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BROADCASTING**

**RADIO AUCTION
BRIDGE**

**A 2-VALVE REFLEX
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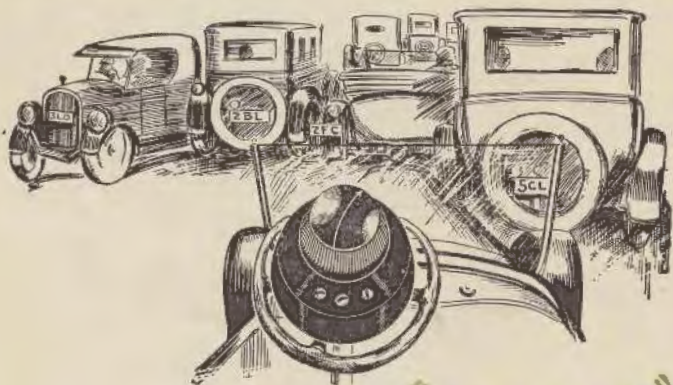
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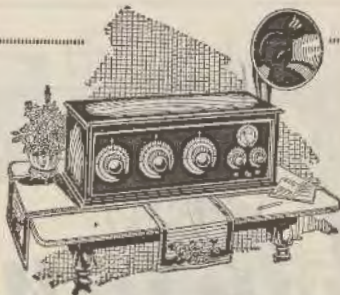
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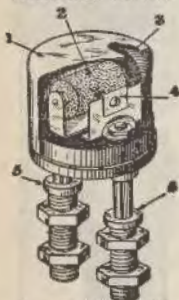
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WIRELESS WEEKLY

JULY 23, 1926

“WIRELESS WEEKLY” with this issue makes its first appearance in its reorganised form. Its policy will continue to be primarily the interests of the development of wireless, and more particularly wireless broadcasting, with which so many thousands of the general public are now so intimately associated.

The efforts of this newspaper will be devoted to assisting wherever possible in the improvement of wireless service generally, and helping those who are interested in getting the best results from the many fine broadcasting services which are now available to them.

To the traders who have assisted in making the paper a success in the past *“Wireless Weekly”* expresses its gratitude, and trusts that with the rapid development in wireless in Australia they in turn may prosper.

To the many thousands of readers which the paper already has, and to the amateurs particularly, who have done so much from sheer love and enthusiasm for the radio science, *“Wireless Weekly”* extends its good wishes.

Future of Broadcasting

RADIO enthusiasts and the trade generally are anxiously awaiting the promised announcement of the Prime Minister, Mr. Bruce, of the Government's future proposals in connection with wireless broadcasting. There has been much controversy on the question of patent royalties, copyrights and wavelengths, and Mr. Bruce's announcement that after full consultation with the Postmaster-General, Mr. Gibson, he proposes to have these questions thoroughly investigated will be welcomed by all parties, particularly as Mr. Bruce has expressed his confidence in the fact that a satisfactory solution will be found.

While there has been some bitter comment at different times regarding patent royalties and copyright, and a great deal of criticism has been made of the wavelengths allotted to the various “A” and “B” class stations operating in Australia, and some of this criticism has been of a somewhat intemperate character, *“Wireless Weekly”* is convinced that a calm consideration of the whole position will do much to put wireless broadcasting on a more popular footing generally.

Destructive criticism invariably fails to do anything but create more difficulties, and it is extremely re-

freshing to read the sound, reasoned, scientific statement on the question of wavelengths specially written by Professor T. H. Laby, of Melbourne University, for *“Wireless Weekly”* which appears in this issue. We feel sure that the wavelength question is being approached by the experts associated with the Commonwealth Government in the same calm, reasoned way as it is discussed by Professor Laby in his excellent article.

There is some feeling throughout the country that any alteration of wavelengths will necessarily imply some serious handicaps to existing license-holders, but it is reasonably safe to predict that this will turn out to be quite unfounded. It is most unlikely that the Commonwealth Government will do anything without the fullest consideration having been given to every aspect of the question, and when the wavelengths are re-allotted it will probably be found that the Government has done the greatest good for the greatest number.

On the question of royalties and copyright every fair-minded citizen will unhesitatingly subscribe to the view that the rights of all must be recognised. There should be no wish on the part of anyone to unjustly

take another person's property without proper remuneration, while, on the other hand, no organisation would willingly use a strong position in which it may be placed to take more than a reasonable return for its rights out of the revenue contributed by the public for the great public benefit and service of broadcasting.

The Government has adopted a sound view in calling a conference of those interested to discuss the question of copyright charges. There should surely be a reasonable basis arrived at if reasonable men willing to recognise one another's rights, and all bearing in mind the paramount right of the general public to receive fair treatment at their hands, approach this question with fair and open minds. We believe that justice can be done to all parties in all these questions, and feel sure that now that the three great outstanding questions associated with wireless broadcasting—wavelengths, patent royalties and copyright—are to receive careful and reasoned consideration wireless broadcasting in Australia is on the eve of a long period of tranquility which will make for better service and infinitely better results for everybody concerned.

Short Wavelengths for Broadcasting

Specially written by PROFESSOR T. H. LABY, M.A., Sc.D. F. Inst. P. (Melbourne University), for "Wireless Weekly."

THE writer of this article, when in America and Europe last year, visited centres of investigation in wireless telephony and some of the leading broadcasting stations. I made inquiries particularly with reference to the best range of wavelengths for broadcasting purposes.

The first station to be visited was KDKA, of the Westinghouse Co., at Pittsburg, which had successfully sent messages on a short wavelength (69 metres) for reception in Australia. KDKA has been frequently heard, too, in South Africa and in London. It has an aerial for broadcasting in America at its normal wavelength of 309.1 metres, in addition to the shorter waves. The station is notable for important departures in design from standard practice, particularly in its aerial system, and for its small size for its power, 14 KW or more at 309 metres, and for the great distances at which it has been heard. It is evidence of the lower cost of construction and maintenance of short wave stations. Mr. Horn, of KDKA, told me that if he were free to choose he would use a wavelength of 350 to 400 metres, and that he considered the best practice was to make the natural frequency of the aerial that of the carrier wave being broadcasted. We will return to the implication of this in respect to the cost of long and short wave stations.

Opinion in America.

I next visited the research laboratory of the General Electric Company at Schenectady, where an experimental broadcasting station has been erected to test the effect upon broadcasting, that is, upon the transmission of the waves radiated, of distance, of wavelength, and of the position of the sun. This laboratory has obtained a mass of data showing amongst other things the fading of distant stations. Next the Weston Telephone Company laboratories, of which Dr. Arnold is the head, and



Professor T. H. Laby.

their broadcasting station (WEAF, 492 metres), in New York, were visited. At the Bureau of Standards at Washington, Dr. Austin and Dr. Dellinger discussed with me the merits of various wavelengths and the physics of broadcasting. Dr. Austin has given great attention to the measurement and analysis of signal strengths of long waves from trans-Atlantic and other stations. Dr. Dellinger recommended a 400 metre wavelength and a high power for broadcasting purposes. Dr. Austin pointed to the success of KDKA (309 metres) and WEAF, which are outstanding American stations as evidence of the suitability of the range of wavelengths 300 to 500 metres for broadcasting.

The consensus of American opinion I found in favour of that band for broadcasting. Before visiting the United States I had heard it stated that the use in that country of the band 200 to 545 metres for broadcasting had arisen more from force of circumstance than from free choice. As a matter of history shipping selected 600 metres for most of its traffic, the long distance stations had used longer and longer wavelengths for telegraphy, other users of the ether (military, naval, etc.)

those waves just above 600 metres, which had left waves less than 600 metres for broadcasting and the use of amateurs. (How the various bands are now assigned in the United States and reasons for their allocation is stated in the Report of the Third National Conference, Washington, 1924.) It was pointed out by some American experts that wireless telephony can be effectively transmitted by much longer waves than the 200 to 545 metre band assigned for broadcasting. The Weston Telephone Co. use a 5000 metre carrier wave for trans-Atlantic telephony, but as Dr. Arnold, of that company, pointed out, waves of that length would not afford enough channels of communication, but that prevents the signals being heard except with special receiving sets.

European Practice.

European practice differs from American in the use by some broadcasting stations of waves of over 545 metres. Such long waves have been adopted by the highest powered stations. For example, Daventry (25 KW) uses a 1600 metre wave, and Herzogstand (100 KW), the German high power station, a 1000 metre wave. The majority of European stations use, however, waves of from 250 to 500 metres.

I saw when I was present at the opening of Daventry the effect upon the size, and therefore upon the cost, of using a long wave. The purpose of this station, which is centrally situated in England, is to broadcast at sufficient strength for it to be received by crystal or other simple receiving sets over a large part of England. This station is rated at 25 KW, one-quarter of this power being radiated, and its power can be increased to 75 KW. An inspection of the station made evident that a high power long wave is costly to erect and maintain. The cost of Daventry must have been, I would estimate, many times that of Pitts-

burg KDKA (14 KW, 309 metres). There is a noticeable contrast in the size of the transmitting equipment and aerials of the two stations. It may be mentioned in this connection that the total floor area of Daventry is 74,000 sq. ft. (3,300 sq. ft. for transmitting apparatus), the aerial masts are 500 ft. high, and the horizontal part of the aerial (a sausage T type) is 600 ft. long. I understand that Daventry station cost over £60,000. Such a long wave broadcasting station is intermediate in type between the ordinary short wave one and a long wave high powered telegraphy station such as Rugby.

Scientific Viewpoint.

With the above description of the practice in broadcasting in America and Europe we may turn to see if we can find in the physics of the generation, transmission, and reception of electro-magnetic waves principles which enable us to determine the merits of any wavelength for broadcasting purposes. The production and reception of wireless signals are well understood. This is evidenced by the excellence that can be attained when the transmission is over short distances and free from interference, that is, under the best conditions for good transmission. The factor which is not yet fully understood is the physics of the transmission of the signals. During the last few years, however, most interesting investigations have been made, particularly in England, of the transmission of electro-magnetic waves used in wireless communication. On the theoretical side Sir Joseph Larmor has extended the Kennely Heaviside theory of the transmission of the waves, and on the experimental side Professor Appleton, the Radio Research Board under the chairmanship of Admiral Sir Henry Jackson, and by Round, Eckersley and others of the Marconi Co. The Weston Telephone Co. has published valuable data, too, especially so as there is a noticeable lack of published measurements of the field intensity of broadcasting signals. I was greatly indebted when in England to Sir Henry Jackson for his courtesy in inviting me to visit with him the experimental station at Slough of the

Radio Research Board, and to that Board for a set of their reports and published papers, which I have used in preparing what is given below.

Choice of Wavelength.

We may now see what factors determine the choice of the band of wavelengths for broadcasting in general and of a particular station in Australia.

The following factors appear to determine the band of wavelengths to be used:—

1. Freedom from interference by other signals (e.g., shipping) and of the broadcasting stations with one another.
2. Average strength of the signals at the receiving set.
3. The effect of the wavelength chosen on (a) the size and design (cost, etc.) of the receiving set. (b) The size and design (cost) of the broadcasting station.
4. Variations in signal strength. (a) Between day and night. (b) Night fading.
5. Variations caused by mountains between the sending and receiving sets.

In order to come to a conclusion as to the effect of the wavelength upon (2), (4), and (5) above, it is necessary to know how electro-magnetic waves are transmitted. Unfortunately, great ignorance exists on some aspects of the phenomena. It has long been known that transmission is better at night than in the day, that transmission is better over the sea than over land. It was thought that long waves (5,000 to 25,000 metres) were essential for very long distance transmission, but recently everyone interested has been surprised by the low powers required to send short waves (say, 30 to 100 metres) great distances. Broadcasting is so much affected by rapid changes of intensity at night, or night fading, that attention has been focussed on finding its cause. There is experimental evidence now that wireless signals are carried by direct waves over the ground and indirect waves reflected from the upper atmosphere. When these waves interfere we have night fading.

Thus the transmission of wireless waves over considerable distances is

a very complicated phenomena. Over short distances, however, it is simpler, and I feel entitled to use for such distances the formulae which I give later. The factors numbered (1) to (5) given above as determining what wavelength is most suited for broadcasting will be considered in turn.

Interference.

The wider the range of wavelengths assigned to broadcasting the more channels of communication are made possible, or alternatively, for a given number of stations the greater the separation which is possible in wavelength between the stations. There are limits, so far as is now known, on both the short wavelength and long wavelength sides to the waves which can be used. For broadcasting up to distances of about 100 or 200 miles, the attenuation of the direct ground waves appears to set a limit to the shortness of the waves which can be used, as does night fading which is now attributed to interference between the direct ground wave and one reflected by the upper atmosphere. Possibly 250 metres is the shortest wave which should be used for the distances stated above. On the long wave side, the size of the sending aerial and station, the power limits placed on broadcasting, and difficulties of modulation place a limit, which is more of cost than one arising from the physics of wireless telephone transmission. About 2000 metres seems to be the longest wave ever used for broadcasting. The following is a list of the present wavelengths, frequencies, and frequency differences of the Australian A class broadcasting stations. (The wavelengths are, it is understood, under consideration by the Radio Department.)

Station	Wave-length metres.	Freq. cycles per sec.	Frequency difference cycles per sec.
Sydney, 2BL	353	849	
Melbourne, 3LO	271	808	41
Brisbane, 4QG	355	779	29
Adelaide, 6CL	365	739	23
Hobart, 7ZL	417	719	20
Melbourne, 3AR	484	519	100
Shipping	600	500	119
Sydney, 2FC	1190	273	227
Perth, 6WF	1350	240	83

The difference of frequencies of two signals determines, of course, the possibility of tuning in one and

(Continued on Page 48).



Studio News & Notes

CRYSTAL PALACE THEATRE.

On Friday, 23rd, from 2FC, instrumental items from the Haymarket Theatre in the afternoon. In the evening, orchestral numbers from the Crystal Palace Theatre. From the Victoria Hall, Manly, items from the "Happy Night" revue by the Manly Amateur Theatrical Club. The Studio artists will be: Mr. Raymond Ellis, the English baritone (by permission of Messrs. J. C. Williamson Ltd.); Miss Nella Rodgers, the Newcastle soprano; Rayne & Powell, English entertainers; and Mr. Harrison White, banjo items.

MR. BRYN BEDFORD

One of the most popular artists broadcasting from 2KY is Mr. Bryn Bedford, the pianist. He is a young man, and is achieving great success owing to his versatility. He commenced his musical studies in Wales, though he was born in Australia. Mr. Bedford is a product of the State Conservatorium, and has been associated professionally with the late Mr. N. F. Gedde, and others of our leading artists in Sydney. To Mr. Bedford's credit he manages to find considerable time for philanthropic



Miss Ruby Prieese.

Who was recently appointed—from the many applicants—to the studio staff of 7ZL, Hobart, Miss Prieese is well known in musical circles of the "Apple Isle," and is a tireless worker in the cause of charity. She is a pianiste of ability and technique, and a very capable accompaniste.

work, and has devoted musical abilities to the City Mission and the kindergarten schools of New South Wales. For many years Mr. Bedford's face was well-known amongst the choristers of St. Andrew's Cathedral, Sydney.

THE METROPOLITAN BAND.

From 2FC on Sunday, 25th, test match scores at 7, 8, 9, 10, and 11 a.m. The morning service from the Petersham Congregational Church. Afternoon band concert by the Metropolitan Band from the Town Hall. Evening band concert from the Grand Opera House by the N.S.W. State Military Band. From the Hippodrome the second evening service by Gipsy Smith. From the Studio, from 6 till 7, Mr. Maurice E. Price will give the Oscar Wilde "Selfish Giant" set to music. Mr. Clyde Thorpe and Ross Crowe in concerted violin numbers. Mr. Emanuel Aarons will create a broadcasting novelty by improvising on any five notes

suggested to him a composition written in the style of any well-known composer.

FORECAST OF TEST MATCH.

The usual sporting session will be broadcast in the afternoon of Saturday, July 24th, from 2FC. At 10 o'clock the result of the winning of the toss of the fourth test match and at 11.30 the play until adjournment for luncheon will be given. From the Studio, Mr. W. K. Palmer, the late Secretary of the Essex County Cricket Club, will give his forecast of the test match. The evening programme will be devoted to the Oliver King farewell concert from the King's Hall, and the following artists will appear:—Miss Ethel Daw, contralto; Madam Layton Goubert, mezzo; Miss Violet Rogers, soprano; Mr. Arnold Mote, pianist; Mr. Warwick McKenzie, violinist; Mr. Russ Garling, ventriloquist and announcer. Double quartette supplied by Messrs. Robert Cotterell (tenor), William Green (tenor), Kenneth Hunt (tenor), Stanley Clarkson and Russell Rix (baritones), and Oliver King and Wilfred Thomas (basses).



Mr. Bryn Bedford, popular pianist.



Miss Alice Proxer, 2FL. contralto.

GIPSY SMITH ON THE AIR.

2FC on Monday, July 26th, will broadcast from the Sydney Town Hall the midday meeting of Gipsy Smith, after which there will be a vocal recital by pupils of William Dalbison. The evening transmission includes a talk by "Red Gum," soprano solos by Anna Donna, and violin solos by Lionel Lawson, while the comedian will be Joe Cahill. The 2FC Dance Orchestra and the Haymarket Theatre Orchestra will also be broadcast.

RADIO AUCTION BRIDGE.

From 2FC on Wednesday, July 28, the test scores of the fourth test match will be broadcast at 7, 8, 9, 10, and 11 a.m. At midday the meeting of Gipsy Smith will be transmitted, and there will be a Dickens Reading in the afternoon. The evening programme will include the Apollo Club's concert from the Conservatorium, and the Radio Auction Bridge Lessons from the Studio, as well as the music-while-you-wait novelty by Jack Lumsdaine.

FOURTH TEST MATCH.

On Tuesday, July 27th, 2FC will broadcast the test scores of the fourth test match at 7, 8, 9, 10, and 11 a.m. A piano recital by students of Rex de Carlos Rego will be a feature of the afternoon performance, and the evening programme will include a concert arranged by Mr. Chris. Helleman from Peterham, and also a transmission from the Lyric Theatre and a one-act play by Walter Hunt and Company.

PHYSICAL CULTURE EXERCISES

Broadcasters, on Monday, July 26, will commence their early morning session by transmitting a series of physical culture exercises, together with news items, the session lasting from 7.15 until 8 o'clock. Commencing again at 10 and transmitting until 2 p.m. will be the usual daily series of music, news items and talks to women. From 12.45 to 1.15 Hillier's Orchestra will provide a musical programme. During the afternoon session David Jones' Tea Room Trio will be heard, and a talk on "A Course in Philosophic Thought" will be delivered from the Studio. Music

and the serial story complete the afternoon's transmissions, together with early country news. For the evening programme the Newtown Band broadcast from the Industrial Hall, Newtown, and Broadcasters' Minstrel Troupe, performing from the Studio, together with the Ambassadors, will provide the evening programme. The dance items will be continued until midnight, and social talks and descriptions of frocks will be broadcast.

MR. NORMAN JANSEN.

The usual morning sessions from 2BL on Tuesday, July 27th, will be transmitted, and during the afternoon session there will be a talk on "Modern Psychology" delivered from the Studio. At 8 o'clock during the evening session Hoyt's Imperial Orchestra, playing at Hoyt's Theatre de Luxe, under the direction of Mr. L. Hart, will provide a special programme. Mr. Norman Jansen and Mr. Stanley Cutlett, baritone and tenor respectively, will be heard in solo and duet numbers, and Miss Helena Stewart, whose beautiful soprano voice transmits with thrilling effect, will be heard in solo numbers. Miss Molly Raynor, who has proved herself to be a particularly delightful comedienne, will be heard in humorous numbers. Miss Ruby Michael will also sing soprano numbers, Brooke and Bomans' Orchestra playing at Sargent's in connection with the Lodge Lilyfield. Ladies' night will also figure on the night's programme from 11 until 12. Broadcasters' Dinner Orchestra will provide a dinner programme. The lecturers for the evening will be the President of the Australian Institute of Optometrists, and talk by Mr. A. G. Huie, the famous newspaper correspondent, on "The Single Tax—what has been accomplished."

CITY OF SYDNEY BAND.

Wednesday, July 28th, will see 2BL broadcasting the regular daily features, starting with physical training in the morning and continuing throughout the day with talks, music and news service. During the afternoon session there will be a special operatic talk, illustrated by gramophone records. The Pavilion Dinner Orchestras will be heard during the

evening, and the City of Sydney Band will be broadcast from Barlow Chambers in a specially selected programme. The Sydney Orpheus Society, a chorus of male voices, which is constantly growing in appreciation, will also be heard, and Miss Gladys Hart, an old favourite with the 2BL audiences, will return to the programme. The dance items from 11 until midnight will be provided by Mr. Fotheringham's band. Mme. Greig, the Australian pianist, will deliver the second of a series of talks on travel impressions, dealing with "Honolulu, the Pearl of the Pacific." It is interesting to remember that Madame Greig appeared at Honolulu in connection with M. Zacharewitsch, the famous violinist. Mr. J. M. Prentice will also deliver his weekly talk on "Foreign Affairs," replying to written questions.

CLASSICAL MUSIC.

The usual daily features of 2BL on Thursday, July 29th, will be to the fore, and David Jones' Tea Room Trio will assist in providing entertainment during the afternoon. During the early evening session Broadcasters' sporting expert will deliver a special 15 minutes' talk, which will be of direct interest to the sporting body. At 8 the Ambassadors' Salon Quartet, under the direction of Mr. Claude McGlynn, will provide half an hour's classical music, and Mr. Alfred Cunningham, the English baritone, will sing selected items from his repertoire. Mr. Lance Jeffree, the brilliant tenor, whose work is receiving constant appreciation, will be heard, and Miss Daisy Richards will provide violin solos. During the afternoon's programme Miss Florence Doogan, a new comer, will be heard, and Hillier's and the Old Sydneysians' Amateur Jazz Band will assist in providing entertainment. Mr. A. H. Lindo will continue his talks on the "Art of Accompanying," illustrating his quaintly humorous ideas with illustrations on the piano. This gentleman is one of the most delightful lecturers at present broadcasting, as his talks are not only crammed with interest, but his fund of anecdote provides startling ideas that bubble through his lectures. Miss Mary Edwards will also speak on "Travel Impressions."

Radio Auction Bridge

Game No. 1—Broadcast by 2FC

"Wireless Weekly" has secured from 2FC, Farmer's Broadcasting Service, the exclusive right of publishing the Radio Auction Bridge Games which 2FC commenced broadcasting on Wednesday, 21st July.

There are 24 Bridge Games in the series, and one will be broadcast each Wednesday evening, and the following Friday's issue of "Wireless Weekly" each week will give the game in detail as it should be correctly played. These games were arranged by the United States Playing Card Company of Cincinnati, Ohio, U.S.A., and played by Bridge experts. Some very slight alterations have been made in the original games broadcast in America in order to adopt them to the calling of the Portland Club, which is the most universally followed rule, so far as Auction Bridge is concerned, in Australia.

Mr. W. F. H. Master, an acknowledged expert in the game of Auction Bridge in Sydney, is carrying out the transmissions from 2FC, and if any Bridge enthusiasts, on reading these articles, care to submit any questions or problems arising out of the games as published, arrangements have been made for Mr. Master to answer them through the columns of "Wireless Weekly."

The complete hands held by each of the players of the Radio Auction Bridge Game played on July 21st were as follow:—

South deals and holds—

- Spades—K, J, 10, 4, 2.
- Hearts—A, 10, 8, 6, 4.
- Diamonds—9, 3.
- Clubs—6.

West, sitting on South's left, holds—

- Spades—Q, 8, 5.
- Hearts—9.
- Diamonds—A, K, J, 10, 6, 4.
- Clubs—A, 7, 4.

North: South's partner holds—

- Spades—A, 9, 3.
- Hearts—K, Q, J, 7, 2.
- Diamonds—8, 5, 2.
- Clubs—5, 2.

East: West's partner holds—

- Spades—7, 6.
- Hearts—5, 3.
- Diamonds—Q, 7.
- Clubs—K, Q, J, 10, 9, 8, 3.

The Bidding.

South bids one spade. While an opening suit-bid should show that the hand contains at least two sure tricks, at least one of them being in the suit-bid, this sure trick in the suit-bid is not necessary when holding sufficient compensation in a side suit or suits. In this instance, while South does not hold a quick trick in spades, he does not deceive his partner because he has sufficient strength in side suits to make up for the deficiency in the suit he bids.

West has an excellent two-diamond bid. His hand is good for six tricks with diamonds as trumps.



Mr. W. F. H. Master.

Mr. Master, who is conducting the Radio Auction Bridge session from 2FC is probably one of the best informed authorities on bridge in Australia. Even as a child he was intensely interested in whist and bridge. Generally speaking, he played bridge as long as he can remember. During the Great War Mr. Master was attached to the 10th Battalion, A.I.F., and saw service in Egypt and later in France, where he secured a Military Cross.

North, while holding an original bid of one heart, also has assistance for his partner's spade bid. One of the cardinal principles of bidding in this situation is to assist the partner's bid first, and show the alternative bid upon a subsequent round of bidding, if such alternative be necessary or expedient. If, however, South had bid a minor suit originally, and North had held the same

assistance in that minor suit as he has for spades, he would have bid his hearts before assisting the minor suit, in as much as the heart suit is a better game-going possibility than the minor suit would be. Here it might be well to say that the object of the bidding in Auction Bridge is to arrive at the best bid for game in the 26 cards held by the partners, or, failing game, to obtain penalties; consequently, each player should give his partner all the sound information possible. Therefore, as North does not wish to falsely deny South's spade-bid he bids two spades.

Of course, East has but one bid in his hands—clubs—and this bid is only advisable because his partner has already bid, showing him at least one sure trick and one probable trick. If West had not bid, a bid of three clubs by East would be extremely hazardous. East bids three clubs.

South having been assisted by his partner, and with this assistance holding at least five probable tricks with spades as trumps, bids three spades.

West is now in a position that constantly arises at the Bridge table. He reasons that if South has the ace and king of spades, which is not certain, but is probable from South's original bid of one spade, that his queen of spades may be good for a trick, he knows that East must have a very long and strong suit of clubs to justify a bid of three clubs. East also may have a trick in hearts, although this is doubtful,

because North's assistance of South's bid shows that his strength must be principally in hearts, because West and his partner, by their bids, show that they hold the two minor suits. If South and North have the heart as well as the spade suit, and perhaps a trick in diamonds, the game is sure at spades. Therefore, West, largely as a defensive measure, bids four diamonds, with the expectation of perhaps making four diamonds, and, if unable to make the contract, of saving game at a slight loss, or of forcing opponents into a contract that might fail.

Clever Decision.

After West's four diamonds bid, North has a very pretty decision to make. South has shown by his original bid of spades without the ace that he probably holds the queen of spades with the king, together with at least one other sure trick, and by re-bidding the spades has shown either another side trick or more than ordinary length in the spade suit. The heart suit has not been mentioned. North's opponents have shown both of the minor suits. Therefore, North concludes that South's secondary strength must be in the heart suit, and that perhaps game may be surer at hearts than it would be at spades. He knows also that if he bids his hearts and they do not suit South he can go back to spades without increasing the contract, as North has already assisted the spades. Therefore, North bids four hearts.

All the other players pass, and North is the declarer with four hearts.

