

# WIRELESS WEEKLY

Vol. 9, No. 5.

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## RESCO RADIO

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Extraordinary

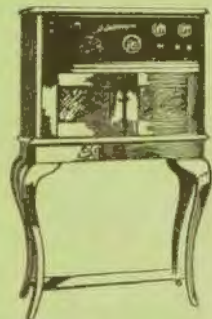
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*Madame Elsa Stralia (above)  
on "The Witchery of Wireless"*



*Radio Time, by James Nangle.  
A Neutralised Two Valve Set.*

# Good Radio Reception

## IS NOT *ALL* IN THE DIALS

**F**USSING with the dials can not always bring in radio signals clear and strong without needless noises.

But when you have batteries with *low internal resistance* signals are not distorted by the cur-

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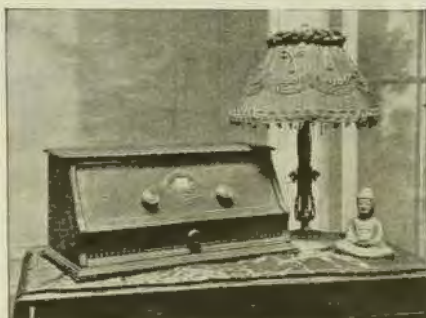
# Radiotron

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# WIRELESS WEEKLY

VOL. 9. No. 5.

FRIDAY, NOV. 26, 1926.

## Limitless Man

**W**HAT should we consider truly great invention? Truly great inventions are those which have created unsuspected possibilities, which have made real the most audacious dreams and predictions of our ancestors.

Among these inventions the most interesting are not those which have merely enabled us to utilise the forces of nature, but those which contribute to the extension of our faculties. Thus the bicycle allows us, without any more effort, to go three times as quickly as on foot. The telephone enables us to hear the human voice over distances which it could not penetrate of its own accord. The cinema shows us happenings which occurred days, months, or years ago in parts of the world where perhaps we shall never go. The phonograph enables us to hear the voices of those passed away.

Finally comes radio communication. It gives us contact with the whole world. By turning two knobs we can hear concerts at Melbourne, Sydney, Adelaide, Brisbane and other places, according to choice. We can learn without delay about everything which happens in the great world around us.

For one who lives in a large town accustomed to the wonders of life, science and art, it is marvellous; but for one who is obliged to live in a little village or in the country, it is more than that. It is freedom from enforced solitude and it is an intellectual regeneration. The hermit himself cannot now lose contact with the world.

In his recently concluded series of articles on the growth and development of radio, Mr. E. T. Fisk points out that radio is the invention of no one man, but the result of researches of scientists, extending back to Queen Elizabeth's time. We could go further and say that the ancient Greek and Chinese helped to develop radio.

But having read the concluding article of the series, we may be pardoned for believing that it was Marconi and none other who was responsible for our present system of broadcasting. It was he who gathered together in a strong rope the threads of reasoning of other scientists and it is his commercial brain which has advanced radio to its present position. It is human nature to look for an idol to which to attribute all truly great inventions.

Madame Elna Strauß, the world-famous Australian contralto, is seen on our cover this week. She contributes an article on her experiences at 2FC on page 4.

# Between You and Me and the Microphone

EACH CABINET officer of the German Government has been supplied with a radio set for his offices, by which he can follow the proceedings of the Reichstag without leaving his desk.



**TORODIUM** is the name of a new metal alloy which has been invented for use in dull emitter valves. It is claimed that it will far outlast the ordinary type of filament because of remarkable powers of emission.

**UNCLE BEN**, of bedtime story fame at 4QG, will shortly publish a "Book o' Fun." Well printed and splendidly illustrated, this book is designed as a Christmas treat for kiddies. An attractive cover design has been arranged. It will contain stories written by the bedtime storytellers at 4QG. The price of the book will be 3/- post free.

**THE SECOND** Children's Radio Voice Competition at 3LO, Melbourne, just over, attracted more than three hundred singers, and, taking everything into consideration, I feel that the 1926 contest showed a great advance upon the one we held last year, says Alfred B. Lane, the adjudicator, in a letter to competitors.

**ARRANGEMENTS** have now been completed by 3LO to broadcast the country races, Bendigo, Woodend, &c. in the same way as the Melbourne races are broadcast. The broadcasting is in the hands of "Musket," of the "Sporting Globe," who will give breezy and graphic descriptions.

**A LISTENER-IN** at Carinda, via Coombale, writing of the Melbourne Cup broadcasting, says: "We received the race clearly and with plenty of volume on the loud speaker. A fair number of graziers have radio sets and the number will be increased by 25 per cent. in 1927; without a receiving set a grazier will be behind the times; it appears to me to be an absolute necessity from a business point of view."

Conducted by  
**R. E. CORDER**

**THE POSTMASTER-GENERAL'S** name is William. Perhaps this is why he is so fond of his Bill.

**A RADIO MAP** machine, operating on the Jenkin's picture-transmission system, is now in use daily broadcasting weather charts from a U.S. station. Tests carried out on several vessels have proved successful.

**A WRITER** in a Sydney paper describes how he had a tooth extracted by radio. He was fixing his wireless set, and climbed a tree to set up the aerial. He fell from the bough and knocked out a large front tooth. This is the first case on record of a dental operation by radio.



**WHOLLY** absorbed in his art with his eyes closed, a violinist at 2GB received a rude shock last week when the accompanist broke into dreadful discord. Opening his eyes, he believed for a moment that he was blind, for the studio was in darkness, the lights having been switched off in error. Strangely enough the experience has greatly increased the artist's respect for the microphone, and he now maintains a careful distance from the instrument.

**A TREMENDOUS** increase in New Zealand radio licenses has resulted from the opening of the new Auckland and Christchurch broadcast stations. The latest figures are as follows: Listeners' licenses (including part time licenses), 6590; amateur transmitting station licenses 105; amateur experimental station licenses 2; dealers' licenses, class 1, 146; ditto class 2, 108; ditto, class 3, 225; ditto, portable, 120; broadcasting station licenses, toll, 4; ditto, private, 6; grand total, 7304. The licenses to date have brought in something like £11,000 to the broadcasting company.

**THE PREFECTURE** of police at Paris has been equipped with the Berlin apparatus, by which facsimiles of the finger prints of criminals can be sent out almost simultaneously to the other leading cities of France when their possessors are wanted.

**3LO** recently entertained the 2FC October Bride. Mr. and Mrs. Bray were the guests of 3LO at various public functions, and also spent a day at Frankston before proceeding to Launceston as the guests of the 50,000 League.

**CAPTAIN HAMMERSLEY**, of the S.S. "City of Windsor," tuned in 4QG on his private three-valve set 3,200 miles out on the Indian Ocean recently. As the vessel steamed closer to the Australian Coast, 4QG was received with great volume and clarity.

**THE RADIO** Corporation of America, the General Electric Company, and the Westinghouse Company are combining together to form the Broadcasting Company of America, which will control the principal broadcasting stations in the United States under one management. The R.C.A. has purchased the well-known station WEAF from the American Telegraph Company, and the Broadcasting Company already controls fourteen smaller stations.

**OLD** schoolbooks spake of three imponderable agents—light, heat and electricity. Light and radio have been brought, by two Russian women scientists, to a meeting point once assigned to radiant heat. All are manifestations of electro-magnetic waves, differing only in frequency.

**A SPECIAL** radio school of instruction in the handling of radio broadcasting receivers is advocated by a well-known radio engineer. Almost all oscillating valve trouble is due to mishandling of sets by unskilled listeners, he claims, in a letter. A listener-in should have to pass a test before obtaining his license, he says, just as a car owner does.



# The Witchery of Wireless

By Madame Elsa Stralia

WHEN one investigates even a little of what happens in a broadcasting studio, the tremendous amount of detail and the several factors contributing towards a good transmission to the listeners, maybe a thousand miles distant, become apparent.

At least, so it seemed to me when I first visited 2FC. Before that experience wireless was chiefly interesting to me as a demonstration of a natural phenomenon—the sound wave which as every musician knows is probably as old as the world itself. There were man-invented things termed transmitters and receivers, which enchained this power of nature, and a thing called a microphone, that made possible the harnessing of the sound waves for the use, or amusement, of humanity, and that was really all there was about it. One simply spoke, sang, or played near the microphone, and Dave Rudd, of Cumanavadrink, or Miss Laloma in Auckland, with the headphones on, promptly became aware of the event.

But I found that there was a great deal more in it than that. Weeks and weeks of preparation, organization, and experiment go into each programme. And when I came to the actual business of broadcasting, it was vastly different from the casual picture I imagined.

The spacious and lofty studio I entered had the walls and vaulted ceiling entirely covered with a heavy pale fawn, or greyish, cloth stuff, hanging in folds in name r a b l e

from top to bottom of the walls, and tightly stretched across the ceiling. The glass of the window was curtained, while the floor was entirely covered by a thick carpet.

‘Tiny brilliant lights flashed out a warning that the transmission was in operation. It signified, too, that all within the place who were not engaged in making a noise (joyful or otherwise) to be broadcast must become silent as the proverbial tomb. Indeed, the room, with its uncanny knack of absorbing sound, much as good blotting paper absorbs ink, was suggestively ghostly. Ghosts are reputed to gesticulate and sign in cryptic fashion, and that was the manner of communication between the inhabitants of the chamber.

These unusual surroundings, eerie and bizarre, naturally affect the emotions of the new radio artist. Thus stimulated, the imagination plays tricks, and in the dead silence the vast unseen audience stares down on one.

But even by holding the imagination in check, and allowing cold reason and a knowledge of acoustics to prevail and explain away the why and wherefore of the dumb show and the tense, sound damped atmosphere, the microphone, alluring instrument, pregnant with suggestion, magnetises the attention and rekindles afresh the feeling of mystery.

For surely into the little white box that served as a casket for the sensitive microphone, the visitants to this haunted room ensigned their wishes, their ideas, their messages to mortals in the outer world—the outer world that, sitting there, I vaguely felt, must be on another planet.

And who knows but, perchance, wireless may one day establish connection with other worlds than ours, those of which astronomers write today? A wild thought this, but typical of those which registered lightning-like on the mind apparatus when we first broadcast.

But these studio impressions are only for a fleeting instant. The artist quickly regains composure, and at the second performance is perfectly at home. It is a repetition of the stage fright of the artist's first appearance in public. One cannot say whether an

experienced performer is more susceptible to “mike” fright than the beginner. Often the experienced performer is taken by surprise by the complete change of surroundings, whereas the amateur, especially the unimaginative, is entirely unaffected.



No, Mr. Anderson wouldn't tell us the joke which he is sharing here with Marie Bremner and the Hello Man. The trio were snapped in the 2FC studio recently.

BURGESS—Are in the Wireless Room of the Leviathan.

In any case, I do not believe that it is lasting.

But there is another fear which assails the broadcast artist, especially the artists of repute. It is one which has prevented listeners from hearing many famous musicians.

It is the fear that the music is distorted by the microphone, and is subject to atmospheric interference. The singer or the player is unable to tell whether the listeners are hearing to the best advantage his or her art. The fear of being misjudged in this fashion is a very real one.

The artist is proud and jealous of his or her reputation, probably the result of a life's devotion to his art. To have it lowered in the minds of some thousands of listeners in through a single broadcast concert, maybe from no fault of his or her own, is too great a risk. This is what has prevented listeners from hearing many of the greatest artists visiting this country, not money. Only those firmly established in public sentiment, generally Australians, are willing to take the risk. This aspect of broadcasting is a serious one for the studio managers, and is the subject of a heated controversy in America at the present time, according to papers I receive regularly from my friends over there. Thomas A. Edison, the famous inventor, leads the side against broadcasting.

Radio, according to Mr. Edison, is impracticable commercially and "aesthetically distorted." He believes it too complicated for operation by the average person. Quoting him: "Music on the radio is awful. I don't see how they can listen to it. Thousands of people have signed a petition asking that sopranos be kept off the air. Most of them don't know that the soprano voice is distorted on the radio."

The entire radio industry seems to be "up in arms" for the defence of its child, issuing statements right and left refuting the inventor's theory.

Radio has reached too great a popularity to be lightly discarded or even disturbed by a statement of a single man, even though that man is respected and honoured throughout the world for success in his line of endeavour.

However, he has voiced the objec-

tion of a section of artists who prefer to make gramophone records rather than broadcast, and before radio can fulfil all the claims made for it, engineers will have to overcome distortion and interference.

The radio writers have advanced the defence that Mr. Edison's statement is paradoxical in view of the fact that the amplifying devices employed in the very modern electric phonographs are distinctly taken from similar systems employed in the average radio receiver. But in the phonograph, one does not encounter static or interference from what you call oscillating valves. Again, the phonograph is a standard production, while

many radio sets are built by their owners.

In defence of broadcasting, however, I would point out that I have followed closely the work of engineers who are rapidly overcoming these objections.

Both radio and the phonograph serve the public in different ways, the radio possesses qualities which the phonograph has not, and vice versa. As both a broadcaster and a maker of records, I have trodden on dangerous ground in this article; however, I believe there is room for both, and that there is no need for any controversy.

## Have You the Time?—by Radio

**W**ATCHES, without mainsprings, operated by radio waves, are a development predicted as a reality of the future. Mr. R. E. Gould, chief of the time section of the U.S. Bureau of Standards, has already approached this marvellous achievement by means of an ingenious device.

This apparatus does not actually pick radio waves or time signals out of the air, but performs the uncanny feat of taking a time signal from a pendulum without mechanical contact with the latter. Seemingly, by means of a combination of a photo-electric cell and a radio amplifier accurate time signals are produced. A beam of light falling upon the sensitive photo-electric cell is interrupted by a swinging pendulum; the result is the light is chopped up and a time signal is yielded.

A 30-day movement clock; a 6-volt concentrated filament lamp of 100-candle power; a photo-electric cell; a radio amplifying unit consisting of two vacuum tubes; a telegraph key; a chronograph drum with paper upon which to record signals automatically; a potentiometer; grid leaks; and batteries are the necessary parts of this invention. "The object of this apparatus," explains Mr. Gould, "is to demonstrate a method to obtain regular time signals from a pendulum without actual mechanical contact."

The source of illumination, a fila-

ment lamp of 100 candle power, is connected by means of a transformer to the ordinary house or office electric lighting circuit. The lamp is mounted in a tiny house and it is provided with lens, thus enabling the proper focusing of the light upon the slit in the black surface containing the clock. The light from the lamp, the slit in the clock case, the end of the clock pendulum (at rest), and the window of the photo-electric cell must converge in the same straight line.

The 30-day-movement clock is equipped with a half-seconds' pendulum. To the end of the latter is placed a hard rubber tube, about three inches long and three-eighths inch in diameter. This rubber tube is sufficiently light to permit of the variation from the half second, due to its weight, to be converted by an adjustment of the pendulum bob. The back glass of the clock case is painted with lampblack with the exception of a tiny slit, about the width of the rubber tube on the end of the pendulum. As the latter swings back and forth, this rubber tube cuts off the light passing through this slit. By a careful levelling of the clock, the successive passages of this pendulum are effected at equal intervals.

Time signals thus taken from a swinging pendulum, without mechanical contact, are accurate to approximately 1 part in 1000.



## Checking up our Time by Wireless

By JAMES NANGLE  
(Government Astronomer)

Signals are now being broadcast from U.S.A., China, and France, by which astronomers are verifying our time. Mr. Nangle explains what part the Sydney Observatory is playing in the experiment.

**W**IRELESS communication is valuable in many directions, but there is one of extreme importance of which little is known to the average listener-in. That is the testing and checking of our time.

Longitude, that is the direction around the earth parallel to the equator, is measured in time from an artificially fixed spot on the surface. Greenwich observatory is the fixed spot. Other places on the earth's surface are fixed in quantities of time east or west of Greenwich. Formerly it was a matter of extreme difficulty to determine just how much in time a place on the earth's surface was East or West of Greenwich. Until lately, great dependence had to be accepted on time keeping apparatus such as chronometers. As a matter of fact, chronometers have been made capable of keeping what is called a very good rate or a constant amount of increase or decrease in the given time.

The telegraph greatly improved the means of more rapidly comparing times between two places. Conse-

quently, determining the longitude. Wireless, however, has placed the means of comparing times on an infinitely better basis.

Just now, an interesting series of comparisons of very exact time at different places on the earth's surface are being carried out with the help of wireless. A cable referring to these observations was published in the Sydney press a few days ago.

It has been realized, for some time, that a re-determination of longitudes should be carried out, especially in view of the fact that wireless transmission of signals offers exceptionally good opportunities for comparing the times at different places on the earth. There is, moreover, a suspicion that movements in the earth's crust affect the constancy of longitude positions.

A Commission was appointed, under the control of General Ferris (France), Professor Sampson (Royal Observatory, Edinburgh), and Captain Pollock (United States Naval Observatory), to investigate the position.

Preliminary experiments having been completed, the actual op-



Mr. James Nangle.

erations commenced on October 1, and will conclude on December 1, 1929. High power stations, selected on account of their geographical positions, are now sending a series of "Vernier" time signals, and are being received by the main observatories.

The Sydney observatory is taking part in this scheme, and although hampered by static during the first few nights, we have already received many excellent signals. The observations are being carried out under my own direction, the time observations by Mr. W. E. Raymond, Chief Assistant, and the wireless signals by Mr. H. E. G. Rayner.

The signals are compared with the observatory's new Shortt clock, by a special method of coincidences devised by Professor Cook, by which it is possible to compare the two clocks to one hundredth of a second. Extreme care has been taken with the transit observations, and it is hoped to obtain a longitude determination free from all mechanical error.

The following table will be of value to those listeners-in who would like to attempt to receive the signals. They are "Vernier" signals, there being 61 signals or dots to each minute. Each series lasts five minutes. This list shows the stations transmitting their wave length, and when their signals begin.

Station	Wave Length		Time of Commencement of Signals.
	in Metres.		
Annapolis (U.S.A.)	17,145	..	6.10 a.m. 1.10 p.m. 8.10 p.m.
Arlington	74.0	..	
or			
Bellevue (U.S.A.)	24.9	..	6.20 a.m. 1.20 p.m. 8.20 p.m.
Honolulu	11,500	..	6.30 a.m. 1.30 p.m. 8.30 p.m.
"	30.8	..	6.40 a.m. 1.40 p.m. 8.40 p.m.
Saigon (China)	17,000	..	
and			
	25	..	5.00 a.m. 9.30 p.m.
Bordeaux (France)	18,000	..	6.01 p.m.
d'Issy (France)	..	..	6.01 a.m. 6.01 p.m.

## Coming Features in the Broadcasting Programmes

FOLLOWING upon the travel talks which have been given at different times from Station 2FC, a number of letters have been received from city residents asking for descriptions of portions of Australia on similar lines. Arrangements have now been made for Mr. E. J. Van de Velde, of Kodak (Australasia) Ltd., through the co-operation of Australian Airways Ltd. to carry out these descriptive talks. Mr. Van de Velde left recently in an Australian Airways Ltd. plane visiting Cootamundra, Narrandera, Hay, Deniliquin, Echuca and Melbourne. On the return journey he proceeded by plane to Hay, Mildura, Broken Hill and then back to Sydney. On this journey Mr. Van de Velde was equipped with a special camera, designed and built in Australia for aerial work, and took a series of pictures from the air. During his stay in Melbourne a talk was given from 3LO station, and on his return to Sydney a further talk will be given from 2FC, describing fully what Mr. Van de Velde saw while covering the 2000 miles journey by air.



Alexander Sverjensky, eminent Russian pianist now in Sydney, who directed a Russian programme from 2FC recently.



The ballet appearing in "Man'selle Taps," the prologue and first act of which will be broadcast from 2FC on Monday, December 6.

ON FRIDAY, sport lovers will hear the latest racing information and tips from 2BL by the senior sporting expert of "The Sun." Madame Phyllis Howe, the English soprano, will sing brackets of pleasing numbers; Miss May Nancarrow, the clever elocutionist, will entertain; Mr. H. Hinchliffe, Miss Phyllis Atkinson, soprano, and Mr. William Everard, tenor, will add their tribute to this excellent programme.

2BL WILL add an additional 15 minutes to their programme on Sunday, commencing at 10.45 and give 15 minutes' news. This will be followed by the Presbyterian Church, Chalmers Street. The afternoon Bible class will commence at 3.30, followed by an organ recital from the Presbyterian Church, Chalmers Street.

ON SATURDAY, 2BL alters its time of transmission, the session commencing at 11 a.m. instead of 10 a.m. and continuing without any interruption until 5 p.m. During the afternoon all the latest sporting information will be broadcast the moment it breaks.

TUESDAY, November 30 being St. Andrew's Day, and St. Andrew being the Patron Saint of Bonnie Scotland, the Melbourne Scots are going to take things into their own hands for the time being, and a "Braw Scots Concert" is to be broadcasted from Studio 3LO, in which the bagpipes will play an important part. Reels and Strathspeys will be the order of the night, and old Scottish glees and folk songs will be rendered from time to time during the evening.

