

RADIO

IN AUSTRALIA
& NEW ZEALAND

Incorporating Sea Land and Air

VOL. I.

NOVEMBER 14, 1923

No. 17



Mr. Spencer Nolan, a well-known Sydney business man, is also a pioneer radio enthusiast.

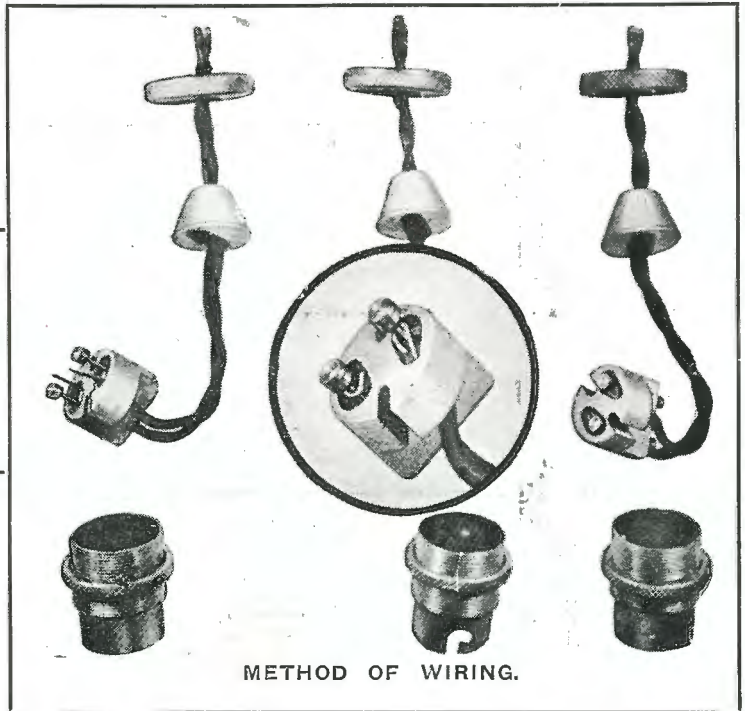
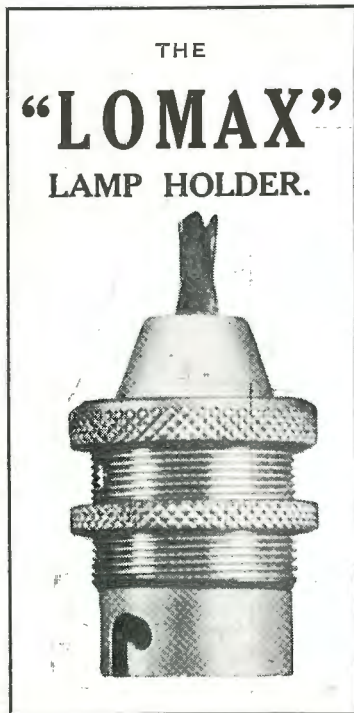
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RADIO

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& NEW ZEALAND
Incorporating "Sea Land and Air"

OFFICIAL JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA.
[New South Wales, South Australia and Queensland Divisions.]

Managing Editor:
S. E. TATHAM.

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Published by

THE WIRELESS PRESS

422-24 Lt. Collins St.,
Melbourne.

97 CLARENCE ST.,
SYDNEY.

Australasia Chambers,
Wellington.

PRICE, 6d. per Copy.

Subscription Rate: 10/- per annum (26 issues) throughout Australia and New Zealand; Foreign Rate, 12/6 (26 issues).

Obtainable from all Booksellers and News Agents, also the
N.S.W. Bookstall Co., Ltd.—all branches.

Wholesale Distributing Agents:

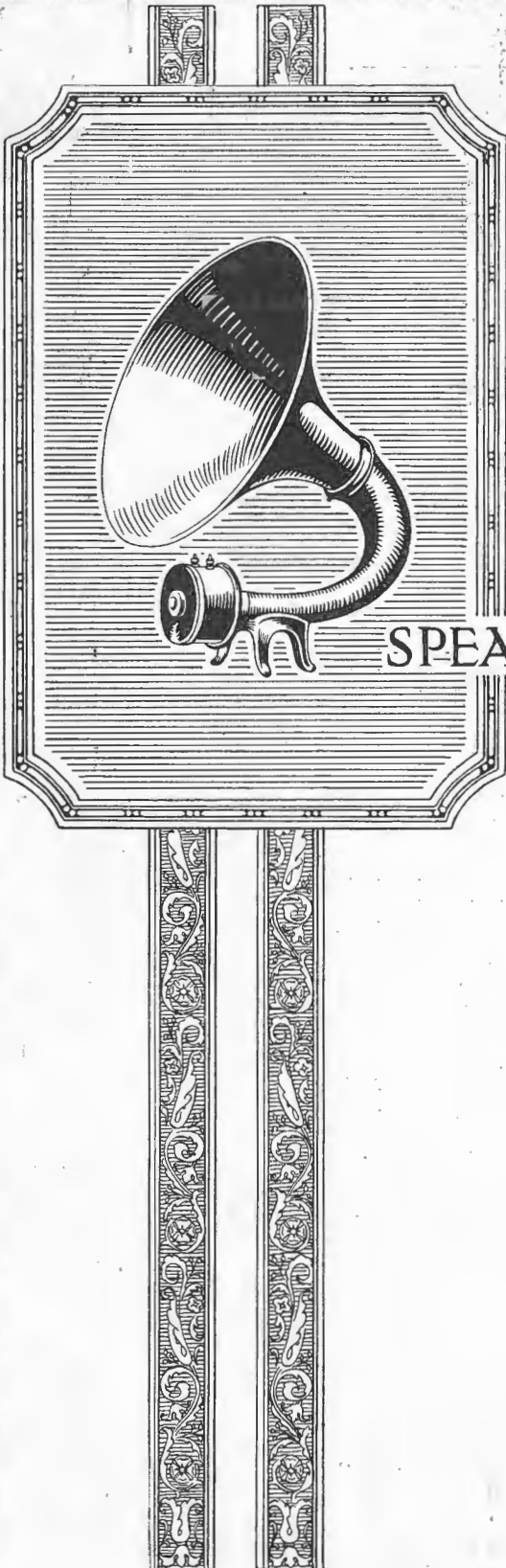
GORDON & GOTCH (AUSTRALASIA), LTD.,
Sydney, Melbourne, Adelaide, Brisbane, Launceston, Perth,
Auckland, Wellington, Christchurch, and Dunedin, N.Z.

Canada and U.S.A.:

The Wireless Press Inc.,
326 Broadway,
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Great Britain:

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Radio Experimenters on their Mettle.

THE Wireless and Electrical Exhibition to be held in the Sydney Town Hall from December 3 to 8 has an importance quite outside that attaching to it as an educational event of great public value.

THE Wireless Institute of Australia, as the organising body, has made a special effort to enlist the support of all wireless experimenters, firstly to demonstrate the quality of their technical skill and initiative, and secondly to give them an opportunity of justifying in the eyes of the authorities, their claim for special consideration on account of the constructive value of their experimental work.

TO that end special prizes have been allotted for individual and club exhibits, and the Institute has delegated to the well-known experimenter, Mr. R. C. Marsden, the task of visiting each club around the metropolis and explaining to members the need for enthusiastic and concerted action.

IT is scarcely necessary to analyse the Institute's reason for doing this. It is clear beyond doubt that its officials recognise that the present is the experimenters' opportunity to prove their worth in radio work.

THE claim for special consideration made by them when the Broadcasting regulations were being

framed influenced the authorities to grant a measure of freedom unequalled in any other country where broadcasting regulations operate.

THAT that claim was justified can be proved up to the hilt if the opportunity referred to is fully availed of.

THERE is no reason to believe that it will not. Our experimenters have demonstrated on every possible occasion that they are willing and able to compete with amateurs of every country in carrying out delicate and difficult research and constructional work.

THE several long-distance low-power tests held during the past 12 months have covered Australian experimenters with glory, and the thousands of people who will visit the Exhibition will want to see, at first hand, the actual apparatus with which the work was accomplished.

IT is essential that no spirit of indifference or lack of appreciation of what the exhibition means to them shall prevent club members, individually and collectively, from putting forth their best efforts in the cause they have so near at heart.

WE look with confidence to them to respond liberally to the appeal made by the Wireless Institute and so make their side of the exhibition typical of the high standard of skill to be found in the ranks of Australian experimenters.

Country Enthusiast's Viewpoint.

IN our last issue a letter from a country enthusiast was published, stressing the need for closer attention to the requirements of country residents when fixing the dates of radio and electrical exhibitions in Sydney.

THERE is probably a great deal more in what our correspondent wrote than appears at first glance, and those most concerned would do well to give the matter close consideration.

CENTRALISATION has blighted many promising undertakings in Australia, and in a subject of such wide application and appeal as wireless and electricity generally, it cannot be too strongly emphasised that the country has a right to share equally in its advancement.

THAT is hardly possible under the present order of things, as practically the whole of the facilities for gaining a knowledge of radio work are located in the capital cities.

THIS is only following the lead of most industrial enterprises, and is, in itself, no bar to progress provided the scope of the undertaking is not too circumscribed.

COUNTRY residents visit Sydney each year with almost clockwork regularity, and if an exhibition could be held simultaneously with one of their holiday seasons the number of visitors would be tremendous. The educational value of the exhibition would thus be increased, and country enthusiasts would be able to become fully acquainted with the latest and most up-to-date methods operating in radio circles.

IN this way the torch of progress would be carried into remote country centres where, at the present time, there is very little doing simply because the radio enthusiasts are practically at a dead end.

IT is too late to alter the date of the December exhibition, but those responsible for fixing dates will no doubt give the matter earnest consideration when the next one is about to be organised.

THEY may rest assured that the sentiments voiced by our correspondent find an echo in thousands of hearts throughout the country districts.

Broadcasting

AND

Radiola Receivers

ALL is silence! The broadcasting studio with its sound-proof curtain covered walls and soft carpets padded with several layers of felt appears uncanny. To prevent the sound waves from echoing, all woodwork is covered. Other than several small microphones suspended from the ceiling and a few switches, no radio apparatus is visible.

Suddenly a red electric light glows (a warning that any sound in the room will be broadcasted)—the announcer tells the invisible listeners in what the next feature on the programme is to be—and the singer standing before a microphone and facing her unseen audience of thousands, raises her voice in melody. Instantly the vast audience in their homes hundreds of miles away hear

the melodious strains of a celebrated operatic selection as clearly and distinctly as if the artist were in their homes.

Every note of the singer's voice is picked up by the magic microphone which turns the sound waves into minute pulsating currents. Concealed wires take these currents into the adjacent transmitting room where silently the glowing valves turn them into powerful high frequency currents which oscillate in the aerial wires suspended on the tall masts above the station. These currents disturb the ether and electric waves spread out in ever-widening circles, carrying their message through space.

The early opening in Sydney of the broadcasting station now being constructed for Messrs. Farmer & Com-

pany, Ltd., is being eagerly looked forward to by those desirous of enjoying this new means of entertainment.

