequency); (2) Must have equal amplitude for maximum effect (i.e., equal loudness of tone); (3) Must be travelling to the same direction.

Now, for a physical explanation of the phenomenon, give play two notes of exactly the same frequency and amplitude, we should naturally

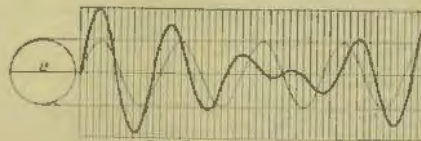


Fig 3.

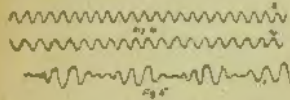
expect to get twice the strength of sound, and this is actually what we do get. The reason is not hard to find. The wave from one note is superimposed in the wave from the

axis, indicating a small amplitude. Thus the two waves under consideration have at one time boosted each other (while "in step"), while later they have counteracted each

WAVES AND THEIR MOTION.

other (while "out of step"). In the former consideration the resultant is at maximum strength, while in the later position the sound is at the minimum. Briefly, when we have two wave trains of slightly varying frequencies there are positions in the wave train of maximum and minimum amplitude. Thus, the character of the continuous wave has been destroyed, and in its place we have substituted a resultant wave which beats. The smaller diagrams indicate the same effect, but are not drawn mathematically accurate.

The number of beats per second can be found by subtracting the frequencies of the component waves. In musical waves the beats become annoying when more than five per second, and merge into other tones at 35 per second.



In the application of the principle to W/T, use is made of the oscillations of the receiving valve. In order to pick up CW we have shown that it is necessary to have a device which will oscillate at a slightly different frequency to that of the wave we are desirous of picking up. In a crystal set this is not possible, no oscillation other than that caused by the incoming wave being present. In valve sets, by the use of reaction coils, tickler or other arrangements, the frequency of the oscillation of the receiving valve can be adjusted, so that it is slightly out of tune with the incoming wave, and the beats are registered in the phones.

Of course, the frequency is very great, and beats are not picked up as separate beats, but rather as trains of beats separated by intervals of silence. Each train of beats is represented by a dot or a dash, and thus can be read in the phones. In a later article I hope to deal with the subject of resonance and its application to wireless telegraphy.

EXPERIMENTERS.

Wireless experimenters will doubtless be interested to learn there is still another place in the city where they can obtain information and see new gear. The Radio Company, under the manager of Mr. F. Basil Cooke, opened its doors to the public on Monday last at No. 18 Elizabeth Street.

Although the carpenters were still putting the finishing touches to their work in the shop and the goods were not displayed in the window, still there were a large number of enquiries. This is a sign of the times and shows that the Australian Wireless Amateurs are constantly on the look-out for new ideas and apparatus.

When interviewed by "Wireless Weekly," Mr. Cooke was very hopeful of the future of wireless in this country. He said there was plenty of room for all, and with the ever-increasing number of amateurs, the retailers would shortly find they would all be working to their full capacity.

Several novel designs of both Crystal and Valve Receivers were displayed, and the Radio Company hopes to be able to supply the experimenters with all his requirements.

RADIO CLUBS.

Publicity Officers and Secretaries are requested to see that their copy reaches us on Friday of each week for insertion in the following week's issue.

"Wireless Weekly" begs to notify its readers that it guarantees the goods offered for sale by Advertisers in its Columns, and has always reserved the right to accept or reject Advertisements.

THE "COL-MO" VARIABLE CONDENSER.

This piece of apparatus has been specially designed to meet the present demand for a thoroughly reliable, efficient and inexpensive condenser, suitable for wireless receivers, amplifiers, and C. W. and radio-telephone transmitters (low power), the latter requiring mica or bakelite dielectric between the plates.

One of the outstanding features is the ease with which the condenser can be assembled from a set of knock-down parts. This is made possible by the automatic process of manufacture, whereby every part of adjustment, such as spacing washers, &c., are gauged to the thousandth part of an inch. The turned brass spindle, threaded 3/16th at knob end, which carries a moveable plate, and which revolves in coned and pivot adjustable brass bearings, is another feature of note. The heavy gauged aluminium plates and ebonite ends are of the best material procurable.

This condenser can be mounted in either horizontal or vertical position, and is guaranteed.

RADIO OUTFITS FOR MEXICAN LIGHT-HOUSES.

The installation of small radio outfits in all lighthouses of the Mexican Department of Communications is reported in the Mexican press. Two sets of the apparatus are being installed on trial, after which, if they prove satisfactory, all lighthouses will be similarly equipped.

RADIO SETS and Parts to make your own



Send for Price List.
ELECTRICAL UTILITIES SUPPLY CO.
RADIO HOUSE
605 GEORGE STREET, SYDNEY.

ANOTHER WONDER.

TYPEWRITING BY RADIO.

Another chapter has been added to the wonderful story of radio. So many and so remarkable have been the adaptations of this method of communication, that the interested observer of the world's progress scarcely has the time to familiarize himself with one mode before another appears. The latest achievement is the sending of typewritten messages through space (writes H. A. Lane in "Popular Mechanics"). This feat has been accomplished through the efforts of radio experts working in conjunction with the Navy Department, who have thoroughly demonstrated its practicability for scout and battleplanes in time of war. Also, radio typewriting represents added efficiency for business methods.