THE DECEMBER and January programmes from 4QG will include contributions by a new party recently organised by the station known as "The Scottish Entertainers." This party comprises three artists, "Rab," "Tam," and "Jock," and solos, vocal duets, vocal trios, and humorous Scotch items will be provided by its members.

EARLY IN December 4QG will broadcast a description of Queen St., Brisbane at night-time. A microphone will be mounted on the balcony of the Hotel Carlton, and an announcer stationed near it will describe the scene. Street noises will be picked up and reproduced.

# Don't Blame the Broadcasting Company

By H. K. Love

President of the Victorian Division of the Wireless Institute

*Many of the hard words said of the broadcasting companies by indignant listeners experiencing faulty reception are unfair. The writer explains that the trouble is more often in the receiver, and tells how to locate it.*

**A** MAN in the city who has trouble with his receiver has only to wait until the morning to slip into his radio store, explain his trouble, to be helped out. In outlying districts this is not so easy; and, therefore, it behoves the country owner to get to know his set.

After a receiver has been installed for some months, during which it has given complete satisfaction, it may quite suddenly begin to emit noises, which may at first be mistaken for static. In order to ascertain the source of the noise the first test to apply is to remove both the aerial and earth, if the noise at once ceases, it can fairly be said that the cause is static, this is no fault of the receiver, but is caused by disturbed elements, and will pass off.

If, however, the noise persists with both the earth and aerial terminals removed, it must clearly be traced to some internal cause. The first piece of apparatus which falls under suspicion is the "B" battery, if the noise is proved to be from this cause a new "B" battery is the only remedy.

The most common type of noise is that caused by a loose connection. This may be detected by shaking the receiver or tapping the panel when loud crackles will result, if this be so. Look out at once for a wire broken at a soldered joint—a wire not tightly held down under a terminal, or a broken wire. Sometimes a badly fitting plug will also cause noise of this description. If the testing of all the above potential trouble makers fails to reveal the fault, take out each of the valves and clean the ends of the valve prongs with a piece of fine sandpaper. Bad contact between the prongs of a valve and the spring of its holder

will, on occasions, produce ear splitting noises.

Another cause of noise which is not at all common is a breakdown in the windings of an audio frequency transformer. This is not an easy fault to locate, but should it occur—a new transformer is the only sure cure.

Care should be taken that the aerial does not rub against any part of a building, or the mast, as this will cause considerable interference with incoming signals, and may, when the aerial is removed, be mistaken for static. A strong wind blowing from certain directions will often make this trouble appear.

A receiver to give satisfaction at any distance from say 3LO Melbourne, needs to be able to produce volume without any sign of distortion.

The writer has frequently listened to receivers which, in the opinion of their owners were functioning quite well, whereas as a matter of fact a tremendous amount of distortion has been taking place. Hundreds of listeners blame the broadcasting station for bad quality transmission, when all the bad quality is being manufactured in their own receivers. This form of distortion is usually due to one or more of the following:—

A. Radio frequency valves oscillating.

This may be put right by reducing the plate pressure of the radio frequency valves to a point where the valve will amplify at radio frequency without howling and consequently distorting the signal.

B. Detector tube oscillating. This may be caused by too many turns in the tickler coil—or again too high plate voltage. Two wires, one of the grid circuit and one of the plate circuit, running close together may cause coupling which will make a continuous fault until the wires are separated.

C. Over loaded audio transformers will cause distortion. If good transformers are used, this trouble should not appear.

D. Incorrect grid bias will also cause distortion—this can be obviated by adjustment of the bias battery.



*Miss Thelma Ready, whose banjo solos are frequently heard from 3LO. She is the only lady banjoist in Victoria who is a member of an orchestra.*

## Getting the Artist's Personality on the Air

*The difficulty of being yourself when broadcasting is discussed in this article by "Hermes." His remarks on the 3LO experiment of having a studio audience are interesting.*

THE great broadcasting companies are keenly aware that in this mighty power of wireless they are experimenting in a new artistic medium. All art depends for its living quality, freshness and vividness, on a certain power of conveying the artist's personality. Of his own "beat" an artist may be an ordinary, perhaps, even a "sub-ordinary" individual. But with a piano before him or with a song to sing, or a brush and palette or a sculptor's chisel that artist is a person with something dynamic and important to say. A certain living thread of intensity and purpose running through a number of average good and bad qualities makes up the great man. How far the orator, singer and musician can be most completely himself "over the air" is naturally of the greatest importance and interest to those who are shaping the destinies of a great wireless venture like 3LO or 2FC.

It is related of a certain veteran tragedian who had "seen better days" that hearing "Hamlet" on the air he wistfully regretted that he had not been able to play it under those conditions. "Ah, laddie," he said, "they could not have thrown things then." Such inscriptions as those from the Wild West, "Don't shoot, the pianist is doing his best," have no place in the studio. But how far an artist is helped or hindered by the presence of an audience it is difficult to generalize. What stimulates an experienced performer is often a cause of the partial paralysis known as stage fright in others, less used to "facing the music" with a crowd. The sensitive performer is certainly able to observe and "feel" the reactions of an audience.

The experiment of providing an audience for wireless performances is certainly helpful to such people. But, generally speaking, whether the direct presence of an audience is artistically good for a performer is an

interesting one. All sincere work is more or less impersonal in aim, though it evokes personality. The ambitious performer knows that the hardest person to satisfy in the audience is himself. He is thinking of getting the song sung, the play read, the sonata played as well as possible, as he thinks it ought to be played to himself. To people with such ambitions the actual presence of an audience is sometimes a distraction. Some persons will whisper, or cough; some to whom the performance is caviare will show they are bored. Maybe the attendance is not so large as it might be on a wet night.

All these things tend to disturb the intense concentration necessary to good work. The quiet of the studio certainly makes for this quietness of concentration, and is an immense help to the performer who is at all self-conscious. Moreover, if he is at all imaginative and wants a stimulant he can take the immense figures of the number of licenses, reduce them as modesty demands, and imagine the multitudes of sitting rooms, extending from the suburbs right out to the back of Queensland and Central Australia into which his voice is falling. He can set up his audience, a vast one which cannot shuffle, interrupt by coming in late and tripping over the legs of the enthusiastic, one which cannot cough, sneeze or whisper. Not only is he helped by quietness, but he is freed from the unconscious tricks of the stage. A great audience will often provoke all kinds of affectations in a performer, perhaps, because he is "given that way," perhaps, out of sheer nervousness.

How far do "listeners-in" lose by not being present at the performances that they hear? That again is not a question which can be generalised about. In the case of many performers—actors, preachers, singers with dramatic instinct, something is lost by the fact that gesture and facial

expression has not yet become a part of a wireless performance. But here again the loss is not complete. The wireless does not cut off personality.

It is astounding how subtle and complete a record of a man is his voice. This most sensitive of all instruments renders the finest shades of character. Diffidence and gentleness, aggressiveness and heartiness, are rendered much more faithfully by the tone in which a man speaks than by what he says. There is some inexplicable quality about the voice of an earnest speaker who means all and more of what he is saying, which distinguishes him from the man who it uttering "wind" or "putting up a bluff" or saying what he thinks he ought to say. Freed from the immediate presence of the crowd, robbed of his gestures and expressions, a speaker must throw everything into his voice. The very quality of his speaking voice will tell his listeners most of the things which they chiefly wish to know about him. Kindliness, respect for others' feelings, sensitivity, confidence, the voice is more honest and accurate in these matters than the speech itself. The voice tells also how a man thinks. The quick emotional tone is worlds apart from the deliberate, judicial utterance, or the slow halting delivery of the man whose thoughts come slowly, and who has to search for his words.

There are certain "chesty" overtones of the pompous or unsound that a careful listening ear can detect. There are few things of importance than the voice keeps back. In fact the things it does keep back are often the unimportant things that prevent full understanding or enjoyment of a speaker's or singer's meaning. It is distracting to have to see as well as listen to a prima donna of fourteen stone or so who as "Mimi," says, in *La Boheme* is dying of starvation, consumption, and a broken heart.

## A Fisherman I Would Be, Says Laurence Halbert

Hundreds of letters congratulating the new 2FC announcer, Mr. Laurence Halbert, on his broadcast from a trawler have been received by Farmer's. Extracts are given below.

"I WAS fascinated with trawling as a life," said Mr. Laurence Halbert, the 2FC announcer who carried out the transmissions from the trawler "Goorang" recently. "The fishermen are a hardy crowd, typical Aussies, and good fellows to get on with.

"Naturally, we were 'indisposed' during the first part of the voyage, for we were new hands, and unused to the pitching and tossing of the little vessel. But the following days made up for it. We caught several



Handling in the fish. One of the scenes on the trawler described by Mr. Halbert.

A most interesting sheet of letters, mostly from N.S.W. and Victoria, have reached 2FC, following upon the broadcast.

A man at Campsie writes on behalf of his wife who, he explains, is laid up with a badly fractured leg. She whiles away the hours listening-in. "My wife says she never enjoyed any programme so much as that from the trawler, especially the old-time songs sung by the tough diamonds in their own hearty way."

Mr. W. Young, of Exeter, writes: "Congratulations on the transmission from the trawler to-night. All the people in the neighbourhood are joining in the choruses, as I have a powerful speaker on the verandah. The impromptu and rough and ready singing is quite a delightful change from some of the micro-struck singers at the studio."

Writing about the John Dory caught by the trawler, a man at Epping states that the marks on the bodies of these fish indicate them to be the identical fish caught by the Apostle Peter when Christ sent the latter to cast a hook. The John Dory has borne the marks of Peter's thumb and finger ever since and the large mouth of the fish would easily hold a piece of money which Peter found, as recorded in the Gospel of Matthew.

One letter written by a school-girl to the announcer (Mr. Laurence Halbert) starts: "Dear Uncle John

Dory." A girl at Laura wished to be the first to congratulate Mr. Halbert on the success of the trawler stunt, so she rang up the broadcasting station on the trunk line.

"The wireless has been a great comfort to my wife who has been a cripple for eleven weeks through accident. She listens-in from morning till late at night," writes a man from Drummoyn. A school teacher writes asking for photos taken on the trawler and points out that the pictures can be used with advantage in his school.

"I think Mr. Halbert ought to be called 'Uncle Courageous,' for the brave spirit he has shown," writes a lady from Auburn, and she proceeds to sympathise with the announcer for being senick.

"Being the son of an old-time shell-

(Continued on Page 53.)



One of Neptune's children caught by Mr. Halbert.

large sharks; one 16 feet long. The net always has something new and interesting in it. Once we caught a sturgeon."



Mr. R. C. V. Humphrey, 2FC engineer, had to borrow the catwhisker before he could listen-in on the trawler.

## Sir A. Cobham

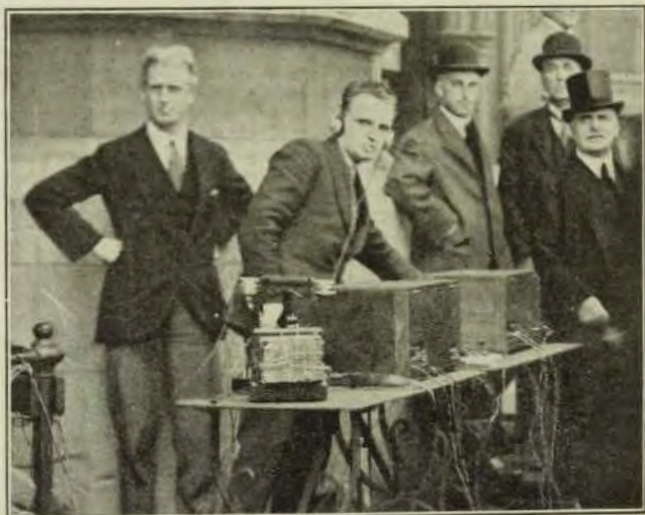
*The first aerial mail containing a letter from the Directors of 2FC to the Managing Director of the B.B.C., arrived in London with Sir Alan Cobham last month.*



**T**HE accompanying illustrations are particularly interesting as they record the arrival of Sir Alan Cobham in London after his famous flight to Australia. During his visit to Australia, an absorbing address was delivered by Sir Alan Cobham through Farmer's broadcasting service, 2FC, on his experiences on the flight from England to Australia and this was heard by listeners-in in all parts of Australia and New Zealand.

On Sir Alan Cobham's return flight to England he carried a letter from Farmer and Company Limited to Mr. J. C. W. Reith, Managing Director of the British Broadcasting Company Limited. That letter was as follows: "We are taking this unique occasion of sending you greetings by aerial mail per favour of Captain Alan Cobham, whose wonderful world flight achievements have been followed with such great interest in all parts of the world. You will be interested to know we had the pleasure of broadcasting a most interesting speech by Captain Cobham at a dinner at which he was entertained by the Directors of this Company in conjunction with Messrs. C. C. Wakefield and Co. Ltd.

"Although we have not yet arrived at the day when we can listen-in to 2LO's magnificent programmes from London, we hope that this communication with you by air will presage the time when we will be in regular communication with you by air. We have pleasure in enclosing a photograph of the occasion of the entertainment of Captain Cobham, when he broadcast his most interesting story of his flight to Australia. One of the unique incidents of this dinner was that within five minutes of Captain Cobham resuming his seat we re-



# Broadcasts

*The aviator is here seen broadcasting from the terrace of the Houses of Parliament during his welcome home. 2LU engineers are in charge of the apparatus.*

ceived a cable from New Zealand stating that every word had been heard in that Dominion, an airline distance of over 1200 miles."

The last English mail brought the following reply from Mr. Reith: "Many thanks for your letter of August 25th, which I shall keep by me (together with its London-post-marked envelope) as a memento of Sir Alan Cobham's flight and an illustration of its significance.

"This office overlooks the Thames and most of my staff had the opportunity of seeing him as he passed on to Westminster. The sounds accompanying his landing at the Houses of Parliament were broadcast through London and Daventry and such other stations of our system as could make arrangements at short notice. Both the first words spoken by the aviator on reaching the group of welcome and later his reply to the formal speeches of welcome went out.

"Technically, it was a difficult 'outside broadcast' to manage, both for other reasons and because the installation had to be made at very short notice. Seven engineers and two programme staff were employed, with seven microphones, each adapted for some particular purpose, but all connected to one control on the Terrace.

"Next evening Sir Alan Cobham broadcast a very interesting talk from the London studio, which was relayed by all our stations. I am sending you by separate mail some photos of this historic occasion.

"I look forward, no less than you, to the day when broadcast programmes shall be audible across the whole width of the globe."

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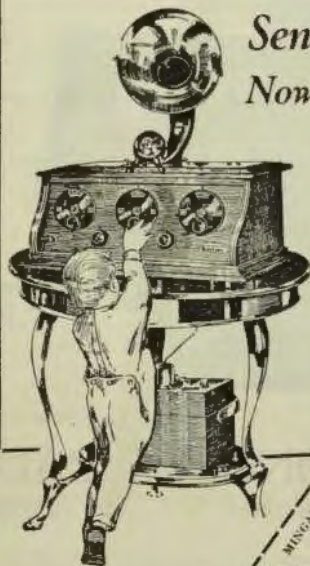
A sane, sensible, constructive radio merchandising programme has been inaugurated by the manufacturers of this set, and live agents are required in many districts. It is an opportunity extraordinary! You can sell Mingay sets more easily because they are extremely simple to operate, highly efficient, and fool-proof. Selectivity, distance and tone are already gaining widespread popularity. Now is the time to link up with better business through the Mingay Unique Super Five.

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# The 2 Valve Neutrodyne

As described in this issue of "Wireless Weekly"

Can efficiently be built with the following Quality Parts :

	£	s.	d.
1 Bakelite Panel, 16 x 8 x 1/2. Edges trimmed true .. .. .	0	8	0
1 Certified Low Loss S.L.B. Condenser, .0005 .. .. .	0	12	0
1 Certified Low Loss S.L.B. Condenser, .00035 .. .. .	0	15	6
2 Cam Vernier Two Coil Holders, each 7/9 .. .. .	0	4	2
2 Ajax 30 ohm Rheostats, each 2/1 .. .. .	0	2	6
1 Single Circuit Improved Jack .. .. .	0	1	9
1 Tiffany Push-Pull Battery Switch .. .. .	0	4	6
2 Sure Contact Bakelite Valve Sockets, at 2/3 .. .. .	0	1	9
1 Grid Condenser, mica, .00025 .. .. .	0	1	9
1 Wetless Mica Condenser, .0003 .. .. .	0	2	9
1 2 megohm Gridleak and Holder .. .. .	0	2	6
1 Terminal Board, with 7 engraved posts .. .. .			

£3 8 8

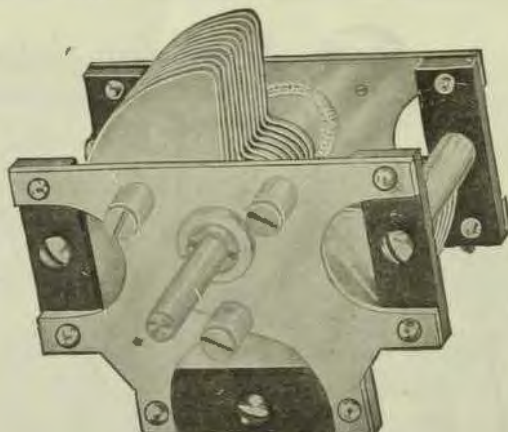
### Accessories for this Set.

	£	s.	d.
2 Radex 201A Valves, at 6/9 .. .. .	0	13	6
1 6 volt Exide DFG Battery .. .. .	2	8	0
1 60 volt Hollesen "B" Battery .. .. .	0	17	6
1 Double "Phone Plug" .. .. .	0	1	0

£7 9 6

Honeycomb Coils, Apex, Duolateral:—

	25-turn	35-turn	50-turn	75-turn
Unmounted .. .. .	1/2	1/4	1/7	1/11
Mounted .. .. .	3/2	3/4	3/7	3/11



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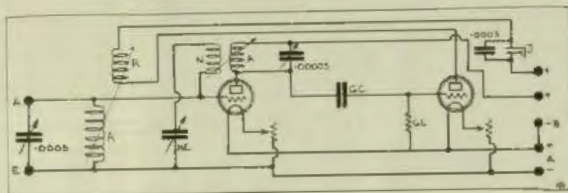
569 HUNTER ST. WEST, NEWCASTLE

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## How to Make A Neutralised Two Valve Receiver



**L**ISTENERS-IN with small valve sets are divided into two classes.

There are those who desire long distance reception on the headphones, and those preferring the local stations on the loud speaker.

Frequently a single valve receiver will, with the judicious use of reaction, be capable of producing the long distance station, but the reaction has to be very finely adjusted. Again, many one valvers won't respond to the very weak energy from the Interstate station, so this energy must be built up to sufficient value to actuate the detector valve. The addition of a stage of high or radio frequency is the method generally employed. Radio frequency builds up the incoming signal strength before it is detected, and passed on to the phones.

If, of course, loud speaker results are wanted, it is incumbent on the constructor to add one or two stages of low or audio frequency amplification to build up the signal strength after leaving the detector valve. The receiver about to be described is not of the latter type, but is rather of the former type, employing one stage of radio frequency, thereby increasing the range rather than the volume.

Glancing at the circuit diagram it will be seen that this receiver employs four coils, the illustration indicating that honeycomb coils are used. In designing this receiver I had in mind the fact that many of the listeners-in to-day have quite a good stock of honeycomb coils by

*A headphone set for distant stations. It is an excellent receiver for the country listener-in wishing to tune in all Interstate stations. You can construct it from these details at a little expense.*

them and these can be pressed into service for this receiver. The coil holders, of which there are two, are situated behind the panel and on the baseboard, the aerial coupling coil holder being situated at the side allowing the handle to protrude over the edge of the baseboard at the side for simplicity of control.

The similarity to the standard P.I with the one stage of tuned anode will be seen by consulting the circuit diagram, the difference being the insertion of a neutralising coil which is coupled to the anode coil. These two coils are known as the neutralising coils, and on account of the fact that one is variable in its coupling it allows a certain degree of flexibility so much to be desired.

Actually, the position of the coil holder of these neutralising coils being between the variable condensers does not allow more than a small degree of coupling between these two coils, the moving coil varying only approximately 25 degrees from the fixed coil. This is quite sufficient, however, for ordinary purposes.

At the very outset it must be emphasised that this receiver in the city or anywhere within 15 miles of

a broadcasting station is not as selective as it could be made. The aerial coil is not loosely coupled in any way, in fact the aerial goes direct to the grid or radio frequency valve. On test, however, at Murrickville recently, 4QG was heard clearly and loudly without any sign of 2BL, but 3LO could not be completely separated from 2BL. On Interstate reception both rheostats were very critical of adjustment, as was also the reaction coupling. This receiver is essentially designed in response to numerous requests from various people in the country, desiring such a receiver for their own private use by the different members of the family are being entertained from a loud speaker.