The progress of broadcasting in England and America has been phenomenal. It is estimated that in America there are to-day 2,000,000 receiving sets installed and the capacity of manufacturers is being taxed to cope with the demand. In England over a million people listen in every night and their number is being added to day by day.

The effect of broadcasting upon the lives of both city and country residents will be to create a new era of entertainment and news service. Radio brings to the homes of the people a source of enjoyment and education which mark it as the most wonderful invention of the century.

There will be transmitted from the broadcasting station the music of great artists, the lectures of eminent men and women, dance music and vaudeville items, the news of the hour, market reports, weather forecasts and bedtime stories for the children.

After much research, backed by the extensive technical experience of its staff, Amalgamated Wireless (A/asia.), Limited, are now placing on the market their trade-marked "Radiola" Broadcasting Receiver.

The design embodies the highest expression of the technique of Wireless Engineers.

A quality production, the Radiola incorporates high-grade craftsmanship, dependable material and an attractive finish. For beauty, compactness of appearance, simplicity of operation and reception range it must be regarded as an artistic and engineering masterpiece.

It should be clearly understood that no technical skill of any kind is required for its operation. All you do is to turn a knob and listen in.

The Radiola is backed by the prestige of Amalgamated Wireless (A/sia.), Limited—the pioneers of wireless in Australasia and the



RADIOLA CRYSTAL SET.

Specially designed to meet the demand for a simple and inexpensive Receiver for listening-in to near-by Broadcasting.



RADIOLA VALVE SET.

The excellent appearance of this Set will harmonise with the decorative scheme of any home.

largest organisation of its kind in the Pacific.

Wherever a Radiola is installed there will be heard the music from the broadcasting station, always providing, of course, that the distance is within the range of the Radiola.

Wireless telephony, the seventh wonder of the world and one of the greatest scientific discoveries of the 20th century has been improved and adapted so that to-day sitting in your home hundreds of miles away you can be entertained by vocal and instrumental music, dance and jazz hits, hear the latest news and sporting results and receive market, crop and weather reports, while the children can listen-in to the bedtime stories.

The Radiola places at the disposal of the people a new, inspiring and powerful resource carrying into every home the latest facility of pleasure and education and making possible a richer and more complete home life with mental stimulus and pleasant relaxation.

The advent of the Radiola heralds a new era of entertainment comparable in its sphere of influence upon community life with the great discoveries in communication and in the dissemination of information. The invention of the printing press, Faraday's discovery of electricity, the development of the telephone by Bell, the bridging of the Atlantic by radio telegraphy by Marconi, and that wonderful source of pleasure, the moving picture—each tending to enrich man-

kind—are worthily supplemented by radio broadcasting and its corollary—the Radiola.

The invention of radio lies not to the credit of one man but many. Covering a period of some sixty years such world-renowned scientists and radio engineers as Maxwell, Hertz, Marconi, Fleming, Meissner, Von Arco, Franklin, Round and Alexander—have contributed in varying degrees to the evolution of ideas and theories as exemplified in modern radio practice. The Radiola is the technical expression of that practice and includes special features introduced by Marconi himself.

The march of progress in Radio—the adaptation of scientific methods of human needs—forges ahead that we in our generation may enjoy the wonders of radio undreamt of a decade ago.

Marconi, the wizard of wireless, considers that before many years the transmission of speech between England and Australia will be an accomplished fact. When that day comes not only will we in our homes in Australia be able to listen-in to local broadcasting stations but we will

hear Covent Garden Opera at the moment of its expression and listen-in to national announcements being broadcasted throughout the Empire.

To Australia, with its vast distances and scattered country population, broadcasting is particularly adapted. The latest news, market, weather and crop reports will prove invaluable while pleasure awaits him in the form of the latest and best music and operatic selections from the city theatres.

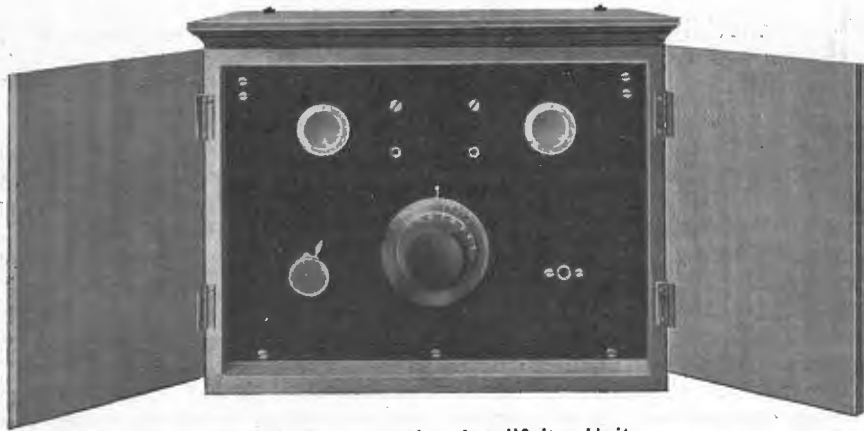
Broadcasting was started in England in June, 1920, by Dame Melba singing into a wireless telephone transmitter as a test as to what could be done in the matter of distance. She was heard in several of the capitals of Europe. It was not, however, until November, 1922, that the first English commercial broadcasting service was commenced, and it is now established as a national institution.

Besides the special concerts transmitted from the Broadcasting studio, it is not unusual for the latter to be connected with the leading London Theatres, thus permitting the broadcasting of the principal musical numbers. The clarity and distinctness of



RADIOLA VALVE SET.

An ideal Two-valve Set, incorporating high-grade technique, craftsmanship and finish.



Radiola Two-valve Amplifying Unit.

the music transmitted from the broadcasting station is such that the voices can be heard even more distinctly by the listener-in miles away than by people actually in the hall where the performance is taking place.

The opening of the first broadcasting station in America in 1921 was followed by a demand for Radiolas that took the country by storm—phenomenal even for America—and to-day it is firmly established as a national industry.

The simplicity of the Radiola is one of its wonders. By turning a knob anyone can listen-in and enjoy concerts, lectures and dance music, transmitted from the broadcasting station.

There are various types of Radiola receivers, ranging from a crystal set to a two-valve set and amplifying unit.

The Radiola Crystal receiver is an exceptionally well finished high-grade Crystal Set, giving, with an ordinary outdoor aerial, a range of approximately 12 miles.

It is very easy to operate and gives perfect tone quality.

A very excellent piece of craftsmanship is the "Radiola" two-valve receiver. With this set broadcast reception can be heard by means of a telephone headpiece up to a distance of 200 miles. If desired, several telephone headpieces may be connected to the Radiola, thus enabling several people to listen-in at the same time. If a loud speaker is used instead of head telephones the range will be about 20 miles. To operate the loud speaker beyond this distance the addition of an amplifying unit is required. An ordinary outside aerial is sufficient to get effective reception with this set.

The Radiola has two control handles, one for the sound volume, the other for the regulation of the electric current. To listen-in all you need do is to turn the control handles.

A feature, adding to the compactness of the set is the compartment for the high tension battery.

Yet another set is the Radiola with Amplifying Unit which with outside

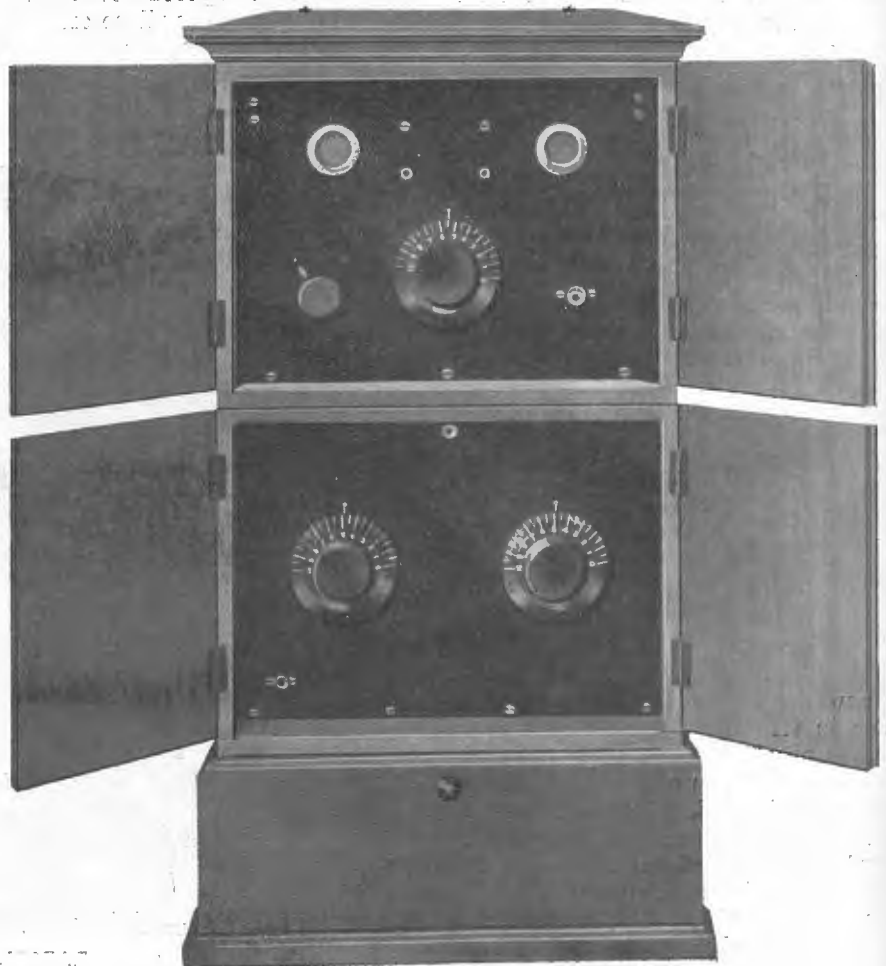
aerial and head telephones has a range up to 500 miles.

It is an ideal set for use with an Amplion loud speaker, giving an approximate range of 250 miles.

Built on the sectional plan, the lower unit contains the actual receiving apparatus, with a separate compartment for head telephones and high tension battery. The upper cabinet constitutes the amplifying unit.

The cornice unit or lid is detachable and should an amplifying unit be added to the receiving unit the cornice unit is fitted on top, thus adding a finish to the combination. Effective but simple means are employed to fasten the whole of the units together in order that the combination may be handled as self-contained.

The cabinets are finished in a pleasing manner in a dull gold lacquered and pebbled surface, which has been found to combine most harmoniously with all current modes of decoration.



RADIOLA WITH AMPLIFYING UNIT.
A Four-valve Set, having a range of 500 miles.

Wireless in New Zealand

(By Our Special Correspondent.)

IT is interesting to note that the Naval Department in New Zealand has arranged for daily meteorological reports to be transmitted by wireless from the Pacific Islands to New Zealand whenever possible. These reports will give the barometer and thermometer readings, direction and force of wind, and the general appearance of the sky at the different islands. The wireless station at Apia will collect all the data and transmit the report to Awanui, where it will be sent to the various post-offices in New Zealand. This information will be especially useful to shipping in the Pacific Ocean, as warnings of approaching storms will be given in sufficient time to allow vessels to alter their course, if necessary, to avoid any danger. These reports are now appearing daily in the press. Settlers can "listen in" and gain much valuable information in respect to weather conditions.

SAVED BY RADIO.

In view of the importance of a wireless station on Lord Howe Island, it is interesting to note that before the introduction of weather forecasting by wireless to ships at sea, serious marine disasters were by no means infrequent on the Australian coast. Mr. Hunt has compiled figures showing the loss of life in the pearling fleet operating off Broome, in Western Australia. In 1887, 200 lives were lost and ten years later the death roll was still 114, while in 1908 there were 50 lives lost. The accompanying loss of shipping was also severe. Under Federal administration improved storm warning facilities, especially wireless communication with the mainland, has reduced to a minimum the loss of life and property in the extensive Australian sea routes most subject to cyclones.

Wireless is to play an important part in connection with the forthcoming Hobbies Exhibition to be held in Auckland. Special prominence is to be given to wireless sets made entirely by exhibitors, and handsome prizes are to be awarded to the successful competitors. Great interest is being taken in the matter.

Mention has been made previously that arrangements were in hand in New Zealand to broadcast market re-

ports in the same way as is proposed by Broadcasting Companies in Sydney and Melbourne. A start has already been made in Wellington, and three times a week market reports on all New Zealand's primary products

HEART BEATS BY WIRELESS.

Amongst the scientific wonders exhibited at the Melbourne University Science Club's annual exhibit was an apparatus recently imported for magnifying heart sounds by means of wireless, which dispenses with the need of a stethoscope. There was also a pump for measuring serum, exhibited by the Serum Institute. Professor Woodruff, of the veterinary school, demonstrated how bacteria in milk were counted, and the mechanism of the sting of the nettle and prickly pear were explained.

are sent out. Sufficient power is used to enable them to be heard by listeners not only all over New Zealand, but in Australia and America as well.

Speaking of the future of wireless at the weekly luncheon of the Auckland Rotary Club, Mr. H. F. Marriott, delegate from the British Government, and several English Scientific institutions to the Pan-Pacific Science Congress stated that he confidently expected that in two years it would be possible to communicate from New Zealand to London in the same way as ordinary landline conversation is now carried on between adjacent towns. He spoke at length upon the wonderful strides made in the last few years in wireless telephony. "It is the young people of the Empire who are doing the pioneer work in wireless," he said, "and some day one of them will make a great discovery. The history of wireless is being made by the young amateurs."

The Hamilton Amateur Radio Club is one of the most flourishing institutions in the Dominion, and its broadcast programmes on Wednesday, Saturday and Sunday evenings from 7.30 to 10 p.m. on a wave-length of 200 metres are well worth listening to. Congratulatory reports from many southern towns come to hand daily.

The Auckland Y.M.C.A. Wireless Club continues to increase in popu-

larity and its open evenings are always looked forward to. An enjoyable gathering was held one evening recently when a large number of amateur wireless enthusiasts entertained several of the wireless operators from various vessels in port. A Western Electric Power Amplifier, lent by Radio Limited, was installed in the lounge and a connection was taken from the receiving set in the wireless room on the top floor. The musical items were much appreciated by a large gathering. After supper several club members carried out different tests on the experimental set which has just been overhauled.

Music from Sydney was stated to have been heard at Hamilton a few weeks ago. A member of the Hamilton Amateur Radio Club picked up a

A WOMAN'S VIEW.

Since the magic finger of radio has touched our homes we who live long distances from towns and cities no longer feel isolated (writes a farm woman who has sampled the wonders of radio entertainment services). We do not dread the long, cold winter months so much, for now we have a wonderful means of passing the time pleasantly and profitably. We are delightfully entertained, gain valuable information, and keep abreast of the times by getting the news of the day before it has time to grow stale. After a strenuous day farm folk like to have a little diversion to rest body and soul. All will agree that there is nothing so restful as to hear good music. As all farmers know, the day begins early and ends late. But at last we have come to the end of a busy day, and, having appeased the hungry family, all gather in the spacious living-room around an old-fashioned fireplace heaped high with big logs and live coals.

Sydney station shortly after 11 p.m. He was using only two of his three valves, but heard the station's name announced. Faint music followed which increased in volume when the extra valve was used. The "listeners in" heard a band selection, humorous items and a number of bugle calls. Under favourable conditions owners of receiving sets in New Zealand can always expect to hear Australian concerts.

Reception Without Aerial.

Air Line Distance 500 Miles.

Queensland Experimenter's Feat.

MATTERS are moving so rapidly in the wireless world that the performance hailed as a record one day is overshadowed the next. This speaks well for the future of radio in Australia, as well as being a tribute to the skill and enthusiasm of our experimenters.

Word comes from Clifton (Queensland) of a remarkably fine feat in long-distance reception without an outside aerial by Mr. Charles Walker (4CU) of that town.

On Sunday evening, October 14, the atmospherics were so bad that Mr. Walker found it almost impossible to keep the 'phones on.

Before closing down he decided to try out a length of wire suspended in the room. A piece of 22-gauge cotton covered wire, 22 ft. long, was hung



Mr. Walker and his Set.

around the wall on three or four picture frames. The aerial lead-in was next disconnected and connected up to the inside wire. The receiver was then switched on, and as no static was noticed, Mr. Walker tuned a little finer and was surprised to hear a fairly strong carrier wave. Still finer tuning brought in 2GR (Mr. J. S. Marks, Rose Bay, Sydney). He was in the act of announcing that the next item to be broadcasted would be "The Lost Chord."

Thinking that a small amount of induction was coming from the aerial

Mr. Walker decided to lower it, but it made no difference as 2GR was still going strong when he returned to the set. A little later the Sydney station announced that it was closing down and sent the call letters 2GR by Morse several times.

Later on Mr. Walker tried to pick up 2CM but could get nothing beyond his carrier wave.

The set is a three-coil regenerative one, using a Mullard Detector valve and two Marconi "R" valves as L.F. amplifiers.

Mr. Walker has frequently heard 3DP (Melbourne) on one valve, also 3ZE on the Victorian border, and all the Australian coast stations. With larger tuning coils he has heard most of the high-power stations on the other side of the world.

Demonstration at Newcastle.

Huge Crowd Interested.

On Thursday, Friday and Saturday nights, October 25, 26 and 27, a demonstration of wireless telephony was given in the vestibule of the Union Picture Theatre, Hamilton, to raise funds for completing the Radio Club's transmitting set.

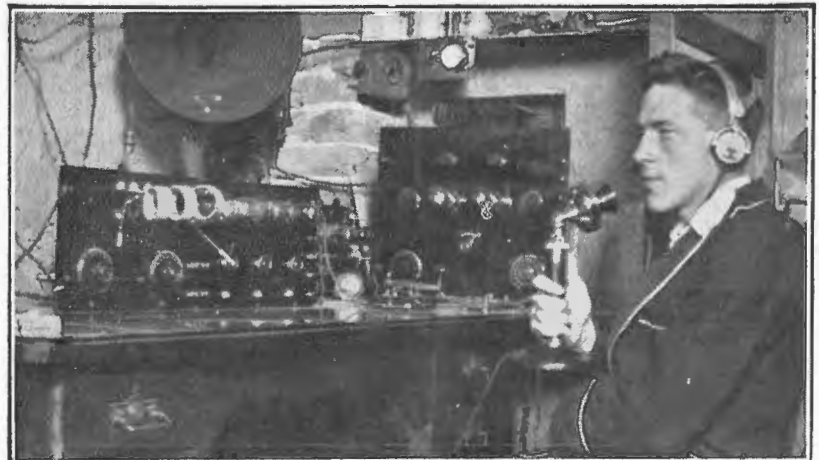
There was a huge attendance of interested listeners, and at last the crush became so great that the management had to erect an iron railing to allow the operator elbow room.

The musical programme was trans-

mitted from Mr. N. P. Olsen's experimental station at Waratah, and was received at the theatre by Mr. A. Metham, who operated a three-valve receiving set and an Amplion loud speaker.

The reception was excellent, the music being clearly audible to persons on the opposite side of the street.

The Club funds benefited materially as a result of the demonstration which was held by permission of the Postmaster-General.



Mr. Wallace Best (2ER), of Rose Bay, Sydney, one of the State's keenest experimenters.

OBITUARY

Captain T. Langley Webb

Captain T. Langley Webb, one of the foremost figures in Australian shipping circles, and for over five years a director of Amalgamated Wireless (Australasia), Ltd., died at a private hospital in North Sydney on November 2.

The late Captain Webb was 65 years of age and his rise from the position of apprentice at sea to the high and influential positions in the commercial life of Australia which he occupied at his death are eloquent testimony to his energy, ability and keen business foresight.

Captain Webb went to sea early in life as an apprentice to the late Captain Ogilvie. After completing his apprenticeship he joined the firm of Huddart, Parker & Company, Ltd., of which his father was one of the founders.

For 15 years he served as a master mariner, and later retired from active seafaring life to fill the position of assistant harbour-master in Melbourne.

Twenty-three years ago he came to Sydney and soon made his influence felt in business circles here. Under his guiding hand the business of Huddart, Parker, Ltd., has grown to great dimensions in New South Wales. In its growth it has not been confined to shipping, but many years ago extended its interests to the coal trade which is so intimately connected with shipping and all industrial enterprises.

Huddart, Parker, Ltd. is largely interested in Hebburn Ltd., which



The late Captain T. Langley Webb.

has two large collieries on the Maitland coalfield and up till the time of his death Captain Webb occupied a position on its directorate.

He was also a director of South Maitland Railways Ltd., and when Huddart, Parker, Ltd. purchased the Metropolitan coal mine at Helensburgh on the South Coast, Captain Webb became a director in the latter enterprise.

In 1918 he was elected President of the Northern Coal Owners' Association in succession to Mr. John Brown—a position for which he qualified by virtue of his large personal and financial interests in the Northern

coal trade. In each succeeding year he was re-elected to the position, and also became President of the Mine Owners' Insurance Fund. He was also represented in the Southern Coal Owners' Association as representative of the Metropolitan Coal Company Ltd.

In 1918 Captain Webb joined the Board of Directors of Amalgamated Wireless (Aust.) Ltd. His association with shipping had taught him the boundless possibilities of wireless in connection with the mercantile marine and he demonstrated his faith in the enterprise in the practical form mentioned. Few men in Australia were more optimistic regarding the future of radio, and that optimism was born of a complete understanding of the vitally important influence wireless has had in safeguarding the interests of shipping generally.

The late Captain Webb, who was born at Brighton, Victoria, was of a most genial and likeable disposition.

His wife pre-deceased him in September last, but his mother is still living, as are also three sisters and a younger brother, Mr. John Langley Webb, who is also a director of Huddart, Parker, Ltd.

His remains were laid to rest in South Head cemetery on Saturday afternoon, November 3, and amongst those who followed the cortege were representatives of the whole of the shipping, coal, wireless and other financial and business interests in Sydney.

Adelaide to Broadcast

What will be one of the largest broadcasting stations in the Commonwealth is at present being erected at Millwood for the Millwood Auto and Radio Company. The building will occupy an area of 25 by 60 feet, and is to be equipped with an elaborate studio on the latest American lines for the reception of specially

trained theatrical artists. It is proposed to broadcast seven hours a day over a radius of 500 miles. Items will be transmitted for 1½ hours in the morning and afternoon and also during lunch hour, and in the evening. The programme will include concerts, weather and market reports, bedtime stories for children, lectures and addresses. A collecting device

will enable the management to arrange for the broadcasting of any special event, such as an address at the Town Hall by any prominent public speaker. It hoped to commence operations late in November or early in December. Mr. L. A. Harper, well-known in local motor circles, is managing director of the company.

The Radio Store

A Lay-out for a Store, fifty by twenty-five feet, is given in the following article.

By WILLIAM F. CROSBY

THE store interior shown herewith is a scale drawing of a building twenty-five by fifty feet deep. In it are shown many of the features that have been used successfully in other radio stores, all combined to give the very best arrangement. Eleven feet at the back of the store is partitioned off to form an office for the manager, work room, wash rooms, supply room and stenographer's ante room.

This last named room may very easily be thrown into the rest of the work room, provided it is not wanted, but it is shown in the drawing because it has several interesting fea-

tures. It might be advisable to cut a door from the manager's office through the partition so that he can readily get out behind the counter in case of need.

The two washrooms are an absolute necessity, if the employees are supposed to be presentable to customers, and the work bench would help considerably in repairing any sets that might be brought in. It would also be a convenient place for the unpacking of received goods and many other uses that will come out from time to time.

On the store side of this partition will be noticed a table or rack for the

of the different parts and sets on display and the chances for a sale are greatly increased. The periodical stand is an important asset that should not be overlooked or left out.

On the side of the store that contains the demonstration booth, it will be seen that the counter is considerably shorter and that the back shelving is not enclosed in glass the way the other side is. This counter, it is suggested, should be used for the small parts and cheaper grade of materials. Specials of all sorts may be shown on this side. Notice the large drawers arranged in the back shelving for the holding of such parts as dials, sockets, rheostats and many of the other small pieces used in radio. The show cases on this side should contain a sample of everything in the drawers so that the customer can pick out everything that he needs. In order to save time in the sales, it is suggested that every part displayed in this case have a cardboard with a number on it displayed alongside of it. The drawers may be numbered to correspond with these and a great deal of time will be saved. All that the customer does is to tell the salesman that he is interested in the part numbered 24 and the clerk can immediately turn about to the drawer with the corresponding number and give the customer the desired piece of apparatus. Incidentally this may help the beginner, who is frequently confused and does not know just what he wants by its proper name. If he knows it by sight all that he has to do is to pick it out and thus avoid confusion and embarrassment.

The demonstration room is the most important part of the store. It has been found that if a receiving set is left out on the counter nearly everyone that comes along will take a twirl at the knobs and it will not be very long before the set is out of order. In order to overcome this, the sets to



Interior View of the Radio Store

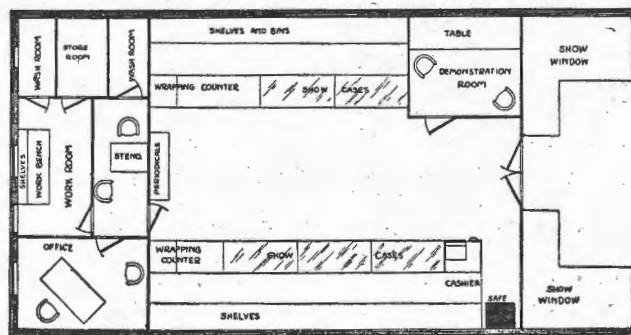
tures. It frequently happens that, in the retail business, if very much advertising is used, mail orders will start to come in, in fine style, and when this happens, in a great many of the stores, no especial effort is made to do the work correctly. A stenographer should be able to handle this whole end of the business from the little office as shown, and at the same time do any necessary work that the regular business may require. Another function of this part of the establishment would be to keep the manager's office from becoming overcrowded, by holding up visitors and salesmen in the ante room until the

holding and sale of the many different radio publications that are so dear to the heart of the radio fan. This counter will act as a drawing card that will bring customers into the store every month regularly looking for their favourite publication. Once a fan is inside of the store, the chances are very good that he will purchase something else beside just the magazine that he wishes. Notice that this counter is in the extreme back part of the store, making it necessary for the purchaser to pass completely through the building on both the way in and the way out. Thus he is given a chance to see all

be demonstrated are put in a separate room and the prospective buyer is invited in to hear it work. It will keep the sets out of the hands of the radio fan, and it will be found much easier to consummate a sale in privacy rather than in the rush and bustle of the store. The demonstration booth means increased sales.

The opposite side of the store is entirely taken up with the best of the high grade apparatus, and should be made to look the part. The buyer should be made to feel that this is the

sleeve effect so often seen. In passing, at this point, it might also be well to mention the fact that smoking, while behind the counter, should be absolutely forbidden. It is not very pleasant for a customer to have to stand and face some youth who is blowing great clouds of tobacco smoke in his face all the time. Radio has sold itself to the public, certainly not through the efforts of most of the radio stores. The public has bought apparatus in this way simply because there was nothing else to do. Make



The Radio Store Layout

very best that he can secure. The large, glass enclosed back shelvings should contain the very best of apparatus and not filled up with a lot of miscellaneous "junk." Keep the sets and apparatus clean by seeing that everything is dusted off every day. This side of the store should have real "atmosphere" in order to attract the prospect with money. The manager should see to it that the salesmen are neatly dressed and well groomed and avoid the usual shirt

your store the exception and give real service by real salesmen, and as the word spreads through the ranks of the buyers the trade will increase steadily and will stay there. If a radio customer finds that he can get what he wants, together with courtesy and possibly a little honest-to-goodness advice, he will come back again and again, concludes the writer in *Radio Merchandising*. It is well worth while to bear these things in mind in running the store.

Greetings at Sea.

A pretty little incident in which an Australian girl figured was enacted in mid-Pacific during the voyage of the Oceanic steamer *Sonoma* to America.

Mrs. Richard Clark (nee Charlesworth, of Sydney) was a passenger on the *Sonoma* and when a few hours out

of Honolulu, lodged a radio message to her husband, Richard Clark, who was wireless officer on the *Calawaii*. In a moment his reply was flashed back, and husband and wife were thus able to exchange greetings across hundreds of miles of ocean. The couple were only newly-married and later rejoined in San Francisco.

Useful Hints.

To simplify the winding of a resistance for the filament or any other similar control the following directions should be adhered to. In the case of a straight resistance with a slider, a large slate pencil or a piece of slate shaped to suit the panel should be shellacked with varnish and then wound with two wires close together. The ends should then be fastened and the whole shellacked again. When quite dry one wire should be carefully taken off. This will leave a proper spacing between the turns resulting in an evenly wound resistance.

* * *

Slate should be drilled slowly and without using moisture. If the drill becomes wet it will soon lose its edge, and if used too quickly it will get hot, and probably jamb, resulting in the slate being broken.

* * *

Before using slate it is better to dry it thoroughly in an oven and then give it two or three coats of black French varnish. Usually the third coat is required to ensure a good finish as the first two sink in.

* * *

To increase the insulation value of a set mounted on a wooden base a small piece of ebonite should be glued or screwed at each of the underside corners of the board. If ebonite is not available an economical substitute can be found in an old quarter-plate photographic negative. This should be cut into four pieces and fixed on with a suitable adhesive solution.

* * *

To join the ends of two or more wires it is a good plan to fold a piece of thin copper sheet or copper tube on the ends after they have been thoroughly cleaned. They should then be pressed tightly in a vice or with a pair of pliers. Two or three dents should then be made with the cutting edge of the pliers, care being taken not to press hard enough to cut right through. This applies particularly to wires of 20-gauge and over.



The Radio King

Published by special arrangement with Universal Films. Adapted from the Universal Chapter Play, "The Radio King."



Short Synopsis of Previous Chapters.

MARNEE, an Electrical Wizard, fostering a feeling of anarchy, has imprisoned Jimmy, an orphan boy, to help him in his nefarious schemes. Jimmy having learnt the code and signals of Marnee's super wireless plant, sends out a message for help to Bradley Lane, a wealthy scientist and detective. He is interrupted by Marnee, who takes in Bradley Lane's reply that he is coming to Jimmy's assistance. Leaving his instruments Marnee goes upstairs and informs the revolutionaries that Bradley Lane is coming; telling them to send him below and he, Marnee, will deal with him. John Leyden, another scientist, who is working for the Government is endeavouring to perfect a scheme by which he can recall all messages from the air. Almost every experiment in this direction is frustrated by Marnee. Jimmy, left alone in the laboratory, sends out a call for help, which is picked up by Bradley Lane on his experimental set. Lane hurries to the house indicated by the call, but is entrapped by Marnee. The Wizard of Electrics throws in a switch, causing a static discharge of thousands of volts to envelop Lane, who slowly collapses beneath the terrible strain. Whilst Lane is lying insensible on the floor the house is raided by the authorities and Marnee and his confederates effect a hurried escape.

At the entry of the police Lane is revived and is taken to his home. In the meantime John Leyden, after many discouraging results, meets with success and transfers the secret of his invention to the record of a dictaphone. This he does by means of a special process of which nobody but himself and Ruth hold the key. After recording all details of his invention, he is surprised by Marnee's gang, who take away the record, and knowing the whereabouts of Bradley Lane and Ruth they send a decoy message, per radiophone, asking them to return to the house immediately. Ruth returns alone, and is met by one of the Brotherhood, who tells her that Bradley Lane has met with an accident and has been taken to another quarter of the city. Not suspecting the trap laid for her, she walks right into it.

CORNERING one of the band, Lane under pressure elicits the information of Ruth's whereabouts, and without hesitation sets off to again outwit Marnee. Arriving at the rendezvous he finds all doors locked and decides upon the bolder course being the better. A knock at the door gains him admission because they think he also has fallen into the trap, but no such thing. He is there with the object of rescuing Ruth, and has his mind made up not to leave there without her. A terrific fight ensues, in which Lane is getting the worst of the battle until reinforcements of police officers arrive on the scene, being called in by Jimmie. Thinking only to save themselves, Marnee and his associates again make their escape, and there is again a joyful reunion between Ruth and Lane.

Now another interesting and important character enters our story—Fatty Ewarts. Just a great big lump of boyhood in his heart as he possesses in quantity of avoirdupois. Fatty is just a typical specimen of present day youth, and his one aim in life is to possess a radio set. But unfortunately he hasn't the necessary capital, so has in a primitive way to build a set from odds and ends found about the place. He, as most boys, just idolises Bradley Lane, which gentleman has been the means of inspiring him with all that he knows of the science. Under Lane's expert tuition Fatty knows all that any amateur needs know about radio, but he would never take advantage of Lane's goodness of heart by allowing him to purchase a small set for him. Books

and magazines had told him that a fairly effective receiving set could be made up from scrap, and he just believed that he could find sufficient material in his father's tool-box and in the yards of neighbours to achieve his purpose. He is listening in one evening at the station of a friend when he hears of a scheme launched by Marnee to wreck the Government broadcasting station. Gratitude to Lane and an inborn sense of duty to his country inspires him to immediately get in touch with the former. Lane having implicit faith in his little ally, determines again to frustrate the schemes of the arch-criminal, Marnee, and securing the location of the outrage from Fatty, it does not take him long in his high-power racing car to reach the station.

The peaceful nature of the station certainly does not tend to make one believe that anything has happened or is about to happen, but long years of study in criminology have taught Lane that things are not always as they appear at first glance. He certainly expected a scene of disorder and expected to find the station disorganised, but instead his knock was answered by the Government attendant and he was ushered into the operating room to be greeted by the hiss of sparks from the rotary gap and the rumble of the generator. This evidence could not be overlooked, and he commenced to wonder if the signal received but half an hour earlier was a bogus message to decoy him away from the scene of other nefarious operations. He was not left long in doubt. Two hands with a vice-like grip encircled his throat and



Two hands with a vice-like grip took Lane from behind and he found himself face to face with Marneel!

a cloth was thrown over his head to muffle any cries he might make. But Lane was not the man to waste breath in fruitless shouts for assistance. Here was the time when he must think and think hard. But try as he would the only way out that appeared to him was in the arrival of Jimmie, whom he had left to follow him

in the street car. Bound, gagged and thrown into a corner, despair settled over him—but what was that. A rush of feet, banging on the door, a boyish voice, "Mr. Lane, Mr. Lane. Are you there, Mr. Lane?"

(Another thrilling instalment of this story will appear in next issue of Radio.)

N.Z. Coast Stations.

Wellington Radio—VLW—transmits the weather forecast at 9 p.m. N.Z. Mean Time every night of the week, and Time Signals at 8.29 p.m. N.Z. Mean Time on Tuesdays and Fridays only.

Awanui Radio—VLA—transmits a weather report at 10.12 p.m. N.Z.M.T. each night.

Chatham Island Radio—VLC—transmits a weather report at 4 p.m. N.Z.M.T. daily.

Hello, Australia!

American Amateurs' Signals Heard.

Victorian Experimenters' Triumph.

The low-power test between America and Australia is the all-important topic amongst experimenters in Victoria just now. Wonderful results have been achieved. All are jubilant, and claim that they have excelled themselves on this occasion. The list now exceeds 130 American stations, and Messrs. Love and Hull are responsible for a big proportion of this quota, with Messrs. Howden and Cox running them exceedingly close.

Mr. Nikant, of Los Angeles, has been repeatedly read. Signals are remarkably strong, even on two valves. An attempt by Mr. R. Hull to take dictaphone records of the signals has been successful, and when one considers this accomplishment over a distance of 7,000 miles, the final result of the test will surely reveal some highly interesting achievements.

Another experimenter reports receiving the Americans on a loop aerial.

The powers used by Victorian experimenters for transmission to America on the 200 metre wave are as follows:—

Howden (3BQ), $\frac{1}{2}$ K.W. Marconi.

Love (3BM) one 5-watt tube two-amp. radiation.

Hull (3JU), 10 watts.

Steane (3UX), three 5-watt tubes.

Dhormann (3AM), 10 watts.

Wireless Broadcasting.

We are agents for Farmer's service, and are now accepting subscriptions and booking orders for complete broadcast receivers.

We specialise in the erection of masts and aerial equipment in suburbs and country.

Send for a Price List or visit our Showrooms,

1st Floor, CALLAGHAN HOUSE, 391 GEORGE STREET, SYDNEY.

BURGIN ELECTRIC COY. LICENSED WIRELESS TRADERS

Tel.: M 3069.

The Experimenters' Corner



A Universal Joint Crystal Detector.

In the usual form of crystal detector the adjustment of the contact wire on the surface of the crystal is far from flexible, and as a result only a small area of the mineral is capable of being efficiently explored without altering the position of the crystal in the cup. To overcome this defect several forms have appeared on the market fitted with ball joints and sliding rods, and, although they look well from a casual inspection, they are usually stiff in action, and do not operate at all smoothly.

The detector stand illustrated in Fig. A can be said to have overcome all these defects, and it operates so heavily adjusted that the lightest touch will operate with ease.

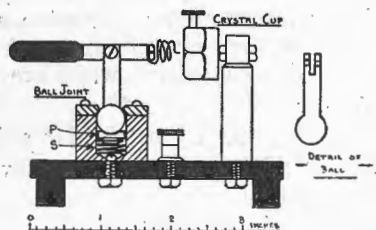


Fig. "A."

The construction can be entirely accomplished without the use of a lathe, although this useful tool will facilitate some of the construction if access to one is available. From the diagram it will be seen that the arm carrying the contact wire is connected through a hinged joint to the rod with a small ball at its base. This ball fits into the recess in the small plunger "P" which in turn is forced up against the ball with the spring "S." To construct one of these detector stands proceed as follows:—

"Obtain two pieces of brass rod one one inch in diameter and one one-eighth, and three-quarters of an inch long. These should be filed or

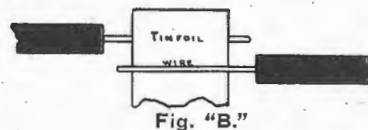
turned smooth on all surfaces, and down the centre of the larger piece a hole 7/16 in. diameter must be drilled until the point of the drill just commences to come through the bottom of the brass. The thinner piece has a 3/8 in. hole drilled through its centre.

The edges of this hole must be rounded off as shown in the figure to provide a smooth surface for the ball movement. Now take a piece of 7/16 in. brass rod, about two inches long, and gripping it in the chuck of a hand drill which is held in a vise, get someone to turn the handle rapidly while you file it into the shape shown in Fig. A. It is not essential that the ball be a perfect sphere. The arm which holds the contact wire is filed out from a piece of 1/4 in. brass rod, and fitted into a slot cut in the top of the ball rod with a stout hack saw blade. The plunger "P" consists of a piece of 7/16 in. brass rod 1/4 in. long slightly reduced in diameter by means of filing to allow it to slide smoothly in the 7/16 in. hole. On the top of this plunger a depression is drilled by means of a drill of similar size. This need be only a shallow cut. A steel spring about 3/8 in. long holds this plunger firmly against the ball. The top piece is screwed to the main section by means of three 1/8 in. Whitworth brass machine screws. If it is too difficult a job to drill and tap these holes, run them right through to the base and clamp the top piece down with nuts from underneath. The crystal cup can be made from a piece of hexagonal brass rod, but as they are available very cheaply on the experimental market, it is better to buy one. The whole outfit is mounted on a base board of ebonite 3 1/2 in. x 3 1/2 in. and fitted with terminals and supporting legs to keep it clear from the

table. If desired it can be mounted direct on the panel. The tools required for the job are few and consist of:—Vise, hand drill, twist drills of 7/16 in., 3/8 in. and 1/8 in., several coarse and smooth files, and 1/8 in. tap and die.

Suggestions.

For small soldering jobs, such as soldering terminals or joining two wires, ordinary tinfoil makes an excellent soft solder. To join two wires, bare and clear the ends and smear



with Fluxite, then place the two ends together, putting a sheet of tinfoil between, then twist in the ordinary way, preferably not too highly. By applying a match a splendid electrical joint will be made.

Care should be taken when soldering zinc plates not to get the soldering iron too hot, otherwise the metal will "run." Raw spirits of salts should be used for this operation. In all other soldering for electrical work resin or some other flux should be used.

To cut paper washers easily, use a pair of sharp-pointed dividers. The paper should be laid flat on a piece of smooth-surfaced hardwood.

To make suitable paper tubes for covering long or short wires under a board it is merely necessary to wrap paper round a piece of wire the size required. The ends should then be tied with cotton and the wire soaked in paraffin wax. When dry the paper tube will be quite stiff and may be cut to any length required.

Broadcasting in N.S.W.

To Begin on November 15

After several weeks of preliminary testing, during which evening programmes extending over three hours daily were transmitted, Broadcasters (Sydney), Ltd., have announced their intention of inaugurating on November 15 a free daily news and entertainment service extending from 9 a.m. until 10.45 p.m.

The shareholders of the Company comprise a number of radio dealers in Sydney, and in conjunction with Smith's Newspapers, Ltd., a broadcasting station has been erected in Phillip Street, Sydney. From this centre the programmes will be transmitted, and according to the preliminary announcement "listeners in" may look forward to a daily programme of news, vocal and instrumental items, market and weather reports, etc., which will make "listening in" always worth while.

Transmission will be on a wave-length of 350 metres. Licenses for the installation of receiving sets are being issued by the various dealers who are shareholders in Broadcasters, Ltd., and no subscription fee will be charged on any receiving set tuned to the Company's wave-length if such set is purchased from a trader member.

The service is expected to cover the whole of N.S.W. and possibly the Commonwealth.

With the commencement of another broadcasting service early in December, N.S.W. will then have at least two stations supplying news, entertainment and general information on a scale destined to make "listening in" one of the most popular diversions of the approaching Xmas season.

FARMER'S BROADCASTING SERVICE.

Further particulars regarding the high-class broadcasting service being organised by Farmer and Company, Ltd., of Sydney, are now available.

The Company is at present arranging for representation throughout the entire State, and the agents so appointed will be authorised to receive license and subscription fees and book orders for sets, which are expected to be available shortly.

The licenses and subscriptions will cover the period from December 5, 1923, to November 30, 1924.

Mention has been made previously of the exclusive arrangements made by the Company for ensuring a continuity of high-class news and entertainment programmes.

It has been wisely recognised that success will be built upon quality services, and, judging by the thoroughness with which they are working out the details, Farmer and Company

will both merit and enjoy liberal patronage.

It is not difficult to visualise the brightness which will be infused into many family circles in the country at Xmas when music, song and good wishes will be wafted into their midst from a distant broadcasting station.

The festive season of 1923 is destined to go down in history as Australia's first Radio Xmas!

DEMONSTRATION AT NEUTRAL BAY.

Neutral Bay (Sydney) was treated to its first successful public demonstration of Radio Telephony on Saturday, October 20, at a bazaar held at "Alwyn" School in aid of the Blinded Soldiers' fund. The receiving set, consisted of a four-tube Neutrodyne, built by W. G. Best, Rose Bay, and a loud speaker, and was operated by H. K. R. Thomas and R. S. Murray. Mr. Best transmitted music throughout the afternoon from his station at Rose Bay. The Neutrodyne, employing one stage of Radio, detector and two stages of Audio amplification, provided an excellent volume of sound, and the transmission was faultless in modulation and adjustment.

The demonstration was held with the permission of the Postmaster-General and Amalgamated Wireless Ltd.



STROMBERG-CARLSON

SUPER No. 2-A Radio Headset SENSITIVE

£2/5/-.

Why buy a cheap inferior set when you can obtain a high efficiency No. 2-A at half the cost of an equal set. It is built by Telephone Manufacturers of 30 years' standing. DURABLE, COMFORTABLE, ACCURATELY REPRODUCES VOICE and MUSIC. Permanent adjustment, unaffected by climatic and temperature changes. Also RADIO PLUGS and JACKS; MICROPHONES, all types.

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Interstate:—BRISBANE: S. H. Smith, Radio House. ADELAIDE: Chas. Atkins & Co.
PERTH: T. Muir & Co., 89 William Street. MELBOURNE: Homecrafts, 311 Swanston Street.

Wireless in the West

(By our Special Correspondent.)

An indication of the progress of wireless in West Australia was furnished by the exhibition and radio concert held in the King's Hall, Perth, by the Subiaco Radio Society a few weeks ago.

In declaring the exhibition open, Mr. Richardson, M.L.A. (President of the Society), gave a brief outline of the Club's history since its inception about six months ago. "To-day," said Mr. Richardson, "the membership is over 60, which, in itself, is a good indication of the widespread interest now being taken in wireless generally."

Included in the concert programme were several musical items broadcasted by Mr. W. E. Coxon.

The exhibition included several sets constructed by local amateurs, whilst a number of city traders displayed the various parts used in the construction of a receiving set.

The hall was crowded to the doors with interested spectators and the success of the entertainment was intensely gratifying to the organisers.

The possibilities of wireless in connection with motor tours was demonstrated by W. E. Coxon at the recent Motor Show. A frame aerial only four feet square was fitted under the hood of the car and items transmitted from a station some distance away were clearly audible to those standing

around, as well as passengers seated in the car.

The Mount Lawley Radio Club has announced that it proposes arranging a grand concert to take place in one of the city theatres early in December. Nothing is yet definite, but it is understood that the whole of the programme will be broadcasted from the theatre.

The organisation of the concert is in the hands of the Club's Secretary (Mr. C. H. Snowden) and Mr. Peter Roxby, one of Perth's leading artists.

Nothing but the best talent is being engaged, and the public can look forward to something really worth while.

The Wireless Traders' Development Association held a meeting on October 18, at which a big volume of business was dealt with. The President of the Association (Mr. C. P. Knapton) recently visited the Eastern States and much of the business transacted arose out of that visit.

The Secretary of the Association reported on the result of the deputation which waited on the P.M.G. during his recent visit, and stated that contrary to the press reports, which announced the result as disappointing, the benefits which must eventually be derived from the discussion with Mr. Gibson, will prove advantageous to W.A.

Concert Programme

Broadcasted by 4YO Dunedin, N.Z.

The Radio Supply Company's Broadcasting Station (4YO) at Dunedin transmitted a concert programme from His Majesty's Theatre recently.

On a previous occasion a programme from the Male Choir was broadcasted and the experience gained on that occasion paved the way for a really successful effort at the second attempt.

At 8.6 p.m. the first item was transmitted, and from thence until 10.52 p.m. an excellently varied programme was broadcasted.

The whole arrangement worked without a hitch and the three hours' entertainment was thoroughly enjoyed by hundreds of "listeners in."

The orchestral accompaniment to the dances was received splendidly and the vocal and instrumental items were a delight to listen to. Even the laughter of the audience was plainly heard.

The Company received sheaves of congratulatory messages on the success achieved, and many "listeners-in" counselled them not to alter the set in any way as they were confident better results could not be attained.

The Company is now installing permanent lines to the various theatres, and further excellent programmes should soon be available.

Wireless in the Streets.

Novel event in Adelaide

To demonstrate the efficiency of modern wireless receivers the Bald Motor and Electrical Works hit upon a novel idea. Mr. Bald, in conjunction with Mr. Harold Pank, toured the streets of Adelaide recently, during the lunch hour, with a motor car in which a valve-receiver was installed. They gave demonstrations at many street corners and aroused considerable interest. The aerial was composed of two small cage aerials mounted upon the hood of the motor.

Broadcasting is Here. We are Ready!

CRYSTAL SETS—	VALVE SETS—TWO:
£23/10/- £25/10/- £27/10/-	£17/10/- £20 £25
VALVE SETS—SINGLE:	VALVE SETS—THREE:
£10 £15 £20	£27/10/- £30 £35

Complete with Aerial Wire, Phones, Batteries, and All Accessories.

We can supply all parts to build your own if required.

ORDER NOW AND AVOID THE BUSH.

Catalogue. 50 Winning Diagrams, 9d.

ELECTRICITY HOUSE

387 George Street, Sydney.

J. S. MARKS (Radio 2GR), General Manager.

We are the accredited Agents for all Broadcasting Companies. Service fees on application.

Amateur Transmitting Licenses

September's List

NEW SOUTH WALES.

- 2AY Curston, J. C., "Maruna," Burwood Road, Burwood.
 2ED Gregory, H. R., "Gerrobbar," Walton Crescent, Abbotsford.
 2GU Dunn, R., 324 Anzac Parade, South Kensington.
 2IN Payne, J., 143 Avoca Street, Randwick.
 2JT Luckman, C., 14 Queen Street, Croydon.
 2LO Schultz, L. N., "Waraba," Burns Bay Road, Lane Cove.
 2ZR Perdriau, W. J. S., 47 East Esplanade, Manly.
 2ZT Bean, L. P. R., 86 Muston Street, Mosman.
 2ZU Gilmour, N. G., 156 Kurraba Road, Neutral Bay.
 2ZV Universal Electric Co. (A. L. Dixon), 244 Pitt Street, Sydney.

VICTORIA.

- 3DD Osborne, L. F. G., "Louisville," Darling Road, East Malvern.
 3HH Maughan, F. H., 15 Staniland Avenue, Malvern.
 3JZ Whalley, R. P., "Enmore," Bridge Street, Sandringham.
 3LS Busch, R. T., 30 Wordsworth Street, Moonee Ponds.
 3QW Muir, J. A., 10 Young Street, Brighton.
 3XF Chaffer, M., 41 Norwood Crescent, Moonee Ponds.
 3XN Leaney, W. G., 12 Henry Street, Northcote.
 3ZI Barbour, K. H., 1 Irving Avenue, Armadale.
 3ZN Israel, M. S., 53 Blessington Street, St. Kilda.
 3ZM Owen, C., 22 Kendall Street, South St. Kilda.
 3ZO Johnson, E. H., 105 Moorabool Street, Geelong.
 3ZP George, H. A., 195 Ballarat Road, Footscray.
 3ZQ Ballarat Radio Club (J. Matthews), Y.M.C.A., Ballarat.
 3ZR Smith, S. L., 1 Byron Street, Footscray.

QUEENSLAND.

- 4CC Stephen, A. N., Railway Parade, Clayfield, Brisbane.

SOUTH AUSTRALIA.

- 5AI Lloyd, H. H., 16 Trinity Street, College Town.
 5BI S.A. School Mines and Industries (W. Honnor), North Terrace, Adelaide.
 5DO St. Peter's College Radio Club (F. B. Oldfield), St. Peter's College, Adelaide.

WESTERN AUSTRALIA.

- 6AF Sibly, A., 38 Park Street, North Perth.

Twist Drills

To add to the life of small twist drills, which, if used to their full length are very apt to break off, a small sleeve, made of copper tube, should be slipped on, allowing just as much of the drill exposed as is re-

quired. If possible the sleeve should be split lengthwise, but if it is a tight fit this need not be done, as the soft tube will spring in sufficiently to grip the drill and allow the "chuck" to get a grip.

This book will help YOU

The more generally useful formulæ and methods of measurement for inductance and capacity are brought together in a convenient form in

The Calculation & Measurement of Inductance & Capacity

By

W. H. NOTTAGE, B.Sc.

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and Wellington, N.Z.

Just Published.

ACHIEVEMENTS & LIMITATIONS OF WIRELESS TELEGRAPHY

BY

L. B. TURNER, M.A., M.I.E.E.
18 Pages. 17 Diagrams.

Price, 1/-
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The Three Processes of Wireless Telegraphic Signalling — Radiation — Propagation — Wave Length Compromise — High Frequency Generators — Reception — Interference — Interference from other Stations — Atmospherics — Methods of Reducing Atmospheric Interference — Atmospheric Balancing — Atmospheric Limiting — Directive Reception.

THE WIRELESS PRESS,
97 Clarence Street,
SYDNEY,

Queensland Experimenters Praised by Radio Inspector.

"Commendable enthusiasm is being displayed by wireless amateurs in North Queensland, and although there is the inevitable small proportion of license-holders who listen in to broadcasted programmes and then switch off until the next entertainment, there is a good sprinkling of genuine experimenters, and they are working hard, and, in most cases, getting excellent results."

In a short chat a few days ago, Mr. T. W. Bridger, A.M.I.E.E., who was recently appointed Radio Inspector for Queensland (outside the metropolitan area) thus summed up his impressions of a recent northern tour, during which he inspected sets at Townsville, Ayr, Mareeba, Cairns, Home Hill, Innisfail, Brandon, Charters Towers, and Atherton.

"During my trip I came across some excellent outfits," he continued, particularly in Charters Towers, Innisfail, and Home Hill. At Charters Towers 4CV (N. E. Husband), 4BO

(N. F. Odgers), H. M. Wooster, and 4BV (Bro. Carroll, Mount Carmel), were particularly good, and bore evidence of continued attention and work. 4AC (L. Waters), and 4BK (C. O. Randall), at Innisfail, were also sets that particularly attracted my attention. But it was at Home Hill, where Mr. H. L. Milburn nightly tunes in, that I found a real enthusiast. On the night prior to my arrival he spent a most tantalising half hour trying to distinguish some signals, and if any radio amateur could assist him, he would be greatly obliged. While tuning for signals he heard a faint voice say, 'Hullo, Australia,' but although he was able to pick up 'Any amateur receiving my signals will assist me by kindly writing me with full details,' he was unable to distinguish the sender's station. As he has only a two-valve set, he is naturally anxious to find out from whom the message emanated—obviously from some station outside

Australia—and if anyone could enlighten him, it would be of considerable assistance to him."

(The call heard by Mr. Milburn probably came from an American station working Australia in connection with the trans-Pacific tests.—Ed. *Radio*.)

Mr. Bridger also mentioned that, although at present there are no amateurs practising in Mackay, he had been successful in inducing several people to apply for licenses. At present nine would-be experimenters have notified him of their intention to do so, and a club has been formed from their numbers. The headquarters, it is proposed, will be situated in the Ambulance building, and in order to give every assistance possible, he has generously offered to donate their aerial. With such a promising inauguration, we should hear more from Mackay in the future. *Radio* wishes them success.

Appeal by Wireless.

The Conservatorium of Music concert appeal for funds for building extensions was held on October 31 in the presence of Lady Forster, and was a huge success.

The whole programme was transmitted by wireless from the experimental station of the Mr. C. Culliver (3DP), and in addition to the large audience in the hall, groups of interested listeners gathered at various ex-

perimental receiving stations around Melbourne.

Excellent results were achieved and Mr. Culliver deserves sincere congratulations on his splendid transmission.

The winner of the Brown "Loud Speaker" donated by Amalgamated Wireless (A/sia.), Ltd. to the experimenter who collected the largest amount towards the appeal has not been decided at the moment of writing.

WIRELESS HELPS TENNIS CLUB.

The Essendon Church of Christ Tennis Club staged a successful wireless concert at the Moonee Ponds Town Hall on November 1.

The reception arrangements were handled by Messrs. G. W. Steane and J. Magrath and an excellent programme was transmitted from the Conservatorium Hall by Mr. C. Culliver (3DP).

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Wireless Regulations

Questions Answered

Q.: What is the actual difference between broadcasting receiving licences and experimental licences?

A.: Broadcasting (Receiving) Licences are to be used by persons who desire to listen in to broadcast programmes and who are not concerned with experiments. Experimental licences are for persons who intend, either for experiment or instruction, to carry work along some definite lines of development in experimental wireless.

Q.: What are the qualifications necessary to obtain an experimental licence?

A.: These have already been fully explained in *Radio* and shortly set out that the applicant must possess

A.: This is a matter being dealt with by the Authorities now and we cannot definitely answer the question.

Q.: In Clause 38 of the regulations it states that "the licensed installation shall be operated by a certificated operator." Does this mean that the operator must hold a first or second class certificate of proficiency in radio telegraphy similar to the certificates held by coast and ship station operators, or is there a special certificate issued?

A.: It is presumed that the Authorities will demand a First-class Certificate.

Q.: Where licencees desire to receive from more than one broadcast-

ASK YOUR QUESTIONS THROUGH "RADIO."

In order that all concerned might know just where to look for information regarding knotty points in the Broadcasting Regulations "Radio" has made arrangements to furnish information to all enquirers who submit pertinent questions.

A cordial invitation is now extended to all and sundry to seek enlightenment on any point they are doubtful about, through "Radio."

All enquiries will be answered promptly through the columns of this magazine.

technical qualifications in wireless telegraphy, telephony, physics, etc., and must indicate either in his application or by examination if called on, that he understands the apparatus he proposes to operate.

Q.: Is it necessary to use any particular character of modulation for an experimental station?

A.: No.

Q.: Is it necessary to use any particular character of modulation for a broadcasting station?

A.: No.

Q.: With reference to free broadcasting stations: Is it absolutely necessary for a free broadcasting station to give a financial guarantee of £1000 as mentioned in the regulations?

ing station with one receiver only which would be capable of responding to the wave-lengths of the stations desired to receive, does that licencee have to pay an extra Government fee for a broadcast receiver licence for each station he desires to receive from?

A.: In cases where it is desired to receive from two or more Broadcasting stations, only one licence is necessary but the fee is 20/-.

Q.: Does a dealer's licence permit any firm or person to sell or let on hire any particular type of receiver or component parts thereof irrespective of the country of manufacture?

A.: Yes, so long as the apparatus complies with the Regulations regarding sealing.

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Club Notes & News



CONCORD AMATEUR RADIO CLUB.

The members of the above Club decided at the November 1 meeting to apply for a transmitting licence.

A general talk on the construction of transmitters followed on the reading of correspondence.

On November 19 the members will pay a visit to the experimental station of 2CM (Mr. Chas. Maclurcan).

All club correspondence should be addressed Mr. W. H. Barker, "Euripedes," Wallace Street, Concord.

ESSENDON RADIO CLUB.

At the November 1 meeting, Mr. J. Outhred gave a demonstration of radio telephony on a three-valve set by permission of the Chief Manager of Telegraphs and Wireless.

Mr. Jacobs was obliged to tender his resignation as secretary and Mr. J. C. Outhred was elected to the vacancy. Mr. Jacobs was accorded a hearty vote of thanks for his services to the Club.

The Club now possesses a three-valve set and complete transmitting apparatus will soon be installed.

The new secretary's address is 14 McCulley Street, Ascot Vale, Victoria.

HAWTHORN AND DISTRICT RADIO CLUB.

The experimenters of the Hawthorn (Vic.) district have formed a club under the above title.

A fair number of members have already enrolled, but the secretary is determined to secure the co-operation of all enthusiasts in the district. A course of interesting lectures has been arranged and much useful work should soon be accomplished.

All enquiries regarding membership, etc., will be gladly furnished by Mr. L. J. Hodson, Hon. Sec., 4 Scott Street, Kew, Melbourne.

NEUTRAL BAY RADIO CLUB.

At the last general meeting Mr. C. W. Donne, the club's honorary treasurer, delivered a most interesting "Talk on Valves." Much useful information was imparted to the members by Mr. Donne, who had samples of almost every valve on the market as well as several old type valves now unobtainable. Mr. Gilmour moved and Mr. Perkins seconded a hearty vote of thanks to the speaker. This was carried by acclamation.

A committee was formed for constructional work and already a start has been made on a receiver which will be exhibited at the forthcoming Wireless

and Electrical Exhibition in the Town Hall, Sydney.

The next meeting dates are November 13 and 27. Those interested are cordially invited to attend.

Hon. Secretary's address: Lower Wycombe Road, Neutral Bay.

KATOOMBA WIRELESS CLUB.

At a recent meeting of the above club an interesting lecture and demonstration was given by Mr. Grimwood, who has delved into the mystic science since 1906. In appreciation of his work in connection with the class, Mr. Grimwood was appointed an honorary member. Mr. Vears, hon. secretary and treasurer, and a wireless enthusiast who has gone a long way in the science, has had to resign owing to his participation in important trans-Pacific radio tests occupying his time. Mr. G. W. Best was appointed in his stead. The club meets at the Institute every Thursday night, and those wishing to join should get into touch with the secretary, care of the School of Arts.

MANLY RADIO CLUB.

At the October 29 meeting, Mr. Atkinson, secretary of the Radio Association, delivered a highly interesting lecture for beginners in wireless. He was accorded a hearty vote of thanks at the conclusion of his remarks.

Advice was received from the Controller of Wireless that the Club has now been granted its receiving licence.

The term of the present office holders expires at the end of November and an election will then be held.

NEWCASTLE DISTRICT RADIO CLUB.

The first annual meeting of the Newcastle District Radio Club was held on Wednesday, October 24, every member being present.

The secretary's report disclosed a highly satisfactory state of affairs, the progress being most marked since the club was reorganised in June last.

Special mention was made of Mr. Denny's generosity in donating the club room rent free for six months, to allow the funds to be used in purchasing apparatus.

Correspondence was received from the president and secretary of the Western Suburbs Radio Club, conveying congratulations on the musical programmes which have been transmitted. The items have been received quite clearly in Sydney.

For services rendered to the club, Messrs. Swain, Filmer, and Denny, were

made honorary members. At the election of officers, the whole of the existing office-bearers were re-elected, for the ensuing year as follows:—President, Mr. G. Seeward; Secretary, Mr. L. T. Swain; Asst. Sec., Mr. L. Jones; Treasurer, Mr. J. Shaw; Publicity Officer, Mr. N. P. Olsen.

The club members are now all genuine experimenters, and a successful year is looked forward to.

WAVERLEY RADIO CLUB.

The quarterly report presented at the November 1 meeting of the above club showed that over £20 has been spent during that period.

It was decided to arrange a visit to Amalgamated Wireless transmitting station at an early date.

The club's new receiving set, constructed by Messrs. Bowman and Thomson, was on view and will be in operation shortly.

The club room has now been remodelled, thanks to Mr. Marsland and other willing workers and is now much more convenient.

MOSMAN RADIO CLUB.

Mosman Radio enthusiasts have at last awakened to the fact that they need a club to assist them in their experiments. As a result a large number of citizens assembled on Monday, October 22, for the purpose of forming one.

After discussion a Constitution and rules were drawn up, and the following office-bearers elected:—President, Mr. R. Young; Hon. Sec., Mr. M. S. Nunn; Asst. Hon. Sec. and Publicity Officer, Mr. N. D. Hale; Hon. Treas., Mr. U. V. Ginger; Executive Committee, Messrs. J. F. Henderson, N. D. Hale, H. Bridges, and J. W. Foy. The business of the meeting was held over pending a meeting of the Executive Committee arranged for the following evening.

At the Executive Committee meeting the minutes of the previous evening were discussed and confirmed. The most important business transacted was the voting of a sum of money for the construction of the Club's radio set.

TO CLUB SECRETARIES.

Club secretaries all over Australia are invited to send regularly, bright, brief reports for publication in "Radio." A few lines every fortnight from each club is better than a whole page of matter from one.

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Record 2. One Side.—A Press message sent at a speed of approximately 10 words per minute. *Reverse.*—A similar message at a speed of 50 per cent. faster.

Record 3. Both Sides.—Dummy messages, properly numbered, timed and counted, as exchanged between ships and stations and vice versa.

Record 4. One Side.—Difficult business message, containing figures, fractions, Stock Exchange terms, etc.; one or two mistakes have been introduced and then corrected in the accepted style. *Reverse.*—Code words and cipher transmitted at a normal rate of 20 words per minute.

Record 5. One Side.—Various messages such as would be met with in an ordinary day's transmission, sent at the rate of 25 words per minute. *Reverse.*—Messages in French, Spanish and Italian.

Record 6. One Side.—Signals from two distinct transmitters on different notes; Press message transmitted at 25 words per minute jammed by similar matter at slower speed. *Reverse.*—Mixed messages jammed by Press messages.

SERIES II. Record 1. One Side.—Morse Code, including full figures, abbreviated figures, and punctuation signs, as printed in the Postmaster-General's Handbook (Sounder Record). *Reverse.*—Simple Press, sent slowly (Sounder Record).

Record 2. One Side.—Italian Press, 25 words per minute. *Reverse.*—French Press, 25 words per minute.

Record 3. One Side.—Spanish Press, 25 words per minute. *Reverse.*—Portuguese Press, 25 words per minute.

Record 4. One Side.—Figures and fractions at moderate speed. *Reverse.*—Poldhu Press, with interruptions by voices, whistles, and various noises, to teach the reception of signals in conditions of difficulty from interruption.

Record 5. One Side.—"Distress Record" in which two ships working are interrupted by a third which sends the SOS signal. The traffic of the ship in distress is then expeditiously handled. This is a very dramatic record, exactly reproducing the wireless conditions at sea when a cry of distress is sent out. *Reverse.*—Ship and shore working with correct "T.R.s" and properly coded messages.

Record 6. One Side.—Messages from ship to shore at 25 words per minute, with jamming from French Press. *Reverse.*—Messages from shore to ship at 25 words per minute, jammed by similar Press.

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Radio Club in Lismore

Strong Body Formed

Radio enthusiasts in Lismore and district met in the School of Arts on October 24 for the purpose of forming a radio club.

The meeting was convened by Mr. L. Yung, and when the proceedings opened he briefly outlined the preliminary steps that had been taken. He mentioned that considerable advice and assistance had been tendered by *Radio* magazine, and the rules of the Neutral Bay Radio Club which were forwarded as a basis for discussion were afterwards adopted almost in their entirety.

The following office-bearers were elected:—Patron, Ald. R. Brewster, Mayor of Lismore; president, Mr. E. S. Greaves; vice-presidents, Dr. Aspinall and Mr. H. Holt; secretary, Mr. L. Yung; treasurer, Mr. A. E. Holley; library and papers committee, Messrs. S. J. Hosie (convener), C. Ashley; D. K. Murray; electrical committee, Messrs. Greaves (convener), Holt, D. Board, P. M. Hoare, D. K. Murray, A. Mill, G. Wells, and L. E. Jarvis; general committee, Messrs. J. Leben, G. R. Holland, G. Norton, L. Craven and the office-bearers.

It was decided that the club should consist of members and junior members (those under the age of 17 years). This will allow of boy scouts and other students becoming members and receiving tuition and advice in this, "the latest of all sciences." The subscription fees were fixed at 2/6 entry fee and 10/- per annum for members and 2/6 entry fee and 5/- per annum for junior members.

Lismore is easily the most progressive town on the North Coast of N.S.W. and the club should soon have an exceptionally strong membership.

There is much useful work ahead of country wireless clubs, and *Radio* feels sure that Lismore experimenters will keep their end up in radio work in N.S.W.

Personal

Mr. Edgar, honorary secretary of the South Australian Division of the Wireless Institute of Australia, is visiting America.

Mr. W. J. S. Perdriau, the popular secretary of the Manly Radio Club, recently secured a transmitting license and will soon be "on the air."

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A FEW TERRITORIES AVAILABLE.

Personalities

MR. J. ELLIS, a very enthusiastic wireless experimenter from Bendigo, Victoria, called on the editor last week. Mr. Ellis, who was on a short visit to Sydney stated that the experimenters in Bendigo are exceedingly active and have a very exclusive club, the address of which is c/o. the Y.M.C.A. at Bendigo. Mr. Ellis has a very excellent receiving set, and, although he is only using one valve, hears most commercial stations as well as numerous ships and experimenters in other States.

Mr. V. Gardiner, Sales Manager of Amalgamated Wireless (A/sia.) Ltd., who was connected with the firm for so many years resigned last month, and is entering into business for himself in Melbourne.

On behalf of the whole staff of Amalgamated Wireless, Mr. J. F. Wilson, Assistant Manager, made a handsome presentation to Mr. Gardiner consisting of an attache case, gold wristlet watch, gold-mounted Dunhill pipe, and a fountain pen as a mark of the esteem in which he was held by the staff.

Mr. B. O. Jones has been appointed manager of the Broadcasting Department of Messrs. Farmer & Co., Ltd., Sydney.

Mr. E. Fahey, who for several months past has been connected with the Broadcasting Department of Amalgamated Wireless (A/sia.), Ltd., Sydney, resigned from the company and has taken the position of manager of the Radio Company, Ltd., of Sydney.

Mr. Jack Davis (2DS) in conversation with the editor stated that he has been successful in copying American amateur transmitting stations on one valve.

Mr. R. C. Marsden is busily engaged reconstructing his transmitting equipment. When that is finished 2JM will, no doubt, be on the air again very frequently.

Messrs. H. Kingsley Love and R. A. Hull, of Melbourne, have been securing remarkable results in the trans-Pacific tests. They have received American amateur signals so loud that they have been readable all over an ordinary house.

Mr. Gold, of Toowoomba (Qld.), paid us a visit last week and stated that wireless was creating wide interest throughout his district. Mr. Gold is a leading experimenter, and has done practically all the pioneering work of the district.

An Interesting Experiment

Following on the recent low power record established by Mr. Maclurcan (2CM) with Mr. F. Bell (4AA), New Zealand, wherein 2CM transmitted signals to 4AA, which were received QSA, using a plate input power of .0037 watts, many experimenters ex-

couple both of which have been certified correct within one per cent. by Mr. E. Joseph.

The President of the Kuringai Radio Club, Mr. W. E. Wilson manipulated the oscillating wavemeter, which was used to make sure that



A group of enthusiasts at the Wentworth Radio Club.

pressed surprise that the valves would oscillate on such a low input.

Mr. Maclurcan therefore carried out a series of tests on Friday, October 5, in the presence of about 20 members of the Kuringai Radio Club to determine the lowest power necessary to start the transmitting valves oscillating. The results, as will be seen, were remarkably interesting.

The power input was regulated by the filament rheostat of the Kenotron Rectifier valves. The measuring instruments used were a Weston Volt Ammeter Model 280 and a Paul unipivot galvanometer with thermo

the transmitter was still oscillating. Other members of the club took and checked the meter readings.

The following readings were taken:
Plate Input.

Volts.	Current. M.A.	Power. Watts.
3.5	4.2	.0147
1.1	1.8	.00198
.4	.8	.00032

The lowest power, it will be seen, was .00032 watts and the valves were still oscillating strongly.

Mr. Maclurcan's log was signed by all those members present during his experiment.

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**Movements of
Wireless Officers**

Mr. A. V. Middleton signed on s.s. *Enoggera*, at Sydney, on October 9.

Mr. A. H. Jeremy signed off s.s. *Mataram*, at Sydney, on October 11 and signed on s.s. *Tarcoola*, at Sydney, on October 12.

Mr. P. C. Gillon was relieved by Mr. E. W. Coldwell on s.s. *Kanowna*, at Melbourne, on October 9, and proceeded on Home Port leave.

Mr. D. N. Quinn signed off s.s. *Riverina*, at Sydney, on October 12, and signed on s.s. *Nairana* on the same date.

Mr. C. F. Griffiths relieved Mr. E. W. Coldwell on s.s. *Kanowna*, at Sydney, on October 12.

Messrs. F. Exon, E. W. Coldwell and R. C. V. Humphery signed on s.s. *Eastern* as senior, 2nd and 3rd Operators respectively at Sydney on October 12.

Mr. H. A. Sticpwich signed off s.s. *Carina* as 3rd Operator, at Sydney, on October 11.

Mr. W. V. Neill signed off s.s. *Bulla* on September 26 and proceeded on Home Port leave.

Mr. G. I. Betteridge signed off s.s. *Marsina*, at Sydney, on October 15 and signed on s.s. *Mataram*, at Sydney, on October 16.

Mr. V. E. Stanley signed off s.s. *Karoola*, at Sydney, on October 16.

Mr. L. E. Ternes signed off s.s. *Tahiti*, at Sydney, October 16, on sick leave.

Mr. V. E. Stanley relieved Mr. A. Stuart on s.s. *Macumba*, at Sydney, on October 17.

Messrs. A. Stuart, H. A. Sticpwich and F. Barclay signed on s.s. *Bulla* as Senior and 3rd Operators respectively, at Sydney, on October 16.

Mr. H. A. Flicik signed off s.s. *Parattah*, at London, on August 1.

Mr. C. F. G. Taylor relieved Mr. A. Webster on s.s. *Ngaio*, at Wellington, on September 27.

Mr. C. Laurie was relieved on s.s. *Wanaka* by Mr. E. A. Hunter, at Auckland, on October 8.

Mr. R. C. V. Humphery was relieved by Mr. R. E. Mann on s.s. *Victoria* as 3rd Operator, at Sydney, on September 25.

Mr. F. T. Neal signed off s.s. *Eurelia*, at Sydney, on October 20.

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Queries Answered



H. F. (Gordon) asks how to connect a low frequency amplifier valve to loose-coupler crystal set (diagram of circuit submitted).

Answer: Connect the primary of an inter-valve transformer in place of the telephones and the secondary to the grid and filament of the amplifier valve. The telephones must now be connected in series with the plate circuit of the valve.

G. M. P. (North Sydney) asks: (1) How to make an electrolytic rectifier for charging a 6v 40 amp or 6v 60 amp hour storage battery, also charging circuit. (2) Is it necessary to use a transformer in conjunction with the rectifier.

Answer: (1) One jar in a half-wave electrolytic rectifier will be required for every 100 volts that is to be rectified, and to pass 5 amperes continuously the plates must have an area of not less than 50 square inches. Pure aluminium must be used and preferably an electrolyte of ammonium phosphate. (2) A transformer to reduce the voltage to about 25 volts will result in a big saving in energy consumed. See issues *Radio*, Nos. 3, 8 and 15 concerning the construction of small transformers and charging circuits.

A. B. L. (Drouin) asks cause of trouble experienced with spark-coil valve transmitter described in *Radio* No. 11.

Answer: You have evidently mistaken the spark due to the charging current for a breakdown current passing through the condenser. It takes a potential very much in excess of that obtainable from a Ford coil to puncture even a single thickness of photographic glass.

Further details regarding this transmitter are given in the "Experimenters' Corner" of this issue.

T. H. K. (Gympie) asks: Cause of trouble with four-valve receiver (particulars of receiver submitted).

Answer: Your trouble seems to be due to a loose plate in one of the cells of your accumulator, caused by faulty lead burning. If possible try the set with a new filament battery.

Puzzled (Nagambie): We are unable to state definitely what your trouble is, but if you intend operating the receiver from dry cell batteries discard the UV200 and instal either a WD11, UV199 or UV201A valve, which are specially designed for this purpose.

Radiogleaner (Coorparoo) submits particulars of loose coupler crystal set which he has constructed, and asks cause of difficulty in receiving Amateur Telephony. (2) Capacity of Condenser (dimensions given).

Answer: The windings on your coils are far too high for efficient reception between 150 and 300 metres. Employ a coupler with a primary of 30 turns of No. 26 d.s.c on a 3in. tube and a secondary of 60 turns of No. 30 d.s.c on a 2in. tube. Tune the latter with a condenser of 0.00025 M.F. (2) Your condenser will have a capacity of about .0005 microfarads if normal size plates and spacing is used.

G. W. A. (Gilgandra): (1) Cause of unusually heavy discharge experienced while listening in. (2) Can short-wave telephony be received on crystal-valve set (particulars of receiver submitted)?

Answer: (1) The sparks were caused by electrified dust, during the recent cyclonic disturbance, coming in contact with the aerial wires. (2) Your tuner is too large for short-wave radiophone reception. Use a primary of 40 turns and a secondary of 50 turns, with a switch on the primary and shunt tuning condenser

on the secondary. Try the valve-crystal reflex circuit recently described in *Radio*.

D. P. P. (Charleville) asks: (1) Suitable two valve circuit with one stage audio to conform with the Broadcasting regulations, using an inside aerial. (2) Wave-length and power of Farmer's Broadcasting Station.

Answer: (1) Reaction will be required for use with an inside aerial as well as radio frequency amplification. The best combination for two-valves is that given in the "Experimenters' Corner" issue *Radio* No. 13.

The loop aerial will be found to give best results. (2) 1100 metres 5 K.W.

G. L. H. (Waddamana): Your queries have been forwarded to the Author of the article referred to who will communicate with you direct.

N. O. G. (Stockton) asks: (1) Which would be the better type of aerial for amateur 180-250 metre band and for long wave reception, an inverted L 75 ft. high, 70 ft. horizontal span or T aerial 75 ft. high, 70 ft. horizontal span. (2) Assuming a mast 75 ft. high built in two sections of 6 x 6 oregon tapering slightly at top, would stays in two places, 5 ft. from top, and at junction of top and bottom sections, 4 guys at each point attached to anchor pegs 25 ft. from base of mast, be sufficient? (3) Would No. 8 galvanised fencing wire for guys be strong enough.

Answer: (1) A T aerial is the best for both long and short wave reception. (2) You should make the top section of smaller timber—say, 4in. x 4in. Two sets of stays will do, but for safety you should anchor them at least a distance of half the height of the mast from the base. (3) For all ordinary wind pressures No. 8 iron wire will be strong enough.