East, instead of opening his partner's suit, plays the king of clubs in order to establish, if possible, a club trick, although he feels sure from his partner's assistance that West holds the ace. South plays the six of clubs; West plays the four of clubs to discourage the continuance of this suit, because he wants a diamond led. North plays the five of clubs.

East, in response to the Singleton Club in dummy, continues with the queen of diamonds, the higher of the two cards he holds of his partner's suit.

North, counting his losing tricks,

finds that he has already lost one club trick, and that he will probably lose two diamond tricks, and perhaps a spade trick, if the spade finesse should fail. Therefore, he stands to lose four tricks, which would cause his contract to fail. He sees, however, that there is a possibility of game if the hearts be equally divided, and if West holds six diamonds that his attacking bid of two diamonds would indicate. Dummy plays the three. West plays the six of diamonds to encourage his partner to continue with diamonds, and North follows with the eight.

East leads the seven of diamonds; Dummy follows with the nine; West plays the ten, and North the five.

West continues with diamonds, knowing that with the queen, seven, lead from his partner, East, he can have no more, and he wishes to give East a discard. West leads the knave, North plays the two, East discards a spade, and Dummy takes the trick with the four of hearts.

Dummy leads the six of hearts, West plays the nine and North the king. East follows with the three. Another lead of trumps clears the opponents' trumps. North now leads the two of clubs and trumps it in Dummy, West playing the ace so as to unblock his partners' suit.

Now, the question arises as to how to take the spade finesse. North figures that West has six diamonds for his bid, three clubs, and only one heart; therefore, he must have three spades to make the thirteen cards. East's original bid showed clubs only and no other strength. He had the queen of diamonds, which he led for the second lead of the game, therefore he should not have the queen of spades. North must lead ten of spades from Dummy.

West sees that the position is now hopeless, and that neither he nor his partner can stop the game. He plays the queen. Now, all the rest of North's tricks are good—that is, the spades and his remaining trumps. Consequently, he makes four odd and game.

The Features.

The important features are as follows:—

South's original bid of a spade without the ace or the king and

queen of that suit, because he had three honours in the suit and one side ace.

North's first assistance of his partner's bid, although he held an original heart bid.

East's justifiable bid of three clubs with nothing else but the long suit of clubs in his hand, with the assurance from his partner's bid that West had at least one, and probably more, sure tricks.

South's re-bid of spades, showing extra value after his partner's assistance.

Then West's bid of four diamonds, with a possibility of making contract, but principally in order to drive his opponents into a contract which they perhaps would not be able to make, or failing in this to, maybe, make a small sacrifice in order to prevent opponents going game.

Then North's bid of four hearts, to give his partner the option between hearts and spades by showing South that he has as good as an original heart bid, but at the same time that he holds support in spades, as was demonstrated by his assistance of South's original spade bid.

SOME QUERIES ANSWERED.

In a preliminary run through this game with some friends, the following queries were raised, and I will answer them here.

G.N.M.: Shouldn't "South" have called one heart instead of one spade as the original bid?

No. When a hand is a two-suiter, and the suits are the same length, always bid the one of higher value first.

"No Trump": Which is the better opening lead for "East," to make the diamond bring his partner's call or the club his own call?

The proper lead is the king of clubs, in order to establish a possible club trick. "East" naturally feels almost certain from his partner's put up, that he holds the ace of clubs, and when "West" does not give "East" the echo in clubs, he knows that he wants diamonds led to him.

"Smith": Why did "North" take the spade finesse the way he did, instead of the usual way up to the king, knave, 10 in dummy?

(Continued on Page 55.)



Gems from Listeners' Letters

"I told my daddy one morning that I had heard the Haymarket one night, and he said he had heard the egg market in the afternoon"—a letter to the "Hello Man."

THERE is much intensely human material revealed and quite a number of remarkable incidents related in the thousands of letters received throughout the year by a broadcasting station from listeners-in. The children's letters particularly contain innumerable passages of light and shade, and an abundance of philosophy. The psychological effect of the mysterious voice of the "Hello Man" on the children's minds is remarkable.

The letters in the files of Farmer's (2FC) Studio are intensely interesting.

Away back in May last year the Rev. Samuel Hoban was preaching in the Lyceum Hall, Sydney. The following letter tells its own story of an interesting sequel to his address:—

"The Rev. Samuel Hoban, who for many years has been connected with the Methodist Mission in the cities and elsewhere, is spending three months in Sydney. The other night he was addressing a very large audience at the Lyceum (Sydney), which someone has told me Mr. Vickery gave to the Mission. You will understand the number of people that were there, for Mr. Hoban announced at the close of the meeting that the collection was £162.

"What interests us, however, is that during his address on many subjects he brought in his 'Dear old Mother-in-law,' who he said was over 90 years of age, and in recording many things of her he stated that, of course, she was a little forgetful and repeated things a great many times, perhaps twenty.

"Mr. Arthur Holden, in Geelong, who has a receiver, was listening to the address, and he had switched his Mother (Mrs. Holden, senr., who is the Mother-in-law referred to by Mr. Hoban) on to the line. Both Arthur

Holden and Mrs. Holden heard every single word that the Rev. Mr. Hoban said, including the forgetfulness and repetition, and there is a warm day in store for the Rev. Samuel when he returns to see his Mother-in-law in Geelong. I believe that both in Melbourne and Geelong every word of the address at the Lyceum was heard distinctly."

A somewhat similar incident occurred from 2FC Studio about the same time. An artist from New Zealand was engaged to sing in the Studio. She had been in Sydney for about three months, and a letter was subsequently received from New Zealand stating that on the night she rendered a musical item in the Studio her mother was visiting a friend's place where a wireless set was installed. The letter stated: "You may imagine the mother's surprise and happiness when almost the first item she heard was the announcement that Miss So-and-so, of New Zealand, would sing a song. The singing of the song was the first time the mother had heard her daughter's voice since she had left New Zealand several months before."

Letters from people seeking missing friends and relatives come from all parts of the world with a plea that the inquiry be broadcast.

But it is the children's letters that possess the simple, unconscious humour and charm. Before we read them there is just one from a "nephew" who is 81 years of age. He writes to the "Hello Man":—

"You have numerous young nephews listening-in every night to your delightful stories, but there is one who will be 81 on October 4th (Saturday). He loves your stories and likes to hear you laugh. Will you please give him a birthday message and a hearty laugh as a great surprise? His name is Frank and

his initials are F.O.B. He is the grandson of the first white woman (free) born in New South Wales. She lived to be 94.

"His birthday cake has an aerial and a flag with 81 on it.

"You have brightened up many a home. May you long be spared to continue your good work."

Then mother seeks the "Hello Man's" aid:—

"Peter has red hair," she writes, "and calls himself 'Ginger Mick,' and is a good little boy, but Jimmy is rather a baby and won't go to Sunday School. He doesn't like to go anywhere without his mother. Please tell him not to be such a baby.

"I think you would be rather surprised to find what an influence you have over them."

Daphne relates the fact that the broadcasting service has been rechristened by her younger sister:—

"We all look forward to the programme, also the Bedtime Stories. I have a sweet little sister just 2 years and 9 months old, and she is very interested in the wireless. While she was playing with her dolls the other day mother heard her saying, '2FC speaking, Farmer's Bread Carter here.' We were all very amused, so we thought we would tell you."

A cheery youth gives the glad tidings in his letter that he has "just got a prize cattle dog," and gives the "Hello Man" the task of suggesting a good name for him.

Another mother seeks some radio correction for her offspring. She writes:—

"My little boy, aged 5 years, has asked me to write and say he would like you to be his uncle with the other little boys and girls, and wants you to call him on Saturday night next. Tell him not to go to sleep while listening-in, but to have a sleep

in the afternoon; also to be a good boy and not to cry much, that everyone will think he is a little baby."

A Kensington lad enumerates his treasures:—

"I have a fine tom cat; he is a great jumper. I also have two guinea pigs and one fish. I will come and see you soon. I hear you every night on our wireless."

The home pets, in fact, as one reads through these letters, are apparently all in the "Hello Man's" family. One child tells how her pet cockatoo has been trained to say "Hello, would you like a drink?" into the loud speaker in reply to the "Hello Man's" greeting, while another writes to say that she insists on her little dog Nip wearing one set of headphones. "He listens-in and does love it, too," she says, "and does not like giving them up."

A little girl named Peggy tells of her pets:—

"We have a most wonderful tame chookie here, and she's called Mrs. Henlen. When we call she answers, and runs and eats out of our hands. Billy, the cat, is eleven and a half years old, eats every kind of vegetable and snores in his sleep."

To this letter her mother adds the footnote:—

"Peggy is of the impression that you are God speaking from Heaven; also that you are a wonderful man and watch us through the valves."

Then there is the little touch of pathos to be read between the lines of this letter from a little deaf child who "listens" with the assistance of her mother:—

"I am ten years old," she writes, "and I would like you to send me a message by wireless. My mother will listen and will tell me what you say on her fingers. We have a three valve set with loud speaker. My mother tells me what you say. I go to the School for Deaf at City Road, Darlingtown. I have a dog named 'Laddie.' He likes wireless concerts. When the wireless is loud he pricks up his ears and wonders where the noise is. Father says someone is singing now."

As one wanders through the thousands of letters the interest widens. There is even added interest in the range of subjects the children will cover in a few lines. Take this one:

"Dear 'Hello Man,'—

"How are you getting along, sir? I am fine. We are getting a wireless set to-day, and I would be much obliged if you would speak to me on Sunday night. Do you tell stories for the wireless listeners-in? Some people in Sutherland have the wireless. I have some canaries, but this year they will not lay many eggs. The hen laid an egg and the old man ate it. A boy gave me another egg, and she (the hen) kicked it out of the nest. The nest is made of cottonwool. I have just come back from Murwillumbah after spending a very enjoyable holiday. We have a turkey; he gobbles when I whistle a certain way. I have a brother 7 weeks old and a sister 12 years, and I am 10 years old. I hope you will speak to me loud, because my nuntie is deaf."

Some further stories revealed from the letters to 2FC Studio will be published in future editions of "Wireless Weekly."

RADIO IN THE "NEVER-NEVER."

One of the most travelled clerics in the Commonwealth is the Rev. S. J. Kirby, of the Bush Club Aid Society. Mr. Kirby packs his trunks and travels inland, and may not touch Sydney again until he has covered five thousand miles. His last trip took him right through Northern Australia, and he will relate many of his experiences from 2FC on Monday night, July 26th. Radio plays a big part in the "Never-Never." He refers to one evening when a party of thirty, twenty of whom were natives, listened to a programme from the Lyceum Theatre, Sydney, and it was very strange to hear the sounds of boys selling sweets in the theatre at that great distance (2000 miles).

A SUPER CRYSTAL.

Valve sets would be likely to fade out of existence if all listeners-in could have the luck of one of the correspondents of 3LO, Melbourne, who wrote stating that he received every A grade station in Australia on a crystal. He lives at Rockley, New South Wales, and is troubled only by a slight whistling noise.

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Drilled Bakelite Panels, 12 x 8 1/2 x 3/16 inches	each	2 0
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Broadcasting: Its Advantages and Its Possibilities

DURING the last twenty years the development of a wonderful invention has been revolutionising the world. Man has conquered distance on his own planet. Our sphere, however, is but a tiny atom in a universe of which none can gauge the size, and of which, as yet, the most learned men know very little. Who knows what may be discovered in the future, however, by the aid of broadcasting and its astounding possibilities? We are living in a new era—the wireless era. So numerous are the types of receiving sets and the matter broadcast of such a variety that rich and poor, young and old, hale and bedridden, can alike enjoy the benefits to be gained from listening-in.

The influence which broadcasting is wielding to-day tends to uplift the moral tone of the community. Home-life, that infallible factor in the training of the future citizens of Australia, is being fostered by the interest now taken in radio. Where a few years ago the younger generation spent its leisure hours away from home, perhaps in company none too desirable, to-day a large number—and that number is daily increasing—have an interest and pride in receiving sets and spend that time at home. The splendid work which the wireless equipped police patrol car is doing helps this moral uplift in Victoria. It is to be hoped that more of these will be put into use, and the criminal population so reduced as to minimise any trouble to the law-abiding section of the community.

The farmer has often been termed "the backbone of his country." By broadcasting the monotony of his life is relieved and his prospects brightened. He learns of more scientific methods of caring for his stock, treating the soil, and marketing the products of his labours. If he so desires, he may take advantage of

a liberal agricultural education offered in the series of talks arranged by the Department of Agriculture. He now hears the news of the day before he receives his daily paper. In short, through the medium of the ether his chances in the unequal gamble with Nature are increased a hundredfold. With the loneliness of farm life in Australia removed, immigrants should be more easily tempted to come to this sunny land of ours, which is in such dire need of population. The future prosperity of Australia depends to a large extent on her immigration policy, and there is a possibility that broadcasting will be a large factor in the development of this country.

At present there is a world-wide campaign among musicians for the furtherance of the appreciation of good music. In America, where broadcasting is in universal use, music is a subject of instruction in many schools. The best composers and their works are known by every school girl and boy. It is safe to say that broadcasting has helped in this crusade to an inestimable extent. In Australia it is at present having a similar influence, although, as yet, the result is not so evident as in older countries. The items transmitted by the broadcasting companies are of such a high class that the love of all that is good in music must be unconsciously ingrained in the characters of thousands. As music was ever a civilising factor, the result must be advantageous to the whole community.

The charitable forethought which prompted the action of installing wireless sets in our large public hospitals is to be commended. What a blessing it must be for the sick to be able at will to spend hours in enjoyable entertainment! The weary time of sickness is shortened and the news and talks help to sustain the interest in happenings in the outside world. The broadcasting of the

church services brings to the arm-chairs of many the much desired but otherwise unattainable religious succour.

The educational value of broadcasting must not be overlooked. To any who thirst for knowledge a far-reaching insight into the customs and characteristics of other nations is given in the interesting travel talks. For Nature-lovers the instructive lectures on animal and bird life furnish a liberal supply of information. Gardeners are provided with lectures of practical benefit. The housewife is similarly provided for in the programmes of the day. In the future the broadcasting service may be taken advantage of in all schools as an educational factor of the highest value.

Broadcasting has helped to change life on the sea from one of loneliness and danger to what it is to-day, a life scarcely more hazardous than that on terra firma. Travellers by sea are kept in constant touch with happenings in their native lands. Entertainment from many countries is possible on any long sea voyage. The captain is kept informed of possible weather changes. Many lives have been saved from ships in distress by the aid of the wireless apparatus. Vessels of all nations rush to the help of others when they hear the well-known S.O.S. call. In every way, then, broadcasting gives new security to those who go down to the sea in ships.

It is possible that there will be no need for telephones in the future. Although they serve a good purpose at present, in time they must give way to the more modern invention—wireless. Individual communication with any desired person will be possible. In the same way beam wireless will replace cables and provide a quicker and cheaper method of commercial communication. Now that the first steps have been taken

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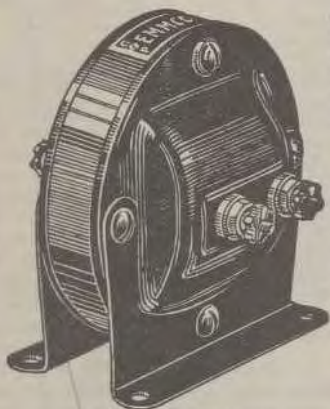
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it is more than probable that pictures of events of world-wide interest will be broadcast to every corner of the globe. Persons sitting in a family circle in a homestead of Australia will be able to witness the test matches at Lords or the Oxford versus Cambridge boat races on the Thames. By the mere turning of a button to the desired country, such scenes will be thrown on a small screen on the table. In my opinion the motion picture will lose much of its present popularity with the advent of this more wonderful entertainer.

I can imagine a time when the power from Niagara and similar sources will be harnessed and broadcast far and wide to work every conceivable machine. Trams, trains, commercial and touring vehicles, even ships and aeroplanes, will pick up the required amount of power which will perhaps be regulated by wavelength or beam. They will transform it to the state necessary for the working of the machine. Factories will use it, and those may mean cleaner and simpler processes of manufacture. It may even be used for lighting and heating purposes, and will do as much and a hundred times more than electricity is doing to-day. Scientific discoveries that may shake the foundations of our very existence will be possible through this medium.

Perhaps the most far-reaching possibility of broadcasting will come in its connection with war, which it will cause to become so fierce, deadly and swift in its action that no longer will the nations dare to strive one with the other. World peace, which is so desired by the people of every country and has been sought after by the world's greatest diplomats for many years, will probably come in this guise.

STABILISING THE CATWHISKER.

Crystal users who are troubled with the catwhisker being shaken off a sensitive spot on the crystal may try this method of overcoming the difficulty. Obtain a piece of fine muslin and tie it on to the crystal cup, thereby covering the surface of the crystal.

It will be found that the muslin will keep the catwhisker in place.

VERSATILE STORY-TELLER AT 4QG.

Those children who are fortunate enough to listen-in to the 4QG bed-time session on Wednesday evenings are greeted by the cheery, distinct voice of "Little Miss Brisbane." Miss Brisbane's session is always a "looked-forward-to affair," and many youngsters would be glad to hear her on the programme more often. Miss Brisbane, besides receiving hundreds of letters per mail from



Little Miss Brisbane.

listeners in all parts of Australia, has a constant stream of correspondence with New Zealand admirers.

The session itself is very interesting, as well as unique, entertaining, and educational. Attractions such as the bed-time story band, "How to make a 4QG pudding," and the ever-interesting stories from the chapters of "Peter Pan," are invariably popular.

"How to make a 4QG pudding," is a novelty in itself, and besides introducing many favourite musical and recitation numbers, it embodies a full recipe for the making of a pudding.

FRANK MARSHALL JOINS 2BL.

Mr. Frank Marshall, B.Sc., who has joined the staff of 2BL as an additional announcer, Mr. Marshall is no stranger to 2BL, because he has been lecturing from that station regularly ever since March 15th. The principal subject dealt with by him was "X-Radiation." He has specialised in the subject of radioactivity

and its application to the treatment of cancer.

Mr. Marshall designed the Cancer Clinic at the Public Hospital, Christchurch, New Zealand, which is regarded as the most modern installation of cancer-fighting X-Ray equipment in Australasia. He has a pleasant voice, is the possessor of a most pleasing personality, and will prove popular to listeners-in to 2BL.

COMPLETE MODERN ORCHESTRA.

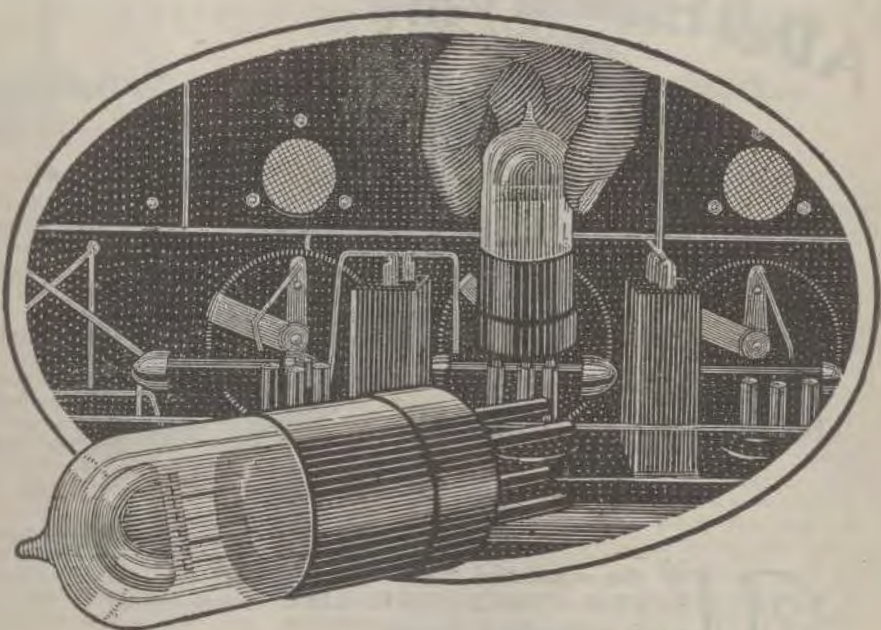
The history of concerted instrumental music is one of considerable interest to the music lover and student. The process of evolution is quite apparent when one looks back at the beginning of things and compares the orchestra and band of early days with the present.

Time was when the military band consisted of a few aboes. Now the present day orchestra and military band have their several choices of instruments, all of which add colour to the musical effect desired. A complete modern orchestra with full instrumentation is offered to listeners in the broadcasting of the Queensland State and Municipal Orchestra, under the baton of Mr. George Sampson, by 4QG.

BAND RECITAL FROM 4QG.

Band music has at all times made a popular appeal to broadcast listeners, and Station 4QG, realising this fact, has not been slow to provide band recitals. The Sunday night recitals of the Greater Brisbane Municipal Concert Band, which are regularly relayed from Wickham Park, have brought far letters of appreciation from all parts of Australia and New Zealand. During recent weeks the Brisbane Federal Band and its popular conductor, Mr. W. H. Davis, have provided a number of concerts in the Studio at 4QG, and, judging by the heavy mail conveying appreciative comments, these have proved very acceptable to many listeners. The high pitch of efficiency which the Federal Band has attained and the splendid recitals which it has been broadcasting reflect the greatest credit on Mr. W. H. Davis.

"The Valve That Improves With Age"



FUNDAMENTALLY there is a great gulf between the Wuncell and other Dull Emitter valves. For in the Wuncell there is utilized a filament which actually improves with use. A filament which is built up layer upon layer until it is practically as stout as that used in a bright emitter valve. A filament, moreover, which successfully functions at a temperature glow which is almost invisible.

After all, the cost of a valve depends not merely on what you pay for it—the length of service you obtain determines whether that valve has been cheap or expensive. Measured on that basis, the Wuncell valve is by far the most economical Dull Emitter that can be bought—because it lasts longer.

Heat is the great destructive influence which brings most valves to an untimely end. In the ordinary Dull Emitter low current consumption has been obtained by whittling down the diameter of

the filament almost to the point of fragility. But the temperature at which that filament is operated is still very little less than that used in the average bright emitter. And so inevitably there is a tremendous stretching and contracting every time the current is switched on which finds the first weak spot and culminates in a fracture.

Quite apart from the technical superiority of the Cossor design—the electron-retaining Grid and Anode system—which is freely admitted, the Wuncell filament offers you three distinct advantages. An unusual robustness which precludes the possibility of early burn-out. A rigidity—due to its unique three-point suspension—which entirely eliminates microphonic noises.

And, finally, a prolific emission of electrons which tends to increase as the valve becomes mellowed by use. Truly the Wuncell sets a new and higher standard in valve economy. The moment you use one you will appreciate its outstanding merit.

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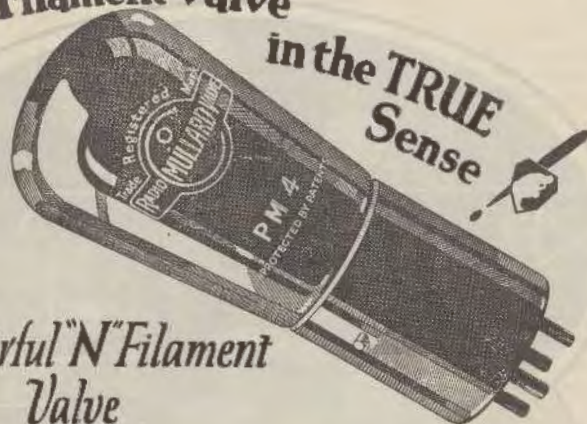
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Cut down the cost of upkeep and reduce recharging journeys to **ONE-SEVENTH**. This unique "N" filament is so economical of heating power that **NO SIGN OF GLOW** can be discerned.

Ask for the P.M.4 - - 13/6

A power valve for majestic loud speaker volume. **The finest loud speaker valve ever produced.**

This valve can also be run from 3 dry cells

HF Amplification.				LF Amplification.				Power Valves.				Detectors.
Type	FIL	FIL	Price	Type	FIL	FIL	Price	Type	FIL	FIL	Price	
D.P.	2.1	0.4	1/-	D.59	2.5	0.4	1/-	D.P.A.1	3.0	0.35	13/6	When valve is followed by an Interventive Transformer or telephones, use an LF Amplifier or Power Valve.
D.P.A.	3.0	0.25	11/6	D.59	2.5	0.35	13/6	D.P.A.2	3.0	0.35	11/6	When valve is followed by a Resonance Capacitor Interventive system, use an HF Amplifying Valve.
D.P.A.4	3.0	0.25	12/6	D.P.A.1	3.0	0.35	13/6	D.P.A.3	3.0	0.35	13/6	
P.M.1	3 to 4	0.1	12/0	D.P.A.2	3.0	0.40	17/0	P.M.4	2.7	0.1	18/6	
				P.M.4	2.7	0.1	15/0					

All Mullard Valves are manufactured at Mullard Works, London, England.
OBTAINABLE FROM EVERY RADIO DEALER IN AUSTRALIA.

Mullard

THE MASTER VALVE

(Arks)5

Advertisement of the Mullard Wireless Service Co. Ltd., Balham, London, S.W. 12, ENGLAND.



NO one receiver described in "Wireless Weekly" has ever created half as much interest as the one valve reflex described in May 28th's issue of "Wireless Weekly." In spite of the fact that extra numbers were printed every single one, except the filed copy, was sold within three days after publication, and many regular readers were disappointed to find that they could not obtain this edition anywhere. Over a hundred reports have been received from readers situated in every State, all of whom repeated "Wireless Weekly's" remarkable results. Amongst a lot of these reports were requests to forward a circuit diagram and instructions for adding a further stage of audio amplification so as to obtain loud speaker volume

The One Valve Reflex.

The average crystal user is invariably satisfied with the results he obtains, and usually speaks in glowing terms of the life-like purity of tone obtained from his crystal detecting circuit. The disadvantages associated with the ordinary type of crystal receivers, however, are rather numerous when one stops to consider the inconveniences which they invariably cause. These disadvantages may be summed up in the following order: (1) Phones have to be clamped to the ears for long periods. (2) Only a limited number of persons can listen-in at any one time. (3) Long distance reception is not consistently possible. (4) Constant readjustment of the crystal is in-

family may listen-in at any one time. (Reports to hand show that loud speaker reception is consistently possible at distances considerably more than 200 miles.)

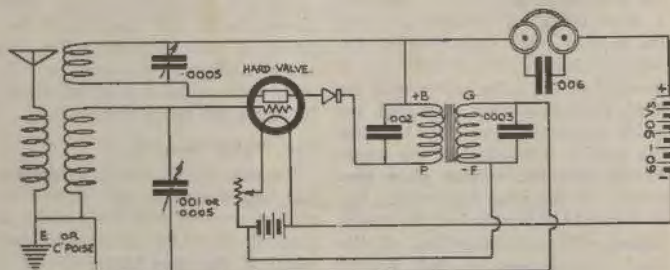
Disadvantage No. 3 is by no means barred with this receiver, as 3L0, 4QG, and 5CL can all be received in Sydney with excellent phone strength. Disadvantage No. 4 is entirely eliminated by using the new type of carborundum crystal detector, which is particularly suitable for this hook-up. Six different crystal units were tested in order to be perfectly sure that each one would give exactly the same results.

The back of panel wiring diagram on the next page will be quite clear to the home constructor. "Wireless Weekly" has used an internal mount three coil holder, but this is not absolutely essential. The ordinary type with face mounting or a panel plug and two coupling plugs may be used with equal efficiency.