To the casual onlooker, the sending apparatus of the outfit resembles the ordinary commercial typewriter of the portable kind; that is, as far as the keyboard is concerned. The usual radio equipment is carried on the plane, and in addition to this, the keyboard mechanism of the typewriter is installed in such a manner as to control the modulation circuit of the electron-tube transmitter. Thus, when a letter is struck on the keyboard, an impulse is sent out and received at a station on the ground. The receiving station, of course, has similar equipment to that on the

plane. When any particular letter or number is depressed on the keyboard of the sending apparatus a certain radio-active energy is released from the antenna of the plane and travels through the air. This is the common nature of radio.

Before any station can intercept these impulses, however, and decipher them, it is necessary to possess the same delicate and complicated apparatus that is used on the plane. Thus the messages are secret. As a further precaution, the keys on the sending machine may be arranged in different sequences, so as to emit different impulses, the change of letters being previously understood, of course, by the station to which the messages are being sent. Any change in the sending keyboard would have to be duplicated in the receiving instrument.

The value of this invention in the transmission of secret orders and reports, during the manoeuvres of an army or fleet in war time, is thus clearly apparent; no less is its efficiency in the commercial world. Hotels, department stores, police and fire departments, in short, any organisation that directs a large force of employees from a common center, may be benefited by another adaptation of this machine, which operates similar to the telegraph except that the messages are printed on a tape instead of appearing

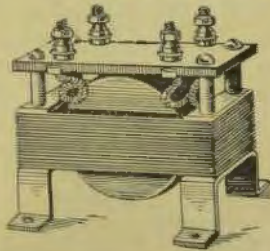
in code. It is, in reality, a printing telegraph. Hotels operating under this latter system, have an efficient method of catering to the interests of the guests by giving rapid service, of which the following supposition might serve as an instance.

A room occupant notifies the switchboard operator of his intention to leave hurriedly. The guest requests that his laundry, baggage and mail be taken care of, and that a taxicab be ordered to take him to the railroad station. The sends a message via the printing telegraph attendant immediately telegraph machine. This message is received simultaneously by the laundry, baggage, and mail clerks, the cashier, taxicab stand, and the captain of the bellboys. The hurrying traveller descends to the desk to pay his bill, and is extremely gratified to find everything in readiness for rapid departure.

In the meantime, the hotel management, as stated above, also derives benefits from this system in another way than merely by having pleased the late guest. The original message from the switchboard operator's machine is received by the floor clerk, whose duty it is to see that the vacant room is quickly made ready.

INTERVALVE TRANSFORMER.

CLOSED CORE—FOR AUDIO FREQUENCY AMPLIFICATION.



This Transformer, which is scientifically constructed, is of the shell type. It is simple, reliable and compact. Maximum results are secured. The complete measurements of this Transformer are 2½ x 1¼ x 1¼ in. It is provided with feet in order that it may be mounted in any desired position.

Price - 45s.

Postage 6d.

Homecrafts Melbourne
P.H. MELROY
211 SWANSTON STREET

 MAKE YOUR OWN.

The average experimenter usually has a crystal detector among his apparatus, even though he uses a multi-valve set. Crystal work is very interesting, and for those who do not happen to have a detector; or those who need a neat little one we give the following directions for its construction:—

From a piece of hardwood, or any wood that will give a nice finish, cut a block four inches long, three-quarters of an inch wide, and half an inch deep.

Round off the top of the sides and the ends, and shape the corners to give it a neat appearance, and smooth it down with fine sand-paper. Give the block a coat of varnish, and let it dry thoroughly.

Three ordinary terminals are now needed, together with a strip of thin brass, half an inch wide. Cut two pieces, each an inch long, from the brass strip, and a quarter of an

inch from the ends drill a hole that will take the base screw of the terminal. Drill corresponding holes in the wooden base, and mount the terminals with the brass strips between them and the top of the base.



Countersink the holes on the under side of the base for the heads of the terminals, so that the base will stand flat.

There is now a vacant hole at one end of the base. This is to take the crystal holder. The holder is made with two and a half inches from the strip of brass. Drill a hole, similar to the others, in the

centre of the strip, and slip it under the piece of brass held on to the base by the single terminal. Secure it firmly in position across the base by means of a small nut and bolt, and bend the ends up to form a grip for the crystal.

An ordinary "catwhisker" is now secured in the first terminal opposite the crystal holder to make contact with the crystal, and the detector is now ready for use.

If the metal parts used in the construction of this detector are nickelled, and the base nicely shaped and varnished, a very neat little piece of apparatus is the result. It is very suitable for mounting on top of a cabinet, or screwing to the wall or table in the wireless room.

If made properly, the detector will be absolutely efficient in every way.

A QUALITY PHONE AT QUANTITY PRICE.

**TRIMM "Professional" HEAD SET.
 3000 Ohms.**

Perfect Reproduction and Articulation at any Range.
Weight Only 10½ ozs.

**THINK
 OF IT?**

A strictly high-grade perfectly matched headset—the famous TRIMM Professional, now priced as low as sets of ordinary quality. The remarkable preference everywhere shown for the TRIMM by discriminating radio enthusiasts, and the greatly increased output required to meet the demand has made possible savings in manufacturing and selling expenses. These savings are reflected in the price. The quality remains the same.

Compare these specifications with any head set on the market at any price, and see why the TRIMM "Professional" is the biggest value in the Head Set Field: . . . Moulded Bakelite cases and ear caps, which will not warp or crack like cheap composition, no exposed metal parts to become tarnished; single bar Tungsten steel magnets formed to shape to insure uniform tempering and magnetizing; coils wound with maximum number of turns of No. 40 enamelled wire to full resistance of 3,000 ohms; reinforced terminals of stranded wire brought out from coil windings to solder clips; coils covered with insulating cloth—no fine wires exposed; arrester gap across cord terminals; improved type head band covered with resilient tubing—comfortable, light weight and distinctive in appearance.

PRICE 39/6

Obtainable from all Wireless Supply Houses.

Sole Australian Agents:

O. H. O'BRIEN & NICHOLL (SYDNEY).

Phones: City 3302, 10592.

37-39 PITT STREET, SYDNEY.

AN AMATEUR STATION IN AMERICA.

Elaborate equipment is contained in a private radio station at Parkesburg, Pa., which has three licenses, "3 Z O," "3 X W," and "3 O I," these covering any combination of wave lengths not reserved by the navy. A number of transmitters, including a spark set of 325 meters, a radiophone set with a wave length of 3660 meters, an open arc set operating on 2500 meters, and a fifty watt vacuum-tube, self-rectifying set working on 360 meters, are installed in this station. Four generators of 100, 600, 1000, and 4000 volts, furnish the direct current for the outfit, the receiving apparatus of which is inclosed in zinc-lined

rooms, while the cabinets and lamp closets are constructed of the best bakelite.

The antenna is erected 185 feet in the air, and is 350 feet in length, messages and music being received from New Mexico, Maine, and the coast of Wales, which are relayed to other small stations or broadcast through a gigantic megaphone for a distance of seven miles. In connection with this station, a complete broadcasting and receiving set has been mounted on a motor truck chassis, and is inclosed in a miniature house which has windows in the sides, a door at the rear, and is equipped with adjustable aerial masts. The mobile equipment tours the suburban districts in an effort to arouse the people to a greater interest in the wonders of radio.

MAGNAVOX RADIO.

The Rolls-Royce of Reproducers.

The one loud speaker which will reproduce music and signals in any volume without distortion and without injury to the apparatus.

Dispense with the Head-Phones,

AND LET EVERYONE IN THE ROOM HEAR.

A BIG DEMAND HAS BEEN CREATED.

BE SURE OF GETTING ONE.

Call, write, or 'phone,
MAGNAVOX, AUSTRALIA.

**17, THE BANKING HOUSE,
228 PITT STREET, SYDNEY.**

Phone: City 3710.

MODELS.

No laths needed to build this horizontal steam engine 7in. long 3/4in. x 1in. cylinder 47/6 post free.

LISTS 6D.

O. BURNABY BOLTON,

Daily Telegraph Building,
KING STREET, SYDNEY.

TRANS-PACIFIC RADIO TEST ORGANIZATION.

A meeting of all radio experimenters interested in the Trans-Pacific tests was held by the organization committee on Tuesday night in the Railway Institute. There was a very large attendance and an enthusiastic meeting was held and a lot of general business discussed.

The committee reported that the following list of persons had offered to donate prizes:—

A committee was appointed to decide what the prizes were to be offered for, consisting of Messrs. Perry, Bowman, Harvey, Marsden, Colville, and Gorman.

It was decided that every experimenter should be urged to enter as soon as possible in order to speed up the organization as the committee cannot complete the arrangements until they know how many are going to enter and where they are situated.

Stations Entered for Trans-Pacific Tests.

Station 2C.M.: Messrs. C. D. Maclurcan, F. Basil Cooke, and Joseph G. Reed, situated at Agnes Street, Strathfield.

Station 2A.R.: W. H. Hudson, 1 Terrace Road, Dulwich Hill.

Station 2H.J.: J. Spencer Nolan, "Monesk," Bellevue Road, Double Bay.

Station 2I.X.: Burwood Radio Club, to send Calibration Test.
Station 2I.D.: R. J. Sharpe, Bell Bird.

Station 2F.A.: S. V. Colville and A. L. Moore, Drummoyne.

Station 2J.M.: R. C. Marsden, Edgecliffe.

FURTHER ADDITIONS TO THE PRIZE LIST.

Western Electric Co.
Sydney Motor and Dynamo Co.
Universal Electric Co.
Mr. J. H. Dewis.



CONSIDERING—

Our 50 years' experience in designing and manufacturing telephone apparatus you will do well to investigate the

Western Electric RADIO APPARATUS

before equipping your set. In order to obtain the best possible results from your outfit, get in touch with us and let our experience guide you to better results. If you cannot obtain Western Electric service through your regular radio dealer, communicate with us direct for the best results—get the Western Electric.

WESTERN ELECTRIC COMPANY (AUSTRALIA) LTD.

192 Castlereagh St., Sydney.
(A few doors from Park Street)

Making the Radio Department Pay.

Now that Australia is in the grip of the Radio boom, many shops are retailing apparatus. There is no doubt that the sale of wireless gear is a special study, and some interesting comment, much of which could be applied to local conditions, is contained in the following article from "Radio Broadcast."