The city man who builds this receiver may loosely couple the grid coil using a three-coil holder instead of the two-coil holder. The three-coil holder would then contain the aerial or primary coil, the secondary or grid coil, and the reaction coil. The secondary coil would be the stationary coil both others being movable. The primary coil need not be tuned. Another method of arriving at selectivity in the city area is by employing a Clarke's Atlas Aperiodic Coupler, which on test proved quite successful. No alteration in the design of the set is necessary if the latter coupler is used.

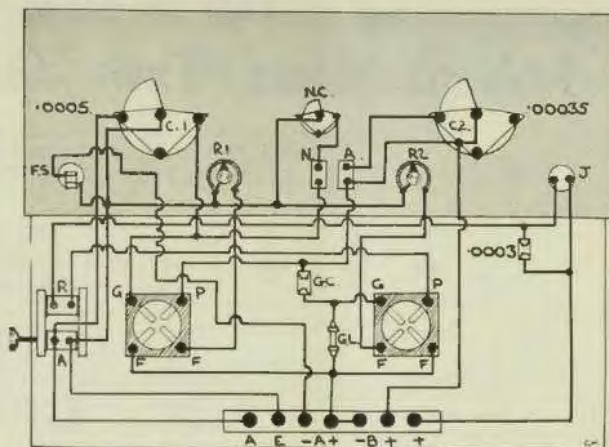
### Construction.

Look the panel over carefully and pick out the better surface. If the edges are roughly finished, smooth them off with a plane or a carpenter's scraper. Lay the panel on a

table and with a centre punch mark off the positions of the components as specified in the panel layout. Carefully drill the panel. It sometimes happens that the  $\frac{1}{8}$  inch drill is missing, thereby rendering it difficult to get the correct size hole for the jack and switch. If such is the case, one way of overcoming the difficulty is to use the nearest size drill smaller and reamer the hole with the tang of a file. If a three cornered file is available, grip the tang in the drill and use the file itself, being careful of course, not to enlarge the hole too big. This little hint is worth while.

Before placing your drill on the one side provide for three small holes three-eighths of an inch from the bottom, one in the centre beneath the spindle of the two-coil holder and one each beneath the jack and the battery or filament switch. These are for fixing the panel to the baseboard. Mount the panel components leaving the hole for the spindle of the neutralising coils coil holder free. Baseboard.

Prepare the baseboard for its components. Plane off the edges and sandpaper the surface. Apply two good coats of shellac varnish, or Ezy-work. Both these varnishes will dry very quickly. The back of panel view will give you an idea where



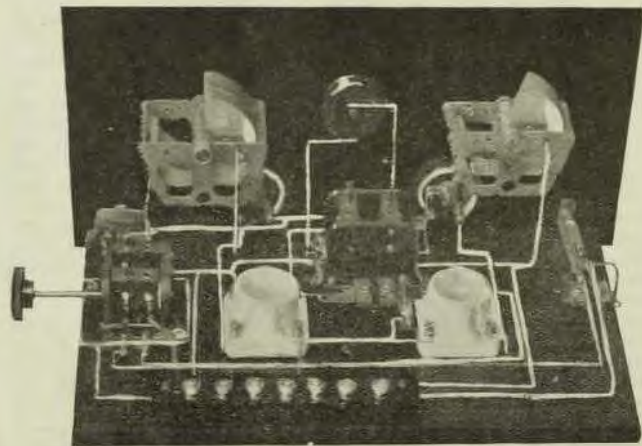
This wiring diagram shows the wiring clearly.

the sockets are placed. The coil holders have to be mounted on a sub-panel before being fixed to the baseboard. This is where the sub-panels are required. Each two-coil holder is equipped with four screws at the back for fixing to the panel. Remove these screws and make a paper template, from which mark out the positions on each sub-panel. Drill

the necessary holes and mount on each sub-panel a two-coil holder. At two diagonal corners provide a small hole about  $\frac{1}{4}$  inch in diameter for fixing to the baseboard. About one-eighth of an inch from the edge, and immediately under the two connecting screws of each plug of the coil holder, drill two holes in the sub-panel sufficiently big to allow for contact studs.

Now connect up the small flexible leads from each screw of each coil plug to the contact stud immediately under each. Clamp a soldering lug under each contact stud, holding everything secure with the nut provided. These flexible leads connected in this manner allow for the free play for the movable portion of the coil holder and permits good stiff busbar wiring instead of trailing flexible wires all over the board.

Procure eight pieces of fibre tubing five-eighths of an inch long by three-eighths of an inch in diameter, and using these as spacing washers, slip them underneath the sub-panel underneath each diagonal hole in the corners, and with one-inch wood screws screw your sub-panels to your baseboard, noting carefully that the middle two-coil holder is in such a position that the spindle fits snugly through the hole of the main panel. If small fibre distance pieces are not



The positions of the components are clearly shown in this view.

available, a good substitute will be found in small pieces of timber of suitable dimensions.

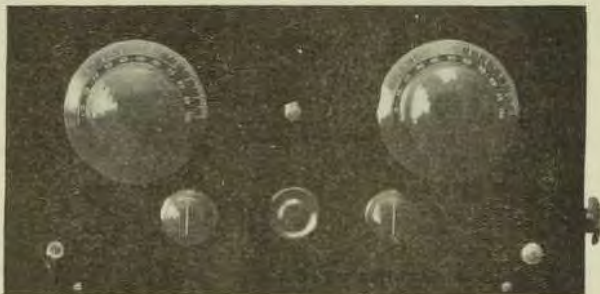
Making certain that your valves' sockets are facing in the correct direction as shown in the back of panel wiring diagram, the receiver is now ready to be wired.

#### Wiring.

Firstly, link up one side of each filament rheostat to one side of the filament switch. To this common rheostat wire is soldered one side of the neutralising condenser, the moving side for preference. Next join one filament side of each valve socket together, shaping the busbar neatly in so doing. Next connect your grid condenser from the P terminal of the first valve socket to the G terminal of the detector valve socket. Proceed with the wiring carefully following out the back of panel wiring diagram as produced on this page. Notice that the neutralising coil is marked "N," and the anode coil is marked "A" in this diagram, both being coupled together, the neutralising condenser NC being immediately above. It is always wise to leave the terminal board busbars till the last. Most of the terminal boards are equipped with soldering lugs which protrude from underneath the board, thereby allowing provision for soldering the connecting busbars.

#### Neutralising.

When all the wiring has been completed and everything has been checked and re-checked, the receiver is ready for testing. Plug-in your valves and connect up your "A" and

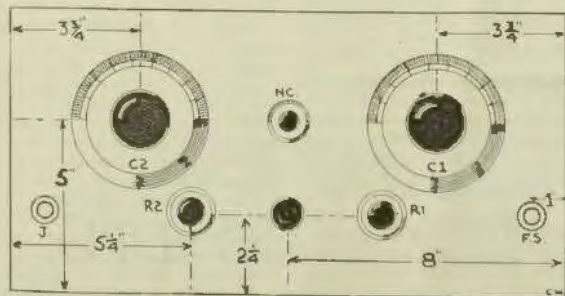


"B" batteries. The voltage of the "B" battery is governed by the particular valves used. Such valves as UX 201A, Philips C.509 and True Blues require a 6-volt accumulator. Other types, such as De Forest D.V.'s, Philips B.406, Radiotron 129 type only require a 4-volt "A" battery. Recently, we have received letters from many people telling us of inferior results gained, and amongst other things we have been told that a 6 volt accumulator has been used with 4 volt valves. This is very wrong, as you will see, for besides the risk of burning the valves out altogether, there is the possibility of excessive voltage gradually ruining the valves. Bore this in mind at all times, pay strict attention to the instructions given by the valve makers with regard to their own particular valve. These remarks also

apply to the amount of "B" battery current required. For the detector, between 224 and 46 volts may be required, whereas the radio frequency amplifying valve will function best on between 60 and 90 volts according to the valve used. Into the aerial coil holder insert a 35 turn coil and short the reaction coil altogether in the meantime. In shorting, I mean join the two busbar leads which are connected to the reaction coil holder, using a small piece of bare wire for this purpose. Into the anode coil holder plug a 75 turn coil, while a 50 turn coil is inserted in the neutralising coil holder.

Keeping the neutralising and anode coils closely coupled, plug in your headphones, press your battery switch to the "on" position and using your rheostats, light up your valves. Do not connect up your aerial or earth at this stage. Leaving condenser C1 at a fairly low setting, such as say 20 degrees, gradually swing condenser C2 to its entire range and it will be found that oscillation occurs over a certain number of scale degrees. This oscillation is determined by hearing a click in the phones and a slightly rushing sound which will disappear as the condenser is moved a little further around.

Adjust the neutralising condenser in such a manner that its capacity is increased, at the same time slowly moving condenser C2 through this oscillation band. It will be found that the greater the capacity of the neutralising condenser, the smaller



Drill the panel to the dimensions given in this layout.

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will be the band of oscillation on your condenser C2, until a point will be reached where oscillation ceases altogether.

Check over for complete stability by swinging both variable condensers to various positions, and if correctly neutralised no oscillation "plonk" is discernible. If any difficulty is experienced in gaining complete stability lower the plate voltage of the high frequency valve and repeat the operation of neutralising as explained above.

#### Testing.

You are now in a position to test the receiver on the aerial, therefore hook on your aerial and earth to their respective terminals and tune in a station. The reception will be found to be very sweet and clear and free from distortion. Locate the second local station by tuning, and play about with the receiver for half an hour or so, paying particular attention all the time to the rheostat settings, which are somewhat critical.

You can now remove the shorting arrangement on the reaction coil, and insert in this reaction coil plug a 50 or 75 turn coil. On re-tuning the signals will be found to be louder and the distance station would be more easily received. Be very judicious with the coupling of this reaction coil, and balance up any slight oscillation by loosening the coupling of the neutralising coil a few degrees. Condenser C2 will be found to be very sharp in tuning, C1 being slightly broader, but when the correct rheostat setting is located for the radio frequency valve condenser C1 will increase in sharpness very greatly.

At the beginning of this article mention was made of the test actually undergone by this particular receiver illustrated. This receiver was tested at Marrickville, which is approximately five miles air line from station 2BL and 15 miles from station 2FC. As was mentioned, 3LO, Melbourne, was received with a slight background of 2BL, but 4QG could be heard with complete elimination of 2BL. This receiver would be ideal for the man a few miles out who is desirous of listening-in to Interstate transmission on the ear-

phones. Queensland people will find it ideal provided they are more than 25 miles away from Brisbane. The city man, on the other hand, may require to add an aperiodic aerial coil of some description. If anyone is not aware of how to do this, drop us a note and we will be able to assist you in every manner.

planation of how electro-magnetic waves are propagated, and passing on through the various steps explains how the waves are intercepted by the receiver. The book is extremely well illustrated and contains in addition to theoretical explanations of wireless, a considerable amount of most interesting data, and can be recommended to anybody requiring a non-technical and concise description of wireless transmission and reception.

Our copy from W. Harry Wiles, Goulburn Street, Sydney.

### "Parts Required.

- 1 *Dilecto* or *Kodion Panel*, 16in. x 8in. x 4in.
- 2 *Dilecto* or *Radio Subpanels*, 3in. x 2in. x 1in.
- 2 *Lotus, Ebro, or Famac 2-coil holders*.
- 1 0005 *S.L.B. Condenser*.
- 1 00035 *S.L.B. Condenser*.
- 2 4 inch *Dials*.
- 2 *De Luxe 30 ohms Rheostats*.
- 1 *Battery Switch*.
- 1 *S.C. Jack*.
- 1 *Walbert Balancing Condenser*.
- 2 *H & H Porcelain Sockets*.
- 1 00025 *Electrical Grid Condenser*.
- 1 0005 *Electrod Fixed Condenser*.
- 1 pair *Muter Grid Lock Clips on base*.
- 1 2 meg. *Grid Leak*.
- 1 *Terminal Board*.
- 8 *Contact Studs, and Nuts and Soldering Lugs*.
- 8 3 inch *Flexible Connections, with spades on each end*.

### NEW RADIO BOOKLETS.

"The Radio Telephone" is a ninety-six page booklet and is one of the most complete and most simple explanations of wireless that we have yet seen.

The trouble with a great many books is that the authors assume that their readers already have an elementary knowledge of wireless and consequently, much is above the readers' heads. In this particular book, however, the author has taken the wise view that his readers have no knowledge whatever, and the wonderfully clear manner in which he has explained his subject is certainly a credit to him.

Re commences with a simple ex-

### BATTERY BOOKLET.

The November issue of "Clyde Sparks," the interesting little house organ, produced monthly by the Clyde Engineering Co. Ltd., shows that no effort is being spared to make the journal a success.

A feature in each issue of "Clyde Sparks" is the "Monthly Letter of Battery Bill." This is written in humorous style, but it is centred around some very sensible advice upon a particular point in connection with batteries.

An article entitled "Sell a new battery" offers some very useful information to battery service stations and there is a great deal of hard common sense running through this particular article.

Mr. A. R. Allen, the editor, contributes an article advocating patronising one particular house. The predominant idea in the publication of "Clyde Sparks" is to make the paper of particular use to anybody interested in batteries, and we have not yet seen an issue in which there is not at least one important point which cannot be taken to heart by anybody, either in the motor car or radio world.

If future issues of this little journal are as interesting as the November one, then the Clyde Engineering Co. Ltd., are going to build up a great deal of goodwill besides being of genuine assistance to radio and motoring enthusiasts.

Our copy from the Clyde Battery Service, 106 Goulburn Street, Sydney.



## A Philips Valve for every Need

**A.109.**—An excellent valve where only limited supplies of "A" Battery current are available. Suitable for H.F., detector, and 1st stages of L.F. Requires only one Dry Cell for filament.

**B.105.**—Specially designed for Low-Frequency stages where one Dry Cell valves (A.109) are used for H.F. and Det. A remarkable Loud Speaker Valve for such a small filament consumption.

**A.306.**—Designed for use with 2 dry cells for filament. Gives sufficient energy to work a small Loud Speaker giving distortionless amplification of sound.

**A.310.**—Filament requires 2 dry cells. Recommended to be used as H.F. and Detector valve with our A.306 in the L. F. Stages.

**B.406.**—The New Wonder Valve. Gives unsurpassed purity of tone, splendid volume, and perfect amplification. This valve has revolutionised Listening-in, as it takes only One-seventh of the amount of Filament current formerly necessary.

**C.509.**—This valve may be relied upon to give sufficient energy for every type of Loud Speaker—even the largest sizes—and will always give perfect reproduction of sound.

Type	Filament Volts.	Filament Amps.	Plate Volts. Max.	List Price	"A" Battery Needed.
A.109	1.0 to 1.3	0.06	20-120	13/6	1 Dry Cell
B.105	1.0 to 1.3	0.15	20-120	13/6	1 Dry Cell
A.306	3.0	0.06	20-100	13/6	2 Dry Cells
A.310	3.0	0.06	20-100	13/6	2 Dry Cells
B.406	3½ to 4	0.1	20-120	14/6	3 Dry Cells or 2 Accum. Cells
C.509	5.0	0.25	20-120	15/6	3 Accum. Cells

Obtainable in English or American Cap.



# PHILIPS

## LAMPS AND RADIO





# Broadcasting Programmes

## for the Coming Week.



### Friday, Nov. 26

#### 2 FC

##### MIDDAY SESSION.

- 12—"The Chimes of 'Big Ben'" and Announcements.
- 12.35—Stock Exchange, First Call.
- 1.00—Music from the Studio.
- 1.20—Marching Music for the school children.
- 1.40—Music from the Studio.
- 1.45—From Esmer's Oak Hall, The Oak Hall Trio.
- 1.50—Night, Wireless News.
- 1.55—Music from the Studio, Miss Elsie Corry's "Nightfall at Sea" (Phillips).
- 2—"The Sun"—Weather Intelligence.
- 2.15—Evening News, Midday News Service.
- 2.20—From Farmer's Oak Hall, The Oak Hall Trio.
- 2.25—Stock Exchange, Second Call.
- 2.30—Marching Music for the school children.
- 2.40—Miss Elsie Corry's "The Second Miment" (Hobby).
- 2.50—From Farmer's Oak Hall, The Oak Hall Trio.
- 3—Close down.

##### AFTERNOON SESSION.

- 2.30—"The Chimes of 2FC.
- 2.35—Broadcast from the Haymarket Theatre, done by the oratorio orchestra under the baton of Mr. Stanley Porter.
- 2.50—Marching Music for the school children.
- 3.00—Evening News, music, "Hispanian Carnival" (Martin).
- 3.45—"The Oak Hall Trio.
- 3.55—Music from the Studio.
- 4—Miss Ferns' Intro, soprano.
- 4.5—A music talk by Mr. Ewert Chappie.
- 4.20—Miss Annie Ferris, mezzo, "Within a mile of Edinboro' town" (Old Scotch).
- 4.25—"The Oak Hall Trio.
- 4.35—Music from the Studio.
- 4.40—Miss Ferns' Butte, soprano.
- 4.45—Stock Exchange—third call.
- 4.46—Close down.

##### EARLY EVENING SESSION.

- 5.45—Chimes of 2FC.
- 5.50—"The Belle Man" talks to the Children.
- 6.00—A talk to the older children, by Captain Fred Aarons.
- 6.45—From Farmer's Oak Hall, Instrumental and vocal items.
- 7—From the Studio, Last Minute Sporting Information, by the 2FC Racing Commentator.
- 7.15—"Evening News" late news service, weather information.
- 7.30—Belfast's Market Reports (wheat, wheat, stock), Fruit and Vegetable Markets.
- 7.40—A Talk on next week's film releases.

##### NIGHT SESSION.

- 7.55—Announcements.
- 8—"Big Ben." Broadcast from the Lyceum Theatre, done by the orchestra, by courtesy of the management, Mr. Emanuel Aarons, conductor.
- 8.15—From the Studio, Mr. Victor Evans, baritone.
- 8.30—Mr. Gladstone Hall, cello solos.
- 8.50—Madame Evelyn Greig will talk on "Sirevian's Orchestra."
- 9.15—Mr. Victor Evans, baritone.

- 9.30—Broadcast from Beale's Concert Salon, a unit of Russian music, specially prepared for broadcasting, and arranged by Alexander Sverckensky. Items to be given by well-known Russian musicians—(a) Grand Variations on the theme of Bach by A. Sverckensky, 2. Soprano solo: (b) "Puritan Aria" (Bellini), (c) "Simes was so sweet for ails" (Hahn), (d) "Do not see, my love" (Hageman), (e) "Oh! that it were so" (Hilgus), Mme. A. Poliakoff, (f) Violin solos, (a) "Gaspardine" (Tchaikovsky), (b) "Love Song of the Hero" Chubablin; (c) "Gavotte" (Gossec), A. Chubablin.
- 9.45—From the Studio, Mr. Victor Evans, baritone.
- 9.50—Mr. Gladstone Hall, cello solos.
- 9.57—Mr. Jack Lumsdaine, violinist.
- 10—From the Studio, Mr. Jack Lumsdaine, violinist, Russian Music, 3. Piano solos; (a) "Prelude

Farmer's Service, Sydney, call sign 2FC, wave length 415 metres.

Broadcasters Ltd, Sydney, call sign 3BL, wave length 335 metres.

Trade's Hall Broadcasting Station, call sign 3KX, wave length, 340 metres.

Theological Broadcasting Service, call sign 3GL, wave length, 314 metres.

Borjia Electric Cop. Ltd, Sydney, call sign, 2BE, wave length, 314 metres.

Broadcasting Co. of Australia, Melbourne, call sign 3H, wave length 371 metres.

Associated Radio Co., Melbourne, call sign 3AR, wave length 454 metres.

Queensland Radio Service, Brisbane, call sign 4QT, wave length 360 metres.

Central Broadcasters Ltd, Adelaide, call sign 3CL, wave length 310 metres.

Radio Broadcasting Co. of N.Z., Auckland, call sign 1VA, wave length 490 metres.

Western Australian Farmer's, Perth, call sign 4WP, wave length 1250 metres.

Tasmania Broadcasting Pty. Ltd., Hobart, call sign 72L, wave length, 635 metres.

Tube in G sharp minor" (Bachmannhoff), (b) "The Strawn" (Arnold), (c) "11th Broadway (Lizzy), A. Sverckensky, 2. Soprano solos: (a) "Song of Gromie" (Bachmannhoff), (b) "Night of Folly" (Tchaikovsky), (c) "Oh, if only my sorrow" (Giere) (d) "Capric (Mozartsky), Mme. A. Poliakoff; 3. Violin solos: (a) "Song of India" (Rimsky-Korsakoff-Krepler), (b) "Mural Moment" (Schubert-Krepler), (c) "Dance of the Soldiers" (Bastidi), A. Chubablin.