Method and Order of Construction.

Drill panel and mount the following components: Two variable condensers, one three coil holder, rheostat and four terminals, not forgetting to drill three small holes at the bottom of the panel for securing the panel to the baseboard. Next secure the baseboard components, one valve holder and one transformer, after which the panel and baseboard may be secured together.

The next and most interesting operation is the wiring, and the more attention and care paid to this the greater will be the reward, not only in appearance, but also in results. Follow carefully our back view, which shows the point to point wiring. Particular care should be taken to see that the six flexible wires used for connecting up the coil

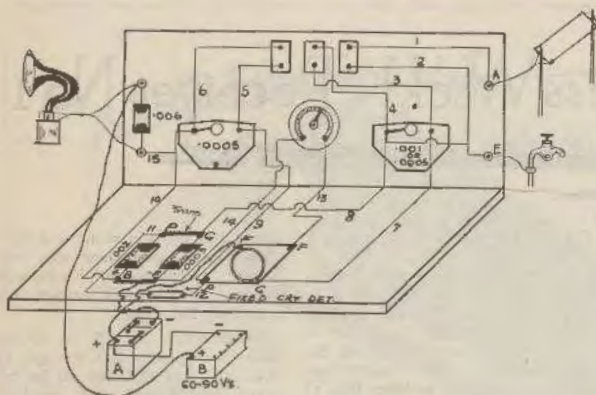


Circuit of One Valve Reflex.

of stations situated in some cases over 400 miles away.

In this edition of "Wireless Weekly" we are complying with the following requests: (1) A description of the original receiver. (2) Instructions for adding a further stage of audio to the one valver already constructed. (3) Full instructions for building the complete two valve reflex ("Wireless Weekly" Receiver No. 1).

riably necessary. With the "Wireless Weekly" reflex receiver, however, all the above disadvantages are entirely obviated, without losing the purity of reception which is associated with crystal detection. Even where listeners-in are situated within 200 miles of "A" class stations, phones need not be worn, as a small loud speaker with a moderately light diaphragm will give excellent volume, so that the whole



Back of panel wiring diagram for the One Valve Reflex.

holders are of good quality, and that the spills at the ends of the wire are making proper contact with the wire.

In operation, if reversed reaction is obtained it will be necessary to change round the connection going to the top and bottom terminal of tickler or tuned plate coil. A word of warning: Don't substitute other values of fixed condenser, and be particularly sure that good quality by-pass condensers are used. Exhaustive experiments have been tried with all reputable makes of transformers and valves, and for general all-round efficiency the values as shown have been found the best. Be particularly careful with the soldering of joints. A clean iron, a good flux (not spirits), and well-cleaned surfaces will ensure a professional-looking joint which will run and hold like glue.

Numerical order of connections (for readers who cannot follow circuit diagrams)—

No. 1 to 6 may be made with flexible connections if the internal type of three coil mount is used. No. 1 and 2 link the serial and earth with the primary holder. Nos. 3, 4, 5, and 6 link the fixed and moving plates of the two variable condensers. It is immaterial which of the secondary coil connections go to the fixed and moving plate connections of the variable condensers, as long as

readers will definitely remember that if reversed reaction takes place they must change round the leads going to the tickler coil. If reversed reaction is present, the volume of signals will considerably decrease, as the tickler coil is brought up close to the grid or secondary coil.

No. 7 links the fixed plate connection of the variable condenser with the G terminal of the valve, and No. 8 links the G of transformer with the moving plate connection of the same condenser. No. 9 links the P terminal of the valve holder with the fixed plate connection of second variable condenser, and No. 10 links the positive B terminal of the transformer with the moving plate connection of the same condenser. No. 11 links the P terminal of the transformer with one connection of the fixed crystal detector, and No. 12 links the other terminal with the P terminal of valve holder.

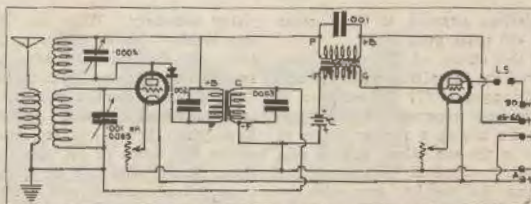
Materials necessary for the one valve reflex:—

- 1 panel, 12in. x 7in. x 3/16in.
- 1 baseboard, 12in. x 7in. x 1/2in.
- 1 .001 or .0005 variable condenser (grid circuit).
- 1 .0005 variable condenser (plate circuit).
- 1 valve.
- 1 rheostat to suit valve.
- 3 coil mount or 1 panel plug and 2 coupling plugs.
- 1 valve holder to suit valve.
- 1 transformer (4 to 1 or 5 to 1 ratio).
- 1 fixed carborundum crystal detector.
- 1 .002, 1 .0003, and 1 .006 fixed condensers, good type.

No. 13 links the right-hand terminal of rheostat with the right-hand F terminal of valve holder. No. 14 links the negative F terminal of transformer with the left-hand terminal of the rheostat. No. 15 is a short link taken from the moving plate connection to the lower phone terminal. This completes the wiring. Be particularly careful about the by-pass condenser; the .002 is connected directly across the P and positive B terminals, and the .0003 across the G and negative F terminals of the transformer. The only other condenser necessary is the .006, which is wired as shown directly across the phone terminals.

The Wiring Complete.

Connect the by-pass condensers and batteries as shown. It will be readily observed that the positive A goes direct to the left-hand F terminal of the valve holder, the A to the F terminal of transformer. The positive A and the negative B are

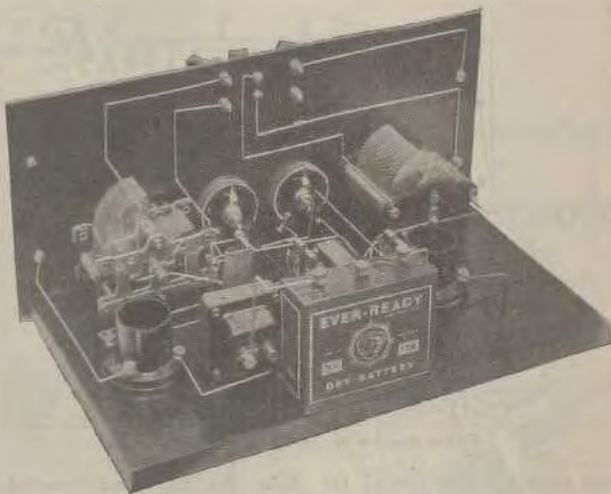


Circuit of Two Valve Reflex.

linked together permanently. (Positive = red terminal of sign, negative = green terminal of sign.)

Where dry cell valves are used for filament lighting, the centre terminal or carbon connection is always the positive, and the side terminal or zinc connection is the negative. The following valves were used during our preliminary tests of this receiver, all of which gave excellent results: Bright emitters, Radiotron, D.V.S, True Blue, Marconi "R," Coscor, Ediswan dull emitters, True Blues, and Phillips B 406. From 60 to 90 volts will be found to be the most suitable plate voltage, but the constructor will be very wise to experiment himself with various voltages until he finds the voltage which gives the best results.

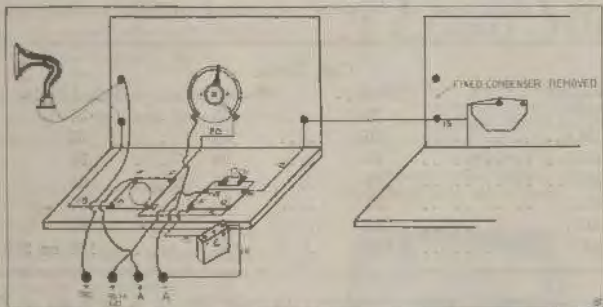
The tuning of the receiver is very simple. If the fixed type of carborundum crystal detector is used, no crystal adjustments whatever are necessary. For preliminary tuning the primary or grid coil should be coupled fairly closely together. Ro-



Back view of completed two valver.

is of Australian origin, together with the facts that the upkeep and initial cost is very low, we trust that each and every crystal owner will

have pleasure in briefly describing the theory of the above reflex. The ordinary type of crystal receiver is not always satisfactory for loud speaker reception, even when it is followed by two stages of audio frequency amplification. It will be readily understood that the amplifier cannot amplify what the crystal cannot detect, so that if a crystal becomes even slightly less sensitive than when new, the ultimate loud speaker reproduction is considerably reduced. By reflexing (arranging the circuits so that the valve amplifies at high and low frequency) a valve ahead of the crystal, however, the volume and range is far in excess of that possible with an ordinary audio amplifier attached to the crystal. From a study of the circuit diagram it will be seen that both grid and plate coils are tuned. The energy from the aerial is directly and mag-

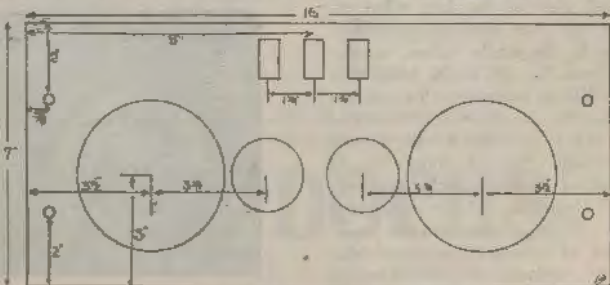


Showing how to add a stage of audio to the one valve.

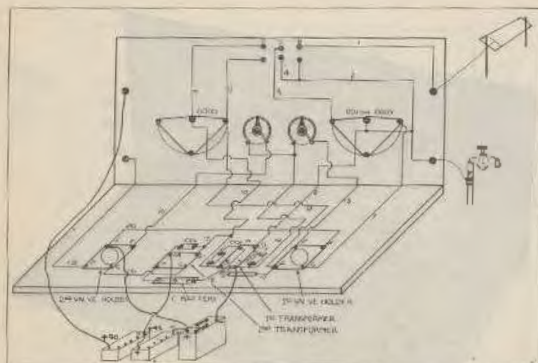
tute both variable condensers together until the desired station is received. Then tighten the coupling of the plate coil until the desired volume is obtained. For local loud speaker work the reception is very hard to beat; the purity, volume and faithfulness of reproduction can only be realised by giving it a trial. Pride of creation is in every Australian, but lack of technical and mechanical knowledge often deters the crystal enthusiast from attempting to build the ordinary type of multi-valve loud speaker receivers. With these back of panel views, however, and the knowledge that the hook-up

not be satisfied until he has built the "Wireless Weekly" reflex.

For the more advanced readers we



Panel drilling diagram.



Wiring diagram of the Two Valve Reflex.

netically coupled to the grid of the valve, which in the first instance amplifies the incoming energy, which then passes on to the crystal detector, where it is rectified and passed through the audio transformer, back to the grid of the valve again. During this process it is again amplified.

Adding a Further Stage of Audio to the One Valve Reflex.

Those readers who have already constructed the one valve reflex, and who desire further amplification of the distant stations, should carefully examine the two valve circuit diagram. It will be readily observed that the primary of both audio transformers are placed in series, viz., the + B terminal of the first transformer is connected to the P terminal of the second transformer, with the primary of the second transformer bye-passed with a .001 fixed condenser. The connections of the back of panel view of the two valve receivers are numbered in a similar manner to the single valver, connections from No. 16 to 20 being the only additions necessary. To add the amplifier No. 15 connection continues on to the P terminal of the second transformer. No. 16 links the G terminal of second transformer with the G terminal of second valve holder. No. 17 connects the - F terminal of second transformer with the - C battery. No. 18 links the + C with the - A battery. No. 20

links the right-hand terminal of rheostat with the right F terminal of valve holder.

The "Wireless Weekly" Two Valve Reflex.

The circuit diagram, photographs, and back of panel views of the com-

Croydon Club on Saturday last, when stations 3LO, 4QG, and 5CL were all received at full loud speaker strength.

Numerical Order of Connections of Two Valve Reflex.

No. 1 aerial to top connection of primary. No. 2 earth to lower connection of primary. No. 3 upper connection of secondary to fixed plate connection of first variable condenser. No. 4 lower connection secondary linked to No. 2. No. 5 lower connection tiecler to fixed plate terminal of second variable condenser. No. 6 upper connection tiecler to moving plate terminal of second variable condenser. No. 7 G of first valve holder to fixed plates of No. 1 condenser. No. 8 links G terminal of first transformer with the moving plate connection of first condenser, and then continues on and links with No. 2. No. 9 links the P of first valve to the fixed plate connection of second variable condenser. No.

Coil Table.

Station.	Primary.	Secondary.	Tuned Plate.
2WW..	15	35	35
2KY..	15	35	35
2BL..	35	50	50
3LO..	35	50	50
4QG..	35	50	50
5CL..	35	50	50
2FC..	100	150	150 or 200

pleted two valve reflex receiver should interest many readers who have heard of the phenomenal results obtained by those who built the single valver. This actual receiver was demonstrated to members of the

10 links the + B terminal of first transformer with the moving plate connection of second variable condenser. No. 11 links the crystal detector with the P terminal of first transformer. No. 12 links the other



The front panel view.

side of crystal detector with the P of first valve. No. 13 links the left-hand F terminal with the right-hand terminal of first rheostat. No. 14 links — F first transformer with the two left-hand terminals of both rheostats. No. 15 links the P terminal of second transformer with the No. 16 connection. No. 16 links G of second transformer to G of second valve holder. No. 17 — F to — C battery. No. 18 + C battery to — F of first transformer. No. 18 positive C battery to negative F of first transformer. No. 19 P of second valve to lower loud speaker terminal. No. 20 is the positive A busbar, and links the two outside F terminals together. No. 21 links the right-hand F terminal of second valve to right-hand terminal of second rheostat. The bye-pass condenser connections are not numbered.

Home constructors should be particularly careful to see that their battery connections correspond to our back view. If our drawings are copied explicitly the set will operate immediately the rheostats are turned on and the correct size coils plugged in the holders (see coil table).

The following materials are necessary to build the two valve reflex receiver:—

- 1 panel, 16in. x 7in.
- 1 baseboard, 16in. x 7in. x ½in.
- 2 variable condensers.
- 2 rheostats to suit valves.
- 4 terminals.
- 1 panel plug
- 2 coupling plugs or 3-coil holder.
- 2 valve holders.
- 2 valves.
- 2 transformers.
- 1 crystal detector (carborundum type).
- 3 fixed condensers, one .001, one .0003, and one .002 mfd.
- 1 C battery, 4.5 volts.
- A and B batteries.
- Honeycomb or spiderweb coils.

Murdoch's

Herald the arrival of the

"Lissenola"



A Loud Speaker for 17/6

A BREAST of the times, as usual, Murdoch's are first to offer the "Lissenola"—a reproducing unit which, supplied with simple instructions for constructing your own speaker, will give you an instrument of astounding efficiency—both in mellow tone and volume. Complete with reed unit are instructions for making large type horn; also rubber for connecting unit to tone-arm of phonograph if such is desired. Obtainable only at Murdoch's.

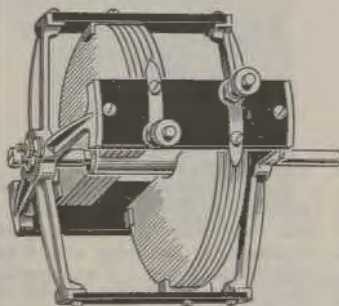
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Genuine "Bruno" Low Loss Condenser, as used by Australia's leading experimenters. Can be utilised for several different capacities. .0005.

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"Specialists in all Radio Equipment"

2BL's Lady Programme Director

MISS DOROTHY BERTRAM

PERHAPS not very many people are aware that the arduous task of arranging those excellent programmes from 2BL falls upon the capable shoulders of Miss Dorothy Bertram, the only lady programme director in Australia, and, in fact, one of the few in the world. Anyone will appreciate that the job of organising programmes extending from 7 a.m. until midnight takes a little doing, but this efficient young Australian works tirelessly and smilingly in an atmosphere which would drive the average person crazy. Programmes very often refuse to stay "put" — an artist becomes suddenly ill, gets a cold, or is prevented at the last moment from appearing, or a thousand and one things might happen at the last moment to upset the careful calculations of weeks. There can be no delays in the schedule, however, and an inexorable public demands that if an item is set down for a certain time, it must be put across, or something equally suitable substituted at once. Apologies are useless unless another artist is put on the air immediately.

The task of engaging artists is something demanding the maximum of tact with a minimum of sentiment, but Miss Bertram handles it wonderfully. Many artists who give good results from the concert platform fall down badly before the microphone, simply because they have not the "broadcasting voice."—others again may be the idols of their own little circle of friends, but they are not up to the standard demanded of broadcast artists to-day. This, then, forms but a portion of the day's work of this young lady whose personality has won her so many friends and admirers in the broadcasting world.

How Miss Bertram drifted into the broadcasting game is best told in her own words, which, between intervals

of answering the phone, interviewing artists and itemising programmes, she confided to us. She has been associated with 2BL practically ever since that station was housed in a cabin on the roof of the "Daily

formers calling in if they felt inclined. Sometimes I played jazz selections, "The Kitten on the Keys," and "Chicago" being very popular at that time, and little notes of appreciation used to come in from listeners-in saying how they liked the jazz selections.

Then the station was officially opened. Some weeks later I played in a trio, which, however, didn't last long, but the management of 2BL liked my work and offered me the position of second accompanist. The regular accompanist took ill, and I took her place, although I had only limited experience, but fellow artists helped me to win out.

Financial difficulties compelled the dismissal of the staff, but I offered to stay on without salary. This pleased the management, and as things were in an appalling state—nothing arranged, nothing certain — I was asked to arrange the programmes. Some of the artists were excellent, and as a matter of fact are still broadcasting with us. Then I used to work from ten in the morning to ten and often later at night. Sometimes I had to choose between lunch and dinner, as time was too precious to waste on two meals. I took my work very seriously, although with all my

enthusiasm and hard work, I once made the mistake of putting on the world's worst singer, and was found in tears after the performance.

However, as time went on and the station became so popular, artists came naturally to us and in time I was able to make a selection from the very best talent available to put over the air from 2BL. I could not let this opportunity pass without just expressing my appreciation for the wonderful co-operation which has invariably been shown me by the artists broadcasted, so many of whom are popular with listeners-in to 2BL.

(Continued on Page 24).



Miss Dorothy Bertram.

Guardian" Building.

"A little more than three years ago, I met a friend—a violinist—who was very enthusiastic about broadcasting, something that I had scarcely heard of. I was anxious to know more about it, so at her request I went with her one night to play her accompaniment. On arriving I found a little box of a place with a studio, with the transmitting apparatus in the same room. I soon became fascinated, and went once or twice a week with her to help with the accompaniments. No programmes were arranged, everything depending entirely on per-

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I am sure that without their co-operation and the assistance and encouragement that has always been shown me by the management and the rest of the staff of Broadcasters, I would never have been able to get the 2BL programmes up to the standard that they are at the present day. Although the work is so very arduous, and to say the least of it, extremely trying on one's patience, I find an added interest with every day that passes, and there is a very real pleasure in approaching this business of programme organising each day.

When reviewing the hundreds of programmes which have been broadcast from 2BL over the past couple of years, I cannot help thinking of my first experience in attempting to secure the services of a visiting artist for broadcasting. For instance, in one particular case—that of Mr. William Heughan, famous Scottish basso—there was a distinct disinclination to have anything whatever to do with broadcasting. The only thing left for me to do was to beard the lion in his den, and for this purpose I called on him at his apartment. Quite contrary to expectations, I found this gentleman and his wife most charming, and before my departure I had secured the promise of Mr. Heughan to broadcast from 2BL which, as everybody will remember, was later fulfilled.

That the 2BL programmes are widely appreciated is brought always forcibly home to us here, by the tremendous number of appreciative letters which come to 2BL from all over Australia and New Zealand, and although at times there are enormous problems which have to be overcome in the preparation of the 12 hour programme which is now running from this station, these wonderful letters from youthful and elderly listeners combined with the encouragement and assistance of my friends in the broadcasting world, help a very great deal.

I owe to Broadcasters the most priceless gift than any firm can offer, and that is opportunity."

AMBIGUOUS?

A certain make of telephone espad is being marketed in England with the recommendation that it "rests softly on the side of the head on account of its vacuous nature."

From Here and There

SOUTH AFRICAN BROADCASTING.

Scheme Similar to Australian.

Although much is known of the broadcasting service in most countries of the world, very little news ever filters through regarding the position of broadcasting in South Africa. Yet the Union of South Africa has three modern stations, of which one (JB at Johannesburg) is of the same type as those to be installed in Auckland and Christchurch.

The three stations in South Africa are situated at Capetown, Durban, and Johannesburg. The first two of these are rated at 1.5 kilowatts apiece, the last at .5 kilowatt. Astonishingly good ranges are obtained with these comparatively small powers. Johannesburg, for example, is regularly received at Capetown, 860 miles away, and Durban, 350 miles away. This station has also been heard in Nairobi, some 1,700 miles away, on a four-valve receiving set.

There has been some difficulty in South Africa over the question of licensing receiving sets, since, as was the case in our own country, the Acts in existence before the advent of broadcasting did not define too clearly the position of the Government, and left certain undesirable loopholes. However, a bill has now been introduced into the House of Assembly for the control of radio in the Union.

This bill gives the Minister of Post and Telegraphs absolute control over both transmission and reception, authorising him to license broadcasting stations and receiving sets. The Minister is empowered to fix such license fees as he deems suitable. There is provision for the introduction of a zone system similar to that in Australia, the Minister being authorised to grade license fees in accordance with the broadcasting service available. Severe penalties are laid down for certain infringements of the regulations, particularly for the divulging of

messages picked up by the owner of a receiving set. Failure to take out a receiving license is punishable by the confiscation of all apparatus and a fine not exceeding £5.

D.F. FOR CAPE MARIA.

During the visit of the Government lighthouse steamer "Tutanekai" to northern lighthouses of N.Z. a wireless set and direction finding apparatus will be installed at Cape Maria Van Diemen. The installation follows experiments carried out by officials of the Marine Department two or three years ago.

The apparatus should prove a great benefit to vessels in this locality, particularly in view of the dangerous nature of the coast, in that it will enable them to gauge their correct position during heavy fog or storms.

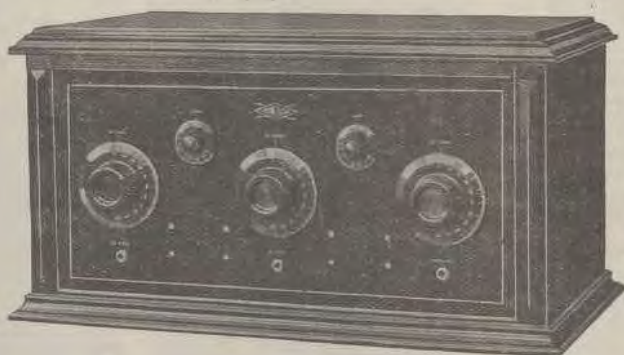
SLIPPIY!

Wireless telephony has been seized upon as a valuable aid by a number of houses in Greece, where the wireless regulations permit of the private use of this means of communication. Four important firms are already equipping their premises with wireless telephone sets to link up their head offices in Athens with their branch offices elsewhere, and further inquiries for similar sets have been received from other commercial firms.

"4QG PUDDINGS."

"Little Miss Brisbane," who regularly entertains the kiddies at 4QG every Wednesday evening, recently made another of the famous "4QG Puddings." The idea underlying "Miss Brisbane's" kiddies' entertainment is unique. She has adopted the idea of giving a recipe by radio and having a number of small performers representing each ingredient. The resultant entertainment is pleasing to the little ones, and if the actual recipe be noted by "big little ones" it will be found that a capital pudding may be made from it.

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Broadcasting Programmes

for the Coming Week.

Early Evening Session.

- 6.—The Chimes of 2FC and Announcements.
6.5—The "Hello Man" talks to the children.
6.45—Broadcast from Farmer's Dining Hall, Instrumental and Vocal Items.
7.15—From the Studio, "Evening News" service. Weather Information and Sporting Information.
7.30—Lalage's market reports (wool, wheat, stock), fruit and vegetable markets.

Night Session.

- 7.50—The Chimes of 2FC and Announcements.
8.—Broadcast from the Crystal Palace, vocal prologue sung by Madame Elin Stralis and Andre Meyers.
8.30—From the Studio: Mr. Raymond Mills, the English operatic baritone.
8.40—Miss Lila Kaines, soprano, and Mr. Arthur Powell, tenor, English entertainers.
8.55—Broadcast from the Palace Theatre, by permission of J. C. Williamson, Ltd., an act from the delightful comedy-drama "The Climax," featuring Guy Bates Post and Andy Neaves.
9.30—From her dressing-room at the Palace Theatre, a chat to listeners by Miss Brunton.
9.45—Mr. Raymond Mills, baritone.
9.50—Miss Nell Rodgers, soprano.
9.55—Miss Elaine and Mr. Arthur Powell, entertainers.
10.—Broadcast from the Crystal Palace, items by the orchestra, conducted by Mr. Harry Stone.
10.40—Miss Nell Rodgers, soprano.
10.45—Announcements.
10.55—Broadcast from the Wentworth Hotel, by permission of Cafe Dance Orchestra, under the baton of Mr. Sydney Simpson.
12.—National Anthem. Close down.

SATURDAY, JULY 24.

Early Morning Session.

- 7.—Time Signals. The Chimes of 2 FC and Announcements.
7.10—Official Weather Forecast, Rainfall Temperature, Astronomical Almanac, Shipping Intelligence, Mail Service.
7.25—Investments Market, Mining Share Market, Metal Quotations.
7.35—Wool Sales, Breadstuffs Markets, In-terstate Markets, Produce Markets.
7.45—"Sydney Morning Herald" news service.
8.—Time Signals.
8.5.—Music from the Studio.
9.15—Close down.

Morning Session.

- 9.15.—The Chimes of 2FC and Programme Announcements.
9.20.—Music from the Studio.
9.45.—A Morning Reading.
10.—Time Signals. Cricket Scores.
10.5.—Late "Sydney Morning Herald" news service.
10.—Time Signal, Cricket Scores.
10.15.—Music from the Studio.
11.—A Progress Talk on To-day's Cricket Match in England, Australian Press Association, and Reuter's Cable Service.
11.15.—A Talk on Gardening, by "Redgum."
11.30.—Close down.

Midday Session.

- 12.05.—The Chimes of 2FC and Announcements.
1.—Time Signals. "Evening News" midday news service and weather information. Race results will be transmitted at regular intervals.

Afternoon Session.

- 2.35.—The Chimes of 2FC and Announcements. During the interval of sporting events musical items will be given from the Studio.
4.30.—A complete rousing of the afternoon's sporting events. Close down.
5.—Time Signals. Close down.

Early Evening Session.

- 6.—The Chimes of 2FC and Announcements.
6.5.—The "Hello Man" talks to the children.
6.45.—Broadcast from the Hotel Australia: Orchestral Ranges.
7.15.—From the Studio: "Evening News" late news service, weather information.
7.30.—Late sporting results. Close down.

Night Session.

