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# **GRACE BROS. LTD.**

**Broadway, Sydney**





Vol. 2.

June 29, 1923.

No. 26

## "THE ROSTER."

Some experimental transmitters evidently do not know what fair-play is. A few months ago experimental transmitters met and entered into a gentlemanly agreement. A "Roster" was started and has worked fairly successfully, each new station falling into line and taking his turn on the Roster, with the exception of one or two, who have repeatedly transmitted during the time set apart for others.

Had these defaulters not accepted the Roster, little could be said, but they did, and while their time on the Roster has not been interfered with, they have been so contemptible as to transmit knowingly during other tests.

We now have in New South Wales over 50 experimenters holding transmitting licenses.

Most of these stations are in the Metropolitan Area and a goodly number are on the 400 metre band, and were it not for the present Roster system chaos would reign nightly; it would be impossible for successful tests to be carried out, and it would also spoil the pleasure of thousands of listeners-in.

We have just formed in New South Wales the Australasian Radio Relay League, which will incorporate all experimental transmitters and eventually take over the Roster, but in the meantime, should any further interference occur from the same sources Wireless Weekly suggests that the League be asked to approach the Chief Manager of Telegraphs and Wireless with a view to having the licenses of those interfering stations cancelled.

### BROADCASTING REGULATIONS.

We understand the new draft of the broadcasting regulations have been placed before the Federal Cabinet, and if accepted, should be gazetted within the next fortnight.

### WHO IS GOING TO BROADCAST?

Look for the interesting article on "Who is, and who is not going to Broadcast?" in next week's issue.

# The Australian Broadcasting Conference.

VERBATIM REPORT CONTINUED.

## SECOND DAY.

Mr. Fisk: The small boy who wants to creep through the window of a theatre is penalised. However, if the small boy is a genuine experimenter, you will find that we have made provision for him.

Mr. Brown: May I enquire what is the constitution of the body which is to approve these receiving stations.

Mr. Fisk: That is provided later. Mr. Salmon: No provision is made for the importer who wishes to sell to a retail house.

Mr. Fisk: A man who becomes a licensed dealer is permitted to sell wholesale if he wishes, and, in selling wholesale, he sells to people who are going to deal with the holders of receiving licenses. If that dealer also wishes to do a retail trade, he must take proper precautions to see that the people to whom he sells instruments have licenses. But if he is only doing a wholesale business, and is merely passing on the goods, he is in the same position as the manufacturer.

Mr. Salmon: I appreciate that, but this regulation deals particularly with broadcasting licenses. Each receiver has to hold a license from the broadcasting station. Therefore, a wholesaler selling to anybody who had not paid the broadcasting fee would be breaking the law.

Mr. Fisk: There is something in that. In order to assure you on the matter, we will amend the regulation to read "manufacturers, dealers and traders only to supply receiving equipment, or parts thereof, to holders of licenses," leaving out the word "receiving." That will enable the man to sell to a licensed retailer.

Mr. Salmon: That is satisfactory. Regulation "j," as amended, agreed to.

Mr. Butler: In regard to Regulation "k," I would suggest the addition of the words, "Unless he already holds a receiving license." He might have one set and desire

to buy a new one. The regulation as it stands says that the first year's license fee must be collected.



Mr. JONES who represented South Australian Manufacturers at the Conference.

Mr. Cummings: I would like to ask what will be done with the fees after they have been collected.

Mr. Fisk: They will be paid over to the proper authorities.

Mr. Cummings: Should not provision for that be included in the regulation. Otherwise, the fees would become the property of the person receiving them.

Mr. Fisk: I think that you are quite right. We might have inserted that, but, in any circumstances, I have no doubt that we can rely upon the Attorney-General to see that it is done. If necessary, we will put it in the regulation.

Mr. Cummings: I am satisfied.

Mr. Butler: I suggest as an amendment that the following words be added to the regulation, "Unless the purchaser already holds a receiving license."

Mr. Holloway: I have now a license which cost me 10/-. If that

amendment is made, a new license will probably cost me £5. Will you collect anything more from me?

Mr. Mingay: You are an experimenter now.

Mr. Holloway: I suggest that some of the people who hold licenses at present are not experimenters.

Mr. Fisk: I move "that regulation 'k' be struck out." We have done a great deal of work during the past two days in drawing up these suggested regulations, and have covered every conceivable point, but in this case we have covered a point twice. Of course, it is better to do that than not to cover it at all, but regulation "j," which we have just passed, provides that manufacturers, dealers and traders shall only supply receiving equipment to holders of licenses. Regulation "a" provides that people can only obtain licenses when they have paid their subscriptions. Therefore, regulation "k" is unnecessary.

Mr. Wilson: I second that motion.

Motion agreed to and regulation "k" struck out.

Mr. Brown: May I ask what authority you have for the statement in regulation "l" that there will be ample room for competitive broadcasting?

Mr. Fisk: For wireless services generally, at the present time, you can use wave lengths according to the class of apparatus required, ranging from 100 metres to 30,000 metres. Of course, you must bear in mind that the question of the actual allocation of wave lengths has to be very carefully considered by the Government, but, if you allocated ten per cent. to broadcasting, I think that you would have scope for probably twenty wave-lengths. Even if you had only 6 wave-lengths which is the number that I have had in mind for some time, you could have that six repeated throughout the Commonwealth a number of times. That should give you ample room for competitive services.



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Mr. Brown: It would mean six services.

Mr. Fisk: It would mean more than six.

Mr. Brown: Let us say six in Melbourne. Then assume that there are twenty applications. Will priority of application be taken into account?

Mr. Fisk: Of course, priority of application will naturally be considered, but if there are people with equal priority, I assume that the selection will be made upon the value of the service to the public.

Mr. Brown: Do you think it possible that those in the know have already made application for broadcasting licenses?

Mr. Fisk: Have you made application?

Mr. Brown: Yes.

Mr. Fisk: I do not know whether the Government would consider that they should take those applications into consideration, or whether they would fix a certain date. Personally, I prefer to leave it to the Government. The responsibility would be rather too heavy for us.

Mr. Salmon: I think that it would be a good recommendation from this Conference that a date should be fixed up to which applications would be received and considered as a whole, without any limitation as to priority. After that, of course, priority would count.

Mr. Wilson: In the first place, a fair sum of money has to be invested before a broadcasting station can be erected. Then the Government will probably frame regulations insisting upon a service of some sort being guaranteed before they even consider the application. Therefore, I think that we can leave it to the Government to say "We will accept this scheme in its broad outline. The Government may say, "If you want a broadcasting station, we will give you that privilege upon your complying with these conditions, namely, that you undertake to give an efficient service every day or three days per week, as the case may be." I do not think that it would be wise simply to assume that people will rush to put in applications. You will find that the average business man will do a lot of hard thinking before he even puts pen to paper asking for a

license, when the expenditure involved is anything from £5,000 to £30,000.

Mr. Wiles: I am sorry that I cannot agree with Mr. Wilson. It is quite possible that company promoters who have no knowledge of the position will make application for broadcasting licenses. I think that it would be far better for us to recommend to the Government that upon a certain period elapsing after the publication of the regulations, they should invite applications for broadcasting licenses. The Government would then be able to say to each applicant, "What benefit will you confer upon the public if you hold a broadcasting license," and determine from that angle to which applicants they should issue licenses. Otherwise, we might have people claiming to be able to do this, that and the other, and then wanting to sell licenses to others, thus holding up the scheme.

Mr. Salmon: I suggest as an amendment that the words, "after the publication of the regulations, time be allowed in which to receive applications for broadcasting licenses, such applications to be treated on their merits," be added at the end of the regulation.

Mr. Wiles: I second the amendment.

Mr. Hirst: I think Mr. Wilson's suggestion really caters for that proposition, because, after all, you are leaving it to the Government to treat all the applications on their merits. That was what we thought in the first instance would be done. I do not see any difference.

Mr. Salmon: There might be certain people who would be quite justified in applying for licenses, but who might not be in a position to apply immediately. My idea gives everybody an equal opportunity to apply, and I think it only right that the Government should have control over those who hold licenses. If six were the limit for Melbourne, and twelve applications were already made, possibly someone might come along later with a better claim than any of those persons.

Regulation "l," as amended, agreed to.

Regulation "m" agreed to without discussion.

The Chairman: I think that regulation "n" can be accepted. It is really a suggestion to prevent pirating. We have no doubt that the Government will take a keen

interest in the putting down of people trying to work without licenses. Therefore, I suggest that you agree to this proposition, with the word "adequate" underlined.

Regulation "n" agreed to without discussion.

Mr. Hull: I think that there is a very serious omission from regulation "a." It seems to me that provision is made for the representation on the Board of every interest excepting the newspapers, which are vitally interested. To my mind, provision should be made for the newspapers, and therefore I move as an amendment:—

That provision should be made for the representation of the press.

Mr. Cameron: I second the motion.

Mr. Fisk: We had a representative of the press on the committee, and the resolution which has been drafted has been approved by Mr. Holtz as protecting the interests of the press. On the Board we have the Government, the broadcasting stations, the manufacturers and the traders, all the people actually and directly engaged in the broadcasting industry. The Government, of course, represents the public, and practically issues the receiving licenses; the broadcasting stations are the actual suppliers of the broadcasting service, while the manufacturers and traders are distributing the apparatus. If we are to have represented on the Board other interests more or less concerned in broadcasting then we shall have to give representations to the theatre and other amusements. So far as the interests of the press are concerned, they have been dealt with in the special memorandum which has been submitted, and which will be sent on for the consideration of the Government.

Mr. Hull: I do not think that Mr. Fisk quite realises the position. It appears to me that the Conference is in a somewhat similar position to that of a man who invites a large number of guests to a banquet, but, while providing very fine cutlery, glassware, serviettes, and other table appointments, neglects to provide the real essentials of a banquet. The news service is a very important part of wireless development, and therefore the interests of the press must be fully protected. The Postmaster-General told

Continued on Page 19



# A New Broadcasting Plan.

RADIO IS DRIFTING TO DESTRUCTION — NATIONAL SUPERVISION NECESSARY AS A CURE.

An Interesting Article on Present Day Chaotic Broadcasting Conditions in U.S.A., which it is hoped will be Avoided in Australia.

A year ago I was talking in these columns about the magnificent future of radio broadcasting. Today I am forced to ask whether it isn't going to drift rapidly toward destruction, unless we all get together and see that something is promptly done to save it, says J. Binns, in "Popular Science."

More than 600 radio stations have been licensed by the government to broadcast on the 360-metre wave-length. At least 500 of these stations are likely to be a nuisance to radio fans and should never have been licensed at all.

### The Wreckers of Radio Utility.

Publicity seekers are nightly disturbing the ether with worthless talk that interrupts really good radio programmes.

Business concerns are doing unwelcome advertising by radio, and filling up the intervals in their programmes with canned jazz that is equally unwelcome.

Expensive broadcasting stations have lately been installed in the heart of great cities, only to prove unworkable on the wave-lengths they are forced to use at present.

Most of the best entertainers won't talk for the public by radio because the broadcasting stations can't afford to pay them.

Through their own cupidity and jealousy, the great commercial groups identified with radio now seem just as likely to wreck the new utility as to extend its blessings.

### Signs of Approaching Chaos.

Conditions like these—signs of approaching chaos in the industry—are known to every radio fan in the country. And the worst of it is that the muddle is becoming greater at the very time when popular interest in radio has reached a higher pitch than at any time since broadcasting began.

What is to be done about it all?

The answer to that question is directly up to the radio fan. There is now pending in Congress the White Bill, to regulate radio and

develop broadcasting. It furnishes the groundwork for the only kind of organisation that will save radio. Now is the time for radio fans to declare unmistakably what they want this organisation to be like, and I for one want to put forward a scheme that I believe to be feasible.



MISS EDITH BENNETT whose voice has been heard all over Europe. Broadcasted from U.S.A.

I propose a national radio plan that combines government supervision and subsidy with private operation. One of the fundamentals of the plan is a project for painless taxation, by which purchasers of radio sets would help meet broadcasting expenses. The operation of a large broadcasting station costs approximately 20,000 dollars a month. That cost is being charged up to you indirectly to-day. It is included in the price you pay for radio apparatus.

Now, if the government imposed a small percentage tax on all radio products sold, a considerable sum would be collected each year, with part of which the government could support the worthwhile radio programmes. The cost of collecting the tax would go to the government, and after all governmental expenses had been defrayed, the balance could be applied in the form of a subsidy to the approved broadcasting stations, so long as they presented programmes which came up to the accepted standard and were free from advertising.

Great Britain has successfully adopted such a scheme. A single operating company is formed of representatives of all radio concerns. The broadcasting stations are eight in all, geographically placed, and each operating on a different wave length.

Every fan must get a government license to receive. This costs him 2.50 dollars. The government gets half of this and the broadcasting company the other half. There is no confusion or advertising in the British system. The fan is protected.

In the United States, government control would be exercised by means of the power lodged in the Secretary of Commerce through the provisions of the White Bill. Unnecessary stations would be discontinued. Control of the programmes would be vested in an advisory committee.

### For Programmes of High Quality.

Under this plan, the world's best entertainers could be paid for their performances, and consequently programmes of the highest quality could be planned satisfactorily in advance.

Personally, I think the ideal national broadcasting system would have two central studios, one at Washington, D.C., and the other in New York. The former could be used to broadcast the President's messages, the more important ses-



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sions of Congress, and vital national information of all kinds. Since New York is certainly the amusement centre of the nation, the very best form of musical programme, ranging from jazz to classics, could be broadcasted from there. All of the major broadcast stations, strategically located throughout the country, could be connected with these central studios by means of transcontinental telephone lines. Thus the entire nation could hear important addresses at the same time, while two or three programmes could be radiated from the larger stations simultaneously on different wave-lengths.

## Problems to be Met.

By assigning larger wave-lengths to the big central stations, many current radio difficulties would be solved. A queer problem that has just developed is the difficulty of broadcasting from stations located in the heart of big cities.

In New York City the skyscrapers in the downtown section loom up like mountains of steel and shield the territory behind them from reception of the short waves allowed for broadcasting. A station was erected on the Municipal Building six months ago. This building is almost 500 feet high. It was found practically impossible to radiate on the 360 or 400-metre wave-length because of the absorption effect of the steelwork in the building. As the longer wave-lengths are not allowed under the present laws, the station had to be removed.

Public demand for the passage of the White Bill, and for the development of radio, perhaps along some such lines as I have suggested above, will alone save broadcasting.

## FOR SALE

Single Valve PORTABLE SET, with Valve, B Battery, £8/30/-; Meyers' Chokes and Clips, 25/-; Quantity Other Apparatus. F. Thompson, 36 Donnelly St., Balmain.

LOOSE-COUPLER SET, £2/15/-; Another Portable Set, 25/-. E. Harris, 186 James Street, Leichhardt.

Single Coil Honeycomb RECEIVING SET, without phones, 7 G. Wave-length 450-700 metres. A Morris, 38 Lachner Street, Hobart, Tasmania.

## Latest Valves.

The Donle Tube is a radically different tube which is now attracting the attention of advanced radio workers. It depends upon the ionization of metallic atoms for its operation, according to its inventor, H. P. Donle, chief engineer of the Connecticut Telephone and Electric Company. The tube is said to be remarkably sensitive, readily controllable and stable. The tube consists essentially of a filament, a semi-cylindrical electrode called a collector, and a metal anode composed of sodium or the like that can be readily ionized by heating with a resistor in series with the filament. A description of this tube has appeared in a recent issue of this journal.

The UV-199 Tube, although forming a part of certain receiving sets for some time past, has now been placed on the market for general sale. It is a very small tube, almost as small, indeed, as the famous peanut tube of the Western Electric make. It has a special base and ends for a special socket. Both special socket and special adapter are now available. The UV-199 marks a most important advance in vacuum tube design. It operates on dry cells and has a filament current of only 60 milliamperes—or, in other words, 60/1000 of an ampere, as compared with 1.1 ampere for the UV-200 and 201 tubes. The filament of the UV-199 requires three volts, and the usual small flashlight battery, comprising three cells, works very nicely in conjunction with a 30-ohm rheostat. The chief value of the new tube is in circuits where three or more tubes are required. The thoriated tungsten filament requires so little current for the emission of electrons that three or more tubes may be used at a time on a single set of three dry cells. In that event a 10-ohm rheostat is employed.

The Radiotron family of tubes now consists of the following: The UV-199 tube, the smallest member, described in another note appearing in these columns. The UV-200, which is a five-volt detector or "soft" tube, calling for critical adjustment of "B" battery potential, and requiring upwards of an ampere of filament current. The UV-201 is the running mate of the UV-200. However, it is a "hard" tube or amplifier tube, requiring 45

to 100 volts on the plate, and over one ampere at five volts in the filament. It is not critical. Then there is the UV-201-A, which is a combination detector and amplifier tube, operating with a filament voltage of five and a current consumption of 0.25 ampere. The UV-202 is a five-watt transmitting tube, also suitable as a power amplifier tube. The UV-203 is a 50-watt transmitting tube. The UV-204 is a 250-watt transmitting tube. The UV-206 is a one-kilowatt transmitting tube. The UV-208 is a five-kilowatt transmitting tube. The UV-207 is a 20-kilowatt transmitting tube of the new water-cooled tube; indeed, this tube is considerably smaller than the UV-208, although it has four times the capacity.

Several new types of vacuum tubes have made their appearance on the market during the past few months. One of these is the new DeForest tube. It is an exceedingly neat piece of work, this new tube, with its compact horizontal plate and grid and filament enclosed in a straight-sided hull which comes down flush with the usual standard base. The horizontal plate is made in the form of a cylinder; in fact, the whole tube resembles very much the tubes made by the Phillips firm in Holland. In practice the DeForest tube works very well, with a current consumption of about one-half ampere at 5 volts. The "R" voltage or plate potential can be anywhere from 25½ volts when used as a detector, to 45 volts or more as an amplifier. The DeForest tube is also made in a 1½ volt model as a dry-cell tube. In this case the filament is of the oxide-coated variety to give the necessary electronic emission at low filament temperatures. Still another tube just now is the UV-201-A, which has the same general shape and dimensions as the usual radiotrons. However, the glass is silvered so as to distinguish this tube from the usual radiotrons. It operates on six volts, but instead of requiring somewhat over an ampere for the filament current, it consumes about one-quarter ampere. Such a tube, despite its considerably higher cost, is most welcome at this time when five and six tube sets are by no means uncommon. It now becomes possible to operate these multi-tube sets with no greater drain on the storage battery than would be the usual case with two tubes.



# MAKE YOUR OWN

## *The Vario-Aerial*

A LOOP AERIAL AND VARIOMETER COMBINED, NO ORDINARY AERIAL, GROUND, TUNING-DEVICE, COIL OR CONDENSER BEING NECESSARY.

Most experimenters with multi-valve receivers have discovered that signals and short-range telephony can be picked up without using any aerial at all, the coil, if of suitable size, being capable of receiving signals direct.

The writer noticed some time ago that the same effect could be obtained with a variometer connected between the aerial and earth terminals of a receiving set; but, as in the case of a simple tuning coil without aerial, signals were very weak.

Further experiments suggested the idea of combining the variometer principle with a loop aerial, and resulted in the production of an instrument which, for want of a better name, has been called a vario-aerial.

Without making any extravagant claims for the efficiency of this device, it may be stated that it will work effectively wherever an ordinary loop aerial can be used. Further, it appears from comparative tests that a vario-aerial only two feet in diameter will give results at least equal to those obtained with a simple loop aerial, no matter what the size or method of winding of the latter may be.

The chief interest of the vario-aerial lies, however, not so much in the question of efficiency as in the fact that no additional tuning device whatever is needed. It is placed directly between the aerial and earth terminals of the receiver without any coils or condensers, and, of course, there is no earth lead.

### CONSTRUCTION.

The construction of the instrument is simplicity itself. The materials used for the one shown in the photograph were as follows: Two children's wooden hoops, 2 ft. in diameter; 100 ft. (about) of No. 26 D.C.C. wire; four pieces of 1 in. ebonyite 1½ inches square; three pieces of threaded brass rod, 3 in.

in the figure) to take the terminal. The object of these bearings is to insulate the spindles, which are utilised to make connection between the two coils. (The spindles might, of course, pass through the hoops themselves, but there would not then be room to wind the wire unless some sort of flat "tyre" were provided; as the insulation would not be good, direct connection between the coils would be preferable to the method now described.)

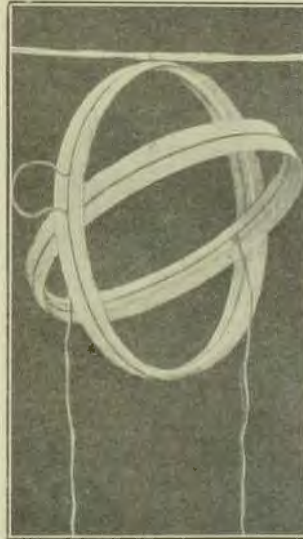
### THE TWO HOOPS.

Having screwed the bearings to the hoops, as shown in Fig. 2, the wire can be wound on. Taking the larger hoop first, fasten the end of the wire to the terminal T, and wind eight turns round the outside of the hoop, passing over the insulating bushes. The turns are not spaced. As soon as wound bind the hoop spirally with thread or silk (as shown in the photograph) to keep the wire from slipping off. Fasten the end of the wire between the two nuts A (Fig. 2), leaving a few inches of slack to allow for the turning of the spindle.

Now for the second hoop. Fasten the end of the wire between the two nuts B and wind on eight and a half turns, finishing off between the two nuts C.

The third piece of brass rod and the two remaining nuts, are intended for hanging the vario-aerial from the blind lath, which can be laid across the picture moulding in the corner of the room. The brass rod may be merely bound with string to the outer hoop or passed through a small screw eye or brass lug. The end of the rod goes through a hole in the lath and is held by one or two nuts on top.

The vario-aerial is now complete. The aerial and earth terminals of the receiving set are connected by flexible wire to the terminal T and the nuts D respectively. Tuning is effected by rotating the inner hoop,



A photograph of the Vario-Aerial. The frame are no more than children's wooden hoops, the wire being wound directly on these.

long; 18 nuts, and a few washers; one small terminal; one blind lath, 4ft. by 1 in. by ½ in.

One of the hoops is unfastened at the joint and reduced in size by cutting away some of the wood and rejoining. When the smaller hoop is placed inside the larger there should be a space of about ¼ in. all round between the two.

The four pieces of ebonyite which act as bearings are drilled (A, B), as shown in Fig. 1, and screwed to the hoops at opposite points of their circumferences. In one piece an extra hole is drilled (shown dotted



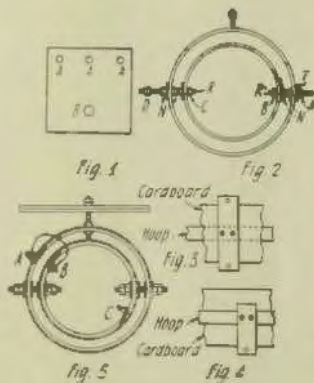
either with the hand or by means of the ebonite rods.

**A MODIFIED VARIO-AERIAL.**

Readers may think that as the vario-aerial was used in London to receive V.L.O. there is not much in the idea, since at such short range broadcasting can be picked up on almost any sort of aerial. In anticipation of such criticism the writer decided to try for a long-distance station, and chose the Eiffel Tower as the most likely transmission.

The photograph herewith shows the vario-aerial wound for the experiment which was quite successful. This instrument brings in the Eiffel Tower concerts clearly in the headphones with five valves, every word of the announcements being audible. The receiving set used is not particularly efficient, the valves being very old and the "B" battery down to 2½ volts per unit. There is no doubt whatever that a good four-valve set (1 R.F.) would work well with this vario-aerial.

The method of construction differs from that adopted for the broadcasting wave-length, but it is equally simple and calls for no greater skill in the making.



**MATERIALS REQUIRED.**

2 children's wooden hoops, 2 ft. diameter; 1 large sheet of stout cardboard; 1 lb. 26 S.W.G. D.C.C. wire; 1 piece ebonite, 3 in. x 1 in. x 1 in.; 2 pieces ebonite 2 in. x 1 in. x 1 in.; 2 pieces of threaded brass rod, 3 in. long; a length of threaded brass rod; 8 nuts and washers; 14 nuts and washers; 2 terminals; 6 (or more) small spacer washers; 1

piece flex about 10 in. long; 2 blind laths.

One of the hoops having been reduced in size, leaving about ¾ in. clearance all round when placed inside the other, they are both provided with cardboard "tyres" 2½ in. in width. These tyres are made by cutting strips from the cardboard sheet and fastening them round the hoops with small brass tacks.

At opposite points in the circumferences of the hoops holes are bored through the cardboard and wood to take the brass spindles. The piece of 3 in. ebonite is drilled and screwed, as shown in Fig. 3, to the outside of the larger hoop near the hole for the spindle (see A, Fig. 5). This is shown in the photograph with the wire passing over the ebonite.

The two 2 in. pieces of ebonite are screwed inside the smaller hoop as indicated in Fig. 4 and at B and C in Fig. 5 and also in the photograph, which, however, shows pieces 3 in. long, though 2 in. will prove quite sufficient.

The winding of the larger hoop is started from terminal fixed in one of the end holes of the ebonite strip. Wind on fifty-eight turns, and finish off on a piece of rod 1 in. long put through the other hole in the ebonite, with two nuts and washers on each side. (A cheese-head screw will do equally well.)

The winding of the smaller hoop is started from a piece of rod assembled through the hole in one of the ebonite strips with nuts and washers as before. Fifty-eight and a half turns are wound on, and the wire is finished off at a terminal fixed in the piece of ebonite opposite the starting point.

At the beginning and end of the windings the wire should be secured by threading through holes punched near the edge of the cardboard before attaching it to the terminals. If wound fairly tightly the wire should not slip off, but if it shows a tendency to do so the hoops may be bound spirally with silk or thread.

The two hoops are now assembled as shown in Fig. 5. Spacer washers are used between them in preference to nuts as there is not room to fit lock nuts satisfactorily and single nuts work loose. Even the lock nuts provided at the inner and outer ends of the spindles are apt to loosen, but it is a simple matter to screw them up with the fingers every now and then. The two coils are connected by the flex as shown



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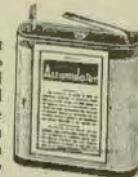
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(P. H. McElroy) 211 Swanston-st. Melbourne



at A B (Fig. 5). This diagram gives all details except the first terminal, which lies at the far end of the ebonite strip at A.

The completed instrument is suspended from two blind laths (one will not bear the weight) by a piece of rod with the necessary nuts and washers. As the hoops are seldom perfectly circular there may not be sufficient clearance to allow of this method of suspension. If this is the case, drill a transverse hole through the outer hoop and make a yoke of wire, which can be fastened to the spindle above.

The laths can be put across the picture moulding in a corner of the room, where the vario-aerial will function quite well although theoretically not far enough away from the walls. Alternative methods of mounting can be devised easily and might give increased efficiency.

#### TUNING.

Tuning is rather critical, and it is as well to use a small variable condenser in parallel, preferably with variable.

As already stated, Eiffel Tower telephony can be heard plainly in headphones with five valves (and probably four), regeneration being used in the plate circuit. Paris time signals and other Morse transmissions are sufficiently strong to work a small loud speaker.

#### Letter from U.S.A.

Mr. Humphrey Carleton, writing from U.S.A., in a letter to Mr. Chas. Macdonald, says that the latest in tubes is a 50-watt rectifier, containing the new "Thoriated" filament, which only requires about one-tenth of the power to heat the filament for the same electron emission. Also the new UV-109 receiving tubes have the same type filament, and only take 50 milliamps at 3.8 volts. He has been using them with great success, from a flashlight battery he also referred to the latest New York broadcasting station, "Aeolian Hall," which has special telephone lines laid all round the theatrical district. Quite a number of operas have been broadcast from this station recently, with wonderful success.

When broadcasting from outside sources (i.e., over telephone lines), three steps of amplification are used, one right at the microphone and two at the station. When transmitting direct from the station two steps only are used.

#### Description of Short Wave Receiver in Trans-Pacific Tests.

By Mr. C. A. Gorman (Station 2EC), 31 Segenhoe Street, Arncliffe.

This receiver was designed to suit the aerial at 2EC, details of which are as follows: Main mast, 55 feet; small mast, 25 feet; aerial length, 70 feet; lead-in, 20 feet; earth lead, 10 feet. Two wires are used on 7 ft. spreaders. The earth consists of water pipes, buried plates, and about 100 feet of copper wire.

As will be seen by diagram a simple circuit is employed; although I say simple, it proves to be a very critical job on short waves. The tuner is a vario-coupler of the following dimensions: Primary, 15 turns on a 4 inch former; secondary, 30 turns on a 3 1/4 inch former, both windings being 24 gauge silk covered wire. No taps are used on these coils, all tuning being done by means of the series condenser which is a .001 mf. The secondary coil is not tuned at all, this being found to be unnecessary with this size winding. The vario-meter method of radio frequency amplification is employed, this method being found by test to be the most efficient for short waves. Vario-meter windings are as follows: Stator, 30 turns on 4 inch former; rotor, 30 turns on 3 1/4 inch former; 24 gauge silk covered wire being also used here.

A 200 ohms potentiometer shunted across the "A" battery is used for grid biasing. The grid condenser is a .0003 fixed. The 'phones are Brandes' Navy Type, 3000 ohms. The valves used during the recent tests with Major Mott, and also the official Trans-Pacific Tests were a Radiotron UV 200 as radio frequency amplifier and an Audiotron as detector; 110 volts were used on the plate of the amplifier and 44-48 on the detector. Although a V24 valve has been my pet radio frequency job up till lately, I must say I was considerably surprised at the results obtained from the soft Radiotron—just as a matter of experiment I gave it a trial one night, and it stopped there till the conclusion of the tests.

No other part of the set needs any description, as it is quite an ordinary home-made job.

I will now give a few details of results obtained: From the 1st till the 3rd of May, static conditions were bad, and beyond the copying of West Australian Station 5BP, nothing out of the ordinary was

heard. We did not listen-in again until Saturday, 5th May, when, as is well-known, the "Mott" signals were heard (at this time I was working in conjunction with 2CM).

On Sunday night, 6th May, American Station 6CGW, working with Station 5ADO, was copied. Station 6CGW is situated at Los Angeles, California. This was the first 200 metre American Station heard. Results up to the 15th May were nothing out of the ordinary, but at 7:53 p.m. on the 15th, Station 6JD (V. M. Bitz, Los Angeles, California) called Australia, and sent: "Hope you read us." (My hopes rose then). Conditions on the 16th were hopeless through static. On the 17th, 6JD was again easily copied; he sent the following message: "Cable list of first ten calls across—will pay half tolls—Radio Journal." 6JD and 6CGW were easily the strongest stations heard; 6GBI came in well, but not quite as strong as these two. Other stations heard were: 6XAD, 6CDQ, 6KGN, 5ADO, and 5BCH. There were of course strength. Several others were heard, but not readable.

One little thing that used to interest us greatly and which broke the monotony were the Melbourne Police Reports sent nightly; this 'phone came in remarkably clear on a wave length of about 250 metres.

Amongst other stations heard on this set during the time we were working on the tests were West Australian experimenters 5BP, 6BQ and 5BG. Also New Zealand broadcasting and Bell of Waimene, N.Z., came in very well on about 280 metres, also his friend at Gisborne, N.Z., Orbell, of Christchurch, N.Z. (3AA) came in strong on 290. Local 'phone work was taboo at 2EC for one month, although sometimes we would take harmonics.

Since the conclusions of the tests, this set has been tried out on the longer waves—350-100—and some very good results have been obtained. On two valves, Victorian Stations have been heard at times nearly as strong as some of our weaker local stations.

During the tests I was ably assisted at Station 2EC by Mr. A. T. Whitaker (2OT) of Banksia, whose help contributed largely to the success of station 2EC, as adjust-



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ments were very critical and one soon got tired of it; as a case in point I might mention that for 10 nights we listened 3 hours a night to nothing but static, which does not tend to encourage one—patience is a virtue, they say, but 'phones are not always comfortable under these circumstances. Our motto, however, was "If you go in for a thing, stick to it till the end."

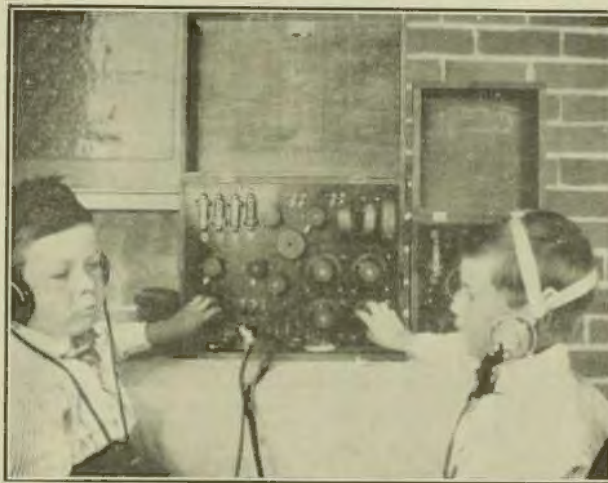
It may interest others to know that American amateurs are best heard between 6 and 10 p.m.; after 10 p.m. they begin to fade away. Sunday is a good night to try for them, as more seem to be working then, although since the tests I have listened for a while and heard a couple on week nights.

WIRELESS MUSIC FROM PALINGS.

Taking full advantage of the license granted by the Manager of the Telegraphs and Wireless, and the Amalgamated Wireless of Australasia, the New Systems Phones are continuing their activities to transmit from Palings' Concert Room varied programmes every Monday, Wednesday and Friday evenings from 7.30 onwards. On Friday evening, 15th, the programme was made very interesting by reason of the songs and piano-forte solos by Miss Edith Harry, the delightful Welsh composer-pianist, who gave her first recital in the conservatorium on Saturday, 23rd inst. Miss Harry, for half an hour gave of her best, including

some of her well-known compositions. She was followed by an Australian composer, Mr. Murray Gibbes, who is visiting Sydney from Newcastle. He sang his well-known "Red Rose Bud" and "Can You Forget," and in conjunction with Mr. Oswald Anderson, another Australian composer, sang two of Mr. Anderson's compositions, "Wert Thou the Sun" and "You Lovely Thing." Some delightful items were

given by several vocalists, and under the direction of Mr. Montgomery Stuart, the recitations were transmitted with great clearness. Palings, of Brisbane, have advised that they have no difficulty in picking up the various programmes that have been given out in Sydney, but so far the Sydney Branch of Palings have not yet been able to pick up the musical activities of the Northern State.



TWO OF OUR YOUNGEST EXPERIMENTERS

Trimm "Professional" Head Set 3000 Ohms  
A QUALITY PHONE AT A QUANTITY PRICE

Perfect Reproduction and Articulation at Any Range—WEIGHT ONLY 10½ OZS.

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 like cheap composition; no exposed metal parts to become tarnished; Single bar Tungsten steel magnets formed to shape to insure uniform tempering and magnetising; Coils wound with maximum number of turns of No. 40 enamelled wire to full resistance of 3000 ohms; Reinforced terminals of stranded wire brought out from coil windings to solder clips; Coils covered with insulating cloth—no fine wires exposed; Arrestor gap across cord terminals; Improved type head band covered with resilient tubing—comfortable, light weight, and distinctive in appearance.

Obtainable from Continental Radio and Electric Co., 165 Kent St.; Electric Utility Co., 619 George St.; Anthony Harder & Sons, Ltd., George St.; F. E. O'Sullivan, 296 Pitt St.; Ramsay Sharp & Co., Ltd., 217 George St.; Radio Co., Ltd., 15 Loftus St.; The Colville-Moore Wireless Supplies, 10 Rowe St.; Wireless Supplies Ltd., 21 Royal Arcade; Miss F. V. Wallace, 6 Royal Arcade, and all Wireless Supply Houses.

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Phones: City 3302, 10592.

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**NEW APPARATUS.**

The Graham variable condenser provides something new in condenser construction in departing from the orthodox type of condenser. There are no plates, washers, or vanes to get out of order, in fact a six foot drop on a hard surface has not affected one of these condensers. The range is from .0001 to .001 microfarad, thereby making it suitable for any part of the circuit, aerial, secondary or bridging. It is tested to 2000 volts and can be mounted either externally or internally without any alteration or addition, the size being only 3.14 x 2.34 x 1.14; it occupies much less space than an ordinary condenser of a similar capacity. It has a micrometer action throughout the whole range and appears an ideal condenser for CW reception.

Mr. Whitelaw, the Victorian Radio Inspector, after seeing one of these condensers, stated he was delighted with the selectivity obtained as compared with a moving vane condenser. Other Graham products that will be of interest to the experimenter are the Blended Solenoid Inductance Coil and the Variable Grid-leak. The coils are made up in sizes ranging from 25 to 100 turns, covering from 130 to 1200 metres. The grid-leak allows for a variation from one to two megohms. This apparatus can be secured from the leading radio dealers or from the manufacturers.

**THE ASSOCIATION FOR DEVELOPING WIRELESS IN AUSTRALIA.**

**WHAT IS IT?**

We have often been asked this question, "What is this association?"

Our answer is to publish the principal objects of the association, and at the same time point out that it is absolutely necessary for a new industry like wireless to be amply protected, and that we can see no better way than an association that protects both large and small manufacturers and dealers.

**PRINCIPAL OBJECTS.**

To further the development of wireless telegraphy, telephony and other forms of wireless science.

To protect the interests of manufacturers of wireless apparatus and traders in same by arranging with governments and other authorities regarding issue of regulations that will best assist the said manufacturers and traders as well as those who

apply for licenses, at the same time protecting Governments and the public from any possible nuisance.

To use every means to popularise the many advantages of wireless science not only with regard to supplementing or assisting wireless telegraphy or telephony, but also by the establishment of a broadcasting station or stations.

To see that a fair field be allowed firms making or trading in wireless apparatus, and that all contracts entered into by Governments and other public bodies may be open to investigation in order to prevent any monopoly which may hamper competition and development.

To provide technical and legal advice for members in such cases as in the opinion of the executive may be advisable, exclusive of industrial matters.

To increase the confidence of the public in wireless telegraphy, telephony and other forms of wireless science.

**RADIO TROUBLE TIPS TO AID YOU IN BUILDING YOUR SET.**

For users of honeycomb coils, one of the most important parts of their set is the series-parallel switch. This will be still more important if broadcasting is put on higher wavelengths. Most of the diagrams I

have seen for wiring this switch are incorrect, as they usually short circuit the condenser when the switch is in the parallel position. The correct way as ordinarily wired is as shown in the diagram below at the left.

Generally speaking, the series-parallel switch controls the primary condenser so as either to increase the wave-length range of a set or decrease it with each size coil. When the condenser is in series, the wave-length range of the particular coil is decreased; and when the condenser is in parallel, the range is increased.

One of the most important tips that I can think of is in connection with the use of bypass condensers, such as the telephone and transformer condensers. These are used for the purpose of allowing a pathway of low impedance for the high frequency currents in the circuit, without interfering with the normal function of the low frequency current. Wherever such condensers are placed across the B battery in addition to the telephones, they should be of the mica dielectric type, as paper may not stand up against the voltage placed across them.

Never forget that in vacuum tube circuits most extraneous noises in the telephones are caused by loose connections. These noises may be of the grinding variety, or, more often, terrific shocks. When you hear them, always go over your connections carefully, especially the battery connections. This applies equally well to those fans who are using standard receivers, because the operator is the one who connects the batteries with the set.

Another frequent cause of trouble lies in the place where the majority of fans never think of looking for it—the vacuum tube socket. The prongs of the tube make contact with flat springs at the bottom of the socket. Sometimes a tube prong is a little short, or the contact spring in the socket may have lost some of its tension. If this condition exists at the filament springs and prongs, the tube will not light, and it will be readily apparent. If, however, it is at the grid or plate contacts, it will not be so easily detected.

If you are in doubt about this contact, you can either bend the springs of the socket upward, or else touch a little solder to the ends of the tube prongs, being careful not to overheat them while doing it, and also seeing that the solder

**Aerial Gear**

Cast Gun Metal **SCREW-EYE, SHACKLE AND PULLEY BLOCK**, complete, ready to screw to mast.

Also, Cast Gun Metal **UNION SCREWS** for tightening Guy Wires, in two sizes:—

Heavy, 5in. take-up, 3/8in. screw.

Light, 4in. take-up, 5/16in. screw.

No aerial complete without these essentials. Will keep the tallest mast straight and steady in all weather.

Obtainable from all leading Wireless Stores, or direct from maker.

Mast bands, screw-eyes, eye-bolts, and other brass or gun metal castings, also made to order by

**V. Greenup**

Brass Founder

119 Farr Street, Rockdale



June 29, 1923.

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so applied is not bulky and lumpy. One of the important things in connection with all double or three circuit tuners is the arrangement of the aerial tuning condenser. Many fans ask, "Which is better—to place the condenser on the aerial side of the variocoupler primary, or on the ground side?" The same question applies also, of course, to honeycomb sets.

The answer is: "On the ground side." Not only that, but the rotor plate of the condenser should be connected with the ground, and the stationary plates with the inductance, be it variocoupler primary or honeycomb coil.

#### GROUNDING THE FILAMENT CIRCUIT

In this connection there is another good tip of double circuit sets. When the aerial tuning condenser is on the ground side of the primary circuit, as described above, it is possible to ground the common filament of the secondary circuit, care being taken that the rotor plates of the secondary condenser are joined to the filament side of the circuit. This will also have the effect of the ground shielding the set, and make it much easier to adjust. There will be no direct coupling between the primary and secondary circuits, as the primary condenser separates the primary inductance from the secondary inductance.

Another tip for regenerative circuit users: Remember that no matter what means are used to obtain regeneration (with exception of plate variometers), the current flowing in the tickler coil is of a unidirectional character. In other words, it flows through the coil in one direction only. Therefore, if the direction of winding on the tickler coil is opposed to that of

#### BOOKS ON WIRELESS

The Year Book of Wireless Telegraphy and Telephony. Price 9/-, posted.

Electrons Electric Waves and Wireless Telephony, by J. Fleming. Price, 10/-, posted.

Wireless Component Parts, and How to Make Them, by B. Jones. Price, 2/3, posted.

Experimental Wireless Construction, by A. Margan. Price, 2/3, posted.

N.S.W. Bookstall Co. Ltd  
476 George Street, City

## Seeing by Wireless.

The sending of photographs by wireless telegraph is already an accomplished fact. The results have not so far been unduly startling, but then the attempts have been merely experimental. Development comes most rapidly when a practical purpose is served by, and a commercial use applied to, a project. The transmission by wireless of photographs has not hitherto been considered an idea of extreme value. It makes little difference to the man in the street whether any pictures he may desire to see are put quickly before him or are delayed a few days.

When the delay means that actual photographs will come by post, and will prove far superior to the finest efforts at reproduction by wireless, he would, if asked, unhesitatingly prefer to wait.

Wireless vision, however, opens up a huge field of both scientific and commercial value, and let it not be forgotten, by the simple process of

the primary and secondary coils, there can be no regeneration. A simple method of determining this is to reverse the connections on the tickler coil, and compare the results.

sending two variations of waves, i.e., "on" and "off."

That the quickness of the hand deceives the eye is a truth of great importance in this consideration. Through it the kinema as we know it to-day became an accomplished fact. The eye is, as we know, a lens through which photographs are constantly being made.

These photographs cannot be obliterated instantaneously. In other words, vision is retained for the fraction of a second, and it is this retentivity of vision which is made use of in the kinemas and enables us to obtain an impression of continuous sight from the rapid imposition of photographs on a screen before us.

Retentivity of vision will similarly be used in the development of the wireless kinema, which is probably the most expressive name that could be applied to it.

On the screen there will be thrown a succession of photographs transmitted by wireless with such rapidity that real vision is effectively simulated.

It is not a difficult matter to realise that if the transmissions which we now send can be speeded up to

Continued on Page 15

### Get Your Wireless Gear at Electricity House

387 GEORGE STREET (OP. STRAND). TEL. 2961 CITY.

Condenser Plates, 1/9 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, 1/9 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/-.

Murdoch's 'Phones, 35/-; Myors' Valves, 35/-.

Catalogues, 9d. each, including wiring and other diagrams. All makes of Telephones and Valves.

Crystal Cups, 1/-; Detectors, 5/- each; Loose Couplers, 40/-;

Cabinets, Ebonite, Bakelite, and All-round Materials.

Complete Crystal Sets, £3/10/-, £6/10/-, £7/10/-; Valve Sets, from £9 to £35, 1, 2 or 3 valve; Radiotron Valves, 37/6; Vernier Rheostats, 15/-.

INTERVALVE TRANSFORMER, 40/-  
Closed Iron Core.

UNDER NEW MANAGEMENT.

Works Manager: Raymond McIntosh.

General Manager: J. S. Marks.

All Communications to the Firm.



# LARGE STOCKS OF VACUUM TUBES

BUY EARLY TO AVOID DISAPPOINTMENT



Used by the International Meteorological Expedition into North West Australia, using a 3-valve set and portable aerial. Convincing proof of their stability and efficiency

## Mullard "Ora" A

These valves won the Trans-Atlantic Tests and were also used by Mr. Jack Pike in his recent successful reception of American amateurs.

3.8 volts on Filament.  
30 volts or over on plate.

Price 27/6 each

## IMPROVED Cunningham Vacuum Tubes

Made by the G.E. Co. of America.

C 301 A

The most efficient Vacuum Tube ever placed on the market for Amateur and Experimental use.

Consumes only 1 Ampere of Filament Current.

The tube is fitted with a standard four-prong base, and is of the same dimensions as the old 300 x 301.



Price, £2/5/0

We have large stocks of **REMLER EQUIPMENT** just arrived, also **BROWN'S LOUD SPEAKERS**, large and small; **DE FOREST Radio Accessories**, and **KELLOGG Radio Apparatus**.

All these lines have been tried by Sydney's leading experimenters who pronounce them to be excellent. **WE STOCK ONLY THE BEST.**

# BURGIN ELECTRIC CO.

Wireless Engineers and Suppliers

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June 29, 1925.

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LEICHHARDT AND DISTRICT  
RADIO SOCIETY.

The thirty-fifth general meeting of members of the Leichhardt and District Radio Society was held on Tuesday, June 19th, when Morse practice was carried out, and a discussion on wireless matters generally indulged in.

Members are looking forward with much pleasure to the meeting to be held on Tuesday night next, July 3rd, when an interesting test has been arranged in conjunction with the well-known experimenter, Mr. R. C. Marsden (2JM), of Edgecliffe. Music, dispensed by the society's orchestra, will be transmitted from Mr. Marsden's station, and it is probable that a number of vocal and instrumental items will also be rendered.

At the following meeting, to be held on July 10th, another lecture is to be arranged, and particulars will be published in the next issue of "Wireless Weekly." Watch for them.

Each monthly business meeting of the society sees a further increase in membership, and inquiries continue to come in all the time. All are welcome, and should be addressed to the Hon. Secretary, Mr. W. J. Zerk, 145 Booth St., Annandale.

## KILLARA RADIO CLUB.

The third general meeting of the Killara Radio Club was held on June 15th, at 7.45 p.m. After 15 minutes' buzzer practice, the meeting was called to order, Dr. Greenwell taking the chair.

It was then decided to add two more members to the committee. Two nominations were forthcoming, Mr. F. Petersen nominating Mr. B. Chilton, and Mr. Wyatt Gill nominating Mr. L. Hawley. These were seconded and elected.

Dr. Greenwell then gave a very interesting lecture on constructional details, such as squaring the edges of panels, tapping coils, polishing cabinets, and soldering.

At the end of this, Mr. Gray demonstrated the method of winding honeycomb coils, and showed how to increase the capacity of a condenser by placing a celluloid washer on the plates. He also described a home-made loud speaker.

Numerous questions were then asked and various points discussed; the members then listened in on a set kindly lent for the evening by Messrs. Hurl, Greenwell, Gray and Gill.

The club's membership is now 25, four new members being elected at the last meeting.

Meetings are held every second Friday, in the Congregational Hall, corner of Florence and Arnold Sts., Killara.

Please address all communications to Mr. A. H. Gray, Hon. Secretary, "Moylough," Florence Street, Killara. Phone: 32661.

NORTH SYDNEY RADIO  
CLUB.

The usual meeting of this Club was held at its quarters, corner of Alfred and High Streets, North Sydney, last Tuesday evening, when Mr. Malcolm Perry lectured, and indicated to members the directions in which they should experiment, and which were well within their scope for the improvement of various wireless apparatus.

The Club's transmission set was further tested and gradual improvements are being carried out.

RAILWAY AND TRAMWAY  
RADIO ASSOCIATION.

The Railway and Tramway Departments are endeavouring to form a Radio Association, and for this purpose, a meeting of the Railway and Tramway Radio Association will be held at the Railway Institute, Devonshire Street, Sydney, on Wednesday, June 27th, at 8 p.m.

## ILLAWARRA RADIO CLUB.

The 25th meeting of the Club, held on 19th inst., was very well attended, and added two more new members to the club's membership roll.

A proposal, which was to be considered by the Radio Association, as to making a universal meeting night for all clubs, was discussed, and such a proposal does not meet with favour from this club, for the reason, principally, that such a scheme, if adapted, would preclude members from different clubs vis-

iting other club meetings (a very desirable thing) or doing so at the expense of their own club. As things are now, with different club meetings on different nights, members have an opportunity, if they so wish, of looking into other meetings and seeing what the other fellow is doing, and this interchange of visits is a thing which should be encouraged, instead of which if such a scheme as above were adopted this would be seriously hampered. It is stated that the idea is to have one night for all clubs, on which amateur transmitters will be asked to stop transmitting, and so allow amateurs to go along to their meetings inasmuch as they will have nothing to listen to by staying at home; but even so, this might work alright with amateur transmitters, although it is surely not expected that when broadcasting companies start later on, they will stop on a pretext of this kind, but the same thing applies. If this is the reason for the proposed scheme, it is a paltry one to say the least of it, and would make amateurs out to be a poor spirited lot with regard to their clubs. Let the matter of attending their club meetings be put to them forcibly enough and in the proper spirit and they will show that they are made of the right stuff. The club's delegate was instructed to act on this question accordingly.

The Radio Relay League was another matter which came up for enthusiastic discussion at the meeting and all are seized of the great asset this will be to the experimenters' cause for the reason mainly that it will be doing practical work.

A suggestion was put forward that all amateur transmitters should be asked during each programme of transmission, to give say, five minutes of buzzer practice at varying speeds. This it is thought would be of vast assistance to the amateur who is learning and acquiring speed in reading Morse signals, and he would be getting the stuff under practical conditions. The delegate was also asked to bring this matter up to the Radio Association.

At this meeting, Mr. C. A. Gorman continued his lecture on "Radio Frequency Amplification on Short Waves." He dealt with his recent experiences in this connection in the Trans-Pacific Tests, in which, as is known, he achieved remarkable results. A full and



detailed account of the set used in this case, with constructional details of the various parts was given, and judging by the profuse note-taking indulged in the members keenly enjoyed the lecture, at the conclusion of which a hearty vote of thanks was accorded Mr. Gorman. (An account of Mr. Gorman's set and results appears elsewhere in this issue).

Mr. Gorman was assisted at his station in the tests by Mr. A. T. Whitaker of Banksia (also a member) and the club has just cause to feel proud of the great success gained in the Trans-Pacific Tests by these two gentlemen and at the meeting, the club's appreciation of their fine work was carried by acclamation.

The next meeting will be held at the club-room, 75 Montgomery St., Kogarah, on Tuesday, 3rd July, at 8 p.m., when Mr. F. Stron will lecture on "Storage Batteries." All interested are cordially invited to attend.

Information concerning the club can be obtained from the Hon Sec., Mr. W. D. Graham, 44 Cameron St., Rockdale.

## LISTEN IN! LISTEN IN!

A "Radiating" One-Step.—Words and Music by T. E. N. Watts.

If you haven't got a wireless set  
And fixed your mast upright,  
You're losing half the fun we get  
By listening in at night.  
The world is mad about the game,  
Why don't you start and do the same?

Chorus—

Listen in! Listen in! If you'll only listen in,  
You'll get tips about the weather,  
and the horse that's sure to win,  
For smoke room yarns and sermons,  
too are floating thro' the blue,  
And melodies entrancing, and a jazzy tune or two,  
Listen here! Listen there! There is nothing to compare  
To the wonders of the air—so get your share.  
Buy the gear—it's not dear—gather news from far and near,  
Place the gadget to your ear, and listen in  
When love birds start to bill and coo,

They take up half the air,  
"A wireless kiss is perfect bliss,"  
You'll hear them all declare,  
So when they start, "Is that you pet?"  
Now's the time to fit your set.  
And—

Chorus—

Listen in! Listen in! If you'll only listen in,  
You'll get tips about the weather,  
and the horse that's sure to win,  
For smoke room yarns and sermons,  
too are floating thro' the blue,  
And melodies entrancing, and a jazzy tune or two,  
Listen here! Listen there! There is nothing to compare  
To the wonders of the air—so get your share.  
Buy the gear—it's not dear—gather news from far and near,  
Place the gadget to your ear, and listen in!  
The native verses were supplied by Mr. Oswald Anderson, and are copyright. They will shortly appear set to music.

## Winter is Here

Radiators from 55/-  
British Electric Globes 1/3 each  
Electric Irons 20/-

**J. J. Hoelle & Co.**  
57 Goulburn Street

Factory: 49 ALMA STREET, DARLINGHURST

### MR. MACLUREAN'S REQUEST.

Mr. C. D. MacLurean has requested W.W. to ask experimenters to desist from sending him letters asking for information which can be obtained from any of the wireless text books.

Questions on transmission Mr. MacLurean will answer when time allows, but though he is delighted to hear from experimenters, he has not the time to give information that can easily be obtained elsewhere.

### LISTENERS IN FOR SOME

To date, Mr. MacLurean has received letters to the effect that over 1700 persons listen to his music on Sunday nights.

Out of all the letters received, only 2 were anonymous, which clearly goes to show that many others thinking there was a catch somewhere, did not write at all.

Wireless Weekly estimates on pretty reliable information that at least 3000 listen to Mr. MacLurean's Station on Sunday evenings.



**EXPERIMENTAL TRANSMISSIONS.**

For Week Ending 1st July.  
 Tuesday: 7.30 to 8, 2ER; 8 to 8.30, 2VW; 8.30 to 9, 2GR; 9 to 9.30, 2LI.  
 Wednesday: 7.30 to 8, 2VW; 8 to 8.30, 2GR; 9 to 9.30, 2KC.  
 Thursday: 7.30 to 8, 2ER; 8 to 8.30, 2GR; 8.30 to 9, 2LI.  
 Friday: 7.30 to 8, 2VW; 8 to 8.30, 2GR; 8.30 to 9, 2LI.  
 Saturday: 7.30 to 8, 2GR; 8 to 8.30, 2BB; 8.30 to 9, 2KC; 9 to 9.30, 2LI.  
 Sunday: 7.30 to 8, 2CM; 8 to 8.30, 2CM; 8.30 to 9, 2CM; 9 to 9.30, 2GR; 9.30 to 10, 2KC.

**CROYDON RADIO CLUB.**

The last meeting of the above Club was held on Saturday, June 16th, at "Rockleigh," Lang St., Croydon.

The constitution and rules were adopted and six new members enrolled.

The Club now has a membership of 36, and enjoys a full attendance of members at each meeting.

Mr. Maxwell Cutts gave an interesting lecture on "Construction and Operation of Crystal Receivers."

Please address all communications to the Hon. Secretary, Canwell, Highbury St., Croydon.

**MODELS.**

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*Continued from page 11.*

the point when the gaps between them are filled up by our natural retentivity of vision, the wireless kinematograph will be an accomplished fact.

Such a speeding up is merely a matter of time and development. That it will be accomplished one day is certain as anything can be. Good experimental results have already been obtained. The apparatus which will be used when the process is perfected will most certainly be somewhat involved and expensive.

At the transmitting end a form of film camera will throw photographs on a screen or plate. These will be instantly telegraphed and received separately, a long film being secured at the receiving end.

The transmitting "camera" may not be a camera at all, but merely a mechanical means of breaking up the reflection of a scene into sections equivalent to the separate photographs of a kinematograph film. These sections will be instantaneously transmitted in much the same fashion as we now transmit ordinary photographs.

The receiving appliance will be much more complicated, for there the actual film will have to be made and cast upon a screen. I see no reason, however, for believing that all difficulties in the way of successful accomplishment of this will not be overcome.

As a matter of fact, the wonder has already been actually accomplished to a certain extent. In the United States vision by wireless has been attained, and I myself have made successful experiments.

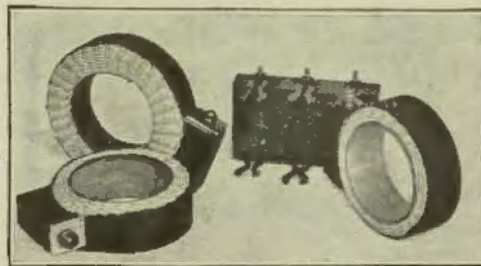
It is these experiments which make me so optimistic in prophesying that in a comparatively few years radio-kinemas will be flourishing in much the same fashion as our ordinary kinemas are flourishing now. In them people will see thrown on a screen events as they are actually taking place at the moment—or at least within a few seconds after.

Such a state of affairs is, of course, an event of the future, and may not be an accomplished fact for many years to come. At the same time the certainty that it will be so is beyond dispute. After all radio vision is no more wonderful an accomplishment than the wireless telegraph itself. Vision, however, is in relation to sound much the same as photographs are to letterpress.

It is easier and much more pleasant to look at pictures than to read books. Their appeal is more direct and forceful. Consequently pictures are more popular, and anything in connection with sight makes a strong appeal to the imagination.

Thus the development of wireless vision will be viewed with even more wonderment than the perfect-

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ing of the wireless telephone.

When the event happens it will happen suddenly.

Unfortunately inventors only receive payment by results, and few people are eager to finance a venture which might not prove practical for many years. Besides, practically all experiments are done comparatively secretly in order that the inventors may not be robbed of the fruits of their investigations. Consequently, little publicity will be given to their achievements until success is within their reach and their discoveries and appliances are effectively patented and protected.

As a matter of fact, an apparatus could now be made which would transmit vision with a sufficient degree of accuracy to enable the man at the receiving end to distinguish between a man and a dog. All this is achieved simply by speeding up the sending of photographs which ordinarily take ten minutes to half a second each.

Doing to the retentivity of vision this speed, slow though it still is, enables a visualised picture, very patchy and very trembling, like an exceptionally bad cinema film to be shown on a very coarse paper screen.

In due course the broadcasting of wireless vision will be as popular and as prominent as the broadcasting of news and concerts is to-day.

It will, in time, be possible not only to transmit vision without the actual making of a film of the scene to be visualised, but the actual receiving may be done without such intricate apparatus and expense.

When that happens the sending of ordinary cinema films by train and post will be at an end. Kinemas will receive their films broadcasted by wireless. Whole programmes will thus be controlled from a radio vision broadcasting station the exhibitor having merely to switch on his receiving apparatus in order to provide his audience with their amusement.

The use of radio vision in time of war must not be overlooked. By its means generals will be able to see via aeroplanes transmitting radio pictures the movements and disposition of enemy troops, and witness the effect of his guns on various parts of the battle front at the same time. A permanent record will also be available for use at any time.

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In the same way naval commanders will visualise the mode of attack of an enemy fleet.

Whilst this is going on the people at home in their radio-kinemas will be watching with tense interest battles in progress attacks being made, men being wiped from this earth and all the attendant horrors of war.

A gruesome prospect but not at all fantastic. That it will come is perfectly certain.

Luckily, however, the benefits which radio vision will confer upon mankind are far more important than its effectiveness as a weapon of war.

Schools will be equipped with radio kinematographs and no superior method of educating children could be imagined.

The development of wireless telephony, already well-nigh perfected, will, of course, enable the two wonders to be operated in conjunction with one another, so that the radio-kinema of the future will have overcome the silence of the screen and talking pictures will be the natural result.

There is really no end to the number of ways in which wireless vision will benefit mankind and all in the near future.

We are living in an age of miracles, but undoubtedly the greatest miracle of all, the real wonder of the age, will be the realisation of the ability of man to see events taking place hundreds and even thousands of miles away from where his eyes actually are.

MICROPHONES.

Some interesting facts concerning the instrument that translates electric vibrations to sound vibrations, without which "listeners-in" could not hear.

Though quite an independent part, as it were, of wireless transmitting plant in the sense that it was in common use before wireless was heard of, a microphone is indispensable and is, indeed, the only method known whereby the waves of sound may be incorporated with the waves of energy generated by transmitting plant. At present it operates only in a state of comparative perfection, and microphones which give absolutely unblemished reproduction of speech and music are rare enough to be treasured by their owners.

A host of names are concerned with the development of the earliest types of microphones, but for the beginning of the idea—the transmission and reproduction of sound

through a physical substance—the experiments of Wheatstone must be recalled. He proved, by very simple apparatus, that this was possible. His gear was simply two specially constructed sound-boards of wood connected by a thin rod of pine.

Sound waves which struck the first board were conveyed along the rod and reproduced by the second. This contrivance became known as "Wheatstone's magic lyre"; one wonders what the authors of this appellation would have to say of the

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modern development of the idea, where the "rod of pine" is the other end and the boards the transmitting and receiving stations.

When other scientists sought to apply the idea to the transmission of the voice along telegraph lines, the real problem was how to embody the sound waves with the pulses of electric current. Eventually it was done by a diaphragm of exceedingly thin metal which vibrated in accordance with the sound waves of the voice at close range. These vibrations varied the resistance of an electrical contact at the back through which the line current was passing, and in this way the sound was actually incorporated in the current, which produced similar vibrations in another diaphragm at the receiving end. Edison's transmitter was based on the change of friction produced by the passage of current through substance in relative motion.

The diaphragm was made the lid of a small box filled with finely powdered carbon which was excited or thrown into a state of relative motion by the impact of sound waves on the diaphragm. Each particle of carbon "jumped" and thus the resistance to the current passing through the box was varied.

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icient parts in the radio fan's junk box to make up one or more of these condensers without having to buy anything.

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philadelphia egypt february twenty seven 5223 a t after refusing for over thirty three hundred years to speak over the radiophone king tunkhamen at last consented to broadcast a few words today said to this is station t u t kings valley interment association members of the radio audience i wish to correct the many mispronunciations of my name that i hear daily pronounce

t us in tutt a as in ank and hay-man like an englishman except the accent is on the first syllable some people call me two tanker men but that sounds too much like two gun smith and besides why remind us of the wonderful light wines and beer we had in the days when gold was cheap enough to use for bedclothes i send special greetings to the city in the far west that is named after ours and i often think that perhaps there too some one will actually wake up in thirty three hundred years this is station t u t signing off until 8523 a t good afternoon jerje clairek.—"N.Y. World."

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June 29, 1923.

## WIRELESS WEEKLY

19

*Continued from Page 3*

the Conference yesterday that the success of broadcasting depends upon the safeguarding of various interests, and he emphasised the interests of the press in particular.

Mr. Fisk: The Conference should certainly do everything possible to assist the press. At the same time we do not want to make the Board cumbersome and unworkable.

The Chairman: One of the three motions submitted by the Committee for the approval of Conference reads:—

That this committee realises the necessity for protecting the principle of property in news, and we forward herewith a memorandum drawn up and submitted to us by representatives of the press.

That memorandum clearly covers the position so far as the press are concerned.

Mr. Holloway: Why should not the interests of the press be safeguarded, the same as the interests of broadcasting companies and other persons.

The Chairman: If the news section is to be particularly dealt with, why should not the theatrical and amusement section also be dealt with. I can speak from experience with regard to musical and theatrical entertainments having been closely connected with that form of broadcasting while in England.

Mr. Holtz: The essential difference between news and amusement broadcasting is that no agency can distribute or broadcast an entertainment without previously obtaining the approval and cognisance of the people conducting that entertainment. But directly news appears in the public press it is apparently free for anyone to take and use. The difference was recognised yesterday by the Minister when he placed the press in the forefront of his safeguarding proposals. The memorandum submitted by the committee clearly sets out the position of the press, but it is proposed that the Conference shall merely send it on, without recommending it or otherwise. You, Mr. Chairman, have distinctly stated that the Conference will say neither "yea" nor "nay." That being so, there is no doubt that the press should be represented upon the Board. But if the adoption of safeguards for the press is recommended by Conference, then the need for a repre-

sentative of the press on the Board may disappear.

Mr. Fisk: We must be very careful not to overload the scheme, and make it unworkable.

The Chairman: Yes, that is the danger.

Mr. Fisk: There is a good deal in what has been said about the interests of the press not having the same protection as other interests, but I would ask members of the Conference to consider the matter very carefully and with an open mind. We are here to use our best endeavours to put broadcasting on a sound and successful basis.

Mr. Wilson: Mr. Hull's remarks convey the impression that there is some misunderstanding with regard to the Board. The Board will have no say whatever in the programme of broadcasting. If there is any breach of the regulations the people concerned will take action. For instance, the press will take action in regard to any theft of a news service, and the theatrical people will take action in regard to any theft of an amusement service. The Board will merely be charged with the duty of administering the regulations. Licenses will be dealt with by the Board, and if any person is caught using an unlicensed instrument, the matter will be reported to the Board, which will authorise prosecution. The Board will certainly not interfere with the press or with broadcasting stations, and will not prejudice or damage the interests of any person. The broadcasting representative may be a manufacturer, a trader, a private individual, or an importer; as a matter of fact, we do not care who he is; there is no limitation in that way.

Mr. Hull: But you support the principle that certain industries shall be represented upon the Board, and you impose a limit by defining them.

Mr. Wilson: No.

Mr. Hull: Yes, because you say that the Board shall comprise representatives of the Government, broadcasting stations, and manufacturers and traders.

Mr. Wilson: We must have some means of administering the regulations. In Sydney there is a Meat Board, comprising representatives of the Government, the public and the pastoralists; the Board functions purely within the limits of the Act and regulations thereunder and has not the right to interfere with

butchers' shops or the prices to be charged; but it governs certain phases of the industry which are controlled by Act of Parliament. It does not attempt to interfere in the relationship of say wholesalers and retailers.

Mr. Hull: The best thing to do would be to provide that the Board shall comprise a nominee of the Government and two other representatives, without saying who shall be represented. The selection of representatives should be left to the Government, instead of there being a limitation to broadcasting stations and manufacturers and traders.

Mr. Wilson: The reason why regulation "D" was drafted in its present form is that so far as we can foresee, 99 per cent. of the breaches of the regulations will be in regard to trade matters, the use of unlicensed stations, sets, etc.

Mr. Hull: It should be left to the Government to say whether the press shall be represented or not.

Mr. Wilson: I do not see that the regulation in its present form in any way threatens the interests of the press. If there is a leakage in regard to news, it should be easily traced. In regard to cable news, for instance, the person suspected must be definitely able to prove the source of that news, or be made the defendant in a civil action.

Mr. Collas: Notwithstanding that certain nominations have already been made, I desire to support the suggestion that there should be a nominee of the press on the proposed Board. There are several reasons for that, but it might not be politic to give one or two of them at the moment. It is absolutely necessary that the press should have some representation. We could not have a better medium of conveyance, so far as publicity is concerned, than the press. Of course, there must be a line of demarcation somewhere, but there can be no doubt that there should be a nominee of the press on the Board.

Mr. Holloway: I suggest that the regulation dealing with the Board be submitted to the Conference before the constitution of the Board is decided. If it is decided that there is to be no Board, and the Government sees that the regulations are carried out, why this discussion?

The Chairman: The committee has come to a unanimous conclusion that



it is desirable for a Board to be provided under the regulations. As to the personnel of that Board, the committee has made certain suggestions. Do you suggest that the regulation be divided into two parts?

Mr. Holloway: I do. Why all this discussion if there is to be no Board. The Conference may prefer the Government to administer the regulations.

Mr. Mingay: No doubt has been cast upon that so far.

The Chairman: I will put the regulation in two parts. The first is that "The administration of regulations governing broadcasting be in the hands of a Board." Agreed to.

The Chairman: The second part is that "such Board have thereon representatives of the Government, of broadcasting stations and of manufacturers and traders." An amendment has been moved that the press should also be represented on the Board.

Mr. Court: I desire to move a further amendment. No provision has so far been made for the present owners of stations. We will leave the experimental sets out altogether, as it has been denied in some cases that they are experimental. Up to the present, many thousands of pounds have been invested in apparatus. That money represents so much capital, and representatives of the investors of that capital should be on the Board. Yet, no provision has been made for them.

The Chairman: You mean that the licensees should be represented?

Mr. Court: Yes. They are a particular section of the public, and they should be represented. I refer to the present licensees. The agency can be determined by the licensees themselves, whether it be through a recognised institute, or through other channels.

The Chairman: Will you not allow the future licensees to have a say also?

Mr. Court: Certainly. The present licensees should cover the licensees now and hereafter.

Mr. Wilson: We must not lose sight of the fact that this is not a wireless board covering all wireless operations. It is purely to cover broadcasting, and is to have no control over the present experimental licensees. Therefore, I think that they have no right to representation on the Board. Let them have

a Board of their own, if they so desire, but leave us alone.

Mr. Cameron: Mr. Fisk has already said that any experimenter must have a license. If that is the case, these experimenters are entitled to representation on the Board in the same way as other people.

Mr. Holloway: The experimenters are members of the public, and is not the public represented on the Board by the Government?

Mr. Cameron: Certainly. The same argument applies to the traders and others.

Mr. Mingay: The existing licenses are issued to experimenters. We have already said that the Board will cover broadcasting services. The point that the experimenters would be controlled by the Government was thoroughly discussed in Committee. The experimenters are in a world by themselves.

Mr. Court: Have we the assurance of the Government that the experimenters' interests will be conserved, and that no action of the Board will be antagonistic to those interests?

The Chairman: There is a clause covering that.

Mr. Court: Very well. Regulation "e," as amended, agreed to.

The Chairman: That concludes the regulations drawn up by the committee.

Mr. Fisk: I move the adoption of these resolutions, as amended, by the Conference.

Mr. Collas: I second the motion. Motion agreed to.

The Chairman: We now come to three important motions which were drawn up outside the regulations, and which we desire you to give careful consideration. The first is:—

That this Conference affirms the principle of preference to Australian, British and foreign manufactured apparatus in that order, on such terms as will encourage the use of Australian and British manufactured apparatus, and that this be the recommendation from the Conference to the Minister.

Mr. Wilson: I move the adoption of that motion.

Mr. Hirst: I second it. Motion agreed to.

The Chairman: The second motion is:—

That this committee realises the

necessity for protecting the principle of property in news, and we forward herewith a memorandum drawn up and submitted to us by representatives of the press.

The memorandum is as follows:—

That it shall be a condition of every license issued under these regulations that the wireless company, broadcasting agency or company, firm or firms, to whom such license is issued, shall recognise the exclusive ownership in news or information of any kind, whether locally gathered, obtained by post, telegraphed, cabled, wireless, or any other means of established communication published in a newspaper, or obtained, collected, collated, and/or co-ordinated by such newspaper or any association of newspapers, or any news agency or service, which legitimately collects or obtains at its own expense such news or information, and that such recognition shall be conditioned by full acknowledgement upon its use of the source whence the wireless company, broadcasting agency, or company, firm or firms, obtain such news or information and by the full consent in writing beforehand of, and upon such payment as may be agreed to with such newspaper, association of newspapers, news agency or service concerned in the news or information sought to be used and any wireless company, broadcasting agency or company, firm or firms, failing when called upon to produce satisfactory evidence of authority and consent for sending out news or information the subject of this regulation, shall be deemed to have contravened the regulation.

Mr. Holloway: Might I ask what constitutes news. What about the result of a football match?

Mr. Holiz: If you go to a football match and obtain the result, you may give that to your friends, but if you take the information from a published source, and transmit it for gain, you are stealing.

Published by W. J. Maclardy, of 46 Murdoch St., Cremorne, for the Proprietors, at the offices of Publicity Press Ltd., 33/37 Regent St., Sydney.



June 29, 1923.

WIRELESS WEEKLY

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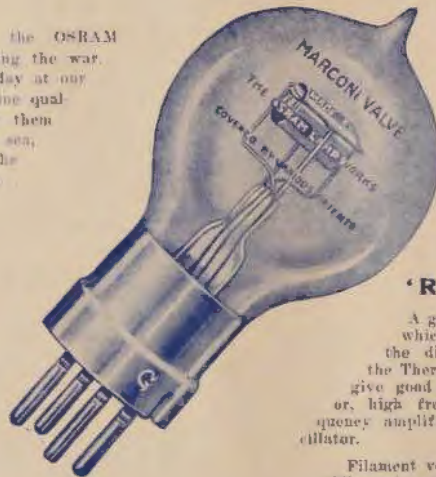


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