SPECIAL FEATURES Verbatim Report of Broadcasting Conference
THIS WEEK: Victorian Wireless
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GRACE BROS. LTD.
Broadway, Sydney
FIRST DAY.

Mr. Fish: That is the cost without high-grade artists. In England, they were getting the services of people from the Academies, perfectly for nothing. I can tell you from my own experience that the public appreciate high-grade performances very much indeed. But there is this connection, a problem which is coming forward very rapidly indeed. The people who control most of these high-grade artists, have practically forbidden all of them to perform for broadcast purposes, and I understand that the gramophone people have taken somewhat similar action. Simultaneously, the artists themselves are beginning to realise that when they perform at broadcasting stations, they are performing to audiences many times greater than the largest audience at any one theatre. Madame Melba, at Covent Garden, received 500 nightly for singing to an audience of about 4,000 people. When broadcasting is established in Australia, if you ask Melba to sing to an audience of 250,000 people, what will it cost you? That is one of the problems which has to be overcome. The Broadcasting Company in England cannot afford to provide entertainments of that class without the payment to it of a very high sum. The result is that it can provide only very limited programmes. I have said already, that upon the same basis of cost as obtains in Great Britain, we should require about £60,000 per annum to operate 200 broadcasting stations here. You can readily see that result cannot be attained. At the same time, we all know sufficient to realise that the people of this country demand a wide variety of services. If we can provide that wide variety of services, if we can satisfy all tastes as far as possible and insure the permanence of those services, we shall certainly satisfy the public. A great number of these present to-day are here to see how far they will be able to do business in broadcasting. Now, the more the public is satisfied, the more business you will be able to do. If you start with a scheme like the American scheme, which will break down, you will find yourselves stockpiled up with a great deal of apparatus, and there something will happen which will prevent you carrying on your operations. That will not be for your good, or for the good of the public. There are a great variety of services which can be provided by broadcasting, and the question is how they should be provided. I have said that proportionately to the number established under the English scheme, 200 stations will be required here. The area of Australia is about the same as that of the United States, where there are already 600 stations operating. The confusion which exists there is not due to the fact that there are 600 stations operating, but rather to the circumstance that broadcasting has not been properly established and properly regulated. The points which I have endeavoured to make are first that the fundamental part of this movement is that it should provide an entertainment service. If it succeeds upon that basis, it will provide to the people in the country all the other services to which the Minister has referred, and the businesses which many of you want. Secondly, the public require a variety of entertainment. Some persons may desire information services exclusively. Here, we have a vast territory to cover, and we possess a comparatively small population. When you realise that the London Broadcasting Station alone— that is the station which covers the area within a radius of 150 miles of London—supplies a population which is nearly double that of the whole of Australia, you will realise the difference between the conditions which obtain there and those which obtain here. If we look around, we shall see that all the other entertainment services have been successful, provided they have given proper value for the money received. But here is our difficulty. If you pulled down the walls of all our theatres and had stages erected in our public streets, or in our parks, the theatres could not live very long. Somebody
remained the other day that football is a sport which finances because the public are able to support it by paying to see football matches, whereas nothing can ever amount that stage for the simple reason that there is no "gate" attached to it. That is the problem with which broadcasting is confronted. It is also having all our broadcast performances in our public parks where everybody would be able to see them. We cannot build four walls round a broadcasting service because we cannot work within those dimensions. In America, and England, the services are limited to a very narrow wave-length. But anybody there can listen to any of the services without contributing properly towards them. Manifestly, things cannot continue upon that basis. In order to meet these conditions, I have drawn up for your consideration a scheme which will centre permanence to this movement, which will permit of freedom of competition in the matter of providing various classes of service, and freedom for competition in the supply of apparatus. What I suggest, briefly-

(a) That a number of wave-lengths be allotted for broadcasting purposes. Such wave-lengths to be selected in respect of their suitability for citations of various persons, and subject to their not being required for public wireless telegraph or wireless telephone services.

(b) Licences for connections for broadcasting stations to be granted for all available wave-lengths within a given area. When wave-lengths are available, we should give them wave-lengths, repeated as many times throughout the Commonwealth as the range of stations permit.

(c) Each broadcasting station to be licensed for transmission on the one wave-length only. That is to say, the area of the band is marked out, and anyone who would operate to whom ever operates that area.

(d) Licences to be issued under the Wireless Act to the public for receivers of apparatus capable of receiving signals of one wave-length only, and subject to no limitation without intentional tempering.

That provision is merely the equivalent of the provision which exists in the case of a man who wants electric light installed in his home. There is the electric power station which is ready to supply him with the "service," and the supply authority will give him the apparatus to receive it. Your house will be ready just as soon as you have installed the required equipment to receive broadcasting messages. You have to make it ready either for broadcasting station A, or broadcasting station B, according to your fancy, and to subscribe to that service.

(e) Licences to sell or hire receiving apparatus to be issued to bona fide manufacturers and electrical or other traders.

That is intended to give some fair competition in the supply of apparatus. Suppose there to be three purposes in which there are three broadcasting services. Every one who wants to go into this business within that area will stock receivers of as many makes as he cares to stock, so that the public may get a selection of different makes receivers for each wave-length. The only restriction imposed will be that the receivers must comply with the regulations.

(f) All licences to be renewable annually.

That is intended to ensure that the broadcasting services shall get their real.

(g) Commissioners to state in their application the usual charge they propose to make for their service, and to be authorized to issue licences to all those customers who are equipped with approved receiving apparatus.

(h) Receiving licences and renewals thereof to be withheld from all persons who do not pay the annual subscription to the broadcasting stations.

So that each year they may renew their licence and collect their annual subscription, whatever it may be. If anybody does not pay up, the service to him will be terminated. He will be in the same position as the man who refuses to pay his gas bill. In the latter case, the gas meter is disconnected, and the man no longer gets the gas. If he desires to tap the mains without the meter, he is breaking the law. Similarly, if he attempts to tap the broadcasting service without having paid his subscription, he should also be breaking the law. He should be in just the same position as the man who climbs up to the window of a theatre on the purpose of seeing the performance within.

(i) Commissioners to notify the Government of the names of all persons or companies becoming known to them within the territory.

(j) Dealers and traders only to supply receiving equipment to holders of licences, and only upon such terms as may be approved by the Government.

That is to say, they must see the commissioner gets his proper fee for the service.

(k) Since there will be many rooms for competitive broadcasting stations, it is unnecessary to place any limitations upon the nature of the services provided. Each commission must decide for himself the class of service that will bring him the greatest number of subscribers.

(l) Dealers to keep a record of all equipment sold and to notify the commissioner immediately of any particular wave-length.

For instance, if you were operating a service with a wave-length of 286 metres, every dealer within wave-range who sells a 286 metre receiver would report that Mr. Jones or Mr. Brown, whom he has sold it, has become a subscriber to your service. That is the principal reason for requiring dealers to be licensed.

(m) Commissioners to notify the Government of the names and addresses of all their subscribers, and to pay to the Government the annual fee in respect of each licence herein or renewals in subscribers.

The fee for the administration of this service, will come out of what will be the commission's charges for his service. If he makes the charge according to his service, he will find whatever the Government requires to be paid for its licence.
June 15, 1929.

WIRELESS WEEKLY

There are one or two other matters for which provision might be made. For instance, there is the question of the man who wishes to build his own apparatus. I see no reason why he should be prevented from doing so, but those who have great difficulties which have been encountered in England. If a man wishes to build his own apparatus, I see no reason why he should not be allowed to do so. It is just the same as if he were to build a wireless house for electric lighting purposes.

The latter has to be in conformity with regulations, and that is all that should be asked of a man who wishes to build his own wireless set. Finally, there is the experimenter, the man who is not interested in broadcasting but who desires to carry out experiments in wireless. To my mind, he should be allowed to carry on as with a field of possible subject to his not infringing upon the broadcasting service by interfering with his friends; I see no reason why he should be limited in his operations, provided that he is a home experimenter and that is a thing which can readily be determined.

The Postmaster-General, in expediting the proceedings of this committee, made some reference to the press. He said that the press incurred a great deal of expense in collecting news from all parts of the world, and naturally did not want it broadcasted all over the country without receiving something for it. That is an interest which must be properly protected. To me, it is a new phase, one of which I had not previously thought. But it seems to be a very easy matter to provide for, in connection with the licensing of stations. Any station giving a press service must not supply press information without paying for it. Finally we have to do all we can to ensure the very best possible services in Australia from the entertainment side, and from the technical side. When you reach your noon-tide, as we have heard a little broadcasting here, it was not a very good illustration of broadcasting, but to those who have not heard broadcasting previously, it showed that the things worked so far have been done to prove that unless we have properly designed transmitters for broadcasting, the results are not satisfactory. That was the trouble experienced here today. It was not the fault of the apparatus set of the man who put it up. Indeed, considering the small amount of time at their disposal, they did excellent work.

I have now covered all the ground which I think it necessary for me to cover, and I am ready to answer any questions which you may desire to put to me.

Mr. Floyd: I should like to know what is the present position regarding broadcasting services. It is all very well to say that we can go ahead. But unless we are granted concessions in respect of patent rights, we shall not be in a very strong position.

Mr. Pask: I am sure you will realise that it would be quite useless for me to put up a scheme such as I have outlined, if we were not prepared to grant every reasonable facility in that connection. We are quite prepared to issue proper licences, because under which you will be granted the right to use our patent. The same thing applies to the press. I do not suppose that they will withhold their news. We do not intend to withhold the right to use our patent, and we shall issue a licence to any reasonable terms, because under which you will be granted the right to use our patent, and we shall issue a licence to any reasonable terms.

A Voice: Does that apply to news services too?

Mr. Pask: Yes.

Mr. Court: What amount of wave length is available in all concession areas throughout the Commonwealth?

Mr. Pask: That is a matter which, I think, must be determined when the authorities are drawn up. I have an idea, which I will embody in a suggestion when the matter comes for consideration. If the Government accept the principle of the scheme which I have outlined, they should give as many wave lengths as possible, and the details worked out later. Possibly, that can be done by making available to broadcasting, a percentage of the wave length within certain bounds. That would allow for any, are competing services within every area.

Mr. Water: Will you be good enough to visualise under your scheme, the nature of a service covering the whole of Victoria?

Mr. Pask: I would prefer to deal with the nature of a service for the whole of Australia. What I have in mind is that under this scheme you will get some persons — they may be
another company be restricted to something less than 500 meters? Wouldn't it be possible to restrict the sale of apparatus in which transistors may be used for amateur purposes? The formula seems to have a little more than the Surface.- It requires the market reports. Would it not be possible to grant to m(@(perud that the wireless in the working out of the details. Nobody should be allowed to sit upon a wave length.

Mr. Jones: In respect of the licence to be issued in the city, I should like to know who is going to have first performance.

Mr. Fisk: That will be largely a matter of priority. The man who takes up the. Much will depend on the condition of his application at the time. It should be left to the concern to determine the matter, as to the service. It is for Mr. Jones to properly administer. That authority will exercise some jurisdiction over the relative services offered, if several people apply at the same time. But I think that the New South Wales Broadcasting Authority will be satisfied to look out naturally.

Mr. Solomons: The interests of importers have not been mentioned at all. Will it not be necessary for importers to be зарегистриed in the same way as ordinary dealers?

Mr. Fisk: Anybody trading in broadcasting apparatus must be registered. The regulations in that respect might be analogous to the tobacco and liquor regulations.

Mr. Wilson: The matter has been carefully discussed, and some of us had an opportunity of going through Mr. Fisk's scheme before the Conference assembled this afternoon. We listened very attentively to his remarks, and we were indebted to him for the great amount of thought which he has bestowed upon this matter. After all, wireless is going to be for the community as well as for the traders, and we must face it with care out look. The public is going to demand broadcasting. There is no doubt about that. Apparently the Government will not supply the desired service, and therefore it falls upon the commercial concerns to furnish it. If the public wants clothes, traders step in and supply the demand. I think that that matter will be dealt with in the remaining of the period. But I think that that matter will be dealt with in the working out of the details. Nobody should be allowed to sit upon a wave length.

Mr. Jones: In respect of the licence to be issued in the city, I should like to know who is going to have first performance.

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here the names of their representatives should be added to the committee. The committee should be charged with the drafting of regulations which should adequately protect every interest involved, including that of the public. These regulations can then be submitted in the form of concrete proposals to this Conference, and may be adopted or rejected.

A Voice: Is there a representative of the wholesalers upon the proposed Committee?

Mr. Wilson: I represent the wholesale and retail trade. Mr. Boyd, the Victoria manufacturer; Mr. Jones, the S.A. manufacturer; and Mr. Ellis, the manager of the British General Electric Company, and Mr. Scowen is a Victorian manufacturer; Mr. Mingay is the Hon. Treasurer of the Wireless Institute, Sydney. Mention has been made of the press interests, and I think that they should be represented.

Mr. Maddick: Mr. Court and myself represent the wireless institutes of Australia. We have direct authority from four States.

Mr. Wilson: I do not know of any one in the room in attendance at the Conference, who has the slightest idea of what is being discussed. I think that the meeting is being conducted in the same way as in the British Conference.


Mr. Brown: I hope that I am not out of order in bringing the question forward. It seems to me that it is a very important point, and one which merits serious consideration.

Mr. Norris: All the names submitted in connection with the proposed Committee are those of gentlemen representing New South Wales.

Mr. Wilson: No. There are Victorian, South Australian, and West Australian and Queenslanders upon it. New South Wales has only two representatives. We may regard Mr. Fisk as an Australian representative.

The Chairman: Wireless knows no boundaries. We are here in a common cause.

Mr. Norris: I nominate Mr. Jones as the representative of the Victorian wholesalers.

Mr. Boyd: And I nominate Mr. Wilson as the representative of the wireless Institute as a whole.

Mr. Wilson: I have much pleasure in seconding these nominations.
MAKE YOUR OWN

The Theory of Resistance Amplification.

THE VALVE AS AN AMPLIFIER.

We may best understand the amplifying action of a three-electrode valve by referring to Figs. 1 and 2, which shows a typical curve such as would be obtained by plotting plate current against grid voltage in an ordinary hot valve. In Fig. 2 an auxiliary circuit is connected across the grid G, and filament F, of a three-electrode valve V, which is supplied by the usual batteries B1 and B2. We will assume that the normal current flowing in the anode circuit is represented by y, Fig. 1, and it will be seen that this corresponds to approximately the mid-point of the straight part of the characteristic curve. Now it is desirable that this should be the value of the anode current when the grid voltage is zero. In practice this condition can be obtained by adjusting the potential on the anode, that is, by making the value of the anode battery variable, and also by adjusting the filament temperatures.

Let it be assumed that oscillations are set up in the circuit 1 R C, such as for example as would be the case if the circuit constituted an aerial tuning circuit of a wireless receiver. These oscillations will apply alternating potentials to the grid of the valve, thus rendering it alternately positive and negative with respect to the filament. If we assume that the potentials are due to an undamped oscillation of symmetrical wave form, and if we neglect the damping of the grid circuit and other disturbing factors, we shall see that the potential so communicated to the grid will be numerically equal to the negative potential. The actual value of the potential will be dependent on the strength of the oscillation.

By referring to Fig. 1 we can see the effect of these potentials on the current in the anode circuit of the valve. We have previously assumed that the normal potential of the grid is zero, and that the corresponding anode current is represented by y, Fig. 1. We will suppose that the potentials applied to the grid are plus x and minus x respectively. We see that a potential of plus x on the grid causes the anode current to increase by a value y. X. Xere, since we have assumed that the positive potential is numerically equal to the negative potential, and also that the portions of the curve upon which the valve is working is a straight line, the potential minus x causes a decrease in the anode current of exactly x.

Hence we see that theoretically the variations of the anode current are exactly proportional to the variations in the circuit 1 R C. It is obvious that these current variations may be made to control the grid potential as a subsequent valve, and moreover the potentials applied will be proportional to the current variations. Since we are now dealing with comparatively large currents, the potentials applied to a subsequent valve in a multi-valve amplifier are considerably greater than those applied to the original valve, and therefore an amplified effect is produced in the anode circuit of the second valve.

In a resistance amplifier, a resistance is inserted in the anode circuit of the first valve and the potential of the anode current produced varies in proportion to the resistance across the resistances which are then applied to the grid and filament of the second valve. We may best understand this action by regarding the valves in a rather different light.

THE 7S VALVE AS A VARIABLE RESISTANCE

If we gradually increase the potential of the anode with respect to the filament we find that the anode current gradually increases, and similarly, if we increase the grid potential the anode current decreases, as can be inferred from Fig. 1, provided, of course, the point of saturation is not reached. In other words, if the current through the same conductor varies j in...
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June 15, 1923.

You Need This Book

The wireless weekly: the hundred per cent Australian radio journal

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and giving 6R2 a positive potential. It is interesting to note that the current carried in the inside circuit of any two successive valves is theoretically in opposite phase relation, assuming, of course, that they contain making but no resistance. The circuit shown in Fig. 3 is really only of theoretical interest, but it serves to illustrate the principles involved. A practical arrangement is shown in Fig. 5, in which common batteries are employed, and the opposing grid battery is replaced by a condenser.

It should be considered that the use of resistances in various circuits for various purposes is almost unlimited. However, in almost every case the principle involved is fundamentally the same as that described above, and it would seem desirable, therefore, that every reader should be thoroughly acquainted with the subject, and it is hoped that these short notes will have served to remove any difficulties which may have existed.

LOUD SPEAKERS

Details of construction of a loud-speaker that embraces some novel ideas.

A point, already emphasized in a previous article, that should be borne in mind is that no matter how good the actual loud-speaker may be it can be completely spoiled by attaching it to a badly designed horn.

A well shaped wooden horn of standard dimensions costs quite a lot of money, but it is sometimes possible to pick up a discarded gramophone horn. Do not, however, select one with too wide a “flare.”

The horn shape has a rather long “cone” neck, usually constructed of metal. The wooden part should be tapered gradually until near the mouth and then turned outwards almost abruptly, being finished perfectly round. Cardboard or paper tubes may be a very good substance, but the very best thing for sound is a bit of sheet metal or “thruply” wood.

An improvement on this construction is to replace the centre “spigot” by lead surrounded between the outside boards.

When choosing a horn avoid that kind giving a distinct tone when tapped. When gently tapped the ideal horn should give a dull sound not responding to any particular note.

A nice diaphragm is one which is undamaged by superior to any other substance for reproduction of sound, especially speech. Very little bath treatment is necessary. When once it is adjusted it will remain in position for a very long time, but in making up this piece of apparatus the most important things to remember is rigidity. The piece must be well and solidly built and no part must be allowed to vibrate, except the diaphragm (D). This must be made of selected mica, best obtained from a gramophone supply store. It should be of the usual large diameter such as is used in “Pathe” sound-boxes. The aluminium strip which is fastened to the diaphragm should be cut out of a perfectly flat piece of metal about 3/4 in. wide, 3-3/4 in. long and 1/16 in. thick. It should then be bent as shown in Fig. 1 (A). Care should be taken to keep the corners square; each leg should be 7/8 in. long spaced by 1 in.

A very small tube should be drilled exactly in the centre. Before riveting on the diaphragm a small washer should be placed between diaphragm and aluminium pole piece.

It will be seen, therefore, the pull is in the centre, which is the most sensitive part. The pole should next be wound in within 2.5 in. of the end with No. 44 D.R.C. wire in a single layer. The two ends should be connected by gold for the contacts in the metal ring. Metal rings can be made of sheet brass, the centre hole being 1/8 in. wide and 3/8 in. long and sufficiently large to allow the armature to swing freely and not touch the sides of the field-curt.

The length of the bobbins between the flanges should be about 1.5 in. The two bobbins are then mounted on to the brass disc E, which can be made to rise and fall by means of the screw S. The bobbins E are wound with No. 28 D.R.C. wire; the more the better. This winding is not very important but the spacing of wires should be sufficiently fine for the bobbin to accommodate a good number of turns, otherwise the local battery used to excite these coils will run down very quickly.

Determine the correct range of wire and number of turns if it will be necessary to try a few experiments. A variable resistance in series with the field coils is an advantage, for by this means a fine adjustment of current can be obtained. The whole instrument can be mounted in a metal case, provision being made for connecting the horn.

When fitting the diaphragm it is advisable to one paper washers on each side, preventing the mica from touching the metal rings. Three quality white blotting paper is the best substance to use. The tone is improved in many cases by fitting paper or rubber rings around the diaphragm case on either side.

FREE TO LADIES ONLY

At a Boston (Massachusetts) radio show one of the outstanding attractions was an unusual free transmission of messages for any lady attending the show. There was some difference at first, certain individuals refusing to believe their ears when their communications would be broadcasted, until one or two led the way, others followed, and the idea found great favor. The transmitting was carried out by arrangement with the American Radio Relay League and the Radio Inquirers’ Office; the messages being generally transmitted to selected relay stations, and thence to their destination.

MEDICAL TESTS

The new Station’s Telephone Co. Transmitter Station will be carrying out medical tests during the next few weeks. By permission of the Controller of Wireless and the Amalgamated Wireless Ltd, the station will be open for two hours each day, and the names of those who desire to be examined will be placed down on a list. The tests are conducted from the Morse, falling and C.1. Concert Room, and the programme arranged by Mr. Oswald Anderson.
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CONTINUED ON PAGE 10
Wonderful Results From Kellogg Radio Apparatus

Kellogg Variable Condensers

Mr. J. Pike, of Epping, and Kellogg tenders in his recent successful experiments with American experimental work tests his proof beyond doubt the efficiency of this class of radio apparatus. The construction of this class of condenser renders it highly efficient and by its use you can rely on better results from your set.

Kellogg Variometers and Vario-couplers

Kellogg Head-phones of 4000 ohms resistance are extremely quiet and smooth, and are manufactured from the finest materials obtainable; they represent a new departure in radio apparatus. The stator and rotor shafts of heavy construction with deep slots are made from pure Kellogg bakelite. Every Kellogg Variometer and Vario-coupler has both vertical and horizontal mounting plates convenient for attaching to panel or base board.

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Experimental Stations Transmitting This Week

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The following verse was published in "The Property Owners" on 6/6/23, and appears on p. 11, Holm W. II.

Some people who “talk wireless” don’t know what they’re talking about.

I’ll put them on my list, my computer will take care of it.

They think they know everything and they will be proved wrong.

But if you want to know everything, you’ll never miss a beat.

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472 George Street, Sydney.

Get Your Wireless Gear at Electricity House

237 George Street (op. Strand). Tel. 2961 City.

Condenser Plates, 1/- per doz.; Condenser Spindles, 3/- per set; Condenser Ends, 1/6 per pair; Honeycomb Cells, from 3/-; Honeycomb Mountings, 3/- each; Filament Resistances, 7/- each; Calibrated Dials, 1/- each; Röhm, 1/- each, 2/- each; Contact studs, 1/9 per doz.; Switches, 3/- each; Terminals, 4/- each; Phone Condensers, 1/-; Grid Condensers, 1/-; Variable Condensers, 20/-, 25/-.

Murdock’s “Phones” 35/-; Myers’ Valves, 55/-.

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

Crystal Cages, 1/-; Detectors, 2/- each; Loose Components, 4/-.

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

Complete Crystal Sets, 5/-10/-; 5/-10/-; Valve Sets, from 5/- to 2/-; 3/- or 3 valve; Radiator Valves, 3/-; Venturer Radiovalves, 10/-.

INTERVALVE TRANSFORMER, 40/-.

Closed Iron Core.

Under New Management.

Works Manager: Raymond McIntosh.

General Manager: J. S. Marks.

All Communications to the Firm.
Victorian Wireless.

By our Special Correspondent

Mr. C. R. Bird's Station, 2EV, MELTON, VICTORIA.

Mr. Bird informs us that he has no difficulty in picking up Sydney experimenters' music on one valve, and wishes to thank N.S.W. transmitters for the excellent music they dispense. 2EV station is 40 miles from Sydney, and 80 miles from Melbourne.

Attitude of Victorian Experimenters towards Broadcasting.

The Broadcast Conference and its outcome has been the subject of considerable debate among Victorian experimenters, and the general opinion would seem to be one of dissatisfaction. Experimenters in Victoria have had a surplus of wireless music and many of them are capable of producing a high grade of music by radio themselves.

"Music in the air" is too wonderful a novelty, and whilst some interest is shown by the more members of the radio fraternity the older experimenters merely conjecture whether the class of music sent by the broadcasting stations will reach the standards of American and English companies.

As far as the experimental position in Victoria is concerned, experimenters generally are satisfied with the work done by their representatives at the Conference and consider that if the government were to give the Wireless Act as it at present there will be no complaint. The question of wave length is agitating the minds of the many owners of transmitters and it is hoped that broadcasting operations will not interfere with existing arrangements. Much pleasure and appreciation has been expressed by experimenters with regard to the Postmaster-General's resolve both at the beginning and conclusion of the Broadcast Conference, and it is considered with a favourably disposed Minister and a kind and sympathetic Controller—this being invariably the manner in which Mr. Maloney acts towards experimenters in Victoria, as well as in other States, feel assured that their interests are in excellent hands and look forward to a very happy future despite the much increased radio rivalry. It is hoped with the accession of a larger number of "listeners in" that the ranks of the genuine experimenter will be considerably swollen and matters of distance effectively covered by the low power used.

Very great success has attended the efforts of Victorian experimenters in the reception of signals from the American Pacific coast stations, one being experiment being logged over 26 stations perfectly. A complete message has also been perfectly logged, and the wisdom of the contest is awaited with great interest. The simplicity of the apparatus used by the most successful experimenters has evolved much comment, and it is considered that given suitable tuning instruments, some of the messages could be received on one valve as has been done in New Zealand.

Melbourne has been suffering from a dearth of radionautical activity owing to the Trans-Pacific tests, but since the conclusion of these the air has once again filled nightly with voices and music. There are many radio amateurs working nightly in the metropolitan area and much interesting testing is being carried out. The better class of modulation of experimental stations as compared with some of the professional stations has been noticed by men well qualified to judge, and there is no doubt that the experimenter is contributing to the effect of value in this direction.

The Postmaster-General has recently approved the appointment of two Wireless Radio Inspectors from the ranks of experimenters, and Messrs. H. W. Mackillop and C. R. Whitlam, prominent members of the Victorian Section of the Wireless Institute, are the respective recipients.

Those experimenters commenced their duties some little time ago, and have already successfully demonstrated their worth to the Department. As they are both experimenters of long standing and understand the work of the radio community they carry out their duties with tact and kindness. They are provided with a simple form of authority from the Department, and their duties can be conducted with the entire satisfaction of the public community.
WIRELESS WEEKLY

Aerial Gear

CAST GUN METAL SCREW-EYE,
SHACKLE AND PULLEY BLOCKS,
COMPLETE, READY TO SCREW IN PLACE.

Also, CAST GUN METAL UNION
SCREWS for tightening Guy Wires,
in two sizes:

Heavy, 3/8in. diameter. 1/2in. screw.
Light, 3/16in. diameter. 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.

Man’s hand, screw eyes, eye-bolts, and other brass or gun metal castings, also made to order by

V. Greenup

119 Farr Street, Rockdale

ALL the latest American Wireless Journals and Books on hand.

STOCKS ARRIVING BY EACH MAIL.

Back numbers on hand. Call in and
inspect my stocks. Clockwork trains
toys of all kinds.
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
CROYDON RADIO CLUB.

Last Saturday the Croydon Radio Club enjoyed a wireless concert transmitted by Berwood Radio Club. Other stations heard were 2FL, 26B and 218B.

Latter in the evening American Stations were heard by using 2FL and 218B, and a Brown's loud speaker.

The Club meets every Saturday at 7.30 p.m. at "Steeplechase," Long St, Croydon.

All communications will be answered by O. Maxwell, G. Maxwell, C. Wells, "Gorillah," Highbury St, Croydon.

AUSTRALIAN MADE 3-COIL MOUNTING.

The coil mounting is solidly constructed in chrome and brass, and may, therefore, be mounted on either an upright or wood panel, without loss in efficiency. If desired, the back plate may be removed and used as a template to fix the spring contacts to your existing panel. By using the unique construction, the unsatisfactory practice of using a connecting wire from a fixed to moving point has been done away with, thus eliminating any possibility of a broken connection. Positive contact is at all times maintained by broad contact strips of brass, steel spring forcing these strips into a steady contact throughout the full movement of the cell. These springs, while ensuring a good contact, also bear on the pivotal mounting of the plug, holding the coil firmly at the degree of tension you desire. The plugs are provided with two screws and nuts for holding to any former or set, and may easily be adapted for either pancake or honeycomb coils. All plugs are interchangeable, thus making them available for experimenting with various types of crystals.

These mountings are manufactured by G. White, 122 Macarthur Rd., Kew, Melbourne.

TANT WITH NEW ZEALAND.

An amateur wireless test, under the control of the Metropolitan Radio Club, will be carried out between amateurs in New Zealand and Australia, commencing on August 4th, and finishing on August 18th. This test is open to all holders of an experimental licence, each receiving and transmitting. Entry forms are procurable at all local radio shops. Entrance fee, 2/6.

NORTH SYDNEY RADIO CLUB.

The usual weekly meeting of the above Club was held at its building corner of Alfred and High Streets, North Sydney, on Tuesday night last, and the construction of the Club’s transmitting panel was the second subject to be dealt with at the next meeting.

In view of the interference and jamming by amateurs, which has occurred of late, the Club took this matter up strongly with its members at a previous meeting, and the importance of the necessary knowledge of the use of wave meters, their technique and construction was stressed and members were asked to proceed with individual construction of such apparatus for their own stations.

At this meeting those who had prepared their sets brought them along for calibration, preparation of charts and general experimenting— it is thus felt by the Club that its members will now just know where they are in the ether and that risk of interference with other experimenters has been reduced to a minimum.

Illawarra Radio Club.

There was another good attendance at the 24th meeting of the Illawarra Radio Club, held on 5th inst., when two new members were elected.

After routine business had been disposed of, Mr. O. A. Garman delivered an extremely interesting and enlightening lecture on "Radio Frequency Amplification in Long Wave Reception." This is a subject to which the lecturer has given a good deal of practical study and attention, and he was thus enabled to give a very thorough and lucid exposition of the various factors involved. Various methods of radio amplification were gone into, including the use of tuned transformers, and also that using all induction (varistors) and no capacity, as well as many other moulds. The various important points to be watched in experiments were dealt with in detail, including the construction of transformers, varistors and other units, and the various methods were well illustrated throughout by circuit diagrams, which were fully described. The lecture had a very practical appeal to members, who were able to obtain a lot of very useful data on this subject, and at the conclusion Mr. Garman was accorded a hearty vote of thanks to which he responded.

Mr. Garman will continue his lecture on "Radio Frequency Amplification in Long Wave Reception."
on the matter. It was decided to def-
continue with the next meeting.

Some proposals were made under-
ning the Committee for which it is hoped
that the members would obtain funding.

A general business meeting was held on
Tuesday, 30th June, at 6 p.m., when Mrs.
Green would continue with the lecture on
Radio Frequency Amplification on
short waves. A verbal invitation was extended to all members and other
interested members from other Clubs, to be present on this occasion.

Any information concerning the Club may be obtained from the
Secretary, Mr. W. D. Green, 11
Cammeray St., Rockdale, who
would be pleased to hear from anyone wanting to become a member of the Club.

LEICHHARDT AND DISTRICT
RADIO SOCIETY.

Members of the Leichhardt and District Radio Society held their nineth business meeting on Tuesday, June 30th, at the Clubroom, 776
Johnston St., Annandale, when four
new members were elected. Several
important matters were discussed in-
cluding that of affiliation with the
Radio Association of N.S.W. This
was discussed at considerable length
and, finally, it was unanimously con-
duced to carry out the affiliation at once.

The question of an affiliation
in the Society's meeting earlier
was also dealt with, but, to enable
those present to express an opinion

WIRELESS WEEKLY

June 10, 1921.

WIRELESS FOR ALL.

Writers must agree that the
decisions arrived at at the Recon-
mencing Conference recently were
indicative that long wireless
will be within the reach of all.

The new company, Wireless Sup-
pplies Ltd., of 21 Royal Arcade, Syd-
nery, realizing the position, has adopted this slogan: "Wireless for All," and they sincerely hope that
their conclusions are correct.

Wireless Supplies Ltd. gives us
that they are introducing the new
"Radio" products, which are manu-
factured by the Oppen Eastern
Company, into Australia. This
appliance has a wide world reputation for sturdy construction and depend-
able results. Another line that
should be of interest is the famous
National Alphonse. This is a
compact crystal receiver of rugged
construction and fitted with the
much discussed "Patent Gold twin
Detector."

Wireless Supplies Ltd. are fortune
in having secured the serv-
es of a practical man as its man-
age, in the person of Mr. Raymond
French. Unver experimenter will re-
member Mr. Evans under the call
sign of XAF, he having been an
ardent experimenter since 1911.

Taking radio up surprisingly early in the war he joined the In-
gram service of the Department of the
Navy and was for some time stationed at the Wireless Signal
shops, Brunswick, where he gained an insight into the design and con-
struction of modern wireless apparatus.

Later he went to New
XAN on Installation work, being
engaged in the installation of Noma-
al and the reconstructions of Port Macquarie stations.

In the latter part of 1920, Mr.
Evans found himself stationed at
Garden Island, being engaged in
the testing and calibration of wire-
less apparatus, and electrical instru-
mants in the laboratory attached to the electrical engineers' department.

Members of Wireless Weekly also
may remember him as the writer of several articles, mainly construc-
tional, which appeared in Wireless Weekly from time to
some little time ago. Fox, Land and Air and Radio News have
also published many of his articles.

Little use experiments, he has always found time to talk Radio, and
should you happen to be in a simi-
lar frame of mind you can find him
at 21 Royal Arcade, Sydney.

To the Editor of Wireless
Weekly,

Dear Sir,-I read with interest in your last issue a letter written by Mr. E. B. Crocker in which he
complained that in a recent article which appeared in the "Sydney Morning Herald" a correspondent
who called himself "Amateur" had
made some statements regarding genuine experimenters which called for comment. Mr. Crocker
stated that the implication in the article in question was that a person who
concentrated on wireless telephony was not a genuine experimenter. He
also stated that in the article in the "Herald" there was a state-
ment to the effect that the present
form of hobby leagues realized the
above remarks.

I, too, read the article to which
Mr. Crocker refers, and could not
on one occasion see why or how he can take exception to the statements
it contained. To begin with, Mr.
Crocker appears to have taken the
major error in the word with associating it with any current
criteria in the wireless world, to have half read it, and then to have rushed
off into print with some complaint
about it. The article was, if I remember rightly, published on the
morning of the Broadcasting Con-
ference, and was not a discussion of
wireless generally but rather a dis-
cussion of what those attending
the Conference would have to do in

...
The Origin of the M-O-T-T Signals.

IN AUSTRALIA

was written an article regarding the position of the experimenter had been made. Later, Mr. Pick pointed out that experimenters' interests would be safeguarded. Later in the article the writer said, "There are many experimenters who are not interested in wireless telephony except in a casual manner—large numbers of leading experimenters are not at all anxious of receiving telephony realizing that it is a pleasant pastime, but that its practical value to them is not great—regarded from the view of the genuine experimenter it is of casual interest only. The recently formed Relay League realized this and its members recognize that if they are to become an asset to the country they must concentrate their efforts on continuous wave telegraphy.

Now, how could any man possibly interpret that as being a statement to the effect that a man who interests himself in telephony is not a genuine experimenter. The article was not an argument as to who was a genuine experimenter. It was a review of the position of all persons likely to be affected by the broadcasting proposals. Mr. Crocker's contention to the effect that it defined the telephony fan in the manner as suggested in his letter is to my way of thinking silliness.

Mr. Crocker then lets his imagination carry him still further and makes a statement to the effect that such remarks were suggested at the Relay League meeting. He is quite right in one way. No person would be so foolish as to say that a man is not an experimenter simply because he receives telephony. His memory must have failed him badly, however, when he stated that the League did not mention the matter. Your issue in which Mr. Crocker's letter appeared supports me and proves his statements to be erroneous. On page 3, Mr. Crocker will read that Mr. Squires, an American operator, who was the guest of the evening "stressed the necessity for concentration on C.W. Telegraphy, and toldexperimenters not to waste time 'monkeying' about with 'phone sets.' You, sir, were at the meeting, and will remember the words 'Heads, boys,' which greeted this remark. Mr. Crocker must have forgotten that, when Mr. Squires spoke or had he forgotten Mr. Squires' remarks when he wrote to you? Furthermore, had he forgotten that somebody (Mr. Charlesworth, I think—
The wireless weekly: the hundred per cent Australian radio journal

Wireless and District Wireless Experimental Society.

The above Society held a well-attended dinner on Saturday night, the 9th inst., at St. Thomas Memorial Hall, North Sydney, and during the evening received a programme of wireless music, transmitted by 2IF (Mr. Cook).

The antenna consisted of a single wire 100 ft. long suspended from the roof of the hall to a neighbouring tree.

The Society used its own recently constructed 14-kilowatt high frequency amplifying set coupled to its own 4-kilowatt modulating set which it also constructed during the preceding week by the Society's members.

The result was very satisfactory as regards reception, but noise in the hall caused by an overexcited audience militated to a great extent against the best sound results being obtained in the hall, but the Society is very competent of further success in future demonstrations.

A magnificent meal and the Society was well pleased with the result it gave.

At present the Society is experimenting with a telephony transmitting set and the interest excited by its 30 odd members is very keen.

The Chairman is very well attended, particularly so on Wednesdays evenings, when Mr. Board, a member of the Technical Committee, conducted his series of lectures. Members come from Chatswood, Willoughby, North Sydney, and Neutral Bay as well as from Northbridge, thus demonstrating the bold wireless telegraphy is gaining on those who desire to assist in experimental phases of wireless by making the subject their pet hobby.

A temporary device to transmit has been granted from the jet to 150 Jums, the Station's call sign being 2IF. Amongst the very keen technical workers of the Society are Messrs. Board, Pashley, Lorna (son), and Wadsgrace, who have spent many hours in superintending the construction of the very fine receiving and transmitting sets which the Society possesses.

Intending members may receive all particulars on application to the Hon. Sec., Mr. A. H. Ympey, of Sadurs' Bay Road, or the President, Mr. L. F. Pashley, at "Harlock," Yeo Road. Northbridge, where the Society's Club-room is situated.

18

A.KT MARU
AAX MAR
BQNSA
BOKHA
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CIT 
COBURNA
CURINDA
DARWIN
HOUNTON
MOROBO
MURC
PORT DENISON
PAISIN BART
PBARI
PMMAT
EMUSA
REPUBLIC
MATARAM

June 15, 1923

Mr. Cook moved, Mr. Macleay seconded, that the report be received — Carried unanimously.

Mr. Perry moved that a committee of three be appointed to confer with the Institute in regard to its cooperation. Seconded by Mr. Clyde — Carried.

The following were nominated for the sub-committee:

Mr. Colville, moved by Mr. Beaconsfield, seconded by Mr. Macleay.

Mr. Macleay, moved by Mr. Cook, seconded by Mr. Perry.

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Mr. Beaconsfield, moved by Mr. Macleay, seconded by Mr. Macleay.

A ballot was taken the three members of the sub-committee being elected Messrs. Clyde, Macleay and Cooker.

Mr. Perry moved that the three members of the sub-committee draw up rules and regulations for submission to the committee for approval. Mr. Cook seconded.

Mr. Macleay moved an amendment, that some suggestions of Mr. Colville's be read and discussed by the committee, before Mr. Perry's motion was put. The amendment was seconded and carried.

The Chairman then called on Mr. Colville to read some rules and regulations which he had drafted from the constitution of the American Radio Relay League.

Mr. Perry spoke on the expediency of administration, and also on the question of membership. He expressed the opinion that full membership should be transmitters, and that they should pay more in fees than those members who only had receivers. The members who operated only receiving apparatus should be asked to cease as members.

Mr. Perry's motion was next put before the meeting and carried.

Although I may be wrong, and that the experiment to-day was not worth a snap of the fingers, and that Mr. Crocker argued with his opponent, I am not arguing as to whether the telephone expert is an ass, but I quite quote the above to prove that Mr. Crocker was wrong when he said that the subject was not mentioned at the meeting.

Barham.

Again, Mr. Crocker quotes "easier listening experiment" as better up his collection, but I don't refer to Mr. Macleay. Nobody would be foolish enough to do any thing but praise Mr. Mac and other leading experimenters for their (more or less) excellent transmissions, nobody can fail to realise the good work they are doing, but that is not the point. Mr. Crocker drags to Mr. Macleay's head the issue. Why did he not go further and quote Mr. MAc's views on the matter in "Amateur"? Mr. Crocker knows as well as I do that Mr. Macleay doesn't care a damn whether his receiver telephonic or not. Mr. Mc's request, we believe, is that we advise him to send us, any further, for the consciousness of absence of his hosts, but all the while we realise that his telephony work comprises a small portion of his wireless career. Not so Mr. Crocker should have been fair. He should have read the article carefully before he criticized it.

Yours etc.,
Q.X.S.

Ships that you should hear this week, nearing and departing from our coast.

ART MARU: JAI
ANNAX: OZ
BOHDA: MVQ
CHANGSHA: GBV
CIT: YEE
COBURNA: COH
CURINDA: YBL
DARWIN: MVB
OUNTON: MXC
MOROBO: YTM
PORT DENISON: JEN
PAISIN BART: ORY
PBARI: MYX
PMMAT: WEL
REPUBLIC: VTH
MATARAM: VHT

Continued from page 9

Mr. Beaconsfield asked that any clanger be dealt with separately for discussion.

This was done, and the report was considered very satisfactory.

Mr. Macleay said he appreciated the way in which the Institute had come forward to help the League, and moved a vote of thanks.

Mr. Colville supported the second of the motion — Carried unanimously.

Mr. Cook moved, Mr. Macleay seconded, that the report be received — Carried unanimously.

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CHANGSHA: GBV
CIT: YEE
COBURNA: COH
CURINDA: YBL
DARWIN: MVB
OUNTON: MXC
MOROBO: YTM
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June 15, 1923.

Mr. Cooke moved that only the holders of transmitting and receiving licences be eligible for full membership and executive officers. Mr. Rent seconded, and the motion was carried.

Mr. Maudsly moved that every member of the League, except a member of a Club or Institute, Mr. Perry, seconded.

The Chairman pointed out that the incorporation of the League in the W.I.A. would make every member of the League a member of some status (to be defined later) of the W.I.A., and Mr. Maudsly said he had overlooked this point and withdrew his motion.

Mr. Cooke moved (as an instruction to the sub-committee) that only the holder of an experimental licence be eligible for membership at all. Mr. Cooke seconded the motion and was carried.

Mr. Marshall moved that a vote of appreciation of one of the youngest members of the League, Mr. Jack Davis, on his success in transmitting by voice to Melbourne, over 5 miles, Mr. Cooke seconded and Messrs. Box and Colling supported the motion. The motion was carried.

The Chairman expressed that a management committee should be appointed to arrange a working scheme.

Mr. Cooke moved that Mr. Colling be asked to put forward a definite scheme of management at the next committee meeting. Mr. Maudsly seconded the motion and was carried.

Mr. Perry donated a map of the city and suburbs for the use of the Organising Secretary. It concluded the business for the meeting which closed at 10:30 p.m.

Victorian Wireless

Continued from page 12.

June 15, 1923.

Many Radio Clubs are being organised in this State and the Victorian Division of the Wireless Institute of Australia realising that union is strength, have been early started and arrangements are now well in hand for the affiliation of the various Clubs forming in suburban centres. Geelong, Brighton and Malvern and Box Hill—all of which are prosperous and influential centres—have agreed to affiliate with the Victorian Division of the Institute, and machinery is now being devised to give these Clubs equal representation on a Central Council for the State. A plan of organisation very similar to the Returned Sailors and Soldiers' League is now under consideration, and will probably be adopted with certain necessary modifications. Under this plan the whole of Victoria will be able to act—should an occasion arise—as one body, and to date, the relationship of the various Clubs with the Institute has been most cordial. The whole plan is in short a policy of centralisation which will preserve the unity of such individual Clubs, but which will bind the units into one collective body.

A series of relaying tests is now being organised in Melbourne by several amateurs who have been promised identification with many demonstrations carried out in Victoria, and it is hoped that success will follow this ambitious plan. Several transmitters have successfully worked both ways with a New Zealand station whilst using only five watts of power, and stations have also been worked in Adelaide. This test will be carried out by all the leading transmitters in conjunction and should prove very instructive in the experimental section of the radio community will become a very powerful body.

It is felt that the status of the experimenter must be well defined and it is realised that a licence must possess definite qualifications and be engaged in genuine experiment.

It is realised that properly conducted broadcasting will prove a very great boon, and experimenters are willing to cooperate with the companies operating to ensure that each party shall carry on without interference.

The development of regulations is being watched with keen interest, and if necessary the rights of experimenters in Victoria will be fought for.

Leading Victorian experimenters have expressed the utmost approval of the action of the Wireless Institute delegates at the Conference, and most Victorians feel that the incidence of broadcasting will not curtail their activities in the slightest.

Something New!

Endwork Coils provide the most efficient and easily constructed method of tuning both for Valve and Crystal Sets, known to Amateurs to-day.

White Patent 3 coil Mounting

Completely with SIX Inter-changeable Plugs 2/5/6. The Value also at the moment. Swanston St., Melbourne.

Additional Plugs sold each 1/6. Each

Radio Company Limited

MOVING to Larger and more
Up-to-date Premises at...

Goldsborough House
15 Loftus Street
Near Quay

Let us explain the New
Broadcasting Regulations

Consult us before buying
your Wireless Sets

Prices Moderate
Service Excellent

Demonstrations
Arranged Gratis

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To Information Editor.
AVAILABLE TILL 15-6-23
NAME
ADDRESS
FOR 2 QUESTIONS ONLY

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Wireless Experimenters' Requirements

Apparatus and Parts with a Guarantee of 100% Efficiency

DOUBLE SLIDE TUNERS, £2; complete with phone-condenser detector panel.

LOOSE COUPLERS, £3; with detector panel, £3/15/6.

LOOSE COUPLER PARTS: Backboard, 1/8; complete set of mods., 2/3; tubes, 6d. each; slider, 8/6; secondary sliding rda., 1½ pair; primary wire, 2/4; secondary wire, 1/6; 8 studs and steps, ½/6; secondary switch, 2/6; Crystal detector, 4/6; all loose coupler parts nickel plated.

VALUE RECEIVING SETS, equal to any on the world's market, from £25; complete with high and low tension flat aerial wire, transistors, 'Phones', etc., with Variee adjustments for Telephonic, £1 extra.

SWITCHES: 3/9, 3/6, and 4/6 each.

CRYSTAL PANEL MOUNTED SETS, £7; complete with phono, serial wire, etc.

VALUE: Expressions of 'I', £25; Radiotronics, 20/-, 37/6; 200, £3; 282, 22/10/6; Myers Detector and Amplifiers, 35/-; Marconi, 'D', £35/-; V.24, 57/-; Mathard Ora, 27/-; D.E.R., 50/6.

'PHONES: Brown's single, 25/-; Murdoch's, 20/-; Beyton's, 22/-; Trim's, 29/-; Western Electric, 49/-, 4£, 80/-, 45/-; Baldwin's, £1/15/6; Brandes Superior, £1; Brown's Loud Speakers, £5/6/6; Amot-Romans, 12/- each; Magneto, £1/10/6.

CRYSTALS: German tested and guaranteed, 2/6; magnetic iron pyrites selction, 1/6 each.

'COIL-MO' CONDENSER: Ready to assemble, 3000, 7/6, 6000, 8/6, 3000, 10/-; 3000, 12/3; 3000, £1, 17/6; assembled and adjusted, 3000, 10/- to 3000, 12/3; with Vernier control, 10/- extra as assembled price.

TERMINALS: From 5d. each; studs, 2/6 and 2/4 per dozen.

KRONITE TUBE: 3 in, 3½ in, and 4½ in; diam, 12/- per ft.; Return, 3/6 each.

TRIPLE HONEYCOMB COIL: Mountings, 18/-; Bender, 41/6/6; Plugs, 4/6.

INTERVAL TRANSFORMER: Jefferson, £2; Radio Frequency, 1½ each.

REPLIER APPARATUS: Potentiometers, 6/6; Rheostats, 6/-; Dial Rheostats, 12/6; Knob and Dial, 9/6; Rotary Switches, 5/6 and 4/6; Q.S.A. Tapped H/C Coils, 6½ turns, 2/6/6.

The Colville-Moore Wireless Supplies

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WE SEND GOODS (PER VALUE PAYABLE POST).

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QUALITY RADIO

Winter Season's are the best for Radio Reception. Secure your Set before the season arrives.

WE STOCK COMPLETE SETS OR PARTS TO BUILD YOUR OWN.

B.T.H. English Detector, 35/-; Amplifying, 35/-; and Transmitting Valves, 60/-; Head Sets 2250 to 8000 ohms; Crystal Sets complete with 4000 ohms; Head Set, 5/-.

SEND FOR PRICE LIST TO

W. HARRY WILES,

Radio Department,

60-62 GOULBURN STREET,

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SYDNEY.
3 Coil Valve Set Complete

with "A" & "B" Batteries, Phones, Etc., Ready to "Listen-In" on.

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Amateur Transmitters—We have fixed Condensers from 1 mf. to 20 mf's, prices from 2/6. Smoothing-out Chokes and all requirements. When designing your Transmitter consult us.

We are arranging Wireless Telephone Demonstrations to show what our sets will do.

You can instal a complete Wireless Receiving Set in your home for £14 14/0.

Consult us for advice and all particulars in Wireless Matters.

Radio Company

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(4 doors from Hunter Street)