- 7.35.—The Chimes of 2FC and Announcements.
7.40.—Mr. W. E. Palmer, late Sec. of the Essex County Cricket Club, will forecast results of the 4th Test Match, commencing to-day at Manchester.
8.—Broadcast from the King's Hall: The farewell concert by Oliver King, prior to his departure for America next week.
8.5.—Piano solo, by Arnold Mote.
8.13.—Miss Nell Rodgers, soprano.
8.20.—Mr. Warwick, violin solo.
8.30.—Double quartette, consisting of the following artists:—Mosses Robert Colburn, tenor; William Green, tenor; Kenneth Hunt, tenor; Stanley Clarkson, baritone; Russell Elk, baritone; Oliver King, basso; Wilfred Thomas, basso.
8.40.—Ventriloquist patter by Russ Gerling, with the assistance of "Jerry."
8.55.—Madame Layton, Goubert, mezzo.
9.—Mr. Oliver King, basso solo.
9.10.—From the Studio during the interval, the 2FC Dance Band will play "Tulle Helen," the new Fox Test song, composed by Mr. Jack Lumsden in 30 minutes, the words and music being written by him round the titles selected from those telephoned to the Studio.
9.20.—From the King's Hall the second part of the Oliver King Concert.
9.25.—Piano solo, by Mr. Arnold Mote.
9.30.—Miss Violet Rogers, soprano.
9.44.—Double quartette.
9.53.—Violin solo, by Mr. Warwick McKenale.
10.—Mozzo solo.
10.16.—Mr. Oliver King, basso solo. Mr. F. Newton, accompanist; Mr. V. C. Ross, accompanist; Mr. Russ. G. Gerling, announcer from the hall.
10.20.—From the Studio: The result of the winning of the test of the 4th Test Match, received direct from the grounds by Farmer's Special Cable Service.
10.25.—2FC Dance Band. Conductor Mr. E. Pearce will play from the Studio.
11.30.—Scores of the 4th Test Match until inception adjournment, by 2FC Special Cable.
11.35.—Broadcast from the Wentworth Hotel, Sydney: Wentworth Cafe Dance Orchestra. Conductor, Mr. Sydney Simpson.
12.—National Anthem. Close down.

SUNDAY, JULY 25.

Morning Session.

- 7.—The Chimes of 2FC and Announcements. Cricket Scores: First day's play in the drawing of stumps at the 4th Test Match, Australia versus England, played at Manchester. These scores will be repeated at 8.2, 10 and 11 a.m.
10.55.—The Chimes of 2FC and Announcements.
11.—Broadcast from the Peterham Congregational Church, morning service, preacher, Rev. A. F. Doran.



FARMER'S SERVICE, SYDNEY

Call Sign: 2FC. Wave Length: 1100 Metres.
Power: 5 Kilowatts.

FRIDAY, JULY 23.

Early Morning Session.

- 7.—The Chimes of 2FC and Announcements. Time Signals.
7.15.—Cricket Scores, Australia versus Scotland, 2nd day's play to the drawing of stumps. These scores will be repeated at 8 a.m. and 9 a.m.
7.15—"Sydney Morning Herald" news service.
7.40.—Weather Information, Commercial News, Shipping Intelligence, and Markets.
8.0.—Time Signals. Cricket Scores.
8.15.—Close down.

Morning Session.

- 9.15.—The Chimes of 2FC and Announcements. Cricket scores.
9.20.—Music from the Studio.
9.45.—A Morning Reading.
10.—Time signals. Music from the Studio.
10.4.—Late "Sydney Morning Herald" news service.
10.15.—Music from the Studio.
11.—Progress Cricket Talk. Cables.
11.15.—Cooking talk and Recipes by Miss Ruth Furst.
11.30.—Close down.

Midday Session.

- 12.—The Chimes of 2FC and Announcements.
12.15.—Stock Exchange, First Call.
12.16.—Music from the Studio.
1.—Time Signals.
1.1.—"Evening News" midday news service.
1.20.—Rugby wireless news.
1.25.—Cricket Scores.
1.30.—Stock Exchange, Second Call. Broadcast from the Pitt Street, Congregational Church, Gipsy Smith meetings.
2.—Close down.

Afternoon Session.

- 2.30.—The Chimes of 2FC and Announcements.
2.35.—Recital on the Behning Piano.
2.35.—From Farmer's Tea Rooms, Miss Ida Johnstone, soprano.
2.40.—Oak Hall Trio.
2.45.—Music from the Studio.
3.—From the Tea Rooms—Miss Florence Barrow, contralto.
4.—Oak Hall Trio.
4.15.—Music from the Studio.
4.20.—From Farmer's Tea Rooms, Miss Ida Johnstone, soprano.
4.25.—Oak Hall Trio.
4.35.—Music from the Studio.
4.40.—From Farmer's Tea Rooms, Miss Florence Barrow, contralto.
4.45.—Afternoon Call, Stock Exchange. Musical Items.
5.—Close down.

Afternoon Session.

- 2.55—The Chimes of 2FC and Announcements.
- 3.—Broadcast from the Sydney Town Hall: Metropolitan Band Concert.
- 3.15—From the Lyceum: First broadcast of the visiting troupe of Red Indians, giving the Indian chant. Descriptions by Mr. Smith of the Indian customs.
- 4.—From the Town Hall: Part Two of the Band Concert by the Metropolitan Band.
- 4.—Close down.

Evening Session.

- 6.—The Chimes of 2FC and Announcements. From the Studio: Clyde Thorpe and Ross Crowe, in concerted violin numbers.
- 6.15—Story of the "Seafish Giant," by Oscar Wilde, set to music by Liza Lehmann, and performed by Maurice E. Price.
- 6.35—Heard for the first time on the air, a cycle of Papuan melodies arranged and composed by Emanuel Aarons; records obtained in Papua by the well-known explorer, Frank Hurley. The story surrounding this tribal town will be given.
- 7.—Broadcast from the Hippodrome: The second Sunday evening service of the Gipsy Smith Campains.
- 8.30—Broadcast from the Grand Opera House: Programme by the N.S.W. State Military Band.
- 10.—National Anthem. Close down.

MONDAY, JULY 26.

Early Morning Session.

- 7.—The Chimes of 2FC and Announcements. Time signals.
- 7.5—Music from the Studio.
- 7.10—Weather Information, Commercial News, Shipping Intelligence, and Markets.
- 7.40—"Sydney Morning Herald" news service.
- 8.—Time Signals. Music from the Studio.
- 8.15—Close down.

Morning Session.

- 9.15—The Chimes of 2FC and Programme Announcements.
- 9.20—Music from the Studio.
- 9.45—A Morning Reading.
- 10.—Time Signals. Music from the Studio.
- 10.5—Late "Sydney Morning Herald" news service.
- 10.15—Music from the Studio.
- 11.—Progress Cricket Talk; Cables.
- 11.15—Music from the Studio.
- 11.30—Close down.

Midday Session.

- 12.—Time Signals. The Chimes of 2FC and Announcements.
- 12.5—Stock Exchange, first call.
- 12.10—Music from the Studio.
- 12.—Time Signals. Weather Intelligence.
- 1.5—Music from the Studio.
- 1.10—"Evening News" midday news service. Producers Distributing Society's report.
- 1.20—Rugby Wireless News.
- 1.30—Broadcast from the Sydney Town Hall: The Gipsy Smith midday business men's meeting. Stock Exchange, second call.
- 2.—Time Signals. Close down.

Afternoon Session.

- 2.30—The Chimes of 2FC and Announcements.
- 2.35—A Vocal Recital, by the students of Mr. William Dallison. Miss Olive Chapman, soprano, "As through the Street" (Puccini); "The Valley of Laughter" (Sanderson); Mr. Joseph Hargrey, "Land of Delight" (Sanderson); Miss Dorothy Martin, mezzo soprano, "Slave Song" (Del Biego), "Vol che sapete" (Mozart); Mr. Percy Turk, tenor, "A Dream" (Bartlett); Miss Ivy Dunstone, "Non by the Weary Heart" (Tschakowsky), "Caro mio Ben" (Giordani); Miss Myne Russell, contralto, "In Quassa Tomba" (Beethoven), "Ombra mai fu" (Handel); Mr. Percy Turk and Mr. Hargrey, duet, "The Moon Has Raised" (Bentley).
- 3.30—From Farmer's Tea Rooms: The Oak Hall Trio will play (leader, Mr. Horace Keats).
- 3.40—Miss Gladys Briggs, contralto, "Thoughts Have Wings" (Lehmann).
- 3.45—The Oak Hall Trio.
- 3.55—Music from the Studio.

- 4.—From Farmer's Tea Rooms: Miss Gwendys Firmister, soprano.
- 4.5—The Oak Hall Trio.
- 4.15—Music from the Studio.
- 4.20—From Farmer's Tea Rooms: Miss Gladys Briggs, contralto, "A Summer Night" (Thomas).
- 4.25—The Oak Hall Trio.
- 4.35—Music from the Studio.
- 4.45—Music from the Studio. Stock Exchange third call.
- 4.40—From Farmer's Tea Rooms: Miss Gwendys Firmister, soprano.
- 5.—Time Signals. Close down.

Early Evening Session.

- 6.—The Chimes of 2FC and Announcements. Time Signals.
- 6.5—The "Hello Man" talks to the children.
- 6.50—Radiograph Competition.
- 6.45—Broadcast from the Hotel Australia, Sydney: Orchestral items.
- 7.10—From the Studio: "Evening News" late news service, weather information.
- 7.30—Dalgely's Market Reports (wool, wheat, stock), fruit and vegetable markets.
- 7.40—Close down.

Night Session.

- 7.40—Rev. S. J. Kirby, of Bush Church Aid Society, recently returned from a 3,000 mile trip into the interior of Australia, will give a talk on the "Highways and Byways" of Australia.
- 7.55—The Chimes of 2FC and Announcements.
- 8.—Broadcast from the Haymarket Theatre, Sydney: Operatic Orchestras, under the baton of Mr. Stanley Porter.
- 8.15—From the Studio: Miss Anna Donna, soprano.
- 8.25—Mr. Lionel Lawson, violin solos.
- 8.30—2FC Dance Band, Mr. Eric Pearce, conductor.
- 8.42—Mr. Joe Cahill, comedian.
- 8.50—2FC Dance Band.
- 9.—Broadcast from the Haymarket Theatre, Sydney: Vocal set.
- 9.20—Talk by Mr. G. J. Luckley ("Red Gun") on "Old Sydney Markets."
- 9.35—Miss Anna Donna, soprano.
- 9.42—Mr. Lionel Lawson, violin solos.
- 9.50—Mr. Joe Cahill, comedian.
- 10.—Broadcast from the Haymarket Theatre, Sydney: Orchestral items.
- 10.30—2FC Dance Band.
- 11.10—Broadcast from the Wentworth Hotel, Sydney: Wentworth Cafe Dance Orchestra under the baton of Mr. Sydney Simpson.
- 12.—National Anthem: Close down.

TUESDAY, JULY 27.

Early Morning Session.

- 7.—The Chimes of 2FC and Announcements.
- 7.5—Cricket Scores—2nd day's play to the drawing of stumps—Australia versus England in the 4th Test Match played at Manchester. These scores will be transmitted at 8, 9, and 10 a.m.
- 7.10—Weather Information; Commercial News; Shipping Intelligence and Markets.
- 7.40—"Sydney Morning Herald" News Service; Time Signals; Music from the studio.
- 8.15—Close down.

Morning Session.

- 9.15—The Chimes of 2FC and Announcements.
- 9.20—Music from the Studio.
- 9.45—A Morning Reading.
- 10.—Time Signals. Music from the Studio.
- 10.5—Late "Sydney Morning Herald" News Service.
- 10.15—Music from the Studio.
- 11.—Progress Cricket Talk; Cables.
- 11.15—Cooking Talk and Recipes by Miss Ruth Funn.
- 11.30—Close down.

Midday Session.

- 12.—Time Signals; The Chimes of 2FC and Announcements.
- 12.5—Stock Exchange—First Call.
- 12.10—Music from the Studio.
- 12.—Time Signals; Weather Intelligence.
- 1.5—Music from the Studio.
- 1.10—"Evening News" midday News Service; Producers Distributing Society's Report.
- 1.20—Rugby Wireless News.
- 1.30—Stock Exchange—Second Call.
- 1.35—Music from the Studio.
- 2.—Time Signals; Close down.

Afternoon Session.

- 2.30—The Chimes of 2FC and Announcements.
- 2.35—Piano Recital, by the pupils of Rex de Caires Rero.
- Miss Eileen Harris, pianist: (a) "Dento" (Scott); (b) "Danse des Négrillons" (Bauer); Miss Marjorie Cole, soprano: (a) "Open Thy Blue Eyes" (Massenet); (b) "One Fine Day" (Puccini); (c) "Himself's Love Song" (James); Miss Ida Tear, pianist: (a) "Joude in E Major" (Chopin); (b) "Turkish March" (Beethoven); Mr. Stanley Clarkson, basso: (a) "Grief and Joy" (De Rego); (b) "Tally Ho" (Leon); (c) "The Two Grenadiers" (Schumann); Miss Nellie Bairburn, pianist: (a) "Scherzo in B. Flat Minor" (Chopin); Miss Dorothy Morgan, soprano: (a) "Jewel Song" (Faust) (Gounod); (b) "Slumber Song of the Plains" (White); Miss Lyla Dunn, pianist: (a) "Au Convent" (Borodin); (b) "Shadow Dances" (MacDowell); Miss Cole and Mr. Clarkson, vocal duet, "At Love's Beginning" (Lehmann).
- 3.30—From Farmer's Tea Rooms: The Oak Hall Trio will play (leader, Mr. Horace Keats).
- 3.40—Miss Jacky Miley, soprano: "The Little People" (Brahm).
- 3.45—Oak Hall Trio.
- 3.55—Music from the Studio.
- 4.—From Farmer's Tea Rooms: Miss Alicia Haywood, "At Davran" (Cadmán).
- 4.15—Music from the Studio.
- 4.20—From Farmer's Tea Rooms: Miss Jacky Miley, soprano, "The Wood Pigeon" (Lehmann).
- 4.25—The Oak Hall Trio.
- 4.35—Music from the Studio.
- 4.40—From Farmer's Tea Rooms: Miss Alicia Haywood, "I Look into your Garden" (Wood).
- 4.45—Music from the Studio. Stock Exchange, third call.
- 5.—Close down.

Early Evening Session.

- 6.—The Chimes of 2FC and Announcements.
- 6.5—The "Hello Man" talks to the children.
- 6.50—Broadcast from the Hotel Australia, Sydney: Orchestral items.
- 7.15—From the Studio: "Evening News" late news service, weather information.
- 7.30—Dalgely's Market Reports (wool, wheat, stock), fruit and vegetable markets.
- 7.40—Close down.

Night Session.

- 7.55—The Chimes of 2FC and Announcements.
- 8.—Broadcast from the Lyric Winter Garden (by courtesy of Union Theatres Ltd.), Orchestra under the baton of Mr. Alfred Boulton.
- 8.30—From the Studio: A One-act Play by Mr. Walter Hunt, Miss Eve Warhurst and Co.
- 9.—Broadcast from the Pitt Street Congregational Church: Vocal and Instrumental recital, arranged by Mr. Christian Hellmann.
- 10.—Broadcast from the Lyric Winter Garden: Orchestral items.
- 10.30—Broadcast from the Wentworth Hotel, Sydney: Wentworth Cafe Dance Orchestra, under the baton of Mr. Sydney Simpson.
- 12.—National Anthem. Close down.

WEDNESDAY, JULY 28.

Early Morning Session.

- 7.—The Chimes of 2FC and Announcements. Time Signals.
 - 7.5—Cricket Scores: 3rd day's play to the drawing of stumps of the 4th Test Match, Australia versus England. These scores will be transmitted at 8, 9, and 10 a.m.
 - 7.10—Weather Information, Commercial News, Shipping Intelligence, and Markets.
 - 7.40—"Sydney Morning Herald" news service.
 - 8.—Time Signals. Music from the Studio.
 - 8.15—Close down.
- Morning Session.
- 9.15—The Chimes of 2FC and Programme Announcements.
 - 9.20—Music from the Studio.
 - 9.45—A Morning Reading.
 - 10.—Time Signals. Music from the Studio.

THURSDAY, JULY 29.

- 10.5—Lato "Sydney Morning Herald" news service.
10.15—Music from the Studio.
11—Program Cricket Talk, Cables.
11.10—Music from the Studio.
11.30—Close down.

Midday Session.

- 10—Time Signals. The Chimes of 2FC and Announcements.
12.5—Stock Exchange, first call.
12.10—Music from the Studio.
1—Time Signals. Weather Intelligence.
1.5—Music from the Studio.
1.10—"Evening News" midday news service, Producers' Distributing Society's report.
1.20—"Hugly Wireless News."
1.30—Stock Exchange, second call. Broadcast from the Sydney Town Hall, midday meeting of the Givvy Smith Campaign.
2—Time Signals. Close down.

Afternoon Session.

- 2.30—The Chimes of 2FC and Announcements.
2.35—A Recital on the Behning Player.
3.10—Dicken's reading, 3.30, Oak Hall Trio.
3.40—From Farmer's Tea Rooms: Miss Avie Garth, mezzo, "One Fine Day" (Puccini).
3.45—The Oak Hall Trio.
3.55—Music from the Studio.
4—From Farmer's Tea Rooms: Miss Joyce Gillespie, soprano.
4.5—The Oak Hall Trio.
4.15—Music from the Studio.
4.20—From Farmer's Tea Rooms: Miss Avie Garth, mezzo, "Were I" (Bard).
4.25—The Oak Hall Trio.
4.35—Music from the Studio.
4.40—From Farmer's Tea Rooms: Miss Joyce Gillespie, soprano.
4.45—Music from the Studio. Stock Exchange, third call.
5—Time Signals. Close down.

Early Evening Session.

- 6—Time Signals. The Chimes of 2FC.
6.5—"Hello Max" talks to the children.
6.45—Broadcast from the Hotel Australia, Sydney—Orchestral items.
7—From the Studio: "Evening News" late news service, weather information.
7.30—Dalgely's Market Reports (wool, wheat, stock), fruit and vegetable markets.
7.40—Photo Talk, by Mr. E. J. Van de Velde.

Night Session.

- 7.45—The Chimes of 2FC and Announcements.
8.5—Broadcast from the Conservatorium: The Second Concert of the 1925 Series by the Royal Sydney Apollo Club. Part Song: "Reveries" (Storck), Apollo Club.
8.15—Song: "The Horn" ("Le Cor") (Flegler), Mr. Oliver King.
8.25—Part Song: "The Lovers" (Kocakak); (c) "Lovely Forest Glade" (Aht); (b) "A Wet Sheet and Flowing Hair" (Lloyd), Apollo Club.
8.35—Cello Solo: "Beverly" (Dunkler), Mr. Gladstone Bell.
8.45—Part Song: "An Ode to Music" (first performance), (Poster), Apollo Club.
8.55—Interval.
9—Part Song: (a) "King's Messenger" (Bantock); (b) "The Lovers" (Kocakak); (c) "Chinese March" (Otto), Apollo Club.
9.15—Song: "The Sea Gypsy" (Head), Mr. Oliver King.
9.25—Part Song: (a) "On the March" (Boeker); (b) "Cerebral Dinosaur" (first performance), Apollo Club.
9.35—Song: "Suzette" at the Spinning Wheel" (Schubert), Miss Muriel Barlow.
9.45—Cello Solo: "Vito" (Spanish dance), (Poppel), Mr. Gladstone Bell.
9.55—Part Song: "Land of Hope and Glory" (Elgar), Apollo Club.
10—From the Studio: The second series of the Radio Australia Bridge Session, in which a complete band will be played in the Studio, and listeners are invited to phone and discuss the play.
10.10—Broadcast from the Wentworth Hotel, Sydney: Wentworth Cafe Dance Orchestra, under the baton of Mr. Sydney Simpman.
12—National Anthem. Close down.

- 10.5—The Chimes of 2FC and Announcements. Time Signals.
7.5—Crick Scores, first day's play, Australia versus Surrey, played at the Oval. Those wickets will be reported at 8, 9, and 10 a.m.
7.10—Weather Information, Commercial News, Shipping Intelligence, and Markets.
7.15—"Sydney Morning Herald" news service.
7.20—Time Signals. Music from the Studio.
8.15—Close down.

- 8.15—Morning Session.
9.15—The Chimes of 2FC and Programme Announcements.
9.20—Music from the Studio.
9.25—A Morning Reading.
10—Time Signals. Music from the Studio.
10.5—Late "Sydney Morning Herald" news service.
11.15—Music from the Studio.
11.30—Close down.

Midday Session.

- 12—Time Signals. The Chimes of 2FC and Announcements.
12.5—Stock Exchange, first call.
12.10—Music from the Studio.
1—Time Signals. Weather Intelligence.
1.5—Music from the Studio.
1.10—"Evening News" midday news service, Producers' Distributing Society's Report.
1.20—Rugby Wireless News.
1.30—Stock Exchange, second call.
1.35—Musical items.
2—Time Signals. Close down.

Afternoon Session.

- 2.30—The Chimes of 2FC and Announcements.
2.35—A Recital of new H.M.V. Records.
3.30—From Farmer's Tea Rooms: The Oak Hall Trio will play (leader, Mr. Horace Kana).
3.40—Miss Clarice Dunbar, mezzo: "Sink Red Sun" (Del Riso).
3.45—The Oak Hall Trio.
3.55—Music from the Studio.
4—From Farmer's Tea Rooms: Miss Dorothy Benbow, contralto.
4.15—Music from the Studio.
4.20—From Farmer's Tea Rooms: Miss Clarice Dunbar, mezzo, "If I might Come to You" (Gould).
4.25—The Oak Hall Trio.
4.35—Music from the Studio.
4.40—From Farmer's Tea Rooms: Miss Dorothy Benbow, contralto.
4.45—Afternoon call, Stock Exchange. Musical items.
5—Close down.

Early Evening Session.

- 6—Time Signals. The Chimes of 2FC and Announcements.
6.5—"Hello Max" talks to the children.
6.45—Broadcast from the Hotel Australia, Sydney—Orchestral items.
7.15—From the Studio: "Evening News" late news service, weather information.
7.30—Dalgely's Market Reports (wool, wheat, stock), fruit and vegetable markets.
7.40—From the Studio: Broadcast of a programme specially prepared for listeners to 2FC in New Zealand, in response to many requests. Mr. W. R. Bow, representing the N.Z. Government in N.S.W., will at 7.50 (which is equal to 9 o'clock in N.Z.) send a greeting to Dominion listeners, and will give a brief talk on New Zealand.
7.45—The commencement of the programme, which will be given entirely by artists who were born in New Zealand, or artists who will give talent composed by New Zealanders. A unique programme, heard for the first time.
7.45—Miss Phyllis Massey—New Zealand soprano.
7.53—Mr. Norman Kent—New Zealand tenor.
8—Greetings and War Cry, by the All Blacks Football Team, who leave Sydney to-morrow.
8.15—Miss Ida Bloomfield—New Zealand soprano.
8.25—Sydney Instrumental Trio (Mr. Lionel Lawson, violinist; Mr. Gladstone Bell, cellist; Mr. Lindley Evans, pianist), in New Zealand compositions.

- 8.35—Miss Mary MacCormick—New Zealand contralto.
8.45—Some Maori items by Miss Annie Rice.
8.50—Madame Emily Maria—New Zealand soprano.
8.55—Mr. Gladstone Bell—cello solo.
9—Miss Ida Bloomfield, soprano; and Mr. Norman Kent, in harmony numbers.
9.10—Madame Astley Black—New Zealand soprano.
9.24—Mr. Lindley Evans, piano solo.
9.35—Harmony numbers, by Lois Evans and Darren Walsh.
9.50—Miss Phyllis MacCormick—contralto.
9.55—Miss Phyllis Massey—soprano.
10.5—Instrumental Trio.
10.10—Madame Emily Maria—soprano.
10.25—Madame Astley Black—soprano.
10.30—Miss Annie Rice—Maori items.
10.35—Broadcast from the Wentworth, Sydney: Wentworth Cafe Dance Orchestra, under the baton of Mr. Sydney Simpman.
12—National Anthem. Close down.

2BL

BROADCASTERS (SYDNEY) LTD.

FRIDAY, JULY 23.

Early Morning Session.

- 7.15—Physical Training and Health Exercises.
7.30—Musical Programme from the Studio.
7.35—Broadcasters' Special News Service, (including news from Rugby).
7.50—Musical Programme from the Studio.
8—G.P.O. Clock and Chimes. Close down.
8—G.P.O. Clock and Chimes. Special News Service from the "Daily Telegraph".
8.10—Broadcasters' Staff Report will discuss the training operations and horses' form from Bardwick.
8.25—Special news from the "Daily Telegraph".
8.45—Music from the Studio.
8.45—G.P.O. Clock and Chimes. Special News Service.
11.5—Musical Programme from the Studio.
11.55—Markets.
11.55—London Metal Quotations.
11.25—Broadcasters' Information Service, including Mail, Shipping, Weather, Rain-fall, Social Features for the following day.
11.40—Musical Programme from the Studio.
11.50—News from "Sun" Cabin Edition.
12—G.P.O. Clock and Chimes. Talks to women by Mrs. Jordan.
12.30—Sydney Stock Exchange call.
12.45—Hilber's Instrumental Quartette, under the direction of Cyril Costling.
1.20—A Talk on "Modern English Poetry," by Mr. J. M. Prentice.
1.45—Latest Sporting Information from the "Sun".
2—G.P.O. Clock and Chimes. Close down.

Afternoon Session.

- 8—G.P.O. Clock and Chimes. Weather Report and Social Notes from "The Sun".
8.15—Music from the Studio.
8.30—A Talk on "Modern English Poetry," by Mr. J. M. Prentice.
8.45—Music from the Studio.
8.45—G.P.O. Clock and Chimes. Music from the Studio.
9.30—Serial Story, entitled "The Seventh Hatch".
9.45—Music from the Studio.
5—Early country news. The Producers' Distributing Society's late market report.
3.15—G.P.O. Clock and Chimes. Close down.

Early Evening Session.

- 6—G.P.O. Clock and Chimes. Uncle George and the Kiddies. The pupils of Miss Monica Seally will entertain the kiddies.
6.45—Broadcasters' Dinner Orchestra. Special Country Session.
7.15—Talk on Lull Subjects.
7.25—Australian Mercantile Land & Finance Co's. Stock and Wool Report.

- 7.30—Stock Exchange Reports.
7.37—Producers' Distributing Society's fruit and vegetable report.
7.41—Grain and fodder reports.
7.45—Country news from "The Sun."
7.55—Close down.

Evening Session.

- 8—Concert from the Studio.
11.15—Palm Grove Orchestra Broadcast until Midnight.
12—G.P.O. Clock and Chimes.
12.30—G.P.O. Clock and Chimes. National Anthem. Sec. Morrison and his Gloomchancers broadcast from the ballroom of the Bondi Casino.

SATURDAY, JULY 24.

Early Morning Session.

- 7.15—Physical Training and Health Exercises.
7.30—Musical Programme from the Studio.
7.39—Broadcasters' Special News Service, including news from Rugby.
7.55—Musical Programme from the Studio.
8—G.P.O. Clock and Chimes. Close down.

Morning Session.

- 10—5 P.M. Clock and Chimes. Special news service from the "Daily Telegraph."
10.10—Broadcasters' Turf Expert will discuss the training operations and horses' form from Randwick.
10.25—Special news from the "Daily Telegraph."
10.45—Music from the Studio.
11—G.P.O. Clock and Chimes. Special Cricket Session.
11.15—Musical Programme from the Studio.
11.15—Markets.
11.20—London Metal Quotations.
11.25—Broadcasters' Information Service, including Mails, Shipping, Weather, Rainfall, Social Fixtures for the following day.
11.40—Musical Programme from the Studio.
11.50—News from "Sun" Cable Edition.
12—G.P.O. Clock and Chimes. Talks to Women by Mrs. Jordan. News reports, by courtesy of "Sun" Newspapers, Sporting information. News reports ("Sun").
1—G.P.O. Clock and Chimes. Close down.

Afternoon Session.

- 2—G.P.O. Clock and Chimes. Special Sporting Information.
3.15—G.P.O. Clock and Chimes. Close down.

Early Evening Session.
6—G.P.O. Clock and Chimes. Uncle Jack and the Kiddies.
6.45—Pavilion Dinner Orchestra.
7.15—Results of football, lacrosse, and sporting information.
7.30—Country news from "The Sun"
7.45—G.P.O. Clock and Chimes. Close down.

Evening Session.

- 8—Concert Broadcast from Jennian Caves.

SUNDAY, JULY 25.

- 10.55—Special Cricket Session.
11—Service Broadcast from Chalmers Street Presbyterian Church.
3.30—Bible Class, conducted by Mr. W. Cairns, Bradley.
1.15—Service Broadcast from St. James' Church, Phillip Street.
8.30—Manly Band Broadcast from Rialto Theatre.
9.50—Concert from the Studio.

MONDAY, JULY 26.

Early Morning Session.

- 7.15—Physical Training and Health Exercises.
7.30—Musical Programme from the Studio.
7.39—Broadcasters' Special News Service, including news from Rugby.
8—G.P.O. Clock and Chimes. Close down.

Morning Session.

- 10—G.P.O. Clock and Chimes. Special News Service from the "Daily Telegraph."
10.10—Broadcasters' Turf Expert will discuss the training operations and horses' form from Randwick.
10.25—Special news from the "Daily Telegraph."

- 10.45—Music from the Studio.

- 11—G.P.O. Clock and Chimes. Special Cricket Session.
11.15—Musical Programme from the Studio.
11.15—Markets.
11.20—London Metal Quotations.
11.25—Broadcasters' Information Service, including Mails, Shipping, Weather, Rainfall, Social Fixtures for the following day.
11.40—Musical Programme from the Studio.
11.50—News from "Sun" Cable Edition.
12—G.P.O. Clock and Chimes. Talks to Women, by Mrs. Jordan.
12.30—Sydney Stock Exchange Calls. Race results broadcast immediately received.
12.45—Hillier's Instrumental Quartette, under the direction of Caryl Castling.
1.30—Sydney Stock Exchange Calls.
1.45—Latest sporting information from the "Sun."
2—G.P.O. Clock and Chimes. Close down.

Afternoon Session.

- 3—G.P.O. Clock and Chimes. Weather report and Social Notes from the "Sun."
3.15—David Jones' Tea Room Trio.
3.30—A talk on "A Course in Philosophical Thought," by Mr. J. M. Prentice.
3.45—Music from the Studio.
4—G.P.O. Clock and Chimes. David Jones' Tea Room Trio.
4.15—Music from the Studio.
4.30—Serial Story, entitled "The Seventh Hunch."
4.45—Music from the Studio.
5—Early country news. The Producers' Distributing Society's late market report.
5.15—G.P.O. Clock and Chimes. Close down.

Early Evening Session.

- 6—G.P.O. Clock and Chimes. Uncle George and the Kiddies.
6.45—Pavilion Dinner Orchestra, under the direction of Cec. Morrison. Special Country Session.
7.15—Talk on Land Subjects.
7.25—Australian Mercantile Land & Finance Co's. Stock and Wool Report.
7.30—Stock Exchange reports.
7.37—Producers' Distributing Society's fruit and vegetable report.
7.41—Grain and Fodder reports.
7.45—Country news from "The Sun."
7.55—Close down.

Evening Session.

- 8—G.P.O. Clock and Chimes; Newtown Band broadcast from Industrial Hall, Newtown; Concert from the Studio; Al. Hammett and The Ambassadors. During the intervals between dances there will be social notes and a description of the frocks by Mrs. Potts.
12—G.P.O. Clock and Chimes; National Anthem.

TUESDAY, JULY 27.

- 7.15—Usual Early Morning Session.
10—Usual Morning Session.

Afternoon Session.

- 3—G.P.O. Clock and Chimes; Weather Report and Social Notes from "The Sun."
3.15—Music from the Studio.
3.30—Lecture from the Studio.
3.45—Music from the Studio.
4—G.P.O. Clock and Chimes.
4.30—Serial story entitled "The Seventh Hunch."
4.45—Early Country News; The Producers' Distributing Society's late market report.
5.15—G.P.O. Clock and Chimes; Close down.

Early Evening Session.

- 6—G.P.O. Clock and Chimes; Uncle Jack and the Kiddies.
6.45—Broadcasters' Dinner Orchestra.
7.15—Talk on land subjects.
7.25—Australian Mercantile Land & Finance Co's. Stock and Wool Report.
7.37—Producers' Distributing Society's Fruit and Vegetable Report.
7.41—Grain and Fodder Reports.
7.45—Country news from "The Sun."
7.55—Close down.

Evening Session.

- 9—G.P.O. Clock and Chimes; Hoyt's Imperial Orchestra, under the direction of Mr. Lionel Hart, broadcast from Hoyt's Picture

Theatre; Concert from the Studio including the following artists: Mr. Norman Dawson; Mr. Stanley Catlett; Miss Helena Stewart; Miss Molly Kaynor; Al. Hammett and the Ambassadors' Dance Orchestra, broadcast from the ballroom of the Ambassadors.

- 11—Brook & Boman's Orchestra from Lodge, Lilyfield. Ladies' Night, broadcast from Sargents Market Street, until midnight.
12—G.P.O. Clock and Chimes; National Anthem.

WEDNESDAY, JULY 28.

Early Morning Session.

- 7.15—Physical training and health exercises.
7.30—Musical programme from the Studio.
7.39—Broadcasters' special news service, including news from Rugby.
7.55—Musical programme from the Studio.
8—G.P.O. Clock and Chimes.

Morning Session.

- 10—Usual programmes.

Afternoon Session.

- 3—G.P.O. Clock and Chimes; Weather Report and Social Notes from "The Sun."
3.15—Music from the Studio.
3.30—Special oratorical session with explanatory talk by Mr. J. M. Prentice.
3.45—Music from the Studio.
4—G.P.O. Clock and Chimes; Music from the Studio.
4.30—Serial story entitled "The Seventh Hunch."
4.45—Music from the Studio.
5—Early Country News; The Producers' Distributing Society's Late Market Report.
5.15—G.P.O. Clock and Close down.

Early Evening Session.

- 6—G.P.O. Clock and Chimes; Uncle George and the Kiddies.
6.45—Pavilion Dinner Orchestra, under the direction of Cec. Morrison.
7.15—Special Country session; Talk on land subjects.
7.25—Australian Mercantile Land & Finance Co's. Stock and Wool Report.
7.30—Stock Exchange Reports.
7.37—Producers' Distributing Society's Fruit and Vegetable Report.
7.41—Grain and Fodder Reports.
7.45—Country news from "The Sun."

Evening Session.

- 8—G.P.O. Clock and Chimes; City of Sydney Band, broadcast from Barlow Chambers; Sydney Orpheus Orchestra, under the direction of Mr. Penman.
11.10—Palm Grove Orchestra, under the direction of Stan Fotheringham, broadcast from the studio until midnight.
12—G.P.O. Clock and Chimes; National Anthem.

THURSDAY, JULY 29.

- 7.15—Usual Early Morning session.
10.10—Usual Morning session.

Afternoon Session.

- 3—G.P.O. Clock and Chimes; Weather Report and Social Notes from "The Sun."
3.15—David Jones' Tea Room Trio.
3.30—Music from the Studio.
4—G.P.O. Clock and Chimes; David Jones' Tea Room Trio.
4.15—Music from the Studio.
4.30—Serial story entitled "The Seventh Hunch."
4.45—Music from the Studio.
5—Early Country News; The Producers' Distributing Society's Late Market Report.
5.15—G.P.O. Clock and Chimes; Close down.

Early Evening Session.

- 6—G.P.O. Clock and Chimes; Uncle Jack and the Kiddies.
6.45—Broadcasters' Dinner Orchestra.
7.15—Talk on land subjects.
7.25—Australian Mercantile Land & Finance Co's. Stock and Wool Report.
7.30—Stock Exchange Reports.
7.37—Producers' Distributing Society's Fruit and Vegetable Report.
7.41—Grain and Fodder Reports.
7.45—Country News from "The Sun."
7.55—Close down.

Evening Session.

8—G.P.O. Clock and Chimes; Ambassadors Salon Quartette, under the direction of Mr. Claude McGlynn; Concert from the Studio, including Miss Daisy Richards, violinist; and Mr. Lance Jeffre, tenor; Al Hemmett and the Ambassadors Dance Band, broadcast from the Ambassadors until midnight.

12—G.P.O. Clock and Chimes; National Anthem.

2BE

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8.30 to 7.30—Mealtime Music, consisting of vocal and orchestral items.

7.30 to 6—Lectures, orchestral and vocal items.

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FRIDAY, JULY 23.

Midday Session.

12.55—Tune-in.

12.58—Time Signal.

1—Market Reports. Weather information. "The Daily Mail" news, the "Daily Standard" news.

1.20—Close down.

Afternoon Session.

2.30—A Musical Programme from the Studio.

4.15—"The Telegraph" news.

4.30—Close down.

Early Evening Session.

6.25—Tune-in.

6.30—The Children's Session. Stories by "The Sandman."

7—The Farmers' Session. Market Reports. Lecture—"The Dams and Valey Irrigation Scheme—What it Means to Settlers," by Mr. A. F. Partridge (Commissioner for Irrigation and Water Supply).

7.30—"The Telegraph" news. Stock Exchange.

7.35—Close down.

Night Session.

7.45—Lecture Series—A Talk arranged by the Workers' Educational Association.

8—To-night's programme will be a classical one, arranged by Miss Lettice Richter, supported by the Savoy Orchestra.

9—Week-end road information for motorists, officially supplied by the Royal Automobile Club of Queensland. Continuation of Classical night.

9.20—Weather Information, officially supplied by the Commonwealth Bureau.

9.25—Announcements. Continuation of Classical Programme.

10—"The Daily Mail" news service. Close down.

SATURDAY, JULY 24.

Afternoon Session.

2.25—Tune-in.

2.30—A Matinee for Little Listeners.

4.30—Close down.

Early Evening Session.

6.25—Tune-in.

6.30—The Children's Session. bedtime Stories by "Uncle Ben" and "Uncle Jim," assisted by "Mabel Sunshine."

7.15—Sporting News.

7.30—Close down.

Night Session.

7.45—A Sporting Talk, by Rugby League Official. Gaiety Theatre—Lennon's Ballroom.

8—From the Gaiety Theatre, Townswag. By courtesy of the proprietors, the overture played by the Orchestra will be relayed from the Gaiety Theatre, Townswag. From the Studio: Haritone solo, Mr. G. B. McCutcheon; Monologue, Miss Eileen McLennan; Hawaiian Instrumentalists in Native Numbers—The Kaitia Trio; Soprano solo, Miss Winnie Wilkinson. From the Gaiety Theatre, music by the Orchestra. From the Studio: Musical items.

9—Weather Information, officially supplied by the Commonwealth Weather Bureau. Announcements. From Lennon's Ballroom, by courtesy of the Directors, dance music, played by the Ajax Orchestra, will be relayed from Lennon's ballroom. Vocal numbers from the Studio will be interspersed.

10—From the Studio: "The Daily Mail" News Service. Close down.

No Midday Transmission.

SUNDAY, JULY 25.

Morning Session.

The complete Morning Service will be relayed from All Saints' Church of England, Feast of St. James, apostle and Martyr.

10.55—Tune-in.

11—Processional Hymn.

Afternoon Session.

The Concert provided by the Federal Band in the Brisbane Botanical Gardens will be relayed.

8.15—Tune-in.

8.15—Band Concert.

8.30—Close down.

Night Session.

The complete Evening Service will be relayed from All Saints' Church of England:

7.15—Organ voluntary.

7.30—Evensong.

Band Concert.

At the conclusion of the Church Service, the Band Concert provided by the Greater Brisbane Municipal Concert Band, under the leadership of Mr. E. Jackson, will be relayed from Wickham Park.

8.30—Close down.

3LO

BROADCASTING CO. OF AUST. PROP. LTD.

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FRIDAY, JULY 23.

Midday Session.

12—Time Signal. Latest cricket scores, Australia v. Scotland, played at Edinburgh, by courtesy of Reuters Ltd. British Official Wireless News from Rugby. Reuters and the Australian Press Association cables. "Argus" and "Herald" news services. Shipping intelligence.

12.45—Stock Exchange information.

12.50—Meteorological information. Weather

forecasts for Victoria, Tasmania, South Australia, and New South Wales. Ocean forecast.

1—Time Signal.

1.1—Jack O'Connell, baritone.

1.7—Ham Johnson's Monte Carlo Band.

1.30—Jack O'Hagan, baritone.

1.37—Ham Johnson's Monte Carlo Band.

2—Close down.

2.40—Public Schools' Football, Wesley v. Melbourne Grammar School. "The Captain" will speak from the ground on the teams, the crowd, weather conditions, topical remarks.

2.45—The bounce.

Afternoon Session.

3—Latest cricket scores, Australia v. Scotland, by courtesy of Reuters Ltd.

3.1—Studio Orchestra.

3.10—Public Schools' Football, story of first quarter's play.

3.15—Miss Frances Fraser: "The Drownings in Florence."

3.20—Stanley Adams, violin.

3.40—Public Schools' Football, story of second quarter's play.

3.45—Studio Orchestra.

3.48—Louise McLeod and Oliver Rainbridge, one-act play: "A Fair of Lunatics."

4.10—Stanley Adams, violin.

4.15—Reginald Beasley and G. Richard Chivers, violin and flute.

4.24—Public Schools' Football, story of third quarter's play.

4.30—"An Fair," of Messrs. Buckley & Nunn Ltd.: "Fashion Talk."

4.45—Latest cricket scores, Australia v. Scotland, by courtesy of Reuters Ltd. "A-Herald" news service. Stock Exchange information.

5—Close down.

Evening Session.

5.45—Children's Hour. Answers to letters and birthday greetings.

6—"Billy Bunny"; Littlest fairy story: "The Lost Princess"; "Black Beauty."

6.40—Latest cricket scores, Australia v. Scotland, by courtesy of Reuters Ltd. "Argus" and "Herald" news service. Reuters and the Australian Press Association cables.

6.45—Weather synopsis. Shipping movements.

6.57—Stock Exchange information.

7.2—Fish Market Reports by J. R. Berrett Ltd.

7.4—River Reports.

7.6—Market Reports by the Victorian Producers Co-operative Co. Ltd. Haymarket rates. Poultry, grain, chaff, hay, straw, tins, dairy produce, potatoes and onion. Market prices of oranges and lemons, supplied by the Victorian Central Citrus Association Pty. Ltd.

Night Session.

7.20—Under the auspices of the Department of Agriculture: Mr. W. C. Ewing, Poultry Expert—"Insulation in Chicken Raising."

7.40—Mr. Percy Crawford, Manager of the Tivoli Theatre, will speak on "Theatrical Experiences Abroad."

8—Collingwood Citizens' Band.

8.10—Thos. B. George, baritone.

8.17—"The Captain"; School Life and School Sport.

8.25—Collingwood Citizens' Band.

8.47—Laurie Burnett, entertainer.

8.55—Dr. Floyd, organist at St. Paul's Cathedral, will give a recital from the Cathedral.

9.20—Mr. Leslie Brunning: "Hedera."

9.45—Thelma Ready, banjoist.

9.51—Collingwood Citizens' Band.

9.55—Thos. B. George, baritone.

10.3—Collingwood Citizens' Band.

10.13—Laurie Burnett, entertainer.

10.20—Collingwood Citizens' Band.

10.35—British Official Wireless News from Rugby. Latest cricket scores, Australia v. Scotland, by courtesy of Reuters Ltd. "Argus" news service, Road Reports and Touring Notes, supplied by the Touring Department of the Royal Automobile Club of Victoria.

10.40—Thelma Ready, banjoist.

- 10.44—J. Bramwell, cornet.
- 10.52—Collingwood Citizens' Band.
- 10.56—"Argus" news service. Meteorological information.
- 11—God Save the King.

SATURDAY, JULY 24.

Morning Session.

- 11—Sonora Recital.
- 11.7—Keith Desmond, elocutionist.
- 11.16—Harold Rodgers, pianoforte.
- 11.35—Sonora Recital.
- 11.42—Keith Desmond, elocutionist.
- 11.50—Harold Rodgers, pianoforte.
- 12—Time Signal. Latest cricket scores, Australian Cricket Eleven, by courtesy of Reuters Ltd. British Official Wireless News from Rugby. Reuters and the Australian Press Association cables. "Argus" and "Herald" news services. Shipping intelligence.
- 12.45—Stock Exchange information.
- 12.50—Meteorological information. Weather forecast for Victoria, Tasmania, South Australia and New South Wales. Ocean forecast. River reports.
- 1—Time Signal.
- 1.1—Studio Orchestra.
- 1.10—Billy Jones, soprano.
- 1.17—Agnus Fortune, pianoforte.
- 1.24—The Pleading Four.
- 1.31—Studio Orchestra.
- 1.41—Billy Jones, soprano.
- 1.48—Studio Orchestra.
- 2—Result of Barny Hurle Race, Moonee Valley Racing Club.
- 2.30—Result of Warroona Welter Handicap.
- 2.40—Football, Victoria v. N.S.W., at M.C. Ground. Mr. Tod Collins will speak from the ground. Close down.

Afternoon Session.

- 3—Latest Australian Cricket Eleven results, by courtesy of Reuters Ltd. Result of Brunswick Steeplechase.
- 3.3—"The Black Diamond Lucky Five" Orchestra.
- 3.10—Football, Victoria v. N.S.W., at M.C. Ground. Mr. Tod Collins, story of first quarter's play.
- 3.16—"The Black Diamond Lucky Five" Orchestra.
- 3.40—Result of Nonra Handicap.
- 3.41—Football, Victoria v. N.S.W., at M.C. Ground. Mr. Tod Collins, story of second quarter's play.
- 3.47—"The Black Diamond Lucky Five" Orchestra.
- 3.55—Football, third quarter starts.
- 3.46—"The Black Diamond Lucky Five" Orchestra.
- 4.20—Result of Keora Welter Handicap.
- 4.31—Football, Victoria v. N.S.W., at M.C. Ground. Mr. Tod Collins, story of third quarter's play.
- 4.26—"The Black Diamond Lucky Five" Orchestra.
- 4.45—Sporting results. "Herald" news service.
- 4.55—Result of Mervyn Handicap.
- 4.57—Football, Victoria v. N.S.W., at M.C. Ground. Mr. Tod Collins, story of last quarter's play.
- 5—Close down.

Evening Session.

- 5.45—Sporting Results.
- 6—Children's Hour. "Mary Gummel's" Poems: "The Christening"; "Bad Sir Brian Botany"; Story for the littlest ones: "Special Story about Animals"; For the boys and girls, "Jake's Adventures."
- 6.40—Latest Australian Cricket Eleven scores, by courtesy of Reuters Ltd. "Argus" and "Herald" news services. Sporting results. Reuters and the Australian Press Association cables.
- 6.53—Weather synopsis. Shipping movements.
- 6.57—Stock Exchange information.
- 7.3—Fish Market Reports by J. R. Borrett Ltd.
- 7.4—River Reports.
- 7.5—Market Reports by Victorian Producers' Co-operative Co. Ltd.: Grain, chaff, hay, straw, jute, dairy produce, potatoes and onions.

Night Session.

- 7.20—Mr. Hugh Egan: "Draughts—Prominent Players, Past and Present."
- 7.40—Dr. J. A. Leach: "Birds' Eggs."
- 8—A.N.A. Musical and Elocutionary Festival, Assembly Hall, Collins St.; Official Opening.
- 10.45—British Official Wireless News from Rugby. Latest Australian Cricket Eleven scores, by courtesy of Reuters Ltd. Meteorological information. Sporting results—Races, Football, Metropolitan Soccer League, Metropolitan Amateur Association, Lacrosse.
- 11—God Save the King.

SUNDAY, JULY 25.

Morning Session.

- 10.35—Express Train information.
- 10.40—Latest cricket news, by courtesy of Reuters Ltd.
- 10.45—Service from St. Pauls Cathedral.
- 12.15—Latest cricket news, by courtesy of Reuters Ltd. British Official Wireless News from Rugby. Close down.

Afternoon Session.

- 2.55—Latest cricket news, by courtesy of Reuters Ltd.
- 3—Pleasant Sunday Afternoon Service, Central Mission, Wesley Church; chairman, Rev. J. H. Cain.
- 4.50—Latest cricket scores, by courtesy of Reuters Ltd. Announcements. Close down.

Evening Session.

- 5.45—Children's Hour. Answers to letters and birthday greetings. Songs by "Billy Bunny" and his "Brer Rabbits." Stories—"Mimosas," "Loveliest Life," and "Decision."
- 6.40—Close down.

Night Session.

- 7—Service from Scots Church, Collins St., Melbourne; preacher, Rev. Dr. Borland, M.A., B.D.
- 8.30—Studio Orchestra.
- 8.40—Members of the Gilbert and Sullivan Chorus.
- 9.27—Excerpts from "Cavalleria Rusticana."
- 9.27—Members of the Gilbert and Sullivan Chorus.
- 9.34—Sextette from "Lucia de Lammermoor."
- 9.42—Members of the Gilbert and Sullivan Chorus.
- 9.50—"Argus" news service. Announcements. Latest cricket scores, by courtesy of Reuters Ltd.
- 10—God Save the King.

MONDAY, JULY 26.

Midday Session.

- 12—Time Signal. Latest cricket news, by courtesy of Reuters Ltd. British Official Wireless News from Rugby. Reuters and the Australian Press Association cables. "Argus" and "Herald" news services. Shipping intelligence.
- 12.40—Stock Exchange information.
- 12.53—Meteorological information. Weather forecasts for Victoria, Tasmania, South Australia and New South Wales. Ocean forecast. River reports.
- 1—Time signal.
- 1.1—Studio Orchestra.
- 1.10—Stanley Adams, violin.
- 1.16—Studio Orchestra.
- 1.23—Stanley Adams, violin.
- 1.30—Community Singing by the Students of the University of Melbourne, transmitted from the Club House, University Grounds, Carlton.
- 2—Close down.

Afternoon Session.

- 3—Latest cricket news, by courtesy of Reuters Ltd.
- 3.1—Studio Orchestra.
- 3.10—Mr. J. R. Locke: "Travel and Adventure during sojourn in Persia."
- 3.25—Studio Orchestra.
- 3.32—Merna Stewart, soprano.
- 3.39—Bruce Green, Pantomime Dame, in selections from his repertoire.
- 3.50—S. G. Burchall, baritone.

- 4—Studio Orchestra.
- 4.7—Merna Stewart, soprano.
- 4.14—Miss Flora Pell, Supervisor of Domestic Economy, Education Dept.: "Domestic Economy."
- 4.30—Bruce Green, Pantomime Dame, in selections from his repertoire.
- 4.37—S. G. Burchall, baritone.
- 4.45—"Herald" news session. Latest cricket news, by courtesy of Reuters Ltd. Stock Exchange information.
- 5—Close down.

Evening Session.

- 5.45—Children's Hour. Answers to letters and birthday greetings.
- 6—"Little Miss Kookshurna" will tell the tiny tots a dear little tale about "Tom Kitten," and for the bigger boys and girls will repeat the story of "The Wreck of the Dunbar off Sydney Heads—1857."
- 6.40—Latest cricket news, by courtesy of Reuters Ltd. "Argus" and "Herald" news services. Reuters and the Australian Press Association cables.
- 6.53—Weather synopsis. Shipping movements.
- 6.57—Fish Market Reports by J. R. Borrett Ltd.
- 7—Stock Exchange information.
- 7.4—River Reports.
- 7.5—Market Reports by the Victorian Producers' Co-operative Co. Ltd.: Haymarket sheep sales, poultry, grain, chaff, hay, straw, jute, dairy produce, potatoes, and onions. Market prices of oranges and lemons, by the Victorian Central Citrus Association Pty. Ltd.

Night Session.

- 7.20—Under the auspices of the New Settlers' League; Dr. Lang, "Tree Planting at Lismore."
- 7.40—Under the auspices of the Department of Agriculture; Mr. J. M. Ward, Horticultural Superintendent, "Fungus Diseases of Fruit Trees."
- 8—"Fania" performed by the Melbourne Philharmonic Society and the Melbourne Symphony Orchestra, assisted by a chorus of 250 voices. During the interval the British Official Wireless News from Rugby and the latest cricket news will be given from the Studio.
- 10.40—"Argus" news service. Meteorological information. Announcements.
- 11—God Save the King.

TUESDAY, JULY 27.

Midday Session.

- 12—Time Signal. Latest cricket, Australia v. England at Manchester, by courtesy of Reuters Ltd. British Official Wireless News from Rugby. Reuters and the Australian Press Association cables. "Argus" and "Herald" news services. Shipping intelligence.
- 12.45—Stock Exchange information.
- 12.50—Meteorological information. Weather forecasts for Victoria, Tasmania, South Australia and New South Wales. Ocean forecast. River reports.
- 1—Time Signal.
- 1.1—Studio Orchestra.
- 1.10—Arthur Douglas, Scotch humourist.
- 1.17—Studio Orchestra.
- 1.27—Scott Sanders, Tramp comedian, in ten minutes of fun.
- 1.37—Arthur Douglas, Scotch humourist.
- 1.44—Studio Orchestra.
- 1.54—Scott Sanders, Tramp Comedian, will again entertain you.
- 2—Close down.

Afternoon Session.

- 3—Latest cricket, Australia v. England, at Manchester, by courtesy of Reuters Ltd.
- 3.1—Studio Orchestra.
- 3.10—Keith Desmond, elocutionist.
- 3.20—Elnora Burke, contralto.
- 3.27—Bruce Green, Pantomime Dame, in selections from his repertoire.
- 3.37—Matron Moreland: "Infant Welfare."
- 3.47—Scott Sanders, Tramp Comedian, in ten minutes' fun.
- 3.57—Keith Desmond, elocutionist.
- 4.7—Elnora Burke, contralto.

- 4.14—Bruce Green, Pantomime Dame, in sections from his repertoire.
 4.23—"Au Fait," of Messrs. Buckley & Nunn Ltd.; "Fashion Talk."
 4.30—Scott Sanders, Tramp Comedian, in ten minutes' fun.
 4.45—Latest cricket, Australia v. England, at Manchester, by courtesy of Reuters Ltd. "Herald" news service. Stock Exchange information.
 5—Close down.

Evening Session.

- 5.45—Children's Hour. Answers to letters and birthday greetings.
 6—"Mary Gunless"—Poems: "The Fairies of Caldon Low" and "We Plough the Fields and Scatter"; "Sorrow for the little ones;" "Tant Malcap Kitten"; Songs by the "Wattle Girl" and "Mary Gunless." For the boys and girls; "A short talk on Tompkins, with Recitals and Poems."
 6.40—Latest cricket, Australia v. England, at Manchester, by courtesy of Reuters Ltd. "Argus" and "Herald" news services. Reuters and the Australian Press Association cables.
 6.53—Weather synopsis.
 6.58—Stock Exchange information.
 7.2—Fish Market Reports by J. R. Borrett Ltd.
 7.4—River Reports.
 7.6—Market Reports by the Victorian Producers' Co-operative Co. Ltd.; Haymarket sales, poultry, grain, chaff, hay, straw, jute, dairy produce, potatoes, and onions.

Night Session.

- 7.30—Under the auspices of the Town Planning Association; Mr. W. A. Wharington, Town Planning Commissioner, "Melbourne's Traffic Problem."
 7.45—Under the auspices of the University Extension Board: Mr. R. J. Barnard, M.A., Senior Lecturer in Mathematics at the University, "The Spectroscope in Modern Astronomy."
 8—Mr. P. Simon Hewitt, "Experiences and Training for a Marathon."
 8.15—Constance Hart, soprano.
 8.25—Flanorets, recited by Mr. Harold Elvins, transmitted from Messrs. Allen and Co.'s Warehouse, Collins St., Melbourne.
 8.7—Constance Hart, soprano.
 9.15—Dr. Lofting Hills, "Popular Science."
 9.30—Bert Howell and his Concert Orchestra, transmitted from the Victory Theatre, St. Kilda.
 10.40—Latest cricket news, by courtesy of Reuters Ltd. "Argus" news service. British Official Wireless News from Rugby. Meteorological information. Announcements, etc.
 11—God Save the King.

WEDNESDAY, JULY 28.

Midday Session.

- 12—Time Signal. Latest cricket news, by courtesy of Reuters Ltd. British Official Wireless News from Rugby. Reuters and the Australian Press Association cables. "Argus" and "Herald" news services. Shipping intelligence.
 12.35—Stock Exchange information.
 12.50—Meteorological information. Weather forecasts for Victoria, Tasmania, South Australia, and New South Wales. Ocean forecast. River reports.
 1—Time Signal.
 1.1—Le Gassick's Quartette.
 1.16—Scott Sanders, Tramp Comedian, will entertain you for ten minutes.
 1.17—Le Gassick's Quartette.
 1.35—Scott Sanders will again entertain you.
 1.42—Le Gassick's Quartette.
 2—Result of Hallam Trial Hurdle, Melbourne Hunt Club races at Williamstown. Close down.
 2.30—Result of Springvale Corinthian Handicap.

Afternoon Session.

- 2.54—Ernest C. Gram and the Tivoli Orchestra, transmission of first act of Tivoli programme, by permission of Musgrove's Theatres Ltd.
 3.30—Result of Clyde Two-Year-Old Handicap.

- 3.31—Miss S. V. Parker; "R. L. Stevenson."
 3.40—Result of Melbourne Hunt Cup.
 3.46—Keith Desmond, elocutionist.
 3.54—S. G. Burchell, baritone.
 4—Sister Peck, "Muttercraft."
 4.13—Bruce Green, Pantomime Dame, in sections from his repertoire.
 4.23—Result of Havelock Handicap.
 4.34—Keith Desmond, elocutionist.
 4.39—S. G. Burchell, baritone.
 4.47—Bruce Green, Pantomime Dame, in more sections from his repertoire.
 4.55—Result of Dandenong Welter Handicap.
 4.45—Latest cricket news, by courtesy of Reuters Ltd. "Herald" news service. Stock Exchange information.
 5—Close down.

Evening Session.

- 5.45—Children's Hour. Answers to letters and birthday greetings.
 6—Musical Hour arranged by Mr. Fritz B. Hart, Willie McCormack, soprano; Marcell Campbell, violinist; Ida Scott, pianist.
 6.40—Latest cricket scores, by courtesy of Reuters Ltd. "Argus" and "Herald" news services. Reuters and the Australian Press Association cables.
 6.53—Weather Synopsis; Shipping Movements.
 6.58—Stock Exchange information.
 7.2—Fish Market Reports by J. R. Borrett Ltd.
 7.4—River Reports.
 7.6—Market Reports by the Victorian Producers' Co-operative Co. Ltd.; Haymarket Sheep sales; poultry, grain, chaff, hay, straw, jute, dairy produce, potatoes and onions. Market prices of oranges and lemons by the Victorian Central Citrus Association Pty. Ltd.

Night Session.

- 7.30—Under the auspices of the Department of Agriculture; Mr. R. Crowe, Exports Supervisor, "Market Commotion."
 7.40—Mr. P. W. Pearce, "Physical Culture."
 8—"Belle of New York." A musical comedy in two acts. Words by Hugh Merton. Music by Gustave Serke.
 Capt. Peter; "Bunks, Wien and Otherwise."
 10.45—Latest Australian Cricket News, by courtesy of Reuters Ltd. "Argus" news service; Meteorological information; British official wireless news from Rugby.
 11—God Save the King.

THURSDAY, JULY 29.

Midday Session.

- 12 noon—Time Signal. Latest Cricket scores by courtesy of Reuters Ltd. Australian wireless news from Rugby. Reuters and the Australian Press Association cables; "Argus" and "Herald" news services.
 12.15—Community Singing, under the auspices of Community Singers and Concert Goers' Association, transmitted from the Assembly Hall, Collins St., Melbourne.
 12.30—Stock Exchange information; Meteorological information; Weather forecast for Victoria, Tasmania, South Australia and New South Wales.
 2—Close down.

Afternoon Session.

- 3—Latest Cricket scores, by courtesy of Reuters Ltd.; Australia versus Surrey, at the Oval.
 3.1—Studio Orchestra.
 3.10—Scott Sanders, tramp comedian.
 3.20—Tasma Tieran, 'ello solo.
 3.27—Arthur Douglas, Scotch humorist.
 3.34—"Mary Gunless"; The story of "The Lady of the Lake" with recitals of the more descriptive parts.
 3.54—Keith Desmond, elocutionist.
 4.4 Studio Orchestra.
 4.16—Arthur Douglas, Scotch humorist.
 4.23—Studio Orchestra.
 4.30—Latest Cricket scores, by courtesy of Reuters Ltd. Australia versus Surrey at the Oval. "Herald" news service; Stock Exchange information.
 4.45—Evenings, transmitted from St Paul's.
 5.30—Close down.

Evening Session.

- 5.45—Children's Hour. Answers to letters and birthday greetings.
 6—"Mary Gunless"—Poems: "Jack Spratt and his Wife"; "The Christening"; for the boys and girls; "Pokeaway" story, "Hobnob's Locker"; boys; "A Talk on the Victorian Cross."
 6.40—Latest Cricket Scores, by courtesy of Reuters Ltd. Australia versus Surrey, at the Oval. "Argus" and "Herald" news services. Reuters and the Australian Press Association cables.
 6.53—Weather synopsis. Shipping movements.
 6.58—Stock Exchange information.
 7.2—Fish Market reports, by J. R. Borrett Ltd.
 7.4—River reports.
 7.6—Market reports by the Victorian Producers' Co-operative Co. Ltd. Haymarket Sales, Poultry, Grain, Chaff, Hay, Straw, Jute, Dairy Produce, Potatoes and Onions.

Night Session.

- 7.30—Rev. Kenneth Henderson, "Psychology and Religion."
 7.45—Under the auspices of the Health Association, Mr. Borden, "Oral Hygiene."
 8—Ham Johnson's Monte Carlo Band.
 8.10—Mr. Tod Collins, Football Talk. Saturday prospects.
 8.30—Ham Johnson's Monte Carlo Band.
 8.40—Syd. Eaton, tenor.
 8.47—Ham Johnson's Monte Carlo Band.
 8.57—Sidney G. Australia, baritone.
 9—Ham Johnson's Monte Carlo Band.
 9.14—Scott Sanders, tramp comedian.
 9.21—Ham Johnson's Monte Carlo Band.
 9.31—Syd. Eaton, tenor.
 9.38—Ham Johnson's Monte Carlo Band.
 9.48—Sidney G. Burchell, baritone.
 9.55—Ham Johnson's Monte Carlo Band.
 10.15—Announcement. Latest cricket, by courtesy of Reuters Ltd. Australia v. Surrey, at the Oval. British Official Wireless News from Rugby.
 10.25—Arthur Douglas, Scotch humorist.
 10.32—Ham Johnson's Monte Carlo Band.
 10.43—"Argus" News Service. Meteorological information.
 10.55—Ham Johnson's Monte Carlo Band.
 11—God Save the King.

3AR

MELBOURNE

Wavelength, 485 metres. Power, 1000 watts.

FRIDAY, JULY 23.

Morning Session.

- 11.30—The British Official Wireless Press, conveyed by 3AR's operator from Rugby Wireless Station, England. Express train information.
 12—Time Signal Chime from the G.P.O., 12, Beach Street. Studio Barometer and Outdoor Thermometer readings. 1st Weather Forecast. Events of the day.
 12.5—Musical Selections, relayed from Hoyt's De Luxe, Bourke Street.
 12.30—Stock Exchange news.
 12.35—General Market Reports.
 12.40—Musical Selections.
 12.55—Mail Notices. Shipping Movements.
 1—Close down.

Afternoon Session.

- 2.30—Hoyt's Premier Orchestra, under the direction of Miss Ella Brien, relayed from the De Luxe, Bourke Street.
 3—The Glaciarium Orchestra, under the direction of Mr. Ed. Butler, relayed from the Glaciarium.
 4—Time Signal Chime from the G.P.O., Elizabeth Street. Studio Barometer and Outdoor Thermometer readings. 2nd Weather Forecast. Orchestral Selections.
 4.30—Mr. H. Standley Haines will speak to the children on "Interesting Botany."
 4.55—The Evening Amusement Guide.
 5—Time Signal Chime from the G.P.O., Elizabeth Street. Studio Barometer and Outdoor Thermometer readings. Close down.

What I See and Hear

RADIO IN CHINA.

Radio in China is under Government control and in only two treaty ports is there any broadcasting.

In Hong Kong there is a 1500 watt Government station operating on 350-360 metres. The Hong Kong Hotel Company also operate a small 100 watt station.

Inventor of Valves.

The inventor of the thermionic valve, Dr. J. A. Fleming, F.R.S., has just resigned the Chair of Electrical Engineering at the University of London. Dr. Fleming took out patents covering his invention in 1904, but they were contested in the American courts, but decisions were given in his favour.

Battery Shipments.

The largest shipments of Burgess radio batteries yet consigned to Australia will arrive at the end of this month on the steamships Nardana and Lorenzo.

Radio Booms in Japan.

Japan is England's best customer for wireless goods. Imports from England to Japan totalled £173,000, £98,640, and £164,600 in 1922, 1923, and 1924 respectively.

With Captain Hurley to the Islands.

When Captain Hurley—of moving picture fame—we all remember his last picture "The Jungle Woman"—went to the Islands on further picture exploits, he took with him an eight valve super-het, which, by the way, was built from "General Instruments" parts, and as usual, Burgess Batteries were chosen to supply the electric energy.

Although, as we know, Captain Hurley being an explorer, is a man of many parts, he does not admit to being a wireless expert, but he has evidently mastered his set, for he has cabled: "Congratulations on magnificent set. Getting all Australian stations, also Honolulu. Enthusiastic over results."

We wonder what the natives had to say.

Quality Batteries in Demand.

During the last few days it has been difficult to obtain "Philco" products, owing to the dealers being "sold out."

The Agents for the Philco Coy., in explanation advise that owing to the rapid increased demand for quality batteries, coupled with a slight delay in shipping, they have been unable to fulfil dealers' orders. This particularly applies to the 83X, 86H and DXO type of B batteries.

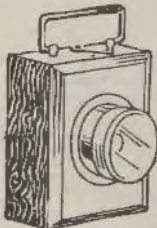
However, it is good to know big shipments are now being unloaded at wharves and will be available for distribution this week. *

EVER-READY

TORCHES & LAMPS

SAFETY FIRST—UTILITY ALWAYS

LOOK FOR THE TRADE MARK



"EVER-READY" ELECTRIC HAND LAMPS WITH DRY BATTERIES.

No. 1283. The "Popular" Hand Lamp is of excellent quality and finish. The fittings are of solid brass, polished and heavily nickel plated. Cases containing dry battery are substantially made of selected hardwoods. Size: 5 x 3 3/4 x 3 3/4; Weight: 1 lb. 7 ozs. PRICE 12/9 complete.



"EVER-READY" ELECTRICAL TORCHES, WITH BELL-MOUTH REFLECTORS AND SPARE BELL CONTAINERS.

	Price complete.
No. 1548 B.M.	14/-
No. 1661 B.M. 3 cells x 9 1/4	16/-
No. 1562 B.M. x 9 1/4 ..	17/6
Spare Batteries.	
No. 1547, each	1/8
No. 1, each	2/3
No. 1, each	2/3

"EVER-READY" POCKET LAMPS.



"EVER-READY" ELECTRICAL TORCHES, LEATHER COVERED.

No. 1547. Fitted with permanent switch, 8/9 complete.
No. 1839L. Price complete, 6/6.
No. 1551. Price complete, 11/3.

No. 2082. Covered Leatherette with strongly constructed metal bodies, heavily plated solid brass top and bottom caps. PRICE 4/- complete.

No. 2080. Leather covered and airtone metal body, top and bottom caps and heavily nickel plated. Solid brass. PRICE 3/6 complete.



"EVER-READY" TORCH BATTERIES FROM 10d. EACH UPWARDS

All "Ever-Ready" Torches and Lamps are obtainable from up-to-date dealers throughout Australia

WIRELESS BATTERIES.—Write for a copy of the descriptive pamphlet of these, with prices.

If unobtainable locally, write for address of nearest source of supply.

Tasmania:
Wills & Co.,
7 Quadrant, Launceston.
84 Elizabeth St., Hobart.

West Australia:
Harris, Scarfe &
Sandovers Ltd.,
Hay St., Perth.

DISTRIBUTORS:
New South Wales:
The Ever-Ready Co.
(Great Britain) Ltd.,
163 Pitt St., Sydney.

Victoria:
J. L. Newbigin Pty. Ltd.,
101 Queen St.,
Melbourne.

Queensland:
Edison Swan
Electric Co.,
156 Creek St., Brisbane.

South Australia:
S. Hoffmann & Co. Ltd.,
126 Grenfell St.
Adelaide.

Early Evening Session.

The Children's Corner, by Uncle Red.

Evening Session.

- 2.—Time Signal Chime from the G.P.O., Elizabeth Street. Studio Barometer and Outdoor Thermometer readings. The British Official Wireless Press. Progress Results of the Billiard Tournament at Tattersall's Club.
- 8.8.—Hearing Anticipations and the following week's Sporting Events, by "Field Glasses."
- 9.16.—Mr. R. Scandley Haines' Weekly Gardening Talk "Round the Flower Garden."
- 9.36.—Mrs. H. M. Rowe, soprano.
- 9.46.—Madam Roper-Easton, French talk.
- 9.56.—Miss Hazel Goss, violinist.
- 9.—Mr. C. E. Goss will speak on the "Recording and Reproduction of Sound."
- 9.16.—Mrs. H. M. Rowe, soprano.
- 9.26.—Mr. R. G. Goss, baritone.
- 9.36.—Mr. Harold Davis, bass-baritone.
- 9.36.—Miss Hazel Goss, violinist.
- 9.46.—Mr. Harold Davis, bass-baritone.
- 9.56.—Pianoforte recitals.
- 10.—Time Signal Chime from the G.P.O., Elizabeth Street. Studio Barometer and Outdoor Thermometer readings. Progress results of the Billiard Tournament from Tattersall's Club. "The Ace" news bulletin, exclusive to S.A.R.
- 10.4.—Laggett's Ballroom Orchestra, relayed from Freshair.
- 11.—Close down.



CENTRAL BROADCASTERS LTD.

Call Sign, 5CL. Wavelength, 306 metres. Input, 5 K.W.

FRIDAY, JULY 23.

Morning Session.

- 11.30.—G.P.O. Chimes.
- 11.31.—Featuring a Stock Duo Art Number.
- 11.40.—"Advertiser" News Service.
- 11.55.—Vocalion number.
- 12.—G.P.O. Chimes.
- 12.1.—"Advertiser" News Service and Cricket scores.
- 12.16.—Featuring a Stock Duo Art Number; The 5CL Studio Orchestra will play:—Overture; cornet solo; fox trot.
- 1.—Relay from the Adelaide Town Hall—Commonly Singing.
- 1.05 (approx.)—Ward & Co.'s Stock Exchange Intelligence; Weather Reports and Station Announcements.
- 2.—G.P.O. Chimes.

Afternoon Session.

- 3.—G.P.O. Chimes.
- 3.1.—Relay from "Maple Leaf" Cafe—Orchestral numbers.
- 3.45.—From Studio—Serial Story.
- 4.—G.P.O. Chimes.
- 4.1.—Broadcast from "Arcadia" Cafe—Orchestral numbers.
- 4.55.—Stock Exchange Reports, General Information, and Station Announcements.
- 5.—G.P.O. Chimes.

Evening Session.

- 6.30.—G.P.O. Chimes.
- 6.31.—Bedtime Stories.
- 7.30.—Market Reports and Station Announcements.
- 7.40.—Sporting Talk, by "Old Timer."
- 8.—G.P.O. Chimes.
- 8.1.—During the evening the Merry-makers' Orchestra will be heard in a series of popular numbers interspersed with vocal items by Miss Grace Casson, Miss Linda Wald, and Mr. Lionel Clarke.
- 9.1.—Weather Reports.
- 9.3.—Merry-makers' Orchestra, continued.
- 10.15 (approx.)—"Advertiser" News Service and shiga within wireless range.
- 10.30.—Merry-makers', continued.

10.55.—Station Announcements and Cricket scores.

11.—G.P.O. Chimes; National Anthem.

SATURDAY, JULY 24.

Morning Session.

- 10.30.—G.P.O. Chimes.
- 10.31.—The 5CL Studio Orchestra will play:—Selection; violin solo; fox trot; waltz; minnie; three dances; cornet solo; finale.
- 11.45.—Ward & Co.'s Stock Exchange Intelligence; Official Weather Reports.
- 12.—G.P.O. Chimes; Station announcements.

Afternoon Session.

- 1.—Relay from Morphettville by permission of Tattersall's Club, running description of the racing, by Mr. Arnold Treloar. From the Studio—A Grade football results; Interstate football and sporting results when available.

Evening Session.

- 6.30.—G.P.O. Chimes.
- 6.31.—Bedtime Stories.
- 7.30.—Market Reports and Station Announcements.
- 7.40.—Resume of chief sporting results throughout the Commonwealth.
- 8.—G.P.O. Chimes.
- 8.1.—Concert relayed from the Black Forest Baptist Church.
- 8.—G.P.O. Chimes.
- 10.—Relay from Palais Royal, Tom Swift's "Palais Royal Orchestra in a programme of dance music."
- 10.15.—"Advertiser" News Service and sporting results.
- 10.30.—Relay from Palais Royal.
- 10.55.—Station Announcements and International Cricket.
- 11.—G.P.O. Chimes; National Anthem.

SUNDAY, JULY 25.

Morning Session.

- 10.55.—Relay from Rose Park Consecrational Church—Divine Service; Preacher: Rev. Walter Grimmett.
- 8.—Studio Concert.

Afternoon Session.

- 3.45.—Pleasant Sunday afternoon service, relayed from Black Forest Church.

Evening Session.

- 6.30.—G.P.O. Chimes.
- 6.31.—Sunday Stories for the children by "King Electron."
- 7.—Relay from Black Forest Baptist Church—Divine Service.
- 8.15 (approx.)—Studio concert.
- 10.55.—Station Announcements.
- 11.—G.P.O. Chimes.

MONDAY, JULY 26.

Morning Session.

- 11.30.—G.P.O. Chimes.
- 11.31.—Featuring a Stock Duo Art Number.
- 11.40.—"Advertiser" News Service.
- 11.55.—Vocalion number.
- 12.—G.P.O. Chimes.
- 12.1.—"Advertiser" News Service and Cricket scores.
- 12.16.—Featuring a Stock Duo Art Number; The 5CL Studio Orchestra will play:—Overture; cello; fox trot; waltz; minnie; oriental; intermezzo; selection; finale.
- 1.35 (approx.)—Ward & Co.'s Stock Exchange Intelligence; Weather Reports and Station Announcements.
- 2.—G.P.O. Chimes.

Afternoon Session.

- 3.—G.P.O. Chimes.
- 3.1.—Relay from "Maple Leaf" Cafe—Orchestral numbers.
- 3.45.—From Studio—Serial Story.
- 4.—G.P.O. Chimes.
- 4.1.—Broadcast from "Arcadia" Cafe—Orchestral numbers.
- 4.55.—Stock Exchange Reports, General Information, and Station Announcements.
- 5.—G.P.O. Chimes.

Evening Session.

- 6.30.—G.P.O. Chimes.
- 6.31.—Bedtime Stories.
- 7.—Relay from "Maple Leaf" Cafe—Orchestral numbers.
- 7.40.—Sporting Talk, by "Old Timer."
- 8.—G.P.O. Chimes.
- 8.1.—During the evening the Merry-makers' Orchestra will be heard in a series of popular numbers interspersed with vocal items by Miss Grace Casson, Miss Linda Wald, and Mr. Lionel Clarke.
- 9.1.—Weather Reports.
- 9.3.—Merry-makers' Orchestra, continued.
- 10.15 (approx.)—"Advertiser" News Service and shiga within wireless range.
- 10.30.—Merry-makers', continued.

7.30.—Mr. Alexander will talk on the leather industry.

7.30.—Market Reports.

7.40.—Mr. Friederickson will give a talk on "Motoring."

7.50.—Dentistry talk by Mr. Dungey.

8.—G.P.O. Chimes.

8.1.—Relay from the Palais Royal, Tom Swift's "Palais Royal Orchestra in a programme of dance numbers, interspersed with vocal items by Mr. Ken Hughes, Miss Jean Sinclair, Miss Grace Casson, and Mr. A. Robertson."

8.—G.P.O. Chimes.

9.1.—Weather Reports.

9.3.—Palais Royal Orchestra, continued.

10.15.—"Advertiser" News Service.

10.30.—Palais Royal Orchestra, continued.

10.55.—Station Announcements and Cricket scores.

11.—G.P.O. Chimes; National Anthem.

TUESDAY, JULY 27.

Morning Session.

- 11.30.—G.P.O. Chimes.
- 11.31.—Featuring a Stock Duo Art Number.
- 11.40.—"Advertiser" News Service.
- 11.55.—Vocalion number.
- 12.—G.P.O. Chimes.
- 12.1.—"Advertiser" News Service and Cricket scores.
- 12.16.—Featuring a Stock Duo Art Number; The 5CL Studio Orchestra will play:—Selection; cornet; fox trot; waltz; minnie; savoy; Chinese lantern dance; reverie; finale.
- 1.05 (approx.)—Ward & Co.'s Stock Exchange Intelligence; Weather Reports and Station Announcements.
- 2.—G.P.O. Chimes.

Afternoon Session.

- 3.—G.P.O. Chimes.
- 3.1.—Relay from "Maple Leaf" Cafe—Orchestral numbers.
- 3.45.—From Studio—Serial Story.
- 4.—G.P.O. Chimes.
- 4.1.—Broadcast from "Arcadia" Cafe—Orchestral numbers.
- 4.55.—Stock Exchange Reports, General Information, and Station Announcements.
- 5.—G.P.O. Chimes.

Evening Session.

- 6.30.—G.P.O. Chimes.
- 6.31.—Bedtime Stories.
- 7.30.—Market Reports and Stock Exchange Intelligence.
- 7.40.—Mixing Talk by Mr. Jackett.
- 8.—During the evening the Cadenzas Quartette will be heard in a series of popular numbers, interspersed with vocal items by Miss Laura Kerrison, Mr. Flaherty, and Miss E. Steward.
- 9.—G.P.O. Chimes.
- 9.1.—Weather Reports.
- 9.3.—Cadenzas Quartette, continued.
- 10.15.—"Advertiser" News Service.
- 10.55.—Station Announcements and Cricket scores.
- 10.30.—Cadenzas Quartette, continued.
- 11.—G.P.O. Chimes; National Anthem.

Evening Session.

- 6.30.—G.P.O. Chimes.
- 6.31.—Bedtime Stories.
- 7.30.—Market Reports and Stock Exchange Intelligence.
- 7.40.—Mixing Talk by Mr. Jackett.
- 8.—During the evening the Cadenzas Quartette will be heard in a series of popular numbers, interspersed with vocal items by Miss Laura Kerrison, Mr. Flaherty, and Miss E. Steward.
- 9.—G.P.O. Chimes.
- 9.1.—Weather Reports.
- 9.3.—Cadenzas Quartette, continued.
- 10.15.—"Advertiser" News Service.
- 10.55.—Station Announcements and Cricket scores.
- 10.30.—Cadenzas Quartette, continued.
- 11.—G.P.O. Chimes; National Anthem.

WEDNESDAY, JULY 28.

Morning Session.

- 11.30.—G.P.O. Chimes.
- 11.31.—Featuring a Stock Duo Art Number.
- 11.40.—"Advertiser" News Service.
- 11.55.—Vocalion number.
- 12.—G.P.O. Chimes.
- 12.1.—"Advertiser" News Service and Cricket scores.
- 12.16.—Featuring a Stock Duo Art Number; The 5CL Studio Orchestra will play:—Overture; violin; fox trot; minnie; selection; waltz; polka; suite; finale.
- 1.55 (approx.)—Ward & Co.'s Stock Exchange Intelligence; Weather Reports and Station Announcements.
- 2.—G.P.O. Chimes.

Afternoon Session.

- 3.—G.P.O. Chimes.
- 3.1.—Relay from "Maple Leaf" Cafe—Orchestral numbers.
- 3.45.—From Studio—Serial Story.
- 4.—G.P.O. Chimes.
- 4.1.—Broadcast from "Arcadia" Cafe—Orchestral numbers.
- 4.55.—Stock Exchange Reports, General Information, and Station Announcements.
- 5.—G.P.O. Chimes.

Evening Session.

- 6.30.—G.P.O. Chimes.
- 6.31.—Bedtime Stories.
- 7.—Relay from "Maple Leaf" Cafe—Orchestral numbers.
- 7.40.—Sporting Talk, by "Old Timer."
- 8.—G.P.O. Chimes.
- 8.1.—During the evening the Merry-makers' Orchestra will be heard in a series of popular numbers interspersed with vocal items by Miss Grace Casson, Miss Linda Wald, and Mr. Lionel Clarke.
- 9.1.—Weather Reports.
- 9.3.—Merry-makers' Orchestra, continued.
- 10.15 (approx.)—"Advertiser" News Service and shiga within wireless range.
- 10.30.—Merry-makers', continued.

4.55—Stock Exchange Reports, General Information, and Station Announcements.
5—G.P.O. Chimes.

Evening Session.

- 5.30—G.P.O. Chimes.
- 6.31—Bedtime Stories.
- 7.40—Market Reports.
- 7.40—Boy Scouts' corner.
- 8—G.P.O. Chimes.
- 8.1—Relay from the Palais Royal, Tom Swift's Palais Royal Orchestra, interspersed with vocal items from the studio by Messrs. Mouton Skinner, Vincent McMurray, and Malcolm Jones, and violin solos by Miss Marie Coghill.
- 8.30—Lecture by Messrs. F. H. Faulding & Co.
- 8.40—Relay from Palais Royal.
- 9—G.P.O. Chimes.
- 9.1—Weather Reports.
- 9.3—Palais Royal Orchestra, continued.
- 10.15—"Advertiser" News Service.
- 10.30—Orchestra continued.
- 10.55—Station Announcements and Cricket scores.
- 11—G.P.O. Chimes; National Anthem.

THURSDAY, JULY 29.

Morning Session.

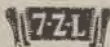
- 11.30—G.P.O. Chimes.
- 11.31—Featuring a Stock Duo Art Number.
- 11.40—"Advertiser" News Service.
- 11.55—Vocalion Number.
- 12—G.P.O. Chimes.
- 12.1—"Advertiser" News Service and Cricket scores.
- 12.15—Featuring a Stock Duo Art Number; The G.C.L. Studio Orchestra will play:— Selection; earnest; fox trot; valse danseuse; caprice; suite; dance tanzweise; instrumental trio; finale.
- 1.05 (approx.)—Ward & Co.'s Stock Exchange Intelligence; Weather Reports and Station Announcements.
- 2—G.P.O. Chimes.

Afternoon Session.

- 3—G.P.O. Chimes.
- 3.1—Relay from "Maple Leaf" Cafe—Orchestral numbers.
- 3.45—From Studio—Serial Story.
- 4—G.P.O. Chimes.
- 4.1—Broadcast from "Arcadia" Cafe—Orchestral numbers.
- 4.55—Stock Exchange Reports, General Information, and Station Announcements.
- 5—G.P.O. Chimes.

Evening Session.

- 6.30—G.P.O. Chimes.
- 6.31—Bedtime Stories.
- 7.15—Health Talk by School for Mothers, arranged by Mr. A. M. Whittenbury.
- 7.30—Market Reports and Stock Exchange Intelligence.
- 7.40—Poultry Talk, by Mr. A. M. Whittenbury.
- 8—The life and work of Mendelssohn.
- 9—G.P.O. Chimes.
- 9.1—Weather Reports.
- 9.3—The Studio Orchestra in a programme of classical music, interspersed with vocal items.
- 10.15—"Advertiser" News Service.
- 10.30—Studio Orchestra, continued.
- 10.55—Station Announcements and Cricket scores.
- 11—G.P.O. Chimes; National Anthem.



HOBART

Wavelength, 254 metres. Temporary Power

FRIDAY, JULY 23.

Morning Session.

- 11—"The Mercury" news, stock market, shipping, commercial intelligence, weather information. Records from the Studio.
- 12—Time Signal.

Afternoon Session.

- 2—Musical items from the Studio, weather information.

DAVID JONES'

FOR RADIO SERVICE



Sale Prices

and 2/- in the £ Discount

RADIO SETS

Now is the time to secure your Wireless Equipment. Sale Prices and the Discount save you Pounds.

This is our standard 2-Valve Set greatly reduced. Complete with all accessories—but not including loud speaker; ready to instal. Every set thoroughly tested, guaranteed to give satisfaction. Usually £12/10/-. Now reduced to . . . £10/10/-

Standard 1-Valve Set with all accessories, not including loud speaker. Usually £8/12/6. Sale Price £6/15/-

Accuratum Dials. Usually 25/-. Sale Price, 17/6

Fada Neutrodyne Kit, consisting of 3 matched neutroformers, 3 variable condensers, 2 neutralising condensers. Usually 8 gns. Sale Price . . 7 gns.

2/- in the £ Discount for Cash

RADIO DEPARTMENT, 22 YORK ST.

DAVID JONES' SALE

- 8.80—Hobart Stock Exchange quotations.
 4—Time Signal.
 Early Evening Session.
 7—Children's Corner, by "Big Brother."
 Evening Session.
 8—"The Mercury" special Tasmanian news service. Railway auction produce sales. Weather forecasts.
 8.5—Hobart Stock Exchange quotations.
 8.10—Weekly gardening chat, by Mr. George Nation.
 8.15—"Sports Budget," supplied by Mr. T. W. Newton, of Hobart Sports Depot.
 8.80—Mr. Jack Broadbent, baritone; Miss Ruby Preece, accompanist; Miss Josephine Balfe, elocutionist; Mr. Alex. Clark, trumpeter.
 9.50—"The Mercury" special interstate news service. Weather synopsis. Station announcements. National Anthem.

SATURDAY, JULY 24.

Morning Session.

- 11—"The Mercury" news, stock market, shipping, commercial intelligence, weather information, and sporting anticipations. Records from the Studio.
 11.45—Hobart Stock Exchange quotations.
 12—Time signal.
 Early Evening Session.
 7—Children's Corner, by Big Brother.
 8—"The Mercury" Special Tasmanian News Service. Railway auction produce sales. Weather information, and sporting results.
 8.5—Hobart Stock Exchange quotations.
 8.10—"Come to Tasmania Movement," by Mr. C. E. Harrison, Traffic Manager of Railway, and member of Fisheries Board. "Angling in Tasmania."
 8.30—Palais de Danse Band, City Hall.
 8.50—"The Mercury" Special Interstate News Service. Weather synopsis. Station announcements. Close down.

SUNDAY, JULY 25.

Evening Session.

- 7—Service from Melville Street Methodist Church, Hobart. Monthly Young People's service, preacher, Rev. Robert Williams.

- Subject: "The art of making friends."
 8.45—Concert from the Studio: Miss Amy Butterworth, pianist; Miss Maryreen Jones, soprano; Mr. Rolf Lysons, baritone; Mr. Joseph Blight, saw soloist; Master Victor Pharaoh, banjo.
 9.45—"The Mercury" Special Interstate News Service. Weather Synopsis. Station announcements. National Anthem.

MONDAY, JULY 26.

Morning Session.

- 11—"The Mercury" news, stock market, shipping, commercial intelligence, weather information. Records from the Studio.
 12—Time signal.

Afternoon Session.

- 8—Musical items from the Studio. Weather information.
 8.30—Hobart Stock Exchange quotations.
 4—Time signal.
 Early Evening Session.
 7—Children's Corner, "Big Brother" chats to his pals.

Evening Session.

- 8—"The Mercury" special Tasmanian news service. Railway auction produce sales. Weather information.
 8.5—Hobart Stock Exchange quotations.
 8.10—Mr. W. H. Clemes, subject, "Lake St. Clair."
 8.30—Miss Dorothy Newton, contralto; Miss Doreen Glover, mezzo contralto; Miss Mable Lamplink, soprano; Miss Evelyn Scetring, soprano; Miss Gretina Wilson, soprano; Miss Amy Butterworth, pianist; Mr. George Muir, tenor; Mr. Ralph Lyons, baritone; Mr. De-la Rere, bass.
 9.45—"The Mercury" special interstate news service. Weather synopsis. Station announcements. National Anthem.

TUESDAY, JULY 27.

Morning Session.

- 11—"The Mercury" news, stock market, shipping, commercial intelligence, weather information. Records from the Studio.
 12—Time Signal.

Afternoon Session.

- 8—Musical items from the Studio. Weather forecasts.
 8.30—Hobart Stock Exchange quotations.
 4—Time Signal.

Early Evening Session.

- 7—Children's Corner. "Big Brother" chats to his pals.
 7.15—The adventures of George the Book-shelf Cat. "George and the First Flat Monkey," by "Aunt Stella."

Evening Session.

- 8—"The Mercury" special Tasmanian news service. Railway auction produce sales. Weather information.
 8.5—Hobart Stock Exchange quotations.
 8.10—Literary Lapses and Library Lists, by Mr. W. R. Fuller.
 8.30—Musical items from the Studio—special request numbers.
 8.35—Cornet solos: Mr. Roy Sutcliffe.
 9—The "Dot" and the "Dots" of Photography, by Mr. C. H. Sims, manager of Kodak Ltd., Hobart.
 9.20—Musical items, continued.
 9.50—"The Mercury" special interstate news service. Weather synopsis. Station announcements. National Anthem.

WEDNESDAY, JULY 28.

- 11—"The Mercury" news, stock market, shipping, commercial intelligence, weather information, and sporting anticipations. Records from the Studio.
 12—Time Signal.

Afternoon Session.

- 8—Records from the Studio. Weather information. Story from "Illustrated Tasmanian Mail."
 8.30—Hobart Stock Exchange quotations.
 4—Time Signal.

Early Evening Session.

- 7—Children's Corner, "Big Brother" chats to his pals.
 7.15—Story from "Illustrated Tasmanian Mail."

*Yours for
 a long,
 Useful life*

IF you are not using the famous Ediswan Valve Combinations you are sacrificing both quality reception and long valve-life. You are missing many possibilities of your set.

Ediswan Valves are the only remedy.

Receiving. Accumulator or Power.
 Battery Volta.

A.R. 4 PV5

A.R.D.E. 2 PV8

A.R.06 3 PV8

With these groups and Ediswan H.T. and L.T. Accumulators the ideal is attained.

All types stocked with English and American Bases.

Leading Dealers sell EDISWAN Goods!

EDISWAN VALVES

EDISON SWAN ELECTRIC CO. LTD., 58 Clarence Street, SYDNEY

—and at Melbourne, Adelaide, and Brisbane.

Guaranteed 2 Years and from 15/- deposit too



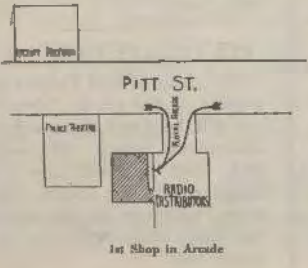
LISTEN IN TO MELBOURNE, BRISBANE, ADELAIDE, ETC., ETC.

	£	s.	d.
1 Valve Sets, per week	0	2	6
2 Valve Sets, per week	0	5	0
3 Valve Sets, per week	0	7	0
4 Valve Sets, per week	0	9	3
5 Valve Sets, per week	0	11	6
5 Valve Sets (Super 5), per week	0	14	0
9 Valve Sets (Super-het.), per week	2	0	0

YOU PAY THE DEPOSIT -- -- -- WE DO THE REST

OPEN TILL 9 p.m. FRIDAYS

*A Beautiful piece of Furniture for your home
Call, Telephone or Write for a demonstration in your own home
No coils to change. For long distance stands supreme*



Radio Distributors

**29 ROYAL ARCADE
SYDNEY**

MA 1790
MA 1744

1st Shop in Arcade

4QG'S UNCLES.

Uncle Ben and Uncle Jim remain very firm favourites with the kiddies at Station 4QG. On a recent evening they took a voyage to Honolulu and managed to cover between four and five thousand miles during half an hour. They have lately been taking listeners on radio motor rides to various towns. Some of their effects are very, very clever.



Arnold Motz, B.A., conductor of the Royal Apollo Male Choir, heard frequently from 2FC.

WIRELESS FROM THE SNOW.

2FC, carrying out its chain of country transmissions, having been so satisfied with the transmission from Canberra, a distance of 220 miles, are now completing arrangements whereby a land line to Kosciusko, 300 miles from the Studio, will be made available on July 31st. A concert from the highest point in Australia will be given to listeners. A 2FC party will journey to Kosciusko and give a special programme from there.

RED INDIANS TO BROADCAST.

The troupe of Red Indians now appearing at the Prince Edward Theatre will be heard from the Lyceum Theatre on Sunday afternoon, July 25th, when they will give a special Indian chant. Mr. Smith, the well-known authority on the customs of the Indian Race, will give an interesting talk.



The "PHILCO" Radio Line is Complete

"A" Batteries, "B" Batteries, Socket Powers, and made in various types to suit the requirements and pocket books of everyone

*"Philco Quality"
is never questioned*

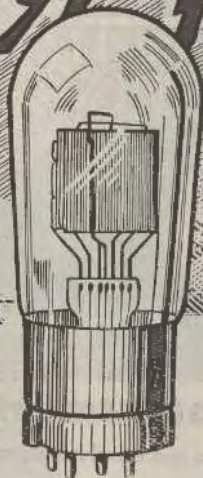
OBTAINABLE ONLY FROM HIGH CLASS DEALERS

WHOLESALE:

NEW SYSTEM TELEPHONES PTY. LTD.
SYDNEY & MELBOURNE & ADELAIDE

PHILCO
DIAMOND GRID
BATTERIES

POWER



Chosen by leading English and Continental amateurs, and used throughout the French War, Navy, and Post Departments, broadcasting and commercial stations

RADIOTECHNIQUE

SCIENTIFIC SUPER VALVES

VALVES THAT SATISFY IN EVERY FEATURE OF SERVICE—POWER—PURITY—LENGTH OF LIFE

SUPER AMPLI

R 46 (201 A)

Filament Voltage, .5 volts.
 Filament Current, .25 A.
 Anode Voltage, 80-160 volts.
 Total Omission, 30-50 M.A. approx.
 Voltage Amplification Factor, 7-10.
 Impedance, 9,000 to 10,000 ohms.
 AS DETECTOR OR AMPLIFIER.

13/6

RADIO MICRO

Filament Voltage, 3-3.5 volts.
 Filament Current, 0.06 A.
 Anode Voltage, 40 to 80 volts.
 Saturation Current, 10 M.A. approx.
 Coefficient of Amplification, 9 to 12.
 Filament Plate Resistance, 25,000-35,000.
 AS DETECTOR OR AMPLIFIER.

OBTAINABLE WITH ENGLISH OR AMERICAN BASE

ASK YOUR DEALER—If you cannot readily obtain supplies please communicate with Factory Representatives for Australasia:

BROWN & DUREAU LTD.

BROUGHTON HOUSE, CLARENCE STREET, SYDNEY, and at MELBOURNE, PERTH, WELLINGTON and AUCKLAND, N.Z.



Happiness and Contentment

A perfect night's entertainment brings its own peace and happiness.

PHILIPS VALVES, which give perfect reception, bring a nightly entertainment into your home via Wireless. Purity of tone, and wonderful volume, combined with the undoubted economy in current consumption of these valves, make them the ultimate choice of the discerning buyer. There is a type for every purpose, but for Loud Speaker reception, the B406, the New Wonder Valve, is unexcelled. The main characteristics are as follows:

Filament Voltage, 3.4-4.0 volts. Filament Current, 0.1 amp.
Saturation Current, 30 m.a. Plate Voltage, 20-120 volts.

Let your next Valve be a PHILIPS.

Price 13/6

Obtainable with either Standard English or American Caps, also the New U.X. Cap. Sold by all Radio Dealers.

Makers of the Famous Philips Lamps.

Specify

PHILIPS

2BL'S BRASS QUARTETTE.

Friday, July 30th, will see the usual daily features provided by Broadcasters being transmitted. Dinner music will be featured, and talks on literature and poetry during the afternoon session. Broadcasters' Dinner Orchestra will provide a special dinner programme, and during the evening Broadcasters' Brass Quartette will play selected numbers and the Ahad Duo will provide Haw-



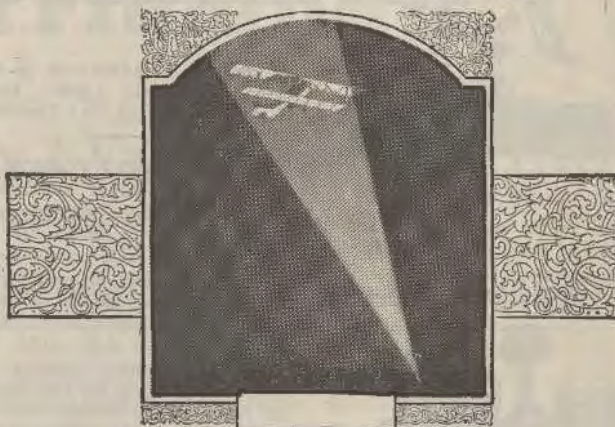
Laurence Halbert, baritone, 2FC.

lian melodies played on string guitars. A special 10 minutes' talk will be delivered entitled "Concerning Your Valve Set," and the Old Sydneyans playing from the Marrickville Town Hall will provide a delightful dance programme. There will be a sporting talk by the senior sporting expert of the "Sun," and Mr. J. M. Prentice will conclude his "Travelogue" series preparatory to a fresh series of "Great Love Stories."

NIGHT FOR NEW ZEALAND.

Following the suggestion made in the daily papers, 2FC promptly arranged a night whereby listeners of New Zealand could be given a programme to suit their inclinations. As we know, New Zealand listens extensively to Australia, and on Thursday evening, July 29th, the whole of the programme from 2FC will be either composed of New Zealanders or consist of items composed or written by natives of the Dominion. 2FC promises a very fine programme on that night.

ASK . . ANY . . RADIO . . ENGINEER



An every-night adventure of Burgess Radio Batteries

ONE of the reasons why you should always buy Burgess Radio Batteries is that the batteries used by air-mail pilots—battleships—explorers—and the majority of recognized radio engineers—are evolved in the Burgess Laboratories and manufactured in the Burgess factory.

These batteries are identical with the batteries sold by your dealer and thousands of other good dealers everywhere.

Only Obtainable from High-Class Dealers

WHOLESALE:

New System Telephones Pty. Ltd.

280 CASTLEREAGH ST., SYDNEY
ALSO MELBOURNE AND ADELAIDE



BURGESS RADIO BATTERIES



New Radio Apparatus

two washers for adjustment to any thickness of panel. Agents: Amalgamated Wireless (A/sia) Limited.

B-T SHORT WAVE OUTFIT.

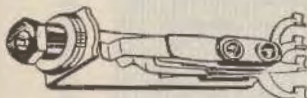
This outfit, which comprises a number of short wave low loss coils necessary to cover a wave range from 12½ to 25, 25 to 50, 50 to 100 and 100



to 200 metres, is now being marketed by United Distributors Limited. The coils are interchangeable and easily fixed, and are wound on the latest approved principles. They are ruggedly constructed, of a good appearance, and should prove invaluable to many enthusiasts who are anxious to receive short wave signals or broadcasting.

B.M.S. JACKS.

Amongst the many attractive new lines now on the market are B.M.S. Jacks. Their features may be summed up briefly as follows: Fantail spread construction of cupped con-



tact lugs, simplifying soldering connections, and eliminating bending springs; solid brass, heavily nickel-plated frame; high-tempered, nickel-plated spring blades; pure silver contacts solidly and firmly secured; insulation spacers made of highest grade bakelite; jack nipples built so that the thread cannot strip; extra

PHILCO SOCKET POWERS.

These Philco Socket Power units are made in three general types. Socket power B, to replace "B" batteries on any radio set. Socket power A to supply filament current at 6 volts for any sets having standard storage battery or 5 volt valves; and socket power A.B., which is a combination filament current and plate current supply for sets employing so called dry battery or 3 volt valves, such as the Radiola Superheterodyne. It was thought best to build socket power B and the 6 volt power A as separate units, because of the market that exists for each unit independently of the other.

Philco Socket Powers employ full wave rectification with small aluminium electrolytic rectifier cells of the kind perfected by Philco, and used so successfully for the past two years in chargers. They are the heart of socket power B, and to



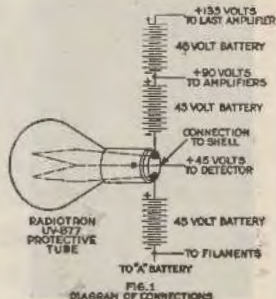
them chiefly is due the success of Philco, where battery substitutes using vacuum tube rectifiers, have failed.

In a later number of this paper, a complete advertisement will give full and more interesting data. Sole Australian Wholesale Suppliers: New System Telephones Pty. Ltd.

RADIOTRON MODEL UV-877.

This is a protective tube designed for use in radio receiving sets to limit the current drawn from "B" batteries in case of accidental short-circuit. The voltage drop across the

tube is low under normal conditions, and does not affect the operation of the receiving set. With a current of 20 milliamperes flowing through the filament, the voltage drop will be 2.5 volts across each half of 5 volts across the entire filament. With a current of 90 milliamperes the volt-

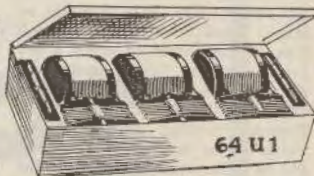


age drop will be 45 and 90 volts respectively.

Agents: Australian General Electrical Company.

THE "FADA" NEUTRODYNE KIT.

The Neurodyne receiver is fast becoming very popular in this country, so that the "Fada" Neurodyne kit illustrated here, which is handled by David Jones Limited, should have a wide field. The kit comprises two neutroformers, three variable condensers and three neutrodons. The neutroformers are matched, and are mounted on respective condensers. It



is sold complete with a book of illustrations, which gives minute details for construction.

A Triumph!

The Efficient

Wireless Weekly 2-Valve "Reflex" Receiver

enables you to get

Full Loud Speaker Strength from Interstate Stations

Not only a triumph in 2-Valve Sets, but the most economical of Sets, bringing as it does an efficient Receiver of Loud Speaker Strength within reach of every home.

We feature below a complete list of "Reflex" component parts, marked at the lowest possible prices; and it will be the pleasure of our Wireless Expert to accord purchasers every assistance and the fullest advice in the construction of this wonder Receiver.

COMPONENT PARTS FOR THE "REFLEX"

- | | | | |
|---|-----------|---|-----------------|
| 1 Panel, 16 x 7 x 3/16 | 7/- | 2 Transformers, 3 $\frac{1}{2}$ or 4 to 1, as desired | 21/- each |
| 2 Dials, 4in., Bakelite | 4/- each | 1 Carborundum Crystal Detector | 11/- each |
| 2 Movable Coil Mounts, De Luxe Bakelite | 3/3 each | 1 .001 Fixed Condenser, "Freshman" | 2/6 each |
| 1 Fixed Coil Mount, De Luxe Bakelite | 3/- each | 1 .002 Fixed Condenser | 1/6 or 2/6 each |
| 1 Variable Condenser, .0005 | 12/6 each | 1 .0003 Fixed Condenser | 1/6 or 2/6 each |
| 1 Variable Condenser, .001 | 15/- each | 1 Grid Bias Battery, E.R. 126 | 2/9 each |
| 2 Rheostats (to suit valves used) | 4/6 each | 4 Terminals | 2d. or 4d. each |
| 2 Valve Sockets (to suit valves used) | 3/- each | 6 Lengths Bus Bar Wire | 6d. |
| | | 1 Baseboard, Wood Screws | 2/- |

Medium quality Components are given, but higher quality parts may be had

CHOICE OF ACCESSORIES.

- 2 Valves—any good type 13/6 each
- 60 Volt Ever Ready "B" Batteries 18/- each
- 30 Volt Ever Ready "B" Batteries 9/6 each
- 60 volt Helesen "B" Batteries 17/6 each
- 1 $\frac{1}{2}$ Volt Dry Batteries 2/9 and 3/- each

GLYDE ACCUMULATORS.

- Complete Price List on application.
- Honeycomb Coils—All Makes Stocked.
- Emmco Vernier Dials (Metal) 6/9 each
- Emmco Vernier Dials (Bakelite) 9/6 each

Efficient Loud Speakers recommended for the "Reflex" (Reasonably Priced)

- "Amplion" Dragon Fly 25/-
- "Manhattan Junior Adjustable" 37/6
- "Ultra" 50/-
- "Amplion" Junior III 70/-

Everyone of these Loud Speakers is not only efficient in every way, but also has clarity and power, thus ensuring you the finest possible results.

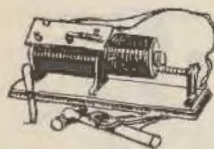
COUNTRY READERS! THIS IS THE IDEAL SET FOR YOU!

Write direct to our Wireless Expert, and it will be his pleasure to supply you with the fullest particulars.

"The World's
Greatest
Sports Store"



Headquarters
HAYMARKET
SYDNEY



Beginners' Problems



I HAVE a three coil receiver with a separate three stage audio amplifier. The set does not work as it is, and I would like you to give me a full diagram of a three coil circuit, using three stages of audio amplification."

A.: If you have been endeavouring to use three stages of transformer coupled audio amplification, there is no doubt but that your trouble is caused by excessive audio amplification. Three stages of audio can be used if all the transformers have a very low rate, but if moderately high ratio transformers are used grid leaks will have to be inserted across each secondary to decrease the amplification per stage. Three stages of audio amplification are only common in Reflex sets, impedance and resistance audio amplifiers. We suggest you drop one stage. See "Wireless Weekly" dated Feb. 19, describing the "All Australian" receiver.

A Mosman reader writes: "Please advise me through your radio columns regarding the following query:—I live in a house which has three flats. The owners of two of the flats have valve receivers, and both use the tap over their sink for the earth connection. I have become interested, and wish to purchase a receiver, but am anxious to know if I shall interfere with my neighbours' reception if I use the same method of earthing my receiver."

A.: If the receivers are regenerative and are improperly operated there will be interference, but if the sets are carefully handled or are of the neutrodyne type, no interference whatever will be experienced. See "Wireless Weekly" dated March 12 for constructional details of the neutrodyne receiver.

"Will you please explain what capacity is as applied to radio and electrical circuits?"

A.: Crudely speaking, capacity might be said to be to electricity what a sponge is to water. It soaks up and stores it until at some later

instant something happens to release it. This analogy is by no means accurate, but serves to explain the action of capacity. In many ways it would be more true to liken capacity to an air or gas tank. Capacity depends upon the fact that like charges of electricity (that is, two positive or two negative charges) repel each other, while unlike ones attract each other. The amount of attraction or repulsion varies inversely as the square of the distance. That is, it is greater the less the distance, and vice versa.

When a wire or plate carrying a positive charge is placed near a wire or plate carrying a negative charge, these charges will attract each other and it will be possible to store up electricity on the two wires or plates. A piece of apparatus for supplying capacity in a radio or electrical circuit is called a condenser, and the amount of electricity it can store up depends upon the following: (1) The area of the surface of the plate. (2) The number of plates used. (3) The distances between the plates and the insulating substance used.

Mica, glass, paper, and many other substances, when used to separate the plates, give the condenser many times the capacity it would have if air were used. Such materials are convenient in building small compact condensers of high capacity.

"Can dry cell batteries be used for lighting the filaments of D.V.5 valves?"

A.: "A" batteries for lighting the filaments of valves may be either dry cells or wet accumulators. If the valve requires a filament current of 25 amps, as is the case with the D.V.5, it is far more economical to use an accumulator, as these may be recharged inexpensively, whereas when dry cells once lose their power they are of no further use, and they must be thrown away and new ones purchased. A constant discharge of .25 amps would be a rather heavy drain even on the large type of dry cells manufactured.

Accumulators have another advantage in that their voltage does not begin to fall off rapidly until they

have been considerably discharged, while the voltage of the dry cell begins to fall off immediately after put into service. Readers should, however, definitely understand that dry cell "A" batteries are very efficient with the dry cell types of valves, whose filament current is usually not greater than .08 amps.

A Western Australian reader writes: "In a recent edition of 'Wireless Weekly' you mentioned hand capacity. As I experience this radio ailment very extensively I was somewhat disappointed when you did not explain how to overcome it."

A.: Many broadcast listeners have at some time or other sat patiently for long periods on end endeavouring to tune-in a distant station, and have been rewarded with a faint trace of music or speech which have completely disappeared the moment they have released their hands from the tuning dials. This effect is known as hand or body capacity, and results in a false tuning being obtained.

There are a number of factors which contribute to this annoyance. They are as follow:—A poor aerial or earth connection, poor arrangement of the components, and spacing of the wiring, resulting in an inherent tendency of the set to oscillate. The hand or body may cause the set to oscillate or in some cases to just render induced oscillation controllable, and thus signals are obtained which are either absent or distorted when the hand or body is removed. The following rules are worth while remembering when wiring a receiver:—With a straight-out detecting circuit the moving plate condenser connections should always be joined to the filament end of the tuning coil. Where a stage of radio frequency, tuned plate method, is used, the moving plate connection must go to the positive B and the fixed plate connection to the plate of the valve. All plate and grid wires should be kept as short as possible.

LARGER PREMISES for ECONOMIC RADIO STORES

at No. 25 Royal Arcade, Sydney

Right opposite old location

"THE RIGHT RADIO GOODS AT THE RIGHT PRICES"

	s. d.		s. d.
Ebonite Panels: Size, 12 x 9 x 3/16 inches, squared	2 6	Low Loss Condensers: Certified, .001	15 9
Nickel Plated Phone Terminals: per dozen	1 9	Dials for the above condensers: 4 inch, 2/4; 3 inch	1 5
Nickel Plated Double Terminals: each	0 5	Emmco Vernier Dials: Black metal	6 9
Non-removable Binding Posts: N.P., per dozen	2 6	Fresh Ever-Ready "B" Batteries: 60 volts, 18/-; 42 volts, 12/6; 30 volts	9 6
Black Topped Binding Posts: per dozen	3 0	"C" Batteries: Ever-Ready Bias batteries	2 9
Contact Studs or Stops: Complete with nuts, dozen	0 4	Radex Valves: 201A or 199 type, each	7 6
Kester Radio Solder: Makes soldering child's play, tin	2 0	Ediswan Valves: Type R., American base	3 0
Rheostats: Ajax, 6 or 30 ohms., each	2 1	Variable Condensers: With brown bakelite ends, .001, 10/9; .0005	8 6
Super Rheostats: Bakelite, 6 or 30 ohms., each	3 6	Sterling One Stage Amplifiers: Beautifully made	17 6
Potentiometers: Ajax, 400 ohms, each	3 0	Sterling 21 plate Condensers: High grade	13 6
Honeycomb Coils: "Apex" duo lateral, unmounted		Carborundum Detectors: A really "fixed" detector	11 0
Size: 25 35 50 75 100 150 200		Valve Sockets for 199 Valves: Metal shell	1 6
Each: 1/2 1/4 1/7 1/11 2/2 2/4 2/10		Low Loss Sockets for 199 Valves: Porcelain	3 3
Mounted coils, 2/- each extra.			
Low Loss Condensers: Certified, .00035 or .0005	12 0		

Note the New Address:

THE ECONOMIC RADIO STORES

25 ROYAL ARCADE, SYDNEY ☞ 569 HUNTER ST. WEST, NEWCASTLE

'Phone M 3049

Why the new Weco valves will improve your set!

GREATER sensitivity is assured from Weco valves, for when operated at a dull red heat, the new patented tape filament used in the improved Weco valve gives fourteen times the electron emission of thoriated tungsten filaments operating at a bright red heat.



The new Weco valves are now available from regular radio dealers at

17/6

Owing to the unique rigidity of their construction and the special method of supporting the valve elements, Weco valves are positively free from the parasitic noises common to other valves of the dull emitter type.

The extremely low temperature at which Weco valves operate, due to the special oxide coated filament used, ensures longer life than that usually obtainable from ordinary dull emitter valves.

Weco valves are specially graded as detectors and as radio or audio frequency amplifiers.

Standard Telephones and Cables (Australasia) Limited

FORMERLY

Western Electric Company (Australia) Ltd.

192-4 CASTLEREAGH STREET, SYDNEY

THE ALL BLACK'S.

TO rovide old interstate jealousies in Australia, the easiest way is to mention the subject of football. In Victoria the Australian code reigns supreme, and during the six months of the season, the footballers and their prowess monopolises all the conversational attention of a majority of the public. Sometimes they take their football so seriously that an umpire's job is anything but a sinecure, and woe betide the barracker who accidentally speaks from the midst of the wrong faction. In New South Wales the League and Union codes of rugby football hold sway, and in New Zealand they hold the same views. During the next week or so, BLO, Melbourne will give Mr. H. G. Penwill, the secretary of the Victorian Rugby Union an opportunity of extolling the virtues of his game to Victorians, and there may be a few converts to the N.S.W. and N.Z. game. Mr. Penwill will include in his remarks some mention of the internationally famous All Black Rugby Union team which leaves New Zealand at intervals and conquers all opposition. This famous team plays Victoria for the first time on July 24th.

"ALL ALONE."

Song writers usually turn to the sentimental for their inspiration and it is the sentimental ballad that holds longest sway over the fickle public memory. Thus it would appear that all composers were of a lonely impressionable nature. At least, one of BLO, Melbourne's, listeners has formed that opinion. Mr. J. O'Hagan, the young Melbourne song writer who has often been heard in popular vocal numbers from BLO, Melbourne, recently received a letter from a young lady who stated that she was quite sure from the type of songs he featured that he was in need of a friend. "I know from your voice that you are lonely," she said, "especially when you sing such songs as 'I wonder will you think of me,' 'Yearning,' etc., so if you care for my companionship, I would be delighted to help to cheer your existence. The modest correspondent made all arrangements for an appointment, but the lonely song writer was not there.

CARDS TO IRISH AMATEURS.

Mr. W. R. Burne, managing editor of the "Irish Radio Journal," advises that he will be pleased to forward cards to Irish experimenters from amateurs in Australia. Cards should be addressed to the station, c/o "Irish Radio Journal," 34 Dame St., Dublin.

A HOMELY SIMILE.

A Continental wireless journal gives the following explanation of reaction:—"You have a cold in your head. You pass it on to your best girl. You then get rid of your cold, but she gives it back to you, and so on."

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Burgess 45 volt "B" Batteries	1 8 0	Radiotron Valves, UX199	0 13 6
Ever-Ready W.P.40 Batteries	0 12 6	Radiotron Valves, UX201A	0 13 6
American 45 volt Batteries	1 5 0	GECo Valves, RV5	0 13 6
Rayovac 45 volt Batteries	1 16 0	Cunningham Valves, CX301A	0 13 6
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Short Waves—Continued

excluding the other. It may be remarked in passing, that the separations between 3LO, 4QG, and 5CL, are small and could well be improved. The spark signal used by shipping is flat and difficult to tune out, so is avoided by a wide margin, but the question arises whether it is necessary in all parts of Australia to avoid it by the present margin.

It will be seen that wavelengths below 600 metres must be used if a sufficient number of broadcasting stations are to be provided for.

Strength of Signals at Receiving Set.

To separate out certain essential factors in wireless reception, we will consider the reception of signals at a short distance from a sending aerial. The electric field produced by the aerial at a distance, d , from it by an aerial current, I , when radiating a wavelength λ is

$$E = \text{constant} \frac{Ih}{d\lambda}$$

where h is the height of the sending aerial. The above expression gives the electric field on the assumption that the ground over which the waves travel is a perfect electric conductor, and that the wave radiated spreads out hemispherically. There is good experimental evidence for the truth of these assumptions for broadcasting over a few miles in the absence of obstructions (e.g., high steel frame buildings, hills, etc.). The power radiated by the sending station is given by the relation.

$$P = \text{constant} \left(\frac{Ih}{\lambda} \right)^2$$

The intensity of the signals heard by the receiving set depends, of course, on the nature of the aerial used, its size, manner of connection, etc. The theory of the reception signals has been investigated on various assumptions (see Zenneck, *Wireless Telegraphy*, page 304). I think the following is in accordance with observation and accounts for facts which Zenneck's theory appears incapable of accounting for. I refer to the reception of low power waves of 12 metres length at 6000 miles, of 20 metre ones at 12,000 miles, and other cases, now so well known, of

reception of short waves of low power over great distances.

Suppose that a loop of one turn of area A is used for reception. The E.M.F. generated in the loop, which determines the strength of the received signals is,

$$e = \text{constant} \frac{EA}{\lambda}$$

where E , as before, is the field intensity of the waves at the receiving set. If the wavelength of a sending station is altered, but the sending aerial height and current are so adjusted as to keep the power radiated constant, which means that E is kept constant, then the response of the receiving set will vary inversely as the wavelength. For example, suppose a sending station changes its wavelength from 1200 metres to 400 metres without changing the power which it radiates, on this view the intensity of the reception at places close to the sending station will be trebled.

Now, in Australia, possibly a majority of listeners in are within ten miles of the broadcasting stations. It is an essential requirement of the broadcasting services that these listeners in should receive such strong signals that they can be received with a crystal set and a moderate sized aerial. This requirement can be fulfilled, I believe, most easily by the use of a wave under 1000 metres rather than over that length.

In the above discussion, it has been assumed that the earth is a perfect conductor. When waves less than 1000 metres are transmitted over distances of more than a few miles, the direct wave is attenuated by the resistance of the ground, and this attenuation is much greater than for transmission over the sea. The theory of the transmission over the earth's surface has been given by Sommerfeld, and numerical values based on this theory, have been calculated by Dr. Smith-Rose and Dr. Barfield. Assuming a ground conductivity of 10^8 E.S. Units, the intensity of waves of various lengths at various distances is given in terms of the intensity at 1 kilometre (.6 miles).

Intensities at 1 kilometre are unity. Ratio of intensity over land to intensity over perfect conductor.

Distance in kilometres	10	50	100	150
Wavelength 1000 metres	.99	.98	.95	.92
Wavelength 500 metres	.98	.79	.43	.25
Wavelength 100 metres	.18	.09	.01	.005

At a distance of 30 kilometres (18 miles), the 300 metre wave is reduced to one half by attenuation and much more at greater distances; the 1000 metre wave is much less attenuated and is not seriously reduced in intensity up to 100 miles. These theoretical calculations have not been verified by observation, and only give the intensity of the direct ground wave. The indirect wave when about 300 metres long has been detected at 50 miles. The remarkable results at long distances achieved by short waves must be attributed to the indirect wave which has been reflected by the upper atmosphere back to the earth.

If the direct wave over the ground were the only wave, the calculations given above would imply that a 1000 metre wave was superior to a 300 metre one for transmissions greater than 100 miles. At this point we can get at present very little help from theory, and there appear to be few or no records of measured field intensity of broadcasting signals for say, 100 miles and over, for long and short broadcasting waves.

Variations of Signal Strength.

Recent experiments by Professor Appleton and Mr. Barnett have afforded satisfactory evidence of the cause of the variation of day and night signal strength and of the rapid and sometimes large variations in signal strength at night known as night fading. As previously mentioned, evidence of the existence of two waves has been found—a direct one transmitted over the ground, and an indirect one reflected from the upper atmosphere. During the day the indirect ray is of very low intensity, and the signals are carried by the direct ray which is, as we have seen above, attenuated in its passage over the ground and the attenuation is large in the case of short waves over long (broadcasting) distances. At night the indirect ray is stronger than in the day time, so the total mean signal strength of both direct and indirect waves is greater at night. The interference of the two waves at

(Continued on Page 50).

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Not so much the gloriously pure tone or their astonishing range nor the valve-power volume, but it is by their day-in and day-out consistency—the absolute certainty of getting perfect and uninterrupted programmes—that these super crystals have made a new pleasure in Radio. They NEVER vary!

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There are batteries like that. To look at 'em, you'd think they housed a power station. But give them a clock-and-ammeter discharge test. That is—crack them . . . nothing.

Get a P. & R., though, and you get *capacity*, you get service; plates sturdied to work and keep working; terminals petroleum-jelly packed to stop creep; a "Dagenite" cell case which is leak and acid-proof; wood interplate separators tested and re-tested; a battery with a guarantee; which costs no more than the ordinary kind; the battery which is standard to Rolls Royce cars.

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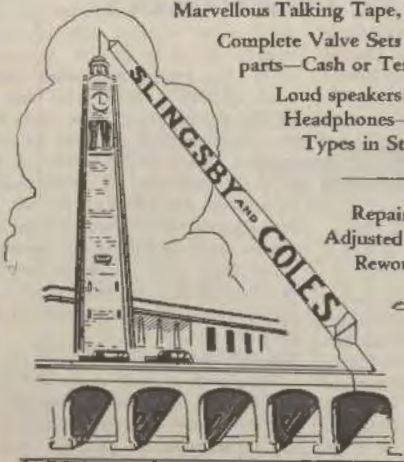
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THE RELIABLE RADIO HOUSE

Short Waves—Continued

night is the cause of night fading, and when the waves are of equal intensities the signal fading may be complete. Appleton and Barnett set up their receiving sets at 100 miles from the British Broadcasting station at Hournemouth, which sent special signals for the test of wavelengths 385 to 395 metres. An indirect wave which had travelled upwards to a height of 50 miles and was then reflected downwards, was detected. It was found as should be the case, that signal variation was greater on a loop than on a vertical, straight aerial.

Broadcasting and Wavelength.

According to the view put forward above, broadcasting on long waves requires greater power than on short waves to give equal response in common types of receiving apparatus. Wireless engineering practice makes the natural frequency of the aerial that of the carrier wave, which means the size of the aerial increases as does the wavelength broadcasted. A survey of actual wireless stations, including both telegraph and telephone stations, shows that in practice high powered stations are required for long waves. The use of long waves for broadcasting appears to be more costly than the use of short ones. Reception at considerable distances no doubt is better from high powered long wave stations.

There seems to be evidence that modulation is better when using 300 to 500 metres than for much longer waves.

The complexity of the reception set increases as the wavelength is increased. It is not necessary to labour this point, as it is a familiar one. The simplicity of a very short wavelength (e.g., 60 metres) receiving set may be instanced. The fact that 250-550 metres waves are used so much in Europe and America for broadcasting makes receiving sets for these wavelengths cheaper than sets for longer wavelengths.

Changing the Wavelength of 3LO.

About a year ago, the number of licenses issued in Victoria was 20,500 when 3LO used a wavelength of 1720 metres. It then changed to its present wavelength of 371 metres, and the

number of licenses has increased to 23,500, or trebled in the course of a year. 3LO has a reputation for its programme, but the extraordinary increase in the interest in broadcasting in Victoria must be largely the consequence of the change of 3LO's wavelength and the increase in power of the station and improvement in modulation which accompanied it. The modulation now attains a standard which is a credit to whoever is responsible for it.

PAPUAN MUSIC ON THE AIR.

Those listeners who saw Captain Frank Hurley's "Pearls and Savages" will remember that the incidental music for the film contained certain original native tunes, which had been secured by Captain Hurley by means of a phonographic record and brought to Sydney. These old tribal melodies were arranged and composed by Mr. Emanuel Aarons, the conductor of the Lyceum Theatre, Sydney, and were published in book form with the story completely illustrated by Messrs. W. H. Paling & Co. On Sunday night, July 25th, the story of these songs will be given from the Station 2FC, and Mr. Aarons will play the melodies himself.

MANAGING DIRECTOR OF 3AR ON LEAVE.

The directors of the Associated Radio Company of Australia Limited have granted to Mr. A. L. Brown, Managing Director, three months leave of absence. While he is away, Mr. E. L. Eiernan, M.L.C., will act as Chairman of Directors and Dr. D. H. McEachern as Acting General Manager.

BOWLS AND MUSIC.

One might well wonder what bowls has to do with music. That there is some connection between the two is evident. The Auchenflower Bowling Club has arranged a musical welcome to the visiting Victorian bowlers, and 4QG is broadcasting the affair. After all, do we not drink most of our toasts to musical honours. So why not bowls and music.

2KY BUSY.

ANOTHER novel feature has been added to the 2KY programme, namely, criticisms of company particulars and investment propositions. In connection with this service a well-known Sydney firm of public accountants has been retained to advise the station on all such matters, and they will act as financial editors.

Shop by Radio.

For the benefit of listeners-in and the public generally, if they desire to avail themselves of the facilities offered, 2KY has organised a Shopping Department, so that any persons, especially those living in the country, can write in and their shopping orders will be executed for them. This should prove a great boon to country listeners-in, who will thus have the advantage of having the station's personal supervision of the selection of their requirements.

Punch and Judy Show.

On Saturday week 2KY is arranging a free Punch and Judy show for the hundreds of children who are now listening-in to the station's Children's Hour. The performance will be staged at the Trades Hall and the proceedings will be broadcast for the benefit of those who cannot attend.

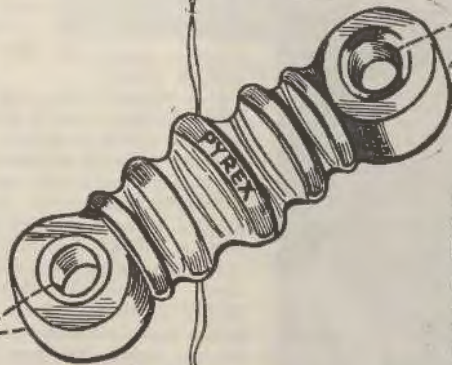
Questions by Radio.

The weekly talking-back lectures on Radio by the designer of 2KY (Mr. E. G. Beard) are meeting with phenomenal success. Mr. Beard is usually timed to go on the air a little after 9 p.m. on Monday nights. Last Monday a listener-in rang up at 8 p.m. and asked if he could hold the telephone line, so that he could be sure of getting in touch. A sort of early door idea. A great number of answers are given on the air, but Mr. Beard's written requests for advice on radio problems are becoming voluminous. All the latter are, as far as possible, answered on the air the following Monday evening or replied to by letter.

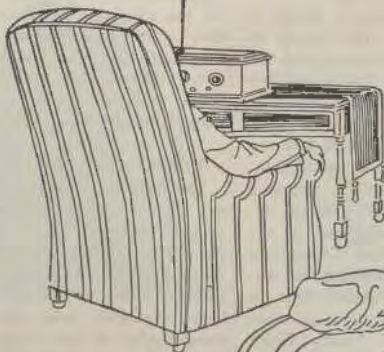
Ringside Broadcasts.

From now on, each week, 2KY will broadcast a ringside description of pugilistic and wrestling contests. The arrangement so far will be for a special feature of this class on each Friday night.

THE IMPORTANCE OF PERFECT INSULATION EMPHASISED



PYREX Insulators



PYREX INSULATORS have improved his radio reception a hundred fold. Now he gets every bit of energy that is on the air. Pyrex Insulators really insulate—they don't let energy leak away.

PYREX is the trade mark of a special composition possessing distinctive electrical characteristics. It is not an ordinary glass—it contains no lead. It is homogeneous and of a continuous uniform structure, and so does not depend for its insulating properties on the surface glaze.

PYREX does not absorb water or attract moisture, and its smooth permanent surface prevents the collection of dust. It is mechanically strong and light in weight, and undoubtedly is the best insulating material obtainable.

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The transmitting and receiving antennae of the McMillan Arctic Expedition are PYREX insulated. 34 Broadcasting Stations in the U.S.A. have recently replaced other insulators with PYREX. The U.S.A. Navy and Coast Guard Lighthouse and Air Mail Service specify and use genuine PYREX.

Programme Personalities



MR. JACK LUMSDAINE represents what is perhaps a rarity in the musical world, an impromptu musical genius. Although 33 years of age, he has an extremely youthful appearance, and represents one of the most likeable and optimistic personalities that it would be possible to meet.

He owes his early musical training to his mother, who, herself a distinguished artiste, taught him singing and the piano, at both of which he is a master. From early boyhood his tastes were all in a musical direction, and even as a youth he composed, sang, and played ditties and musical numbers, which were the delight of the community in which he resided.

He is a native of Sydney, but spent some little time abroad, which was not wasted so far as his musical studies were concerned. In 1911 he obtained his first professional engagement with a touring company known as the "All Blacks," and with this company he toured the whole of Australia for two years, singing and playing for the most part impromptu numbers.

Most Australians will remember the show which toured Australia entitled "M'dlle Mimi," and part of its success was certainly due to the director of the orchestra, Mr. Jack Lumsdaine.

He has been broadcasting for 2FC for the last four or five months, but the "Music while you wait" idea dawned upon him suddenly a couple of weeks ago, and his first attempt in this direction, which was made on July 7th, was an instantaneous suc-

cess. Although 20 lines are connected from the City Exchange, Farmer's switchboard operators were entirely unable to cope with the number of calls that came through. The number, the score of which he com-

posed and sung within a period of 40 minutes on that occasion, will be sung again from 2FC on Wednesday, July 28.



Mr. Jack Lumsdaine.

posed and sung within a period of 40 minutes on that occasion, will be sung again from 2FC on Wednesday, July 28.

To see Mr. Lumsdaine in action is decidedly interesting. He sits at an ordinary telephone in a room just off the Studio, and with the telephone receiver to his ear answers the calls as they come through. On Wednesday night, July 14th, half a dozen calls came through in as many minutes, and at the time he switched off the switchboard operator reported that at the other end of the 20 telephone lines were listeners-in waiting to be put through to Mr. Lumsdaine. The particular item to which he gave attention on that night was "Twenty Years From Now," and it is almost impossible to believe that anybody could sit down at once and write not only the words, but also the music of a title which

has simply been received by telephone.

Humming snatches of song, and tinkling a few notes on the piano from time to time, scribbling hieroglyphics on the score, tapping his foot on the floor, but always concentrating upon his objective, this remarkable man is able to turn out a complete song in the short space of half an hour.

It is beyond question that this particular feature is one of the most remarkable and original items put over by any broadcasting station in the world, and there is little wonder that extraordinary interest has been aroused in the Wednesday night sessions of this artist from 2FC.

Mr. Lumsdaine has been for some time Professional Manager at Messrs. J. Albert & Sons, the well-known music publishers, and, to use his own words, "has been mixed up with the melody business all his life." Amongst the songs already composed and published by Jack Lumsdaine may be mentioned "Wodonga," a hit sung by Ada Reeve, "Cobber of Mine," "Aussie Rose," "Take Me" (featured in "Battling Butler"), "Burma Nights," and "Somewhere South of Shanghai." He has also just written, in conjunction with Walter Bechan, Director of The Californians at the Palais Royal, a fox trot number, "You'll Miss Me When I'm Gone," which will be published shortly.

BRISBANE AUSTRAL CHOR.

The splendid choral numbers which are provided by the Brisbane Austral Choir (under the leadership of Mr. E. R. B. Jordan) continue to be a feature of 4QG's programmes. A further series of engagements have been arranged, and when further transmission of the choir take place from the Ann Street Church, Brisbane, organ numbers by Mr. Archie Day will be interspersed between the choir's numbers.



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NEUTRON CRYSTALS operate a loud Speaker. Many owners of crystal sets are now operating loud speakers with Neutron Crystals. Next month 2BL promises to increase their volume. This will enable the owner of a crystal set to operate a loud speaker with sufficient volume to fill the house, provided he uses a NEUTRON. THE CRYSTAL IN THE BLACK AND GOLD BOX WITH THE SILVER CATSWHISKER.

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The handsome gilt finish is in pleasing contrast to the black terminal board, and all terminals are lacquered and provided with tags.

This model is wound with 12,500 turns of wire on a Stalloy laminated core, and is made in ratios of 1 to 3, and 1 to 5. Under ordinary circumstances 1 to 5 should be used in the first stage of low frequency amplification, and 1 to 3 in the second stage. This Transformer is the finest general purpose instrument available.

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Even the poorest Receiver with its harsh reproduction can be converted into a mellow-toned musical instrument with the new

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Manufactured by Electricity Meter Manufacturing Co. Ltd., Sydney

Radio Auction Bridge

Continued

The answer is contained in the letterpress of the hand above. Read it carefully, as it would take up too much space to repeat.

A.B.C.: When "East" opens the club suit should he not lead the 10? Certainly not. Always lead the highest of a sequence.

"Puzzled": If either of a declarer's adversaries leads out of turn, what is the correct procedure?

The declarer may call a suit from the opponent who next has the lead or he may treat the card led as an exposed card. If both the opponents lead at the same time, the correct lead stands and the other card becomes an exposed card.

"Post-Mortem": I was the declarer, and the player on my left revoked. I made a mental note of this, none of the others noticing it at the time, but I forgot to claim the penalty until half way through the next deal. I was told that I had put my claim in too late. Is this so?

Yes, a revoke cannot be claimed after the cards have been cut for the following deal.

"Nervous": I dealt and held three small spades, 10 of hearts singleton, king queen five times of clubs, king knave four times diamonds, and called one club. Was I right?

I take it the score was nil. It was certainly very light, but I should say you were justified, although it would have been sounder bidding if you had made no bid on the first round and shown the clubs on the second round, if necessary.

"Fun": When the score subtracted amounts to 250 points, exactly which is payable 200 or 300 points?

The former. The difference between your score and your opponents must be 251 in order to collect on 300. If the stakes are large it is usual to pay on the 200 and the 50 nett. There is no rule governing this. It is a matter of custom.

"Poker": Was I correct in bidding one club on ace, king bare and no outside strength? No, I think not. According to some American authorities, they advocate the quick trick bid such as you had, and although the standard of play is very high

there, it certainly appears a very weak bid.

"Inquisitive": What exactly is meant by "flag-flying"?

Defending the rubber game ad nauseam. Some players will not allow the opponents to get the rubber, and they will call up and up and go down repeatedly, and often lose the rubber to boot.

"Gambler": I was in trouble recently. I led the king of spades, then the ace, and because the queen was in dummy, I did not lead them a third time. Hearts were trumps and my partner, at the end of the game, asked me why did I not continue with spades as he had given me the "come-on" signal. What did he mean?

The "come-on" signal, or echo as it is known, is when your partner follows suit with an obviously higher card than his lowest on the first round, and his lowest on the second round. It means that he wishes you to continue with the suit you are leading. I should say that he only had two spades in his hand, perhaps the 3 and 3. On your king he would play the 8 and on your ace he would follow with the 3. He wanted to show you that he would trump the queen which dummy held.

SPORTING INFORMATION.

The entire transmission from 2BL on Saturday, July 31st, following on the physical training exercises, will be devoted to sporting information. Saturday is Broadcasters' special sporting day, and items of information will be broadcast from time to time covering the whole of the sporting activities of New South Wales and the major events of the Commonwealth. During the evening session Mr. and Mrs. Sid Owen will provide a delightful entertainment, including banjo and mandolin solos and vocal items. Mr. Clem Williams will render numbers, and the Enmore Symphony Orchestra will be heard to advantage. The Dinner Orchestra will supply the music during the dinner hour, and the Ambassadors' Dance Orchestra, under the direction of Mr. Al. Hammett, will provide music until midnight. Mr. J. Holmes will deliver the first of a series of talks on the "Romance of the Colonial Clippers."

WHAT COULD BE COLDER?

An amusing touch was added to Jack Lumsdaine's broadcast from 2FC on Wednesday, July 14th, when a Kurri Kurri listener put through a trunk call and asked for a song written around the title "What Could Be Colder Than Now?" But the title selected by Mr. Lumsdaine, "Twenty Years From Now," had already been finalised.

NOVELTY FOR NEW ZEALAND.

A complete novelty for Wellington, New Zealand, was the broadcasting recently of a description of the match between Wellington and New Zealand by the Wellington broadcasting station, 2YK, which is owned by the New Zealand Broadcasting Company. The experiment was a great success, and the manager of the station received an astonishing number of letters, telegrams, and telephone messages all expressing warm appreciation. It is possible that descriptive broadcasting in conjunction with big games, and other sporting stunts will become a regular feature of 2YK.

BIJOU ORCHESTRA.

The Bijou Orchestra, a newcomer to 4QG's programmes, has made quite a "hit." Its recent performances have given evidence of careful rehearsal work.



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