We can sometimes understand how a certain thing may be done properly, by first learning how it should not be done. "We all make mistakes, but only the wise profit thereby"; and it would seem that the lesson might just as well be taken from the errors of the other fellow. Since by learning the pitfalls it is easier to hold to the correct road, let us study some of the pitfalls in retail radio merchandising.

No matter how long a radio department or a radio retailing company has been in business, if it is to continue, it must keep alive to the newest developments. The departments of this character which are making record sales are run by men who live and breathe the atmosphere of amateur radio; they know the amateurs' pet expressions, their whims, and their enthusiasm; they can talk intelligently with the amateurs, because they are generally amateurs themselves when their daily work is over. Having their own outfits at home, they can think as the other amateurs think because they frequently encounter the very same difficulties their customers come in and tell them about.

Dealers and the Radio Clubs.

There are not enough dealers who belong to radio clubs. Those who do are generally observed to be successful. Naturally, some dealers have little time for the radio club, which they sometimes consider nothing more than a gathering of youngsters, anxious to exploit their knowledge. This knowledge is oftentimes profounder than the dealer's own, and he could learn a thing or two if he would spare the time. Other dealers do not like to attend, because they know that their own knowledge is not so great along radio lines as that of some of the younger members of the club, and they feel that their prestige can

best be upheld by aloofness. That is a sad condition, but it may be remedied.

There is a man in one of our Southern cities who has been retailing electrical apparatus and sundries for many years. His business has been very successful. When radio came along—that is when it began to gather a little strength—he realized that it would be a good line to handle and he stocked up. He could afford to spend as much as he desired to furnish such a department, and he ordered just about everything there was listed in radio catalogues and began to get all the radio business for miles around. He not only got the radio business, but managed to pry loose some of his competitors' best customers. (The value of a radio department does not terminate with the department itself, but let us consider that more specifically anon).

A second dealer soon realized that he was going to suffer more than a small loss, if he did not do something to stop the other's inroads upon his trade. Instead of taking up some radio magazine, making a list of the advertisers, and ordering apparatus from them, he joined a local radio club. For some reason or another he was not held in very high esteem by the young folks of the town but he was permitted to join the club. Then he attended a radio school during the evening and picked up information on both amateur and commercial radio. He read and he listened and he learned—then ordered, not a lot of miscellaneous parts, which were advertised as being for use in connection with radio, but units and sundries for which he knew there would be a demand.

His stock, upon the receipt of his initial order, was just about as

great as you would find it if you went into his store to-day, and its value was just about one half that of his competitor's. There was little deadwood and it has only been necessary for him to make a few additions to his line occasionally and re-order what he has sold.

He did a little advertising and the amateurs began coming into his store; some of them out of mere curiosity. He made every effort to satisfy them, and he is now selling most of the apparatus in that particular city. His competitor still has a large stock and probably will have until he wakes up.

Now, the successful dealer did not sell his apparatus simply because he happened to study the "game" and gradually pick up a knowledge of the equipment which would be in demand; it was because he could talk intelligently with his customers; he could give them advice concerning their purchases which would help them to get the greatest satisfaction from them; he knew their needs and could supply them. His competitor, however, could have sold the same units, for his stock covered about everything needed for radio, but the only knowledge he had of them was their trade names and the prices he paid for them and for which they should be sold; he knew nothing of how they were to be used. In the beginning, he secured the trade because he was the only dealer in the vicinity who could supply the demand; he lost it as soon as his competitor was in a position to supply the demand intelligently.

One of the Best Forms of Advertising.

At the radio club, the second dealer, by nothing but consistent

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application and attention, managed to break down the original feeling against him. The fellows admitted that he knew what he was talking about. The club was not endowed with great funds for the purchase of equipment, so, when any particular lecture was to be given, the lecturer would only have to seek this man who would loan all the apparatus necessary for the actual demonstration of the lecture. Can you beat that for advertising?

The practice of one club member's telling all about some new wrinkle and showing how it could be done with apparatus which could be purchased at the local store, soon became a regular thing and the sales went up with leaps and bounds. This particular dealer now requires two counter men to take care of his radio trade, and he does a good mail order business as well.

The men who are behind his radio counter were selected from the best amateurs in the city and he pays them well. They, also, are members of the local radio club and have stations of their own. One of them teaches radio in a local evening school.

Going Out Miles to Gather in Sales.

There are so many good points about this business and the method of carrying it on, that we may well consider more of them. At his home, this dealer has erected a complete radio station; he didn't go and hire someone else to do it, but put up the whole shebang himself, to learn just what sort of a job it was. He can work with other stations within more than a hundred miles of his home and, in this way, can keep in personal contact with many of his mail-order customers. They meet him via the air, and they buy from him because they happen to "know" him.

Both his counter men continue to operate their amateur stations, and, by reason of the fact that they are well-known in amateur circles, have a following which they bring to the store merely by being connected with it. They have many a chat over the wire, and are able to let the fellows within miles know how things are progressing.

Do you wonder that this dealer's competitor frequently dis-

plays radio equipment in his window, with cut-rate price tags attached to it? He is certainly up against a stone wall, when trying to buck such an efficient radio department as this. The progressive dealer, by the way, has managed to increase his business not less than 20 per cent. a month, even during the comparatively dull summer period.

A Bad and Common Blunder.

It makes little difference what you are selling; the fault we will now consider may be found just as often in the sale of automobile tires, frying pans, or cut-glass bowls, as in radio.

Bill Jones ambles up to the radio counter and asks to see a set, made by the So-and-So Company, and this is about the sort of thing that happens frequently:

After Bill has made known his desire to the man behind the counter, who happens to belong to the same radio club and with whom he is acquainted—let's call him Jack.—Jack's face lights up and he says: "Why, Bill, you are here just at the right moment to get all the dope on a So-and-So outfit." Then, nodding in the direction of a gentleman further down the room, he says, "I want you to meet Mr. Smith, who represents the So-and-So Company, and who is going to give us a little talk at the club this evening. Mr. Smith, meet Mr. Jones, one of our prominent amateurs and originator of the greatest little portable transmitter you could imagine; he is going to have it over at the club with him to-night."

There is nothing apparently wrong with such an introduction, but let us examine what follows right in its wake. The set which Bill Jones came into the store to buy is now the least of his troubles. He has heard about Smith and wants to know what sort of a fellow he really is. It is then up to Smith to "sell" Smith to Bill Jones. Bill begins to find out all about Smith by describing to him the portable transmitter he, Bill, has perfected and bases his opinion of Smith by the interest he displays in the recounting of the wonders of the outfit.

Smith, of course, has to listen with great patience and register interest, though he may have heard similar stories in the last ten towns he visited; he has to agree what a wonderful little out-

fit it must be and all that sort of thing. Then he has to tell Bill all about the So-and-So Radio Company—going over, for this one man, the whole story he is to tell the club that evening. Finally, he must sell Bill the outfit he came into the store to buy.

In the meantime, all the customers who happened to be at the radio counter at the time of the introduction, likewise forget that they came to make purchases and listen to the conversation of the two, who are reputed to be well versed in radio technique.

The radio department goes out for the air, so to speak, until Bill has made his purchase, and a lot of nice things to Smith, hoped he would surely see him at the club in the evening, and made his departure. Other customers who happen into the store and meet friends at the department, have, "There's Smith, of the So-and-So Radio Company", whispered to them. Bang! for everything they had in mind when they came in, and it is not at all unlikely that Smith will be called upon to perform again, before he has a chance to grab his hat and bag and escape.

This sort of thing happens so frequently and with such a great loss of time for the entire department, that it is decidedly to be avoided. The better practice to follow is for Jack, behind the counter, to sell Bill Jones everything he wants to buy; clear everything off that slate and then, without any fuss, make the introduction. Smith will not then have to sell first himself, then his company and the set which Jones came into the store to buy. Those who desire to meet Smith will have the opportunity at the club meeting which, after all, is the proper place.

The man behind the counter should make every effort to hold the patron's attention until there is no further prospect of sales rather than divert his attention to other persons or events.

Here's Another.

Many dealers fall absolutely to take advantage of some of the manufacturer's efforts to make sales easy for them. A customer asked for a certain radio set in a store where I happened to be making a few small purchases. The salesman did not have the unit he wanted—that is, not the

MAKING THE RADIO DEPARTMENT PAY.

desired make, though there were units designed for identically the same use, made by three other manufacturers, in his show case. The customer had a general knowledge of what the unit was to be used for, from a description he read in a catalogue, but he did not know what the thing looked like. When he was told there were none in stock he took it for granted that he would have to look elsewhere. Without his knowing it, I followed him to another store and hung in the office while he was being waited on.

In the second store, the man behind the counter also had to tell his customer that the stock of the particular units he sought was depleted, but there was another unit designed for the same purpose and he had a number of them in stock, asking if his patron would like to see it. Of course he wanted to see it!

So down came a little cardboard box from among a number on one of the shelves, the tissue paper was quickly removed from the unit after the box had been opened, and the unit was then placed in the customer's hand. Do you suppose any sales talk was necessary? Not a bit of it! The fellow who wanted to buy that article was so tickled to have it actually in his hands that he could hardly wait to have it wrapped.

In the first instance, the man behind the counter could just as well have made the sale, in fact he could have sold a unit which

was less costly than the desired one, and which would also have yielded him a greater profit, but he let it slip by because he did not know what the units were used for, and the one called for, instead of going under its technical name, carried a trade name. The man who did make the sale, as it happened, disposed of a higher-priced article than the one called for, because he knew his stock and the uses to which it could be put as well as the substitutions which could be made without resulting in less service to the consumer.

It is this service to your customers which will determine the value your radio department will be to you. If you are not well versed in radio, you will do well to put men behind your counter who are, or the success which should follow the sale of radio equipment will not come up to your expectations." On the other hand, if your department is well directed the profit will surprise you.

Anglo-American Book Shop.

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Q.V. BUILDINGS

**459 GEORGE STREET,
SYDNEY.**

All the Latest Wireless Books and Magazines in stock, posted anywhere

Mr. COOKE REPLIES TO MR. STOWE.

The Editor,—

"Wireless Weekly."

Sir,

With reference to Mr. Stowe's reply to my letter re the Trans-Pacific Test, I would like to state that the official reply published in the same issue as his, so amply explains the position and answers Mr. Stowe that it would be surplusous for me to comment further.

The Central organising committee was appointed with the full sanction of the representatives of the various clubs who were present at the inaugural meeting in December last. Further, the fee of 10/- was decided after a very careful debate as a necessary fee to cover all the expenses which must of necessity be incurred in such an undertaking. Further, it should be remembered that the test has originated from Melbourne, and they have courteously given New South Wales an opportunity of taking part in their experiment. It therefore behoves us all to respect their wishes in so far as having a central organisation committee, whom they can directly deal with.

With respect to the various other matters, it might be as well to remind those who are dissatisfied that all amateurs were invited to the original conference when the whole matter was gone into thoroughly, and although the meeting was very well attended, it was unanimously decided to entrust the scheme to the Committee. Doubtless there will be mistakes made, but time is so very short now to complete arrangements, and for us all to get our sets made, that any attempt to re-organise at this eleventh hour would be disastrous. The success of this test will mean a great thing to the Australian Amateur, and for the benefit of all it would be well for every one of us to forget our grievances and fall in line with the committee. This seems the only way to making the test the complete success we all hope it will prove to be.

Yours faithfully,

F. BASIL COOKE.

De Forest Radio Equipment.

The name that stands for Efficiency.

All classes of this Apparatus now on hand.

MURDOCH'S CONDENSERS, Variable, Die-casted Type.

Headphones, Rheostats, BROWN'S PHONES, 8000 ohms.

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352 KENT STREET, SYDNEY.

January 12th, 1923

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KURING-GAI DISTRICT RADIO SOCIETY.

At the last meeting of the Kuring-gai District Radio Society held on December 12th, a Committee was formed to go into the matter of the Trans Pacific Tests.

Following is a report of the Committee's activities to date:—

On 22nd December the Committee met at Mr. Wilson's Office, Equitable Buildings, Sydney, at 5.30 p.m. having previously arranged for Mr. Malcolm Perry, Chairman of N.S.W. Committee to be present and explain the proposed method of conducting the tests.

Mr. Perry accompanied by Mr. Harvey, Hon. Secretary of the Committee were both present and after formal introductions Mr. Perry went deeply into the arrangements of the Committee up to date. He outlined that at a thoroughly representative meeting inclusive of the majority of the wireless organisations within the Metropolitan Area had been held in the city on the 6th December, at which it was unanimously decided to form a Committee to carry out the necessary organisation for successfully conducting the reception of the signals arranged to be transmitted by American Amateur Experimental Station in May 1923. The main points of such organisation were viz.:—to avoid as far as possible interference between local Experimental Stations conducting the tests, on account of the probable use of regenerative circuits causing local interference with one another and to obviate interference likely to be caused by outside experimenters listening in although not participating in the tests. In regard to the latter point, he explained that the Committee considered that there was an obligation upon all such non-

participating experimenters not to operate their sets during the period of the tests which was for one hour each night for about one month. He considered this was no hardship on local stations as the tests were arranged to take place between 6 and 7 p.m. each evening.

He pointed out that it was necessary to defray the expenses incurred by the Committee without it falling unduly on the shoulders of one or two, hence the Committee had decided that it was only fair that an entrance fee should be charged to those stations were officially recognised for the purpose of the reception of the test signals. This was being done in America where the transmitting stations were required to pay an entrance fee of five dollars, roughly equivalent to £1 sterling consequently in fixing the figure at 10/- for the receiving stations it was felt that no exception could be taken to their action.

The Committee did not propose to limit the number of entries but felt it was necessary that they should be so organised not to be too close together for the reason previously explained regarding interference. It was also hoped that a sufficient surplus from entrance fee and donations would be available to enable suitable prizes to be given. Mr. Perry then went on to say that a Prize Committee was to be formed representative of the foremost local experimenters not participating or as might be otherwise arranged to ensure equity in this regard.

Forms had been prepared and forwarded to registered experimenters giving full details of the movement in order that the Committee's work might be so far facilitated in that they would know definitely the amount of sport they could expect in N.S.W. Finally he stated that the closing date for entries had been fixed for the 28/2/23. Messrs. Wilson, Mingay and Renshaw then discussed these proposals very fully with Mr. Perry and were impressed with the local Committee's enthusiasm and promised that the Kuring-gai District Radio Society would use its best endeavours to assist the Local Committee.

NORTH SYDNEY RADIO CLUB.

The North Sydney Radio Club held their first meeting of the year on Tuesday the 2nd inst. when there was an exceptionally large attendance.

The chief attraction of the evening was the lecture, delivered by the Vice-president (Mr. Raymond McIntosh) upon the subject of "Wireless Telephony" which was so well received that it has been decided to ask Mr. McIntosh to lecture again upon the same subject in the near future.

The Club regret that owing to severe damage having been sustained by their apparatus it is doubtful whether it will be in working order by next Tuesday night when the next meeting will be held.

CLUB ROOM BROKEN OPEN.

Members of the North Sydney Radio Club received a shock when they opened their clubrooms after the holidays.

It appears that while the rooms were closed some unauthorised person, apparently in possession of a key entered the place and caused considerable damage to the club's set besides leaving the room itself in an indescribable condition.

The opinion is expressed by some that the damage was caused maliciously and steps have been taken to discover the culprit.

Just Received from America.

MAKE YOUR OWN SETS.

TWENTY RADIO PHONE DIAGRAMS and hook ups of Crystal and Audion Receiving Circuits, Amplifying Circuits, Regenerating and Sending Circuits 3/6

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14 Radio Formulae and Diagrams for the advanced Radio Student 3/6

Obtainable at

The N.S.W. Bookstall Co. Ltd.

476 George Street Sydney.

AMATEUR CALLS

VICTORIA.

The following is a list of Licences issued to amateurs in the State of New South Wales to the end of October, 1922:—

Call Signal.	Name.	Address.	Nature of Licence.
3 B I	C. R. Whitelaw	Mooroolbark	T.
3 B I	F. Duffy	3 Smith St., North Richmond	R.
3 B J	J. W. Zosky	234 Faraday Street, Carlton	R.
3 B K	W. Thorn	37 Chrystobel Crescent, Hawthorn	R.
3 B L	J. C. Fitchett	Salisbury Street, Balyn	T.
3 B M	H. K. Love	"Lindum," Ferncroft Avenue, East Malvern	R.
3 B N	S. W. Warren	38 Glenferrie Road, Kew	R.
3 B O	T. P. Court	"Melvine," Sorrett Avenue, Malvern	R.
3 B P	J. H. Hood	123 Walsh Street, South Yarra	R.
3 B Q	W. F. M. Howden	"Enslough," Hill Street, Box Hill	R.
3 B R	T. Moss	"Wahroonga," Wahroonga Crescent, Murrumbena	R.
3 B S	H. S. Nicol	"Parkside," Yarram	R.
3 B T	B. Pringle	437 Punt Road, South Yarra	R.
3 B U	D. A. Connelly	"Larnakk," Balaclava Road, East St. Kilda	R.
3 B V	Mrs. S. D. Trood	126 High Street, Windsor	R.
3 B W	H. T. Thompson	79 Reed Street, Albert Park	R.
2 B Y	M. J. Macpherson	461 Mint Place, Melbourne	R.
3 B Y	H. Holst	27 Bambra Road, Caulfield	R.
3 B Z	A. J. Redpath	Ivanhoe Road, Ivanhoe	R.
3 C A	W. H. Dorward	Tooncurrrie, Orlando Street, Hampton	R.
3 C B	W. F. Sievers	36 Lesney Street, East Richmond	R.
3 C C	University of Melb.	Melbourne	T.
3 C D	F. G. H. Brown	298 Coventry Street, South Melbourne	R.
3 C E	K. C. B. Randle	893 Rathdown St., North Carlton	R.
3 C F	R. H. Davies	"Harelands," Willsmere Road, Kew	R.
3 C G	J. P. Barclay	"Almora," Bishop Street, West Footscray	R.
3 C H	C. H. Myers	33 Carlingford Street, Elsternwick	R.
3 C I	R. B. Poole	14 Victoria Avenue, Canterbury	R.
3 C J	A. R. Mustard	"Surrey," Taylor Street, Oakleigh	R.
3 C K	J. B. Mann	Quambatook	R.
3 C L	A. M. Wright	37 Middle Crescent, Brighton	R.
3 C M	R. Lighton	232 Alma Road, East St. Kilda	R.
3 C N	R. Fisher	121 Stewart Street, East Brunswick	R.
3 C O	A. J. G. Jarvis	64 Brinsley Road, East Camberwell	R.
3 C P	A. F. Crosby	142 St. Kilda St., Middle Brighton	R.
3 C Q	K. E. Gibson	161 Victoria Parade, Collingwood	R.
3 C R	J. J. Rafferty	67 Mason Street, Hawthorn	R.
3 C S	W. E. Acott	39 Lynch Street, Footscray	R.
3 C T	C. T. Skelton	263 Donald Street, Brunswick	R.
3 C U	C. C. Waring	80 Balmain Road, Canterbury	R.
3 C V	C. A. Young	19 Lyell Street, South Melbourne	R.
3 C W	A. Glover	"Louvain," Lyndhurst Crescent, East Brunswick	R.
3 C X	F. N. Toohy	"Espedair," The Crescent, Sandringham	R.
3 C Y	J. S. McTavish	"Val Verde," Ethel St., Malvern	R.
3 C Z	H. B. Mitchell	22 Normandy Road, Elwood	R.
3 D A	Miss S. McC. Warren	143 Kooyong Road, Toorak	R.
3 D B	E. V. Hobart-Duff	27 Westgarth Street, East Malvern	R.
3 D C	Miss B. Gurner	257 Williams Road, Hawkesburn	R.
3 D D	L. F. G. Osborne	"Louisville," Darling Road, East Malvern	R.
3 D E	L. J. Blackney	18 Coronation Street, Geelong West	R.
3 D F	F. D. Short	2 Mozart Street, St. Kilda	R.
3 D G	A. Russell	29 Kensington Road, South Yarra	R.

SALE & EXCHANGE

Three Lines (approximately 15 Words), may be inserted in this Column for 9d.

Extra Lines or part thereof, at 5d per line.

WANTED to purchase, Pair Wireless Phones, 2,000 ohms upwards, cheap.
D. LINDSAY, Gertrude av., Gordon.
FOR SALE.—L. Coupler Crystal Set Complete with Two Detectors, V. Condenser and 50 foot Pole, with Aerials. £6 Apply Saturday, G. Mason, 27 Wells St., Annandale.

AGENCIES.

"Wireless Weekly" may be obtained at the following agencies in the City:—

N.S.W. BOOKSTALL CO.
(All Branches).
ANGLO-AMERICAN BOOKSTALL.
Q.V. Buildings, George St.

BUICK,
199 George St.

BUICK,
York St.

BOURKE,
131 George St., West.

BOUFFLER,
1 Castlereagh St.

GILMORE,
141 Castlereagh St.

KEEBLE,
130 George St. West.

MOLLOY,
222 George St. West.

McNAMARA,
Park St.

SWAIN'S,
123 Pitt St.

LIMBLESS SOLDIERS' STALL,
Martin Place.

WILKINSON,
Cnr. Elizabeth & Hunter Sts.

COLVILLE MOORE,
10 Rowe St.

ELECTRICITY HOUSE,
387 George St.

ELECTRIC UTILITIES,
605 George St.

O'SULLIVAN,
296 Pitt St.

UNIVERSAL ELECTRIC CO.,
58 Wentworth Avenue.

RADIO CO.,
18 Elizabeth Street.

W. A. WILES,
60-62 Goulburn St.
Next week we will public suburban agents.

Published by W. J. MacLardy, "Truro," Powell Street, Neutral Bay at the offices of W. M. MacLardy, 249 Castlereagh Street, Sydney.

January 12th, 1923

WIRELESS WEEKLY

Latest Copies of Radio and Practical Electrics on hand. Recognised as Leading Publications for Amateurs. Posted to any address 2/- per copy.

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PRICES ARE RIGHT.

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- Terminals, etc. Magentite
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- COUNTRY ORDERS RECEIVE
PROMPT ATTENTION.
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A SPECIALITY.

RADIO COLLEGE

POSTER HOUSE

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Evening classes commencing
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Special Morse Code Class price 5s per night

Full Correspondence Course £4 4s.

1 month Course fully Illustrated £1 10s.

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QUALITY RADIO SUPPLIES

We have large stocks of Quality Radio
supplies for the Amateur and Experimenter.

Complete Sets also parts to build your own
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SEND FOR PRICE LISTS

Mail Orders please state Licence No. if allotted.

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ESTABLISHED 1904.

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DEPENDABLE WIRELESS APPARATUS.



From a Terminal

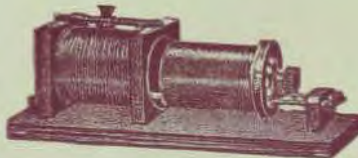
Thousands of Amateur electrical experimenters prefer to build their own Wireless Sets—and it is the Universal policy to offer to the Amateur, the highest grade parts and material for the lowest possible outlay.
BUILD YOUR OWN Wireless Receiving Set—but build it RIGHT. By using Universal parts, material and simplified instruction—you will build it **RIGHT**—and it will work **RIGHT**.

Our Universal standardised loose-coupler set, using crystal detector having a wave-length range from zero to 2,000 metres—brings in clearly all Coast and Ship Stations to New Zealand—and also enables the experimenter to "listen in" on speech, music, broadcasted concerts.



To a Complete Set

No. 1. All parts and material necessary to construct the loose coupler receiving set, consisting of inductance



tubes, wire, contact studs, terminals, base, complete with full instructions and wiring diagrams. Price, 22/6. Postage, 1/-.

No. 2 Finished set, with polished maple base 32/6.
 No. 3. All parts, to construct above set, complete with detector, aerial wire, insulators, pair of Murdoch's 2000 ohms, best double headphones—instructions and diagrams—**NOTHING MORE TO BUY**—Price, £3/10/. Postage, 1/6.
 Separate parts for above set:—Primary and Secondary tubes, 5d. each; set of 4 ends, 2/3 per set; maple base, 2/6; Ebonite tuning sliders complete with 6in. flat brass rod, 2/6 each; contact studs, nickelled with nuts, 1/3 per dozen; large, high grade nickelled Terminals, special value at 6d. each.
 Other Wireless PARTS and PRICES of special interest to the Experimenter. Standard 3 inch Dial of highly polished genuine black Bakelite, graduated from 0 to 180, exceptional value—5/6.
 Valve holders, one piece Bakelite, is fitted with contact springs that will not arc under filament current of Transmitting Tubes. Price, 7/6.
 AUDION VALVES.—All standard makes stocked: Radiotron U.V.—200, 201; Cunningham Detector C—300, £2; Amplifier, £2/5/-; 5 Watt Transmitting Tubes, £2/5/-; genuine Audiotrons, double filament, 38/6.
 Honeycomb and Duo lateral Inductance coil giving selectivity and sharp tuning on wave-lengths from 75 to 23,800 metres. Variable condensers, 23 plates, 18/6; 43 plate, 23/6; all parts to build your own.
 "B" Batteries, long life, 22½ and 45 volts; special "A" Storage Battery, 6 volts 15 amps, £1/5/-.
 We have Large and Complete Stocks of all necessary Radio parts and material available for the Amateur—at very low prices. Let us know your requirements—you will like dealing with us. **PROMPT SERVICE** on all Country Orders.



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Catalogue in course of preparation. Send in your name for one.