10.10—Broadcast from the Lyceum Theatre, orchestra under the baton of Mr. Emanuel Aarons.

10.30—From the Wentworth Hotel, items by the New Symphonic Dance orchestra.

10.40—From the Studio, Mr. Jack Lumsdaine, violinist.

10.50—From the Wentworth, further dance music, New Symphonic dance orchestra.

- 11—"Big Ben."
- 11.5—From the Wentworth—Dance music by the Wentworth New Symphonic dance orchestra.
- 12—National Anthem, Close down.

#### 2 BL

##### EARLY MORNING SESSION

- 7.16—Physical Training and Health Exercises.
- 7.25—Health Hints.
- 7.30—Physical Training and Health Exercises.
- 7.40—Weather Forecast.
- 7.55—Sporting Information.
- 7.57—Broadcasters' Special News Service.
- 8—G.P.O. Clock and Chimes, Close down.

##### MORNING SESSION.

- 10—G.P.O. Clock and Chimes; Musical programme from the studio.
- 10.45—Broadcasters' Direct News Service from Radio.
- 11—Daily Telegraph News Service.
- 10.55—Weather Report and Forecast by courtesy of Govt. Meteorologist.
- 11—G.P.O. Clock and Chimes.
- 11.5—Musical programme from the studio.
- 11.55—Market Reports.
- 11.24—Broadcasters' News Service; Items on and in relation to, Shipping, Weather, and Rainfall, etc.
- 11.34—Daily Telegraph News Service.
- 11.40—Women's Session, conducted by Mrs. Jordan.
- 11.50—Mrs. Jordan writes to correspondents.
- 12—G.P.O. Clock and Chimes; Feeding the Family, Mrs. Jordan.
- 12.25—A Talk by Miss Helen Jean Beaulieu.
- 12.40—Sydney Stock Exchange Calls.
- 12.45—Hiller's Instrumental Quartette, under the direction of Gary Caulfield.
- 1.00—Sydney Stock Exchange calls.
- 1.30—Lecture, Sporting Information and race results on two days.
- 1.18—"Sun" Newspapers News Service.
- 2—G.P.O. Clock, Close down.

##### AFTERNOON SESSION.

- Racing information broadcast by courtesy of "The Sun."
- 3—G.P.O. Clock and Chimes; Weather Report and Forecast by courtesy of Mr. C. J. Myers, Govt. Meteorologist.
- 3.5—Social news from "The Sun."
- 3.10—"Sun" Newspapers' News Service.
- 3.15—Civil Service Restaurant Trio, under the direction of Miss De Cussy Bremer.
- 3.30—"Sun" Newspapers News Service.
- 3.45—Musical Programme from the Studio.
- 4—G.P.O. Clock and Chimes; Civil Service Street Trio.
- 4.5—Serial Story.
- 4.50—Musical programme from the Studio.
- 4.55—Producers' Distributing Society's Vegetable and Fruit Markets Report.
- 4.50—Shipping information when available.
- 4.57—Day's racing results when available.
- 4.55—News from "The Sun."
- 4.55—Resume of night's programme.
- 5—G.P.O. Clock and Chimes, Close down.

##### EARLY EVENING SESSION.

- 5.45—G.P.O. Clock; The pupils of Miss Monica Scully will entertain the Ladies.
- 6.40—Evans' Dinner Orchestra, under the direction of Mr. Geo. Morrison.
- Special Country Session.
- 7—G.P.O. Clock and Chimes; Australian Mercantile Land and Finance Co's Stock, Wool and Hide Report.
- 7.5—Weather Report and Forecast, by courtesy of Mr. C. J. Myers, Government Meteorologist.

- 7.9—Stock Exchange Reports.  
 7.14—Producers' Distributing Society's Vegetable and Market Fruit Report.  
 7.16—Fruit and Vegetable Report ("Sun").  
 7.20—Grain and Fodder Report ("Sun").  
 7.26—Dairy Production Report ("Sun").  
 7.30—Country news from "Sun".  
 7.40—Talk on The Electrical part of a Car, by Mr. Fred Brown.

## NIGHT SESSION.

- 8—G.P.O. Clock and Chimes; Broadcasters' Topical Chimes.  
 8.5—Mr. William Everard, tenor.  
 8.10—Broadcasters' Trio.  
 8.20—Miss Phyllis Rowe, soprano.  
 8.27—Miss May Nancarrow, elocutionist.  
 8.34—Mr. H. Hinchcliffe, baritone.  
 8.41—Talk Concerning your Valve Set.  
 8.51—Miss Phyllis Atkinson, soprano.  
 8.58—Resume of following day's programme.  
 9—G.P.O. Clock and Chimes; Weather Report and Forecast by courtesy of Mr. G. J. Mares, Govt. Meteorologist.  
 9.4—Broadcasters' Trio.  
 9.14—Miss May Nancarrow.  
 9.21—Mr. Wm. Everard.  
 9.28—Interval.  
 9.33—Miss Phyllis Atkinson.  
 9.38—Prospects of Saturday's Racing.  
 10—G.P.O. Clock and Chimes.  
 10.1—Miss Phyllis Rowe.  
 10.8—Mr. H. Hinchcliffe.  
 10.15—Al. Hammett and Ambassadors Dance Band until midnight. "Sun" News Reports during intervals between dances.  
 12—G.P.O. Clock and Chimes, National Anthem.

## 2 KY

## LUNCHEON HOUR SESSION:

- 12.15—Popular fox trots; Orpheus Gramophone.  
 12.25—Musical Interlude.  
 12.40—News Items.  
 1.—Vocal Items.  
 1.15—Hawaiian steel guitar selections.  
 1.25—Local news and meetings.  
 1.40—Vocal and musical items closing down at 1.45 p.m.

## CHILDREN'S HOUR:

- 6.30—The Storyman, Mr. Thompson.

## EVENING SESSION:

- 7—Sporting feature. Turf Topics. Review of Candidates and their Prospects for Tomorrow. Mr. T. G. Hopkins.  
 7.40—Lecturette: Notes of the Week, Mr. J. Ryan (Director, Labor Research and Information Bureau).  
 8—A Talk on Motor Cycling, by Mr. J. K. Hoskins.  
 8.10—Eileen Charters and her Melody Kids.  
 8.25—Rena Solos, Mr. Ivor Ross.  
 8.30—Mondayton, Mr. David Eccleston.  
 8.40—Musical Interlude by Palais Royal Californians. Mr. Walter Dodson, leader (by kind permission of J. C. Rendell, Ltd.).  
 9.10—Sporting Features: Full description of main contest from ringside of Melbourn's Leichhardt Stadium.  
 9.55—Music from Studio.  
 10—Closing Announcements.

## 2 GB

## NIGHT SESSION.

- 6.45—Talks to children, by "A.B.C."  
 7.55—Instrumental Trio.  
 8—Address by Professor Ernest Wood.  
 8.20—Songs by Miss Nellie Ravens.  
 8.28—Violin solos by Lloyd Davies.  
 8.35—Talk on Schumann, illustrated by his songs. Artist, Clement Hosking.  
 9—Announcements.  
 9.5—Instrumental Trio.  
 9.15—Talk on Radio Valves by Mr. E. G. Bevel.  
 9.25—Songs by Miss Nellie Ravens.  
 9.32—Violin solos by Lloyd Davies.  
 9.38—Instrumental Quartette.  
 9.50—Great Thoughts from Great Minds, by Prof. Wood.  
 9.54—God Save the King.

## 3 LO

## MIDDAY SESSION.

- 12—Time Signal. British Official Wireless News from Rugby. Reuter's and the Australian Press Association cables. "Argus" and "Herald" news services.  
 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—Studio Orchestra.  
 1.10—Bobby Pearce, baritone.  
 1.17—Franklin Stonham.  
 1.25—Rita Hilton, entertainer.  
 1.30—Studio Orchestra.  
 1.40—Bobby Pearce, baritone.  
 1.47—Studio Orchestra.  
 1.54—Rita Hilton, song.  
 2—Close down.

## AFTERNOON SESSION.

- 3—Studio Orchestra.  
 4.10—"Au Fait" of Messrs. Buckley & Nunn Ltd. "Fashion Talk."  
 4.25—Agnes Fortino, piano.  
 5.30—Elsie Davies, soprano.  
 5.37—Studio Orchestra.  
 5.45—At a Bush Picnic, music, verse and story, Narrarung, Mr. V. Upton-Brown.  
 4.15—Studio Orchestra.  
 4.22—Mrs. A. Callaway Mahood: The Art of Chalk Drawing.  
 4.37—Elsie Davies, soprano.  
 4.45—"Herald" news services. Stock Exchange information.  
 5—Close down.

## EARLY EVENING SESSION.

- 6.45—Children's Hour. Answers to letters and Birthday Greetings.  
 6—Gwen Humphrey will sing two little songs to the children.  
 6.7—"Billy Bunny," "The Littlest Fairy Story."  
 6.17—Gwen Humphrey will sing again.  
 6.24—Billy Bunny: Queen Bee—A Chinese Story.  
 6.40—"Argus" and "Herald" news services. Reuter's and the Australian Press Association cables.  
 6.57—Weather synopsis. Shipping movements.  
 6.67—Stock Exchange information.  
 6.36—"Argus" and "Herald" news services. Reuter's and the Australian Press Association cables.  
 6.53—Weather Synopsis. Shipping Movements.  
 6.57—Stock Exchange information.  
 7.2—Fish Market Reports, by Messrs. J. R. Borett Ltd.  
 7.4—River Reports.  
 7.7—Market Reports, by the Victorian Produce Co-operative Co. Ltd., Haymarket.  
 7.8—Sheep Sales. Poultry, Grain, Chaff, Hay, Straw, Jute, Dairy Produce, Potatoes and Oatmeal. Market prices of Oranges and Lemons, supplied by the Victorian Central Citrus Association Pty. Ltd.

## NIGHT SESSION.

- 7.30—Under the auspices of the Department of Agriculture, Mr. S. C. Harris, Senior Potato Inspector: Spraying Potatoes.  
 7.40—Miss Dorothy Fine, now playing the part of Lady Honoria Nesbitt in "Brown Sugar" at the Theatre Royal, will speak to you from her dressing room, by permission of J. C. Williamson Ltd.  
 8—Super-Phone Sonora Recital.  
 8.10—"Cardinals," Mr. H. A. Wolfe, sporting editor of the "Argus" and "Australasian," Sandown Park Handicap and other races.  
 8.30—Grand Opera: Elsie Davies, assisted by Malcolm Sempie and Les Edwards, and in conjunction with the Studio Orchestra, will give excerpts from "H. Trovatore" Verdi.  
 9.45—Mr. Leslie Brunning: The Importance of Drainage—Mulching and Cultivation.  
 10—A Concert in the village schoolroom at Coldington (by special request). Presided over by the Rev. Mr. Chance.

- 10.50—"Argus" News Service: British Official Wireless News: Road Notes, supplied by the Royal Automobile Club of Victoria; Meteorological Information.  
 11—Our Great Thought for To-night is—"Next to virtue, the fun in this world is what we can least spare."—Agnes Strickland.  
 11.1—4LO Melody Masters.  
 11.40—God Save the King.

## 3 AR

## MORNING SESSION:

- 11.30—British Official Wireless Press, received from Rugby Signal Wireless Station, England; Express Train Information; "Age" News Bulletin, exclusive to 3AR.  
 12—Time Signal Chime. Studio Barometer Readings, First Weather Forecast, Events of the day; Outdoor Thermometer Readings.  
 12.5—Musical Selections, relayed from Hoyt's de-Luxe, Bourke Street; Mr. T. L. Campbell at the Wurlitzer.  
 12.30—Market Reports. Stock Exchange news.  
 12.40—Musical selections.  
 12.55—Shipping movements. Mail notes.  
 1—Close down.

## AFTERNOON SESSION:

- 2.30—Hoyt's Premier Orchestra. Cecil W. Fraser, conductor.  
 3—Musical items from Studio, by the Bon Brevelux Quartette.  
 4—Time Signal Chime. Second Weather Forecast; Miss Emily Noble, Cooking Lecturer; Hoyt's premier Orchestra.  
 4.30—Gardening talk to children, by Mr. R. Stankley Haines.  
 4.55—Evening Amusements.  
 5—Time Signal Chime. Studio Barometer and Outdoor Thermometer Readings.

## EARLY EVENING SESSION.

- 6.45—Children's Corner, by Uncle Rad.  
 EVENING SESSION.  
 7.40—British Official Wireless Press. Studio Barometer Readings, Racing Anticipations and Sporting Events, received by "Field Glasses."  
 8—Time Signal Chime from G.P.O.; Scenarists Jazz Quartette.  
 8.15—Miss Phyllis Thompson, elocutionist.  
 8.25—Mr. Will Phillips, tenor.  
 8.30—Mr. R. Stankley Haines, weekly Gardening Talk.  
 8.45—Miss Ruby Bishop, L.A.B., contralto.  
 8.55—Miss Phyllis Thompson, elocutionist.  
 9.5—Mr. Eric Ailken, symphonist at the piano.  
 9.4—Mr. Gerald W. Brocklesby, baritone.  
 9.11—The Scenarists Jazz Quartette.  
 9.25—Mr. Will Phillips, tenor.  
 9.35—Miss Hazel Halph, soprano.  
 9.40—Mr. Eric Ailken, symphonist at the piano.  
 9.45—Miss Ruby Bishop, L.A.B., contralto.  
 9.54—Mr. Gerald W. Brocklesby, baritone.  
 10—Time Signal Chime from G.P.O.; Studio Barometer and Outdoor Thermometer Readings; "Age" News Bulletin, exclusive to 3AR.  
 10.10—Legeret's Ballroom Orchestra, under the leadership of Mr. Harry Nangle.  
 11—Time Signal Chime. Close down.

## 4 QG

## MIDDAY SESSION.

- 12.55—Time in.  
 1.25—Time Signal.  
 1—Market reports; weather information; "The Daily Mail" news; "The Daily Standard" news.  
 1.29—From Hotel Carlton: Lunch music from the lounge, Hotel Carlton, played by Hotel Carlton Symphony Orchestra.  
 2—Close down.

## AFTERNOON SESSION.

- 4.30—From Hotel Carlton: Afternoon tea music from the Lounge, Hotel Carlton, played by Hotel Carlton Symphony Orchestra.



- 4.14—From the Studio: "The Telegraph" news.
- 4.26—Close down.

**EARLY EVENING SESSION.**

- 6—"Daily Standard" News. Weather information, Announcements.
- 6.25—"The Children's Session"—Stories by "The Sandman."
- 7—From the Council of the Agriculture Studio: The Farmer's Session; Market Reports; Lectures; Lessons from Rural Denmark, by Mr. J. F. Rod, Editor Queensland Agricultural Journal.
- 7.30—From the Studio: Stock Reports; Announcements.

**NIGHT SESSION.**

- 7.45—Lecture Session; Queensland Gems, by Mr. K. B. Knowles.
- 8—Programme from the Studio, including the Federal Band.
- 8—Metropolitan Weather Forecast; Week-end Road information for motorists, officially supplied by the Royal Automobile Club of Queensland; Concert continued.
- 10—"The Daily Mail" news service. Close down.

**5 CL**

**MORNING SESSION.**

- 11.30—G.P.O. Chimes.
- 11.31—Stock Duo Art.
- 11.40—"Advertiser" News Service.
- 11.45—Vocalian number.
- 12—G.P.O. Chimes.
- 12.1—"Advertiser" news service.
- 12.16—Stock Duo Art number.
- 12.25—G.C.L. Studio Orchestra.
- 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—Orchestra numbers.
- 4.45—From Studio: Talk by Mrs. Coghill.
- 4—G.P.O. Chimes.
- 4.1—Relay from "Arcadia" Cafe—Orchestra 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 for the children by Uncle Milo and Aunt Peggy.
- 7.30—Market Report.
- 7.40—Sporting Talk by Mr. Arvid Treloar.
- 8—G.P.O. Chimes.
- 8.1—Soprano Mrs. W. Keith Steward.
- 8.5—Relay from Malcolm Beal's—Malcolm Beal's Orchestra.
- 8.30—Studio Concert.
- 8.42—Relay Malcolm Beal's orchestral numbers.
- 9—G.P.O. Chimes.
- 9.1—Weather reports.
- 9.10—Soprano solo, Mrs. W. Keith Steward.
- 9.17—Merry-makers Orchestra.
- 9.17—Studio Concert.
- 9.30—Merry-makers Orchestra.
- 9.40—Mrs. W. Keith Steward, soprano.
- 9.44—Merry-makers Orchestra.
- 9.56—Mr. M. Skinner, baritone.
- 10—G.P.O. Chimes.
- 10.1—Merry-makers Orchestra.
- 10.11—Bangs, Mr. Seth Smith.
- 10.18—"Advertiser" News Service.
- 10.24—Merry-makers Orchestra.
- 10.41—Soprano, Mrs. W. Keith Steward.
- 10.48—Merry-makers Orchestra.
- 10.55—Station Announcements.
- 11—G.P.O. Chimes. National Anthem. Close down.

**7 ZL**

**MORNING SESSION.**

- 11—G.P.O. Clock Chimes. The "Mercury" news, stock market, shipping, commercial

- intelligence, weather information. "Salon-ola" selections.
- 12—G.P.O. Clock Chimes. Close down.

**AFTERNOON SESSION.**

- 3—G.P.O. Clock Chimes.
- 3.10—Robert Stock Exchange quotations.
- 3.56—Weather information.
- 4—G.P.O. Clock Chimes. Close down.

**EARLY EVENING SESSION.**

- 7—Children's Corner. "Big Brother" chats to his Pal.

**EVENING SESSION.**

- 8—G.P.O. Clock Chimes. "The Mercury" special Tasmania news service. Railway station produce sales. Weather information.
- 8.6—Robert Stock Exchange quotations.
- 8.10—Weekly Gardening chat by Mr. George Nation.
- 8.20—Sports Budget, supplied by Mr. T. W. Newton, of Hobart Sports Dept.
- 8.30—Concert from the Studio: Miss Bertha Marchant; Miss Dulcie Tait, elocutionist; Miss Jessie Day, mezzo-soprano; Miss Ruby Paine, pianist; Mr. S. J. Hall, baritone; Mr. Herbert Lange, baritone.
- 8.45—Produce reports from Roberts & Co., Ltd., Murray Street, Hobart, Tasmania District Weather reports.
- 9.50—"The Mercury" special interstate news service. Weather reports. Station announcements. National Anthem.

**Saturday, Nov. 27**

**2 FC**

**EARLY MORNING SESSION.**

- 7—Chimes of "Big Ben" and Announcements.
- 7.5—Music from the Studio.
- 7.10—Official Weather Forecast; Rainfall; Temperatures; Astronomical Memoranda; Shipping and Intelligence; Mail Services.
- 7.25—Investment Market, Mining Share Market, Metal Quotations.
- 7.35—Wool Sales, Breadstuffs Markets, Interstate Markets, Produce, Maritime.
- 7.45—"Sydney Morning Herald" News Service.
- 8—The Chimes of "Big Ben."
- 8.15—Close down.

**MORNING SESSION.**

- 9.15—The Chimes of 2FC and Programme Announcements.
- 9.20—Music from the Studio.
- 9.45—Last minute sporting information, by the 2FC Racing Commissioner.
- 9.48—Chimes of "Big Ben" and music from the Studio.
- 10.3—Late "Sydney Morning Herald" news service.
- 10.15—Music from the Studio.
- 11—"The Chimes of 'Big Ben.'" Music from the Studio.
- 11.15—A talk on Gardening by "Red Gum."
- 11.45—G. Lockley.
- 11.30—Close down.

**MIDDAY SESSION.**

- 12.55—Chimes of 2FC and programme announcements.
- 1—"Big Ben." "Evening News" Midday News Service. Weather Intelligence. Race results will be transmitted during the afternoon. During the intervals of sporting events, items will be given by the Wieblich Instrumental Trio.
- 4.50—Complete resumé of sporting events.

**EARLY EVENING SESSION.**

- 5.45—The Chimes of 2FC.
- 5.50—"The Hello Man" talks to the children.
- 6.15—Story for the older children, entitled "The Little Black Princess."
- 6.45—Broadcast from the Hotel Australia, items by the Hotel Orchestra, under the direction of Miss A. J. Egan.

- 7—Late Sporting Information by the 2FC Racing Commissioner.
- 7.40—Final Motor Talk by Mr. J. L. Austin, Motoring Fancies and Facts.

**NIGHT SESSION.**

- 7.55—Announcements.
- 8—Broadcast from the Parramatta Town Hall, by arrangement with Messrs. J. C. Williamson Ltd., the first act of the musical comedy "Hick Jacks," by Dudley Feltus, produced by the Parramatta Operatic Society, conducted by Mr. Herbert Burgess, and produced by Mr. Fred Egan, the Act One Scene. Dr. Thorne's Private Sanatorium near Paris. Musical numbers: 1. Opening chorus, "We come to talk"; 2. Song, "Something seems Tingling-ling-ling"; Fred Wilkins; 3. Song: Dancing the Blues away"; Fred Wilkins; 4. Song: "Jim"; Nancy Cummings; 5. Song: "Love's own Kiss"; Dorothy Marshall; 6. Finale: "It's time to start."
- 8.10—From the Studio: Mr. Sydney Calland, baritone: "Myself When Young" (Lachmann).
- 9.14—Miss Gwendy Finister, soprano: "Orpheus with his Lute" (André).
- 9.16—Mr. Lionel Gwynne, violin solo.
- 9.23—Mr. Walter Hunt and Miss Eve Warburton in a one act drama entitled "Sacrilege." Keith Darratt, Walter Hunt, Laurence Derrant, Walter Hunt, Wanda, Miss Eve Warburton.
- 9.54—Mr. Sydney Calland, baritone: (a) "Sing in me a modest key" (André); (b) "Robin Days & Stays" (Carroll).
- 10—Mr. H. Greenwood, comedian.
- 10.8—Miss Gwendy Finister, soprano: "Convivial Feast" (Donizetti); (b) "I would tallev" (Chaminade).
- 10.10—Mr. Sydney Calland, baritone: "Still on the night" (Bobb).
- 10.2—Miss Gwendy Finister, soprano: "Dream Garden" (Phillips).
- 10.3—From the Westworth Hotel, items by the New Westworth Symphony Orchestra, under the baton of Mr. Sydney Simpson.
- 10.40—Mr. Ben Greenwood, comedian.
- 10.48—Mr. Laurence Halbert, baritone.
- 10.52—G.C.L. Studio Orchestra, the Westworth New Symphony Orchestra.
- 11—"Big Ben" and Announcements.
- 11.3—Further items from the Westworth Orchestra.
- 11.30—Mr. Laurence Halbert, baritone.
- 11.35—Westworth Dance Orchestra.
- 12—National Anthem. Close down.

**2 BL**

**EARLY MORNING SESSION.**

- 7.10—Musical Programme from the Studio.
- 7.18—Physical Training and Health Exercises.
- 7.25—Health Hints.
- 7.30—Physical Training and Health Exercises.
- 7.45—Weather Forecast.
- 7.47—Sporting Information.
- 7.51—Broadcasters' Special News Service.
- 8—G.P.O. Clock and Chimes; Close down.

**MORNING SESSION.**

- 11—G.P.O. Clock and Chimes.
- 11.1—Musical Programme from the Studio.
- 11.10—Broadcasters' Early News Service.
- 11.15—Sydney Telegraph News Service.
- 11.40—Women's Session, conducted by Mrs. Jarvin; Social Notes.
- 11.50—Mrs. Jarvin replies to correspondents.
- 12—G.P.O. Clock and Chimes. Talk by Mrs. Jarvin on "Simple Cooking for Children."
- 12.30—London Metal Quotations.
- 12.35—Broadcasters' Information Service; Boats in call by wireless. Weather and Rainfall, Mail, Shipping.
- 12.45—Musical Programme from the Studio.

**AFTERNOON SESSION.**

- 1—G.P.O. Clock and Chimes; News from "Sun" Cable Edition.
- 1.10—Musical programme from the Studio.
- 1.40—Sydney Daily Telegraph News Service.
- 1.50—Musical Programme from the Studio.
- 2—Talk on sporting and athletic fixtures for the day. Lacrosse, Hockey, Tennis, Cricket, Sailing, Boating, Athletics, Rifle Shooting, Golf, Bowls.

During the afternoon, sporting information will be broadcast by courtesy of "The Sun" Newspapers. Musical programme from the Studio during the afternoon.

5.—G.P.O. Clock and Chimes. Close down.

#### EARLY EVENING SESSION.

5.45.—G.P.O. Clock and Chimes; Uncle George and the Kiddies.

6.10.—Pavilion Dinner Orchestra, under the direction of Mr. Cox, Morrison.

6.45.—Results of all sporting information, including Sailing, Swimming, Racing, Coursing, Bowls, by courtesy of Sun Newspapers.

7.20.—Country News from the Sun and results of all sporting and athletic fixtures.

7.40.—Close down.

#### NIGHT SESSION.

8.—G.P.O. Clock and Chimes; Broadcasters' Topical Chorus.

8.5.—The Ambassadors Instrumental Salon Quartette under the direction of Mr. Clunnie McGlynn.

8.50.—Mr. W. E. Lewis, baritone.

8.55.—Miss Dorris Ward, mezzo soprano.

9.10.—Miss C. L. Robertson, contralto.

9.25.—Mr. A. T. Murks, tenor.

9.55.—Resume of following day's programme.

9.—G.P.O. Clock and Chimes; Weather Report and forecast by courtesy of Mr. C. J. Masses, Govt. Meteorologist.

9.54.—King's Mandolin Orchestra.

9.14.—Miss Minnie Barnett, contralto.

9.21.—Duet, Miss Dorris Ward and Mr. W. E. Lewis.

9.25.—Interval.

9.50.—King's Mandolin Orchestra.

9.40.—Mr. W. E. Lewis, baritone.

9.45.—Mr. C. L. Robertson.

9.54.—Miss Dorris Ward.

10.—G.P.O. Clock and Chimes.

10.1.—Miss Minnie Barnett.

10.5.—Mr. A. T. Murks.

10.15.—Al. Hammond and the Ambassadors Dance Band, broadcast from the ballroom of the Ambassadors. During the intervals

between dances news reports by courtesy of "The Sun" will be broadcast.

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

## 2 K Y

#### EVENING SESSION:

7.15.—Sporting Feature: Complete review of today's racing by Mr. T. G. Hopkins.

7.50.—News items.

8.—Pianoforte solos, Miss Aimee Haughey.

8.10.—Sketch, Miss Voelckow and Mr. Bob. Corbett.

8.50.—Musical Interlude: Palais Royal Californians, Mr. Walter Beahan, leader, (by kind permission of J. C. Hendroff, Ltd.).

9.15.—Labor Legislation Service, Mr. J. C. Eildridge.

9.50.—Sporting Feature: From the track at the Speedway Royal. Results of early events and descriptions of motor cycle racing.

9.40.—Humorous Odds and Ends.

9.50.—Description and results of semi-finals from Speedway Royal.

10.5.—Musical Interlude, Palais Royal Californians, Mr. Walter Beahan, leader, (by kind permission of J. C. Hendroff Ltd.).

10.15.—Descriptions and results of finals from Speedway Royal.

10.20.—Closing Announcements.

## 3 L O

#### MORNING SESSION.

11.—Sonora Recital.

11.7.—Harold Bodryns, Organ recital.

11.15.—Bobby Pearce, baritone.

11.24.—Sonora Recital.

11.57.—Harold Rodgers, piano.

11.41.—Bobby Pearce, baritone.

11.46.—Harold Rodgers, organ.

12.—Time Signal. 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.

12.55.—Meteorological information. Weather forecast for Victoria, Tasmania, South Australia, and New South Wales. Ocean forecast. River reports.

#### AFTERNOON SESSION.

1.—Time signal.

1.1.—Transmission from the Exhibition Building: Highland Gathering, speeches by the Governor General, Lord Stonehaven, and others.

2.50.—Description of Hurdle, Sandown Park Races, by "Musket" of the Sporting Globe.

3.—Description of Trial Welter by "Musket."

3.15.—4-11 Melody Masters.

3.26.—Description of Sandown Plate by "Musket."

3.35.—3-10 Melody Masters.

3.45.—Description of Sandown Park Handicap, by "Musket."

4.—3-10 Melody Masters.

4.45.—"Herald" News Service: Stock Exchange information.

5.—Description of Jumper's Flat, by "Musket."

#### RARELY EVENING SESSION.

5.30.—Sporting results.

5.45.—Gwen Humphray, will sing two little songs to the children.

5.52.—Answers to letters and birthday greetings.

6.7.—Children's Play by A. Aitcham, entitled "The Kookaburra."

6.40.—"Argus" and "Herald" News Service; Sporting results, Reuters and Australian Press Association cables.

6.53.—Weather synopsis, Shipping movements.

6.57.—Stock Exchange information.

7.2.—Fish Market Reports, by J. B. Borrett Ltd.

7.4.—River reports.

7.5.—Market Reports, by Victorian Producers Co-operative Co. Ltd.: grain, chaff, hay, straw, juice, dairy produce, potatoes and onions.

#### NIGHT SESSION.

7.20.—Mr. Frederick Chapman: Some features of the Goshawk Lullabye.

7.40.—Dr. Leach: Emsu and Casowary.

8.—Collingwood Citizens' Band.

8.10.—Super-Phonic Sonora Recital.

8.20.—Put out your lights and listen.

8.35.—Collingwood Citizens' Band.

8.45.—Signor D'Allisandro, tenor.

8.50.—Len Gibson's Neapolitan Sextette.

9.—Madame E. Ashley, soprano.

9.7.—Collingwood Citizens' Band.

9.17.—Original Sketch, by Mr. Eardley Turner, entitled, "Feed the Brute."

9.32.—Len Gibson's Neapolitan Sextette.

9.42.—Signor D'Allisandro, tenor.

9.58.—"Argus" News Service: British Official Wireless News from Rugby.

10.—Collingwood Citizens' Band.

10.10.—Madame E. Ashley, soprano.

10.17.—Len Gibson's Neapolitan Sextette.

10.24.—Meteorological information: Sporting Results: Announcements.

10.34.—Collingwood Citizens' Band.

10.45.—3-10 Melody Masters.

11.—Our Great Thought: "A benefit is estimated according to the mind of the giver."—Seneca.

11.5.—3-10 Melody Masters.

11.40.—God Save the King.

## 3 A R

#### MORNING SESSION.

11.50.—The British Official Wireless Press, received by 3AR's operator from Rugby Wireless Station, England. Express train information. "Age" news bulletin.

12.—Time Signal Chime from the G.P.O. First Weather Forecast: Studio Barometer Readings: Events of the Day.

12.5.—Musical Selections, relayed from Hoyt's De Luxe, Bourke Street, Mr. T. L. Campbell at the organ.

12.30.—Stock Exchange News, Foreign Exchanges of the world, supplied by the courtesy of Messrs. Thos. Cook & Son; Market Reports.



The Mariat Brothers' Boys' Choir, North Sydney. They are to broadcast from 2FC.

Sunday, Nov. 28

- 12.40—Musical Selections.  
13.05—Mail Notices. Shipping Movements.  
1—Close down.

## AFTERNOON SESSION.

- Sandown Park Racing Club.  
2.30—Burdell Race, 2 miles.  
Huy's Premier Orchestra. Cecil W. Fraser, conductor.  
3—Trial Welter Handicap, 1 mile.  
3.30—Result of Sandown Race, 5 furlongs.  
4—Time Signal Chime; and Weather Forecast.  
4.2—Result of Sandown Park Handicap, 1 1/2 m.  
4.30—Result of Sandown Race, 1 m.  
5—Time Signal Chime. Result of Jumpers' Flat Race, 1 1/2 m. Evening Amusement Guide. Studio Barometer and Outdoor Thermometer Readings. Close down.

## EARLY EVENING SESSION.

- 6.45—The Children's Corner: Uncle Steve.

## EVENING SESSION.

- 8—Time Signal Chime from G.P.O. Studio Barometer Readings; British Official Wireless Press. Final Sporting and Racing Results. Local news.  
8.15—Dance Night: The Rhythmic Dance Orchestra, revived from the Maison-de-Luxe, Elwood. Latest popular numbers, under the leadership of Mr. Geo. Lewis.  
9.30—Week-end Traveller's Information, supplied by the Victorian Railways Department and Metropolitan Tramways Board.  
9.50—Maison-de-Luxe Rhythmic Dance Orchestra.  
10—Time Signal Chime from G.P.O. Studio Barometer Readings.  
10.5—The Maison de Luxe Rhythmic Dance Orchestra.  
11—Time signal. Close down.

## 4QG

## NO MIDDAY TRANSMISSION.

## AFTERNOON SESSION.

- 8.55—Tune-in.  
9.30—A Matinee for Little Ladies by "Miss Wacaiwah."  
4.30—Close down.

## EARLY EVENING SESSION.

- 8.55—Tune-in.  
9.30—The Children's Session: Bedtime stories by "Uncle Ben" and "Uncle Jim," assisted by "Mabel Smathline."  
11.15—Sporting News.  
7.30—"Safety First."

## NIGHT SESSION.

- 7.30—Lecture.  
7.45—A Sporting Talk.  
8—A.N.A. Recital. The artists taking part in it were prize winners at the recent A.N.A. Entertoloff.  
9—Metropolitan Weather Forecast. Continuation of A.N.A. Concert.  
10—From the Studio: "The Sunday Mail" news service. Close down.

## 5CL

## MORNING SESSION.

- 10.30—G.P.O. Chimes.  
10.31—5CL Studio Orchestra, Selections.  
11.45—"Advertiser" news service.  
12—G.P.O. Chimes.

## AFTERNOON SESSION.

- Amateur Turf Club Races. Running description of the programme by Mr. Arnold Tolson.  
From Studio: Country and Interstate Sporting results.

## EVENING SESSION.

- 8.30—G.P.O. Chimes.  
8.31—Bedtime stories.  
7.50—Market reports.

- 7.40—Sporting Results.  
8—G.P.O. Chimes.  
8.1—Studio Concert.  
8.25—Relay Floating Palms, dance music.  
9—G.P.O. Chimes.  
9.1—Studio Concert.  
9.15—Relay Floating Palms.  
9.20—Studio Concert.  
9.40—Relay Floating Palms.  
10—G.P.O. Chimes.  
10.1—Studio Concert.  
10.15—Sporting results.  
10.30—Studio Concert.  
10.35—Relay Floating Palms.  
11—G.P.O. Chimes. National Anthem, and Station Announcements. Close down.

## 7ZL

## MORNING SESSION.

- 11—G.P.O. Clock Chimes. The "Mercury" stock market, shipping, commercial, intelligence. Weather information and sporting anticipations. "Salonika" Selections.  
11.45—Hobart Stock Exchange quotations.  
12—G.P.O. Chimes. Close down.

## EVENING SESSION.

- 7—Children's Corner: "Big Brother" chats to his Pal.  
NIGHT SESSION.

- 8—G.P.O. Clock Chimes. The "Mercury" special Tasmanian news service. Railway auction produce sales; weather information and sporting results.  
8.45—Hobart Stock Exchange quotations.  
8.50—"Come to Tasmania" movement, by Mr. J. B. Reid.  
9.30—Concert broadcast direct from the Lyceum Hall, Macquarie Street, Hobart.  
9.45—British Official Wireless News, copied direct from Rugby by our own operator. Weather synopsis. Station Announcements. National Anthem.

## 2FC

## MORNING SESSION.

- 10.55—Announcements.  
11—"Big Ben": Broadcast from St. Mary's Church of England, Waverley, the morning service, conducted by the Rev. North-Atk.  
12.10—From the Studio: News Session.  
12.20—Close down.

## AFTERNOON SESSION.

- 4—"Big Ben" and Announcements.  
5—A Talk on Australasian Literature, by Captain Fred Aeron.  
5.30—Broadcast from the Rotunda, Ocean Beach, Manly, items by the Manly Municipal Band, under the baton of Mr. J. Phelan.  
3—Close down.

## NIGHT SESSION.

- 6—"Big Ben" and Announcements.  
6.5—From the Petersham Congregational Church, an Organ Recital given by Mr. Christian Heilmann.  
7—From the Petersham Congregational Church, the evening service conducted by Rev. A. P. Doran.  
8.25—Interval.  
8.50—From the Studio, items by the Leichhardt District Band, conducted by Mr. E. P. Keefe.  
9.40—Signor Alberto Marini, tenor.  
9.45—Items by the Leichhardt District Band.  
9.5—Miss Ila Turnbull, soprano.  
9.7—Mr. Lindley Evans, pianoforte solo.  
9.15—Signor Alberto Marini, tenor.  
9.20—Further items by the Leichhardt District Band.  
9.32—Miss Ila Turnbull, soprano.  
9.40—Mr. Lindley Evans, pianoforte solo.  
9.45—Signor Alberto Marini, tenor.  
9.52—Further items by the Leichhardt District Band.



The Marist Brothers' School, Mosman, whose annual entertainment at the Mosman Town Hall on Tuesday, December 8, will be broadcast by 2FC.

Monday, Nov. 29

- 10.5—Miss In Turnbull, soprano.  
10.10—The Leichhardt District Band.  
10.15—National Anthem. Close down.

## 2 B L

## MORNING SESSION.

- 11—Service broadcast from Chalmers Presbyterian Church.

## AFTERNOON SESSION.

- 3.30—Bible Class, conducted by Mr. W. "Cairo" Bradley.  
4—Organ Recital broadcast from Chalmers Presbyterian Church.  
5—G.P.O. Clock and Chimes: Close down.

## EVENING SESSION.

- 5.45—Uncle George and the Kiddies.  
7.15—Service broadcast from St. Jude's Church, Bawdick.

- 8.30—Concert from the Studio.  
10.15—G.P.O. Clock and Chime down.

## 2 G B

Items by the Canterbury District Band, conducted by Mr. J. L. Heron.  
Songs by Miss Cwladys Keane.

## 3 L O

## MORNING SESSION.

- 10.55—Express Train Information.  
11—Service from Scots Church, Collins St., Melbourne. Preacher, The Rev. Norman Macross.  
12.15—British Official Wireless News from Rugby.  
12.30—Close down.

## AFTERNOON SESSION.

- 3—Pleasant Sunday Afternoon Service, from Wesley Church, Lonsdale Street, Chairman, Rev. J. H. Cain.  
4.30—Close down.

## EARLY EVENING SESSION.

- 6.45—Children's Hour: Hymns by Billy Bony and his Deer Rabbits.  
8—Answers to letters and birthday greetings.  
8.15—Another Hymn by Billy Bony and his Deer Rabbits.  
6.32—Stories by Billy Bony, Mimosa and Lovellat Life.  
6.45—Close down.

## NIGHT SESSION.

- 7—Service from St. Paul's Cathedral, Melbourne.  
8.40—Malvern Tramways Band.  
9.25—Elsie Davies, soprano.  
9.2—Mr. J. Howlett Ross.  
9.45—Malvern Tramways Band.  
9.43—Elsie Davies, soprano.  
9.51—"Aragua" News Service: Weather Forecast, Announcements.  
9.55—Our Great Thought for to-night (a): "He who sings frightens away his ill."  
—Cervantes.  
10—God Save the King.

## 3 A R

## MORNING SESSION.

- 10.30—The bells from St. James' Old Cathedral.  
11—Morning Service from Independent Church, Collins Street, Melbourne. Rev. J. E. James, preacher.

## AFTERNOON SESSION.

- 3.15—Special programme, rendered by The Theopian Lodge (No. 292), and friends, transmitted from the Masonic Homes, Punt Road, Prahran. Bro. C. Bartling, conductor.  
3.15—Overture, "Titania." Hildreth.  
3.20—Waltz Intermezzo, "Lola Du Bal." Gillet. Fox trio, "Rubinesque," arranged by Katsman.  
3.27—Song: "Thanks be to God," by Bro. W. G. Phillips.  
3.35—Song, "A Heart That's Free," by Miss Shell Paterson.

- 3.43—Recitation, "Little Miss ——" by Miss Ethel Saker.  
3.50—Song, "Keep on Keeping on," by Bro. Jas. W. Hill.  
3.57—Selection, "A Night Out."  
4.2—Song, "Ah Moon of My Delight" by Bro. W. G. Phillips.  
4.12—Song, "Columbine," by Miss Shell Paterson.  
4.20—Serenade, "From Les Million D'Arlequin." Melodie, "Adoration."  
4.25—Song, "Make new Friends and Keep the Old," by Bro. Jas. W. Hill.  
4.35—Recitation, "An American Love Story," by Miss Ethel Saker.  
4.42—Folk Trail, "Thou'll be Happy."  
4.45—Close down.

## EVENING SESSION.

- 6—The Children's Entertainment, by Ladybird.  
6.45—Bells from St. James' Old Cathedral.  
7—Evening Service from Church of Christ, Swanston Street. Dr. John L. Brandt, preacher.  
8.30—Jollmont Railway Workshops Band. Mr. R. Bowden, conductor.  
8.50—Miss Elma Armstead, soprano.  
8.57—Mr. Arthur Armstead, baritone.  
9.4—Jollmont Railway Band.  
9.20—Miss Elma Armstead, soprano.  
9.27—Mr. Arthur Armstead, baritone.  
9.34—Jollmont Railway Band.  
9.50—"Arag" news.  
9.55—Close down.

## 5 C L

## MORNING SESSION.

- 11—Belay: Divine Service.

## EVENING SESSION.

- 6.50—G.P.O. Chimes.  
6.51—Sunday stories for the children.  
7—Relay from Ross Park Congregational Church: Divine Service.  
8.15 (approx.)—Venetian Trio interspersed with vocal items.  
8.45—Mr. P. H. Nicholas will talk on letters.  
9—G.P.O. Chimes.  
9.1—Weather reports.  
9.3—Studio Concert continued.  
10—G.P.O. Chimes. National Anthem. Close down.

## 7 Z L

## EVENING SESSION.

- 7—Service from Memorial Congregational Church, Hobart. Preacher Rev. Arthur C. Nelson.  
8.45—Concert from the Studio.  
9.45—The "Mercury" Special Interstate news service: Weather Synopsis; Station Announcements; National Anthem.

## 4 Q G

## MORNING SESSION.

- 10—Organ Music from St. Andrew's Church of England, South Brisbane, by Mr. E. W. Taylor.

## AFTERNOON SESSION.

- 3.15—Band Concert by Citizen's Band. Mr. A. Knauser conductor, will be relayed from the Botanical Gardens.  
4.30—Close down.

## NIGHT SESSION.

- 7.30—Organ music from St. Andrew's Church, South Brisbane.  
7.30—Complete Evening Service will be relayed from St. Andrew's Church of England, South Brisbane.  
At the conclusion of the church service, the concert by the Greater Brisbane Municipal Concert Band will be relayed from Wickham Park. Second special request programme.  
9.30—Close down.

## 2 F C

## EARLY MORNING SESSION.

- 7—"Big Ben" and Announcements.  
7.3—Music from the Studio.  
7.10—Official Weather Forecast, rainfall, temperatures, astronomical memoranda, shipping intelligence, commercial news, mail services.  
7.25—Investment market, mining share market, metal quotations.  
7.35—Wool sales, breadstuffs markets, Inter-Continent markets, produce markets.  
7.45—"Sydney Morning Herald" News Service.  
8—"Big Ben"; "Theorio" Talk by Mr. J. K. Powell.

## MORNING SESSION.

- 6.15—The Chimes of 2FC.  
6.20—Music from the Studio.  
6.30—Marching Music for the School Children.  
6.40—Music from the Studio.  
6.49—"Big Ben" and Announcements.  
10.15—Late "Sydney Morning Herald" News Service.  
10.15—Music from the Studio.  
10.45—A Morning Reading.  
10.55—A Talk by 2FC Racing Commissioner.  
11—"Big Ben"; Australian Press Association and Hunter & Laker.  
11.10—Music from the Studio.  
11.30—Marching Music for School Children.  
11.35—Close down.

## MIDDAY SESSION.

- 12—"Big Ben" and Announcements.  
12.5—Stock Exchange, First Call.  
12.10—Music from the Studio.  
12.30—Marching Music from the Studio for School Children.  
12.40—Music from the Studio.  
12.45—From Farmer's Oak Hall: The Oak Hall Trio.  
12.50—Rugby Wireless News.  
12.55—Miss Florence Barrow, contralto.  
1—Chimes of "Big Ben." Weather intelligence.  
1.5—"Evening News" midday news service.  
Producers' Distributing Society's Report.  
1.20—The Oak Hall Trio.  
1.25—Stock Exchange. Second call.  
1.30—Marching Music for School Children.  
1.40—Miss Florence Barrow, contralto.  
1.50—The Oak Hall Trio.  
1.55—Close down.

## AFTERNOON SESSION.

- 2.30—Chimes of 2FC and Announcements.  
Broadcast from the Tivoli Theatre, items by the orchestra conducted by Mr. Will Quintrell.  
3.20—A Talk on "Country Women's Work."  
3.25—Miss Dorothy Benbow, "Praise" (Wood).  
3.30—Marching Music for School Children.  
3.40—Miss Eva Webb-Jones, mezzo "A Brown Bird Singing" (Wood).  
3.45—From Farmer's Oak Hall: The Oak Hall Trio.  
3.50—Miss Alice Kent, mezzo.  
3.55—Music from the Studio.  
4—Miss Dorothy Benbow, contralto: "My Dear Soul" (Sanderson).  
4.5—The Oak Hall Trio.  
4.15—Music from the Studio.  
4.20—Miss Eva Webb-Jones, mezzo: "Valinka's Song" (Windham).  
4.25—From Farmer's Oak Hall: Oak Hall Trio.  
4.30—Miss Alice Kent, mezzo.  
4.35—Music from the Studio.  
4.45—Stock Exchange—Third Call.  
4.50—Close down.

## EARLY EVENING SESSION.

- 6.45—The Chimes of 2FC.  
6.50—The "Hello Man" talks to the children.  
6.50—A talk to the Older Children; Serial Story.  
6.45—Broadcast from the Hotel Australia, items by the orchestra under the direction of Miss A. J. Egan.  
7.15—From the Studio: "Evening News" Late News Service.  
7.30—Daiely's Market Reports (wool, wheat, stock), fruit and vegetable markets.

7.40—A Talk on "Navy League Sea Cadet Movement," by the Hon. Sec., Mr. E. Fiddes.

NIGHT SESSION.

- 7.45—Announcements.
- 8—"Big Ben," Broadcast from the Haymarket Theatre, terms by the Operatic Orchestra under the baton of Mr. Stanley Vercoe.
- 8.25—From Beale's Concert Salon, a programme from the Royal Sydney Apollo Club, conductor, Mr. Alfred Hill. From the Studio; Mr. Joe Cahill, comedian.
- 9.5—Miss Dorothy Mould, contralto.
- 9.16—Haymarket Theatre, vocal solo.
- 9.25—From the Studio, Mr. Joe Cahill, comedian.
- 9.35—Mr. R. A. Bartleman, baritone.
- 9.40—A Travel Graphophone, by Major Sandford Morgan, entitled "An Indian Night's Entertainment." Pictures of the various places described, will appear in the evening edition of the "Evening News." "Him, walls of the Palace at Benares"; "The scene of the massacre at Cawnpore"; "The Rock of Tanjore"; "Southern India"; "Planting Rice, the staple food of Southern India"; Malabar's Golden Lily Tank; "The city of the Thousand Temples"; "Frontier mountain stronghold, the Citadel"; "The wooden bridge of Selinger"; "On Jhalum river"; "The shepherd and his wandering lamb in fair Kashmir"; "Circle of Vienna."
- 10.16—2FC Dance Hall, conductor, Mr. Eric Pearce. At the end of each group, some interesting lessons on the new dances will be given by arrangements with Mr. J. C. Bennett.
- 11—"Hit List" and Announcements.
- 11.25—2FC Dance Hall.
- 12—National Anthem; Close down.

2BL

EARLY MORNING SESSION.

- 7.15—Physical Training and Health exercises.
  - 7.25—Health News.
  - 7.30—Physical Training & Health Exercises.
  - 7.45—Weather Forecast.
  - 7.57—Sporting Information.
  - 7.51—Broadcasters' Special News Service.
  - 8—G.P.O. Clock and Chimes; Close down.
- MOORING SESSION.
- 10—G.P.O. Clock and Chimes; Musical programme from the Studio.
  - 10.30—Broadcast Direct News Service from Rugby.
  - 10.45—Weather Reports by courtesy of Govt. Meteorologist.
  - 10.55—Daily Telegraph News Service.
  - 11—G.P.O. Clock and Chimes.
  - 11.5—Musical programme from the Studio.
  - 11.15—Market Reports.
  - 11.20—Broadcasters' Information Service, including Mail, Boats in call by wireless Shipping; Weather and Rainfall.
  - 11.35—Daily Telegraph News Service.
  - 11.40—Women's Session; Social Notes by Mrs. Jordan.
  - 11.45—Mrs. Jordan replies to correspondents.
  - 11.50—Daily Telegraph News Service.
  - 11.55—Mrs. Jordan, on "Eggs Cooking."
  - 12.25—Sydney Stock Exchange talk.
  - 12.35—Musical Programme from the Studio.
  - 12.45—Hilbert's Instrumental Quartette, direction Carv' Castillon.
  - 1.31—Sydney Stock Exchange Call.
  - 1.35—Latest Sporting Information and Race results on new day.
  - 1.45—Sun Newspaper's News Service.
  - 2—G.P.O. Clock and Chimes; Close down.

AFTERNOON SESSION.

- Racing Information broadcast by courtesy of The Sun.
- 5—G.P.O. Clock and Chimes; Weather Report and Forecast by courtesy of Mr. C. J. Mares, Govt. Meteorologist.
- 5.25—Social Notes from the Sun.
- 5.15—Sun Newspaper's News Service.
- 5.35—David Jones' Tea Room Talk.
- 5.50—Sun Newspaper's News Service.
- 6.15—Musical programme from the studio.
- 6—G.P.O. Clock and Chimes; David Jones'

- Tea Room Talk.
- 4.15—Social Story.
- 4.45—Musical programme from the studio.
- 4.45—Producers' Distributing Society's Vegetable and Market Report Report.
- 4.50—Shipping Information when available.
- 4.55—Day's Racing resume on race days.
- 4.55—News from the Sun.
- 4.58—Reading of tonight's programme.
- 4.55—G.P.O. Clock; Close down.

EARLY EVENING SESSION.

- 5.45—G.P.O. Clock; Uncle George and the Kidnies.
- 5.55—Pavilion Dinner Orchestra under the direction of Mr. Geo. Morrison.
- Special Country Session.
- 7—G.P.O. Clock and Chimes; Australian Merit-Wool and Finance Co's. Wool and Hide Report.
- 7.5—Weather Report and Forecast by courtesy of Mr. C. J. Mares, Govt. Meteorologist.
- 7.8—Stock Exchange Reports.
- 7.16—Producers' Distributing Society's Fruit and Vegetable Report.
- 7.20—Fruit and Vegetable Reports (Sun).
- 7.24—Grain and Fodder Reports (Sun).
- 7.27—Eggs and Poultry Reports (Sun).
- 7.30—Primary Industries Newspaper Report on London Butter Market.
- 7.35—Country News from the Sun.
- 7.45—Lecture.

NIGHT SESSION.

- 8—G.P.O. Clock and Chimes; Broadcasters' Topical Chorus.
- 8.5—Newtown Band, broadcast from Industrial Hall, Newtown.
- 8.25—Mr. Edward Barry, baritone.
- 8.30—Mr. Bert Waine, comedian.
- 8.35—Miss Hilda Lane, soprano.
- 8.45—Ivy and Eric Butterfield (vocal quartet).
- 8.55—Resume of following day's programme. Weather report and forecast, by courtesy of Mr. C. J. Mares, Government Meteorologist.
- 9—G.P.O. Clock and Chimes.
- 9.1—Miss Bessie Cooke, contralto.
- 9.25—"The Two Duds and a Piano."
- 9.15—Newtown Band.
- 9.35—Interval.
- 9.45—Miss Hilda Lane.
- 9.48—Mr. Bert Waine.
- 9.57—Mr. Edward Barry.
- 10.4—Miss Bessie Cooke.
- 10.11—"The Two Duds and a Piano."
- 10.18—Al' Hammett and the Ambassadors Dance Band, broadcast from the ballroom of the Ambassadors. During the intervals between dances, news reports, by courtesy of "The Sun," will be broadcast.
- 11—G.P.O. Clock and Chimes; National Anthem.

2GB

EVENING SESSION.

- 5.45—Talks to Children by A.B.C.
- 5.55—Talk on Radio by Dan Scully.
- 6.3—Address by Dr. J. J. Lee der Leens, L.L.D.
- 6.25—Notes by Miss Gwladys Evans.
- 6.35—Singing Quartette (E. H. Beard).
- 6.45—Conce. Hoist, M. Lang.
- 9—Announcements.
- 9.5—Colla solo by Muriel Lang.
- 9.12—Singing Quartette (E. H. Beard).
- 9.25—Songs by Miss Gladys Evans.
- 9.32—Violin solo by Dan Scully.
- 9.38—Instrumental Quartette.
- 9.45—Great Thoughts of Great Minds, by Prof. Ernest Wood.
- 9.54—God Save the King.

2KY

LUNCHEON HOUR SESSION.

- 12.15—Popular Fox Tots, Musical Interlude.
  - News Items. Hawaiian Steel Guitar Selections. Union News and Meetings. Vocal items. Closing down at 1.45 pm.
- CHILDREN'S HOUR:
- 6.30—The Storyman, Mr. Thompson.

EVENING SESSION.

- 7.30—Tune-in to the ticking of the clock.
- 7.35—Latest news items.
- 7.40—Industrial and political topics, by Mr. J. S. Garden.
- 7.55—Shipping Log.
- 8—Dance solo, by Mr. W. Thompson.
- 8.15—Musical soprano solos by Miss Nellie Graves.
- 8.20—Monologue, by Miss Amy Howard.
- 8.30—Musical interlude: Palms Royal Californians, Mr. Walter Bonham, leader (by kind permission of J. C. Bennett, Ltd.).
- 8.35—Soprano solo, Miss Ethel Mitchell.
- 9.5—Tenor solo, Mr. Will Stratton.
- 9.15—Musical Interlude.
- 9.30—Contralto solo, by Miss Amy Howard.
- 9.40—Dance music.
- 10—Closing Announcements.

3LO

MIDDAY SESSION.

- 12 noon—Time Signal; British Official Wireless News from Rugby; Reizers and the Australian Free Associations; Galena; "Argus" and "Herald" News Services.
- 12.45—Stock Exchange Information, Shipping Intelligence.
- 12.55—Meteorological Information; Weather Forecasts for Victoria, Tasmania, South Australia, and New South Wales; Ocean Forecast; River Reports.
- 1—Time Signal.
- 1.1—Studio Orchestra.
- 1.15—Letha Bright, soprano.
- 1.15—Charles Backstrom, steel guitar.
- 1.24—Studio Orchestra.
- 1.35—Letha, Bright, soprano.
- 1.41—Charles Backstrom, steel guitar.
- 1.45—Studio Orchestra.
- 2—Close down.

AFTERNOON SESSION.

- 1—Studio Orchestra.
- 1.16—Alma Horlock, soprano.
- 1.17—Egma Thomson, violin.
- 1.24—Lobby Peavey, baritone.
- 2.11—Studio Orchestra.
- Interlude.
- 3.4—Miss Flora Fell, Supervisor of Domestic Arts, Education Department, "Domestic Economy."
- 3.50—Studio Orchestra.
- 4.6—Mrs. Dorothy Silk, will give a talk on "Homopetrata."
- 4.21—Alma Horlock, soprano.
- 4.28—Bessie Gannon, baritone.
- 4.35—Dobby Peavey, baritone.
- 4.40—Studio Orchestra.
- 4.45—"Herald" News Service; Stock Exchange information.
- 5—Close down.

EVENING SESSION.

- 6.45—Children's Hour; Answers to letters and Birthdays.
- 6.50—Ross Reaco, Siffleur, will whistle for the children.
- 6.7—"Little Miss Kookaburra" wreny tots are going to be told the story about "The Naughty Blackbirds," by Bushwacker.
- 6.17—Ross Reaco, will give some bird imitations, as well as some animal calls.
- 6.17—"Little Miss Kookaburra" will give the biggest boys and girls and girls another instalment of "The Trials of the Twins."
- 6.48—"Argus" and "Herald" News Service; Reuters and the Australian Press Association Cable.
- 6.55—Weather Synopsis; Shipping Movements; Overseas Shipping.
- 7—Stock Exchange Information.
- 7.35—Fish Market Reports by J. B. Horrett Ltd.
- 7.45—River Reports; Aerial Mail Information by the Australian Aerial Services Ltd.
- 7.6—Market Reports by the Victorian Producers' Co-operative Co. Ltd.; Haymarket Sheep Sales; Poultry, grain, chaff, hay, straw, jute, tallow, sundries, potatoes and onions; Market prices of oranges and lemons, by the Victorian Central Citrus Association Pty. Ltd.

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## NIGHT SESSION.

- 7.20—Under the auspices of the New Settlers' League, Miss Mary Mitchell "New Settlers in the Malice."
- 7.40—Under the auspices of the Department of Agriculture, Mr. J. M. Ward, Superintendent of Horticulture, "Marketing of Berry Fruit."
- 8.—National Night, German Night Part V, by the students of the University Conservatorium of Music, assisted by Miss Maude Iwern, Mr. J. Sutton Crow, lecturer.
- 9.—Studio Orchestra.
- 9.10—Madame Evelyn Ashley, soprano.
- 9.17—Rupert Hazell and Elaine Day in Harmony.
- 9.25—C. Richard Chung, flute.
- 9.30—Studio Orchestra.
- 9.40—Madame Evelyn Ashley, soprano.
- 9.47—Aileen Fortune, piano.
- 9.52—Rupert Hazell and Elaine Day.
- 10.—British Official Wireless News from Rugby. Announcements, 3LO Girl.
- 10.16—New Super-Phonic Sounds Recital.
- 10.20—Third Act of "Willoway," transmitted from His Majesty's Theatre, by permission of J. C. Williamson Ltd., featuring Miss Marie Dicks.
- 10.45—British Official Wireless News from Rugby: Weather Forecast; "Arcus" News Service; Announcements—3LO Girl.
- 11.—Our Great Thought for To-night is:—"Capacity without education is deplorable, and education without capacity is thrown away." Saund.
- 11.—3LO Melody Masters.
- 11.45—God Save the King.

## 3 AR

### MORNING SESSION.

- 12.30.—British Official Wireless Press, received from Rugby Super Wireless Station, England; Express Train Information; "Age" News Bulletin, exclusive to 3AR.
- 12.—Time Signal Chime, Studio Barometer Readings, 1st Weather Forecast, Sporting Features, Events of the day.
- 12.6.—Musical selections, relayed from Hoyt's Theatre, Bourke Street, Mr. T. I. Campbell at the Warbler.
- 12.30.—Stock Exchange news, Market reports.
- 12.40.—Musical selections.
- 12.55.—Shipping Movements, Mail Notices.
- 1.—Close down.

### AFTERNOON SESSION:

- 2.50.—Hoyt's Premier Orchestra, under direction of Cecil W. Fraser.
- 3.—The Melbourne Piano Trio.
- 3.16.—Mr. James Meldun, tenor.
- 3.22.—Mr. Bert Pessifer, violinist.
- 3.30.—Mr. James Meldun, tenor.
- 3.37.—Mr. Ronald Brearley, cellist.
- 3.41.—Melbourne Piano Trio.
- 4.—Time Signal Chime; Studio Barometer Readings; Hoyt's Orchestra.
- 4.1.—Evening Amusement Guide.
- 5.—Time Signal Chime, 2nd Weather Forecast; Close down.

### EARLY EVENING SESSION.

- 6.45.—Children's corner, by Uncle Rad.

### EVENING SESSION.

- 7.50.—British Official Wireless Press, Studio Barometer Readings, Time Signal Chime.
- 8.—Ren Delroy, soprano.
- 8.7.—John Box, bass.
- 8.14.—Leggett's Ballroom Orchestra.
- 8.30.—Mr. A. J. Sullivan, talk on "Travels in Australia and New Zealand."
- 8.45.—Leggett's Ballroom Orchestra.
- 8.55.—Ray Hooley, baritone.
- 9.2.—Peggy Lester, elocutionist.
- 9.8.—Leggett's Ballroom Orchestra.
- 9.25.—John Box, bass.
- 9.32.—Ren Delroy, soprano.
- 9.39.—Ray Hooley, baritone.
- 9.46.—Leggett's Ballroom Orchestra.
- 10.—Peggy Lester, elocutionist.
- 10.7.—Thomas Hill, tenor.
- 10.14.—Leggett's Ballroom Orchestra.
- 10.40.—Close down.

## 4QG

## MIDDAY SESSION.

- 12.55—Tune-in.  
12.58—Time Signal.  
1—Market Reports, supplied by the Council of Agriculture. Weather information, supplied by Commonwealth Weather Bureau. News, supplied by "The Daily Mail." News Service, supplied by "The Daily Standard."  
1.50—From Hotel Carlton: Lunch Music from The Lounge, Hotel Carlton, played by Hotel Carlton Symphony Orchestra.  
2—Close down.

## AFTERNOON SESSION.

- 3.30—From Hotel Carlton: Afternoon Tea Music, played by Hotel Carlton Symphony Orchestra.  
4.15—From the Studio: News Service, supplied by "The Telegraph."  
4.35—Close down.

## EARLY EVENING SESSION.

- 5—News Service, supplied by the "Daily Standard"; Weather information, supplied by the Commonwealth Weather Bureau; Announcements.  
5.30—Children's Session: Stories by "The Seafarer."  
7—From the Council of Agriculture Studio: "The Farmers' Section; Market Reports; Lacustrine; Danish Methods in Pig Production, by Mr. E. J. Shelton, Instructor in Pig Rearing."  
7.50—From the Studio of 4QG, Stock Reports; Announcements.

## NIGHT SESSION.

- 7.45—Lecture Session: The Children's Music Corner, conducted by "The Music Man."  
8—The whole of tonight's programme will be relayed from the Belle Vue Hotel, Brisbane, and will comprise an entertainment arranged by Mrs. T. J. Ryan in aid of St. Andrew's Home.  
10—The "Daily Mail" News; Announcements; close down.

## 5CL

## MORNING SESSION.

- 11.30—G.P.O. Chimes.  
11.31—Festivity a Stock Duo Art number.  
11.40—"Advertiser" news service.  
11.55—Vocalion number.  
12—G.P.O. Chimes.  
12.1—"Advertiser" news service.  
12.16—Festivity a Stock Duo Art number.  
12.30—5CL Studio Orchestra in concerted numbers.  
12.5—Ward & Co's. Stock Exchange Intelligence, official weather synopses, and station announcements.  
3—G.P.O. Chimes.

## AFTERNOON SESSION.

- 5—G.P.O. Chimes.  
5.1—Relay from "Maple Leaf" Cafe—Orchestral numbers.  
5.45—From the Studio: Stock Duo-Art and Vocalion numbers.  
4—G.P.O. Chimes.  
4.1—Relay from "Aresida" Cafe—Orchestral numbers.  
5—G.P.O. Chimes.

## EVENING SESSION.

- 6.50—G.P.O. Chimes.  
6.51—Headline stories.  
7.30—Market reports.  
7.45—Mr. Frederickson, automotive engineer, 4—Bum Oil Company.  
7.50—Care of the Teeth, by Mr. Duncey.  
8—G.P.O. Chimes.  
8.1—Relay from S.A.R. Institute: Programme of light music interspersed with vocal and instrumental items.  
8.20—"Twinkler's" original humorous talk.  
8.40—Band Concert, continued.  
9—G.P.O. Chimes.  
9.1—Weather reports.  
9.5—Band Concert, continued.  
10.15—"Advertiser" News Service.

- 10.40—Studio Concert, continued.  
10.55—Station announcements.  
11—G.P.O. Chimes. National Anthem. Close down.

## 7ZL

## MORNING SESSION.

- 11—G.P.O. Clock Chimes. The "Mercury" News, Stock, Shipping, Commercial Intelligence, Weather information, "Salonada" selections.  
12—G.P.O. Clock Chimes. Close down.

## AFTERNOON SESSION.

- 3—G.P.O. Clock Chimes. Musical Items from the Studio.  
3.30—Holmes Stock Exchange quotations.  
3.55—Weather information.  
4—G.P.O. Clock Chimes. Close down.

## EVENING SESSION.

- 7—Children's Corner. "Big Brother" chats to his Pat.

## NIGHT SESSION.

- 8—G.P.O. Clock Chimes. The "Mercury" special Tasmanian news service. Railway auction produce sales. Weather information.  
8.15—Holmes Stock Exchange quotations.  
8.16—Talk by Mr. C. S. King, M.A., subject, St. Francis of Assisi.  
8.40—Vocal items and selections of the Gull-brand. Restoring Piano, broadcast direct from Finlay's cinema, Elizabeth Street.  
9.15—Tasmanian District Weather Reports.  
9.50—The "Mercury" special interstate news service. Weather synopsis. Station announcements. National Anthem.

## Tuesday, Nov. 30

## 2FC

## EARLY MORNING SESSION.

- 7—"Big Ben" and announcements.  
7.15—Music from the Studio.  
7.19—Official weather forecast, rainfall, temperatures, astronomical memoranda, shipping intelligence, commercial news, mail services.  
7.25—Investment market, mining share market, metal quotations.  
7.33—Wool sales, Australasian markets, interest, markets, produce markets.  
7.4—"Sydney Morning Herald" news service.  
8—"Big Ben." "Chorus" talk by Mr. J. K. Jewell.  
8.15—Close down.

## MORNING SESSION.

- 9.15—The Chimes of 2FC.  
9.30—Music from the Studio.  
9.50—Marching Music for the School Children.  
9.40—Music from the Studio.  
9.45—Lecture talk by 2FC. Being Communion.  
10—"Big Ben" and announcements.  
10.5—"Late" "Sydney Morning Herald" News Service.  
10.15—Music from the Studio.  
10.20—Morning Reading.  
11—"Big Ben"; Australian Press Association and Reuters' Cables.  
11.30—Music from the Studio.  
11.35—Marching Music for School Children.  
11.35—Close Down.

## MIDDAY SESSION.

- 12—The Chimes of Big Ben, and Announcements.  
12.5—Stock Exchange, First Call.  
12.10—Music from the Studio.  
12.20—Marching Music for the School Children.  
12.40—Music from the Studio.  
12.45—Music from the Oak Hall; The Oak Hall Trio.  
12.50—Rugby Wireless News.  
12.55—Miss Gladys Finlayser, soprano.  
1—Chimes of "Big Ben." Weather Intelligence.

- 1.3—"Evening News" midday news service. Freshers' Distributing Society's reports.  
1.20—Oak Hall Trio.  
1.25—Stock Exchange—Second Call.  
1.30—Marching Music for School Children.  
1.40—Miss Gladys Finlayser, soprano.  
1.45—Music from the Studio.  
1.50—The Oak Hall Trio.  
2—The Chimes of Big Ben; Close Down.

## AFTERNOON SESSION.

- 2.30—The Chimes of 2FC and Announcements.  
2.35—A Recital on the "Behnlund" Player Piano.  
3.10—A Talk on "Country Women's Week."  
3.15—Marching Music for the School Children.  
3.40—From Farmer's Tea Rooms: Miss Diana Booth, soprano, "By the Waters of Murray" (Laurance).  
3.45—Oak Hall Trio.  
3.55—Music from the Studio.  
4—Miss Muriel Humphries, contralto.  
4.15—Music from the Studio.  
4.20—Miss Diana Booth, soprano, "The Wind in the South" (John Scott).  
4.25—The Oak Hall Trio.  
4.30—Music from the Studio.  
4.40—Miss Muriel Humphries, contralto.  
4.45—Stock Exchange Third Call.  
4.46—Close down.

## EARLY EVENING SESSION.

- 5.45—Chimes of 2FC.  
5.50—The "Bell Man" talks to the Children.  
6.10—A Story for the older children with Bird and Animal imitations by "Toots."  
6.30—"The Serial Story."  
6.45—From the Hotel Australia, items by the orchestra, under the direction of Miss A. J. Egan.  
7.10—From the Studio, "Evening News" Service—late news. Weather information.  
7.30—Daily's Market Reports (Wool, Wheat, Stock, Fruit, and Vegetable Markets).  
7.40—A Talk on "Java," the fifth of the series, dealing with "Mundak Temple."

## NIGHT SESSION.

- 7.55—Announcements.  
8—"Big Ben"; Broadcast from the Darlington Town Hall, items by the Metropolitan Band, conductor, Mr. John Palmer.  
8.15—From the Studio: Mr. Russell Rio, baritone.  
8.40—Items by the Metropolitan Band.  
8.45—From the Studio: Australian Bush Songs, composed by Madame Lattie Gordon, with bird imitations by "Inlay" (Corporal Phillips), the well-known improvisator.  
9.40—Mr. Russell Rio, baritone.  
9.45—A Talk by Mr. T. J. Henry, on "The Island Song of Japan."  
9.50—Mr. Russell Rio, baritone.  
9.55—Further items by the Metropolitan Band.  
10—From the Studio: Miss Dorothy Dowse, contralto.  
10.40—Mr. Lionel Lawson, violin solo.  
10.50—Mr. Montgomery Stuart in a humorous story.  
10.55—Miss Dorothy Dowse, contralto.  
10.58—Mr. Lionel Lawson, violin solo.  
10.40—Announcements.  
10.40—Mr. Montgomery Stuart, educational.  
10.50—From the Westworth Hotel: Items by the Westworth Symphonic Dance Orchestra in dance numbers.  
11—"Big Ben" and Announcements.  
11.3—Dance Music from the Westworth until midnight.  
12—National Anthem; close down.

## 2BL

## EARLY MORNING SESSION.

- 7.15—Musical programme from the Studio.  
7.18—Physical Training and Health Exercises.  
7.25—Health Hints.  
7.30—Physical Training and Health Exercises.  
7.40—Weather Forecast.  
7.45—Sporting Information.

7.51—Broadcasters' Special News Service.  
8—G.P.O. Clock and Chimes; Close down.

#### MORNING SESSION.

10—G.P.O. Clock and Chimes; Musical programme from the Studio.  
10.30—Broadcasters Direct News Service from Rugby.  
10.35—Weather Report by courtesy of Govt. Meteorologist.  
10.38—Daily Telegraph News Service.  
11—G.P.O. Clock and Chimes.  
11.1—Musical Programme from the Studio.  
11.15—Market Reports.  
11.24—London Metal Quotations.  
11.25—Broadcasters' Information Service, including Mail, Items in call by wireless Shipping, Weather and Rainfall.  
11.34—Daily Telegraph News Service.  
11.40—Women's Session; Social Notes by Mrs. Jordan.  
11.50—Mrs. Jordan replies to correspondents.  
12—G.P.O. Clock and Chimes. Talk on "Summer Frocks," by Mrs. Jordan.  
12.20—Musical Programme from the Studio.  
12.35—Sydney Stock Exchange Calls.  
12.45—Billie's Instrumental Quartette, direction Cyril Castling.  
1.00—Sydney Stock Exchange Calls.  
1.30—Latest Sporting Information and Race Results on race days.  
1.45—Sun Newspaper's News Service.  
2—G.P.O. Clock and Chimes; Close down.

#### AFTERNOON SESSION.

Racing Information, broadcast by courtesy of the Sun.  
3—G.P.O. Clock and Chimes; Weather Report and Forecast by courtesy of Mr. C. J. Mares, Government Meteorologist.  
3.5—Social notes from "The Sun."  
3.10—"Sun" Newspapers news service.  
3.15—Civil Service Stores' Trio, direction Miss de Grey Bremer.  
3.30—G.P.O. Clock and Chimes. "Sun" News-papers news service.  
3.45—Musical programme from the Studio.  
4—G.P.O. Clock and Chimes; Civil Service Stores' Trio.

4.15—Serial Story, entitled "Stories Near and Far."  
4.30—Musical Programme from the Studio.  
4.45—Producers' Distribution Society's Vegetable and Fruit Markets Report.  
4.50—Shipping information when available.  
4.52—Day's Racing Resume on Race Days.  
4.55—News from "The Sun."  
4.58—Resume of night's programme.  
5—G.P.O. Clock and Chimes. Close down.

#### EARLY EVENING SESSION.

5.15—G.P.O. Clock and Chimes. Uncle George and the Kiddies.  
5.40—Pavillon Dinner Orchestra, under the direction of Mr. Cox. Morrison.  
Special Country Session.  
7—G.P.O. Clock and Chimes; Australian Mercantile, Land and Finance Co.'s Report.  
7.5—Weather Report and Forecast, by courtesy of Mr. C. J. Mares, Government Meteorologist.  
7.8—Stock Exchange Reports.  
7.15—Producers' Distributing Society's Fruit and Vegetable Report.  
7.20—Fruit and Vegetable Reports (Sun).  
7.25—Drain and Fodder Report (Sun).  
7.30—Egg and Poultry Report ("Sun").  
7.35—Country news from "The Sun."  
7.45—Talk on Tasmania—A Hive of Industry.

#### NIGHT SESSION.

8—G.P.O. Clock and Chimes; Broadcasters' Tropical Chorus.  
8.5—Broadcasters' Miniature Orchestra, under the direction of Mr. J. Knight Barnett.  
8.12—Mr. Peter Sutherland, basso.  
8.20—Miss Marguerite Masegarb, dramatic soloist.  
8.28—Mr. Raimund Perchtach, violinist.  
8.45—Miss Amy Osting, contralto.  
8.45—Resume of following day's programme.  
9—G.P.O. Clock and Chimes; Weather Forecast by courtesy of Mr. C. J. Mares, Govt. meteorologist.  
9.2—Broadcasters' Miniature Orchestra.  
9.12—Neil Crane and Alf J. Lawrence.  
9.22—Mr. J. Crosby Browne, clarinet solo.  
9.30—Duet, Miss Amy Osting and Mr. Peter Sutherland.

9.40—Interval.  
9.45—Broadcasters' Miniature Orchestra.  
9.55—Miss Gladys Verina, soprano.  
10.18—Mr. Norman Wright, tenor.  
10.26—Miss Marguerite Masegarb.  
10.34—Mr. J. Crosby Browne.  
10.41—Mr. Peter Sutherland.  
10.45—Miss Amy Osting.  
10.52—Mr. Norman Wright.  
11—G.P.O. Clock and Chimes; Pavilion Orchestra under the direction of Mr. S. Bennett.  
12—G.P.O. Clock and Chimes; National Anthem.

## 2 KY

#### LUNCHEON HOUR SESSION.

12.15—Popular Fox Trots; Musical Interlude, News Items; Hawaiian Steel Gullar Selections; Union News and Meotius; Vocal Items; Closing down at 1.45 p.m.

#### CHILDREN'S HOUR.

6.50—The Storyman, Mr. Thompson.

#### EVENING SESSION.

7.30—Tune in to the ticking of the clock.  
7.35—News Items.  
7.40—A Talk on the New Guinea Gold Fields, Mr. J. S. Huatkin.  
7.55—Shipping Log.  
8—Pianoforte solo, Miss Mary Dean.  
8.10—Tenor Solo, Mr. A. Jamieson.  
8.20—Mezzo Soprano Solo, Miss Helen Cameron.  
8.30—Musical Interlude, Palais Royal Callifornians, Mr. Walter Beeban, leader (by kind permission of J. C. Bondroit Ltd).  
8.55—Solo, Miss Lillian Italian.  
9—Soprano solo, Miss Zara Neilson.  
9.10—Items from McHugh Leichhardt Stadium.  
9.30—Recital of Australian Compositions, by Hugh Godwin.  
10—Closing Announcements.

## 3 LO

#### MIDDAY SESSION.

12 noon—Time Signal; British Official Wireless News from Rugby; Reuters and the

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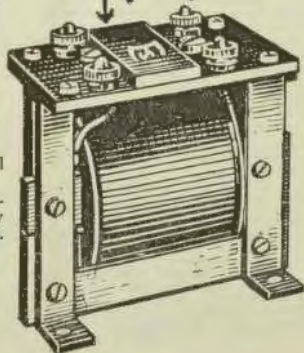
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Australian Press Association Cables, "Argus" and "Herald" News Services.  
 12.48—Stock Exchange Information; Shipping Intelligence.  
 12.50—Meteorological Information; Weather Forecast for Victoria, Tasmania, South Australia, and New South Wales; Ocean Forecast; River Reports.  
 1—Time Signal.  
 1.1—Studio Orchestra.  
 1.10—Eunice Whitehead, siffler.  
 1.17—Royalind Bradley, violin.  
 1.30—Eric Davies, soprano.  
 1.31—Studio Orchestra.  
 1.38—Daphne Whitehead, siffler.  
 1.45—Eric Davies, soprano.  
 1.52—Studio Orchestra.  
 2—Close down.

## AFTERNOON SESSION.

1—Will Page and his Popular Players.  
 3.10—"An Exit" of Messrs. Buckley and Nunn Ltd., "Fashion Talk."  
 3.25—Will Page's Popular Players.  
 3.35—Erace Green, pantomime dance.  
 3.45—Will Page and his Popular Players.  
 3.49—Rita Hilton will entertain you with some songs at the piano.  
 3.55—Will Page and his Popular Players.  
 4.6—Matron Morland will give a talk on Infant Welfare.  
 4.15—Will Page and his Popular Players.  
 4.25—Erace Green will sing again.  
 4.38—Will Page and his Popular Players.  
 4.49—Rita Hilton, entertainer.  
 4.55—"Herald" News Service; Stock Exchange Information.  
 5—Close down.

## EVENING SESSION.

5.45—Children's Hour; Answers to letters and Birthday Greetings.  
 6.25—Thelma Ready will play some piano selections for the children.  
 6.7—Mary Gumbel, poems.  
 6.20—Thelma Ready will play again.  
 6.27—Mary Gumbel, story for the boys and girls.  
 6.40—"Argus" and "Herald" News Services; Readers and the Australian Press Association Cables.  
 6.55—Stock Exchange Information.  
 7—Fish Market Reports, by J. R. Borritt, Ltd.  
 7.6—River reports. Aerial Mail Information by the Australian Aerial Services Ltd.  
 7.8—Market Reports by the Victorian Producers Co-operative Co. Ltd.; Haymarket Sheep Sales; Foultry, grain, chaff, hay, straw, oats, dairy produce, potatoes and onions; Market prices of oranges and lemons, by the Victorian Central Citrus Association Pty. Ltd.

## NIGHT SESSION.

7.50—Under the auspices of the Royal Automobile Club of Victoria, Mr. E. W. Cox, President of the Club, Victoria through a Windscreen.  
 7.40—Under the auspices of the University Extension Board, Dr. D. W. Tiers, senior lecturer in the Zoology Department of the University; Some Disease Producing Organisms and Man's Conquest over them.  
 8—Melbourne Highland Pipe Band.  
 8.5—Annie Caddell, soprano.  
 8.12—Brunswick City Band.  
 8.23—Neil McInnes, humorous songs.  
 8.30—Violet McGregor, violin.  
 8.37—Hampson Taylor, tenor.  
 8.47—Super-phonc Sonora Musical.  
 8.5—Dr. Loftus Hill; Popular Science.  
 9.15—Brunswick City Band.  
 9.25—Ella Riddell, contralto.  
 9.40—Melbourne Highland Pipe Band.  
 9.42—J. Alexander Brown, baritone.  
 9.50—British Official Wireless News from Rugby; Announcements; SLO Gled.  
 10—Violet McGregor, violin.  
 10.7—Annie Caddell, soprano and Ella Riddell, contralto.  
 10.12—Brunswick City Band.  
 10.22—"Argus" News Service; Weather Forecast; Announcements.  
 10.32—Ella Riddell, contralto.  
 10.40—Melbourne Highland Pipe Band.  
 10.47—J. Alexander Brown.  
 10.54—Brunswick City Band.  
 11—"Our Great Thought for To-night is—  
 "To select well among old things is almost

equal to inventing new ones."—Able Tradist.  
 11.10—The SLO Melody Masters.  
 11.40—God Save the King.

## 3 A R

## MORNING SESSION.

11.30—British Official Wireless Press, received from Rugby Super Wireless Station, England; Express Train Information; "Age" News Bulletin.  
 12—Time Signal Chime from G.P.O. Studio Barometer Readings. 1st Weather Forecast; Events of the day.  
 12.25—Musical Selections from Hoy's De-Luxe, Bonks Street. Mrs. T. J. Campbell at the Warbler.  
 12.30—Stock Exchange News. Market Reports.  
 12.40—Musical Selections.  
 12.55—Shipping Movements. Mail Notices.  
 1—Close down.

## AFTERNOON SESSION.

2.50—Hoy's Premier Orchestra, under direction Cecil W. Fraser.  
 3—Mrs. Smythe, violin solo.  
 3.7—Minnie Marks, soprano.  
 3.14—Trio Con Brío.  
 3.31—Frank Pearson, cockney character studies.  
 3.45—Walter Quirk, solo concert.  
 3.38—Minnie Marks, soprano.  
 3.45—Mrs. Smythe and Miss Stevenson, duet for 2 voices.  
 Trio Con Brío.  
 3.55—Frank Pearson.  
 4.10—Time Signal Chime; 2nd Weather Forecast. Hoy's Orchestra.  
 4.55—Evening Amusement Guide.  
 5—Time Signal Chime. Studio Barometer Readings. Close down.

## EARLY EVENING SESSION.

6.45—Children's Corner, by Uncle Steve.

## EVENING SESSION.

7.45—British Official Wireless Press. Studio Barometer Readings. Fat Sheep and Cut the Report, supplied by courtesy of Messrs. John McManara & Co. Pty. Ltd.  
 8—The Mussetta Trio.  
 8.25—Miss Marion Daniels, mezzo contralto.  
 8.22—Miss Beryl Mason, songs at piano.  
 8.28—Miss Gloria Perotti, mezzo-soprano.  
 8.36—Mr. Julian James, baritone.  
 8.42—Miss Frances Fatten, violinist.  
 8.50—Miss Jean Wallace, pianist.  
 8.57—Mr. J. James, baritone.  
 9.1—Mr. D. J. Moore, The Care of the Fund.  
 9.10—Miss Marion Daniels, mezzo-contralto.  
 9.25—Miss Condie Lee, soprano.  
 9.47—The Mussetta Trio.  
 10—Time Signal Chime from G.P.O. Studio Barometer Readings. "Age" news service, exclusive to 3 A R.  
 10.10—Lergert's Ballroom Orchestra.  
 11—Time Signal. Close down.

## 4 Q Q

## MIDDAY SESSION.

12.25—Tune in.  
 12.55—Time Signal.  
 1—Market Reports. Weather information, "The Daily Mail" and "The Daily Standard" news.  
 1.20—From Hotel Carlton; Lunch Music from the Lounge; Hotel Carlton, played by Hotel Carlton Symphony Orchestra.  
 2—Close down.

## AFTERNOON SESSION.

3.10—A programme of Music from the Studio.  
 4.10—Lecture: Baby Welfare, by Nurse E. Davis.  
 4.15—"The Telegraph" news.  
 4.40—Close down.

## EARLY EVENING SESSION.

6—News Service supplied by the "Daily Standard"; Weather information, supplied by the Commonwealth Weather Bureau; Announcements.

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- 6.30—The Children's Session, Stories by "Uncle Ben" and "Uncle Jim."  
7—From the Council of Agriculture, Studio: The Farmers' Session, Market Reports, The Scope and Methods of the Seasonal Forecasting Bureau of the Council of Agriculture, by Mr. Dileo Jones.  
7.15—From the Studio: Stock Reports; Announcements.

## NIGHT SESSION.

- 7.45—Lecture Session: Photography, by Mr. F. L. South.  
8—From the School of Arts, The Brisbane Apollo Club, Also a Concert from the Studio.  
9.15—From St. Andrew's Church, Woollooby: The Jubilee concert arranged in connection with the Church's Jubilee Celebrations will be relayed, "The Daily Mail" News Service; Announcements; Close down.

## 5 CL

## MORNING SESSION.

- 11.30—G.P.O. Chimes.  
11.35—Featuring a Stock Day Art number.  
11.40—"Advertiser" news service.  
11.55—Vocalian number.  
12—G.P.O. Chimes.  
12.1—"Advertiser" news service.  
12.16—Featuring a Stock Day Art number.  
12.20—M.I. Studio Orchestra.  
12.55—Ward & Co.'s Stock Exchange Intelligence, official weather synopsis, and station announcements.  
2—G.P.O. Chimes.

## AFTERNOON SESSION.

- 3—G.P.O. Chimes.  
3.1—Relay from the "Maple Leaf" Cafe—Orchestral numbers.  
3.45—From the Studio: Talk by Mrs. Coghill.  
4—G.P.O. Chimes.  
4.1—Relay from the "Arenedia" Cafe—Orchestral numbers.  
4.55—Stock Exchange Reports; General Information and Station Announcements.  
5—G.P.O. Chimes.

## EVENING SESSION.

- 8.30—G.P.O. Chimes.  
8.31—Bedtime stories.  
7.20—Market reports.  
7.40—Milling talk by Mr. Jackett.  
8—G.P.O. Chimes.  
8.1—Programme relayed from S.A.R. Institute, arranged by S.A.R. Glee Club, interspersed with vocal items from the Studio by Mr. Gerald Healy.  
8—G.P.O. Chimes.  
9.1—Weather Reports.  
9.5—S.A.R. Glee Club concert, continued.  
10.15—"Advertiser" news service.  
10.30—Studio Programme continued.  
10.55—Station Announcements.  
11—G.P.O. Chimes; National Anthem; and Close Down.

## 7 ZL

## MORNING SESSION.

- 11—G.P.O. Clock Chimes.  
11.12—The "Mercury" News; Stock Market; Shipping; Commercial Intelligence; Weather Information; Salubria Selections.  
12—G.P.O. Clock Chimes; Close Down.

## AFTERNOON SESSION.

- 3—G.P.O. Clock and Chimes; Selected Piano-forte Solos by Mr. Maurice Lauda; Musical items from the Studio.  
3.30—Robert Stock Exchange Quotations.  
3.55—Weather Information.  
4—G.P.O. Clock Chimes; Close Down.

## EVENING SESSION.

- 7—Children's Corner, "Big Brother" chats to his pals.  
7.15—The Adventures of George, the Book-sheaf Cat, by "Aunt Stella."

## NIGHT SESSION.

- 8—G.P.O. Clock Chimes; the "Mercury" Special Tasmanian News Service; Railway Auction Produce Sales; Weather Information.  
8.15—Robert Stock Exchange Quotations.  
8.10—Literary Lapses and Library Lists, by Mr. W. E. Fuller.  
8.30—Concert programme presented by the Choir and Scholars of Landsdowne Crescent School, assisted by the Choir and Bell ringers from the Kintnerley Boys' Home, who also attend the Crescent School.  
9.15—Tasmanian District Weather Reports.  
9.30—The "Mercury" Special Interstate News Service; Weather Synopsis; Station Announcements; National Anthem.

Wednesday, Dec. 1  
2 FC

## EARLY MORNING SESSION.

- 5—"Big Ben" and Announcements.  
5.5—Music from the Studio.  
7.10—Official Weather Forecast; Rainfall; Temperatures; Astronomical Memoranda; Shipping Intelligence; Commercial News; Marine Services.  
7.25—Investment Market; Mining Share Market; Metal Quotations.  
7.35—Wool Sales; Broadstuffs Markets; Inter-state Markets; Produce Markets.  
7.45—"Sydney Morning Herald" News Service.  
8—"Big Ben"; "Cheerio" Talk by Mr. J. K. Powell.  
8.15—Close down.

## MORNING SESSION.

- 9.15—The Chimes of 2FC.  
9.20—Music from the Studio.  
9.30—Marching Music for the School Children.  
9.40—Music from the Studio.  
10—"Big Ben" and Announcements.  
10.5—Late "Sydney Morning Herald" News Service.  
10.15—Music from the Studio.  
10.45—A Morning Bulletin.  
11—"Big Ben"; Australian Press Association and Review's Cables.  
11.10—Music from the Studio.  
11.30—Marching Music for School Children.  
11.35—Close down.

## MIDDAY SESSION.

- 12—The Chimes of Big Ben; and Announcements.  
12.5—Stock Exchange, First Call.  
12.10—Music from the Studio.  
12.30—Marching Music for the School Children.  
12.40—Music from the Studio.  
12.45—From Farmer's Oak Hall—The Oak Hall Trio.  
12.50—Rugby Wireless News.  
12.55—Cicely Audibert, soprano.  
1—"The Chimes of Big Ben"; Weather Intelligence.  
1.3—"Evening News" Mid-day Service; Producers' Distributing Society's Report.  
1.20—Oak Hall Trio.  
1.28—Stock Exchange—Second Call.  
1.35—Marching Music for the School Children.  
1.40—Cicely Audibert, soprano.  
1.45—Music from the Studio.  
1.50—From Farmer's Oak Hall; The Oak Hall Trio.  
2—"Big Ben"; and Close Down.

## AFTERNOON SESSION.

- 2.30—Announcements.  
2.35—A Vocal Recital by the pupils from the studio of Mr. Murray Gibbs.  
3.20—A Talk on "Country Women's Week."  
3.30—Marching Music for School Children.  
3.40—From Farmer's Tea Rooms, Miss Kathleen Fletcher, mezzo.  
3.45—From Farmer's Oak Hall; Oak Hall Trio.

- 3.50—Music from the Studio.  
4—Miss May Jackson, soprano.  
4.5—The Oak Hall Trio.  
4.15—Music from the Studio.  
4.30—From Farmer's Tea Rooms; Miss Kathleen Fletcher, mezzo.  
4.25—From Farmer's Tea Rooms, the Oak Hall Trio.  
4.35—Music from the Studio.  
4.40—Miss May Jackson, soprano.  
4.45—Close down.

## EARLY EVENING SESSION.

- 5.15—Chimes of 2FC.  
5.30—"The Hello Man" talks to the Children assisted by "Jerry."  
5.30—A Serial Story for the older children.  
6.45—From the Hotel Australia; items by The Hotel Orchestra, under the direction of Miss A. J. Egan.  
7.15—From the Studio, "Evening News" Service; and Weather Information.  
7.30—Daley's Market Reports (Wool, Wheat, Stock, Fruit, and Vegetable Markets).  
7.40—Close down.

## NIGHT SESSION.

- 7.55—Announcements.  
8—"Big Ben"; broadcast from the Lyric Wintergarden; items by the orchestra, under the direction of Mr. Alfred Moulton (by courtesy of the management).  
8.30—From the Studio; Miss Barbara Brisbane, contralto.  
8.45—Miss Daisy Richards, violin solo — "Slow Movement" (Symphonic Espagnole) (Lalo).  
9.00—From the School Hall, the first broadcast performance by the Sydney Male Choir.  
9.35—From the Studio; Miss Barbara Brisbane, contralto.  
9.4—Miss Daisy Richards, violin solo — (a) "Hebrew Melody" (Achison); (b) "Moment Musical" (Schubert).  
9.10—Items by the Sydney Male Choir.  
9.25—From the Studio; Miss Barbara Brisbane, contralto.  
9.30—Broadcast from the Parramatta Town Hall, The Second Act of "High Jinks," produced by the Parramatta and District Choral and Operatic Society, by arrangement with J. G. Williamson Ltd.). Act Two; Scene, Hotel de Pavillon, Beauville; Musical numbers; Opening Chorus, "I want to give my order"; Song, "By the Beautiful Sea"; Miss Dorothy Meredith; Duet, "Chi-Chi," Fred Wilkins and Nina Brewer; Duet, "Courtship in America"; Dorothy Meredith and Cecil Thwaites; Duet, "She says it with her Eyes"; Nancy Cummings and Irwin Douglas; Song, "What is life without love"; Fred Paul; Finale, "We're very sorry to detain you."  
10.50—From the Wentworth Hotel, dance music during the interval at Parramatta Town Hall; from the Parramatta Town Hall, the Third Act of "High Jinks," produced by the Parramatta and District Choral and Operatic Society, Act Three; Scene, same as Act 2. Musical numbers; Song, "The Bubble"; Nina Brewer; Song, "When Sammy sang the Marvellike"; Nellie Mathew; Song, "Disiana Rose"; Nancy Cummings; Finale.  
11—"Big Ben" and Announcements.  
11.5—From the Wentworth Hotel; Dance Music by the Wentworth New Symphonic Orchestra.  
12—National Anthem; close down.

## 2 BL

## EARLY MORNING SESSION.

- 7.15—Musical programme from the Studio.  
7.15—Physical Training and Health Exercises.  
7.25—Health Hints.  
7.30—Physical Training and Health Exercises.  
7.45—Weather Forecast.  
7.47—Sporting information.  
7.51—Broadcasters' Special News Service.  
8—G.P.O. Clock and Chimes; Close down.

## MORNING SESSION.

- Have results broadcast by courtesy of the "Sun".
- 11—G.P.O. Clock and Chimes.
- 11.1—Musical Programme from the Studio.
- 11.15—Weather Report, by courtesy of the Govt. Meteorologist.
- 11.15—Sydney "Daily Telegraph" News service.
- 11.30—Women's Session, conducted by Mrs. Jordan's Serial Notes.
- 11.40—Mrs. Jordan replies to correspondents.
- 11.50—A Talk on "The Care of the Adolescent," by Dr. Morris.
- 11.55—Musical Programme from the Studio.
- 12.00—Market Reports.
- 12.15—London Metal Quotations.
- 12.15—Broadcasters' News Service; Items in roll by Wireless Shippers; Weather and Rainfall; Mails.
- 12.52—Broadcasters' Insect News Service from Huchy.
- 1—G.P.O. Clock and Chimes; Pianoforte Lecture-recital from the Fine Art Gallery, Anthony Jordan's; by Mr. Arnold R. Mott, B.A.
- 1.15—Sydney Stock Exchange Cuffs.
- 1.30—Latest Sporting Information and race results on race days.

## AFTERNOON SESSION.

- 2—Sun Newspapers' News Service; Clock and Chimes.
- 2.15—Musical Programme from the Studio.
- 2.40—Weather Report by courtesy of the Govt. Meteorologist.
- 2.40—Serial Notes from the "Sun".
- 2.45—Sun Newspapers' News Service.
- 3—G.P.O. Clock and Chimes; Music from the Studio.
- 3.10—Sun Newspapers' News Service.
- 3.15—G.P.O. Clock and Chimes; Musical Programme from the Studio.
- 4.15—Serial Notes.
- 4.30—Musical Programme from the Studio.
- 4.45—Producers' Distributing Society's Vegetable and Fruit Market Reports.
- 4.50—Shipping information—when available.
- 4.55—Day's racing results on race days.
- 4.55—Resume of night's programme.
- 5—G.P.O. Clock and Chimes; Close down.

## EARLY EVENING SESSION.

- 5.45—Uncle George and the Kiddies.
- 6.40—Favilion, Dinner Orchestra under the direction of Mr. Cec. Morrison.
- Special Country Session.
- 7—G.P.O. Clock and Chimes; Australian Mercantile Loan and Finance Co's. Stock, Wool and Hide Report.
- 7.5—Weather Report and Forecast, by courtesy of Mr. C. J. Mares, Government Meteorologist.
- 7.5—Stock Exchange Reports.
- 7.16—Producers' Distributing Society's Fruit and Vegetable Report.
- 7.20—Fruit and Vegetable Reports (Sun).
- 7.25—Grain and Fodder Report (Sun).
- 7.30—Dairy Produce Report (Sun).
- 7.30—Country news from the Sun.
- 7.45—Talk on Books, Wise and Otherwise.

## NIGHT SESSION.

- 8—G.P.O. Clock and Chimes; Broadcasters' Topical Chorus.
- 8.5—The Abad Duo (Steel Guitars).
- 8.13—Mr. Leslie Herford, baritone.
- 8.20—Mr. Bobby Watson, comedian.
- 8.25—Mr. Stanley R. Catlett, tenor.
- 8.35—Mr. S. Critchendon will talk on "Building a Valve Set."
- 8.55—Resume of following day's programme; Weather Report and Forecast by courtesy of Mr. C. J. Mares, Govt. Meteorologist.
- 9—G.P.O. Clock and Chimes.
- 9.1—Mr. Chas. O'Mara, Irish comedian.
- 9.11—Miss Myrtle Hobbs, soprano.
- 9.15—The Abad Duo.
- 9.25—Interval.
- 9.31—Mr. Stanley R. Catlett.
- 9.41—Mr. Bobby Watson.
- 9.50—Mr. Leslie Herford.
- 9.57—Miss Myrtle Hobbs.
- 10—Mr. Chas. O'Mara.
- 10.15—Al Hammott and the Ambassadors Dance Band, broadcast from the ballroom of the Ambassadors. During the interval

Shipment just landing ex steamer 'Samoa'

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The Balkite Trickle Charger is 5 1/2 inches long, 2 1/2 inches wide, 5 inches high. It may be put in the usual dry cell compartment. Charging rate, 4 to 5 amperes. Current consumption, 1/10c per hour. Operates from 220-240 AC 50 cycle current.

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LATE O'BRIEN AND NICHOLLE  
37-39 PITT ST., SYDNEY 616 COLLINS ST., MELBOURNE

between dances, News Reports by courtesy of the Sun will be broadcast.  
12.—G.P.O. Clock and Chimes; National Anthem.

## 2GB

## EVENING SESSION.

- 6.45—Talks to Children by A.B.C.  
7.55—Violin Solos, Monica Horder.  
8.3—Address by Prof. Ernest Wood.  
8.58—Ladies' Choir.  
9.15—Duets for two violins and piano, Dan Scully, Monica Horder, Ada Brook.  
8.45—Talk, "Betty Comes to Town."  
8.55—Piano Solos, by Ada Brook.  
9.3—Talk, "Ocean Promenade Pier."  
9.8—Songs by Clement Hooking.  
9.14—Talk on Radio by E. G. Beard.  
9.25—Solo solo by Dan Scully.  
9.35—Announcements.  
9.37—Duets for two violins and piano, Dan Scully, Monica Horder, Ada Brook.  
9.47—Ladies' Choir.  
9.58—Great Thoughts from Great Minds.  
10.3—God Save the King.

## 3LO

## MID-DAY SESSION.

- 12—Time Signal; Reuter's 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.

## AFTERNOON SESSION.

- 1.1—Rupert Hazell and Elsie Day, in Harmony.  
1.7—Ham Johnson's Monte Carlo Band.  
1.58—Rupert Hazell and Elsie Day.  
2—First Act of "Wildflower" transmitted from His Majesty's Theatre, by permission of J. C. Williamson Ltd, featuring Miss Marie Burke.  
2.3—Miss Frances Fraser, "London, the secrets of the streets."  
2.11—Result of Novice Handicap, Juniper's Flat Race, Ballarat Races, and description of B.T.C. Plate, Ballarat Races, by "Musket" of the Sporting Globe.  
2.20—Signor D'Alexandro, tenor.  
2.27—Walter Smith, cornet.  
2.32—Studio Orchestra.  
2.42—Male Owen, soprano.  
2.45—Description of Greenfield Handicap, Ballarat races, by "Musket."  
2.50—Franklin Stobham, clarinet.  
2.55—Studio Orchestra.  
4.5—Sister Pech, talk on Mothercraft.  
4.15—Description of B.T.C. Purse, Ballarat Races, by "Musket."  
4.20—Signor D'Alexandro, tenor.  
4.22—Studio Orchestra.  
4.27—Male Owen, soprano.  
4.45—Description of Flying Handicap, Ballarat Races, by "Musket."  
5—"Herald" News Service; Stock Exchange information; close down.

## EVENING SESSION.

- 5.45—Children's Hour; Answers to letters and Birthday Greetings.  
6—A Musical Programme by the Baby Sunbeam Singers, direction, Miss Eileen Pascoe-Wilde.  
6.45—"Argus" and "Herald" News Services; Reuters and the Australian Press Association Cables; Shipping Movements; Overseas Shipping; Weather Synopsis.  
7—Stock Exchange Information.  
7.4—Fish Market Reports, by J. R. Borrett Ltd.  
7.5—River Reports.  
7.8—Market Reports by the Victorian Producers' Co-operative Co. Ltd.; Haymarket Sheep Sales; Poetry, Erin 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.

- 7.26—Under the auspices of the Department of Agriculture, Mr. W. C. Rugg, Poultry Expert, "Preserving Poultry for Market."  
7.40—Mr. P. W. Peary, "Health Talk."  
8—A Pianoforte Recital by Mr. Harold Elvine.  
8.45—Ivanhoe Symphony Orchestra.  
8.50—Oceia Ladies' Choir.  
8.57—Captains Peters, Books, wise and otherwise.  
9.12—Signor D'Alexandro, tenor.  
9.17—Stanislaus Tarczynski, violin.  
9.37—"A Fragment," by Maurice Dudley.  
9.50—Ivanhoe Symphony Orchestra.  
10.4—Oceia Ladies' Choir.  
10.11—British Official Wireless News from Rugby; Weather Forecast; "Argus" News Service; Announcements; RLO Girl.  
10.21—Signor D'Alexandro, tenor.  
10.28—Ivanhoe Symphony Orchestra.  
10.35—News; Announcements, etc.  
10.48—Ivanhoe Symphony Orchestra.  
11—Our Great Thought: "There is no beautifier of complexion or form or behaviour, like the wish to scatter joy and not pain round us." Emerson.  
11.1—RLO Melody Masters.  
11.40—God Save the King.

## 3AR

## MORNING SESSION.

- 11.30—British Official Wireless Press, received from Rugby Super Wireless Station, England, by S.A.R.'s Operator; Events of the Day; Express Train Information; "Argus" News Bulletin.  
12—Time Signal Chime from G.P.O.; Studio Barometer and Outdoor Thermometer Readings; First Weather Forecast; Sporting News.  
12.5—Musical Selections relayed from Hoyt's de-Luxe, Bourke Street, Mr. T. L. Campbell at the Wurlitzer.  
12.35—Stock Exchange News; Market Reports.  
12.45—Musical Selections.  
12.55—Shipping Movements; Mail Notices.  
1—Close Down.

## AFTERNOON SESSION.

- Ballarat Turf Club—First Day. Results immediately after each race and at half-hourly intervals.  
2.30—Hoyt's Premier Orchestra, under direction of Cecil W. Fraser.  
3—The Classic Trio.  
3.16—Mr. Owen Vaughan, baritone.  
3.23—Miss Amelia Clancy, violiniste.  
3.30—Mr. Owen Vaughan, baritone.  
3.37—Mr. Stafford Blyson, cellist.  
3.44—The Classic Trio.  
4—Time Signal Chimes; 2nd Weather Forecast; Hoyt's Orchestra.  
4.5—Evening Amusements.  
5—Time Signal Chimes; Studio Barometer Readings; Close Down.

## EARLY EVENING SESSION.

- 6.45—Children's Corner, by Uncle Rad.  
7.50—British Official Wireless Press; Studio Barometer Readings.  
8—Time Signal Chime; Minna Schoknecht, pianist.  
8.7—Aur Kempton, baritone.  
8.14—Phyllis Thompson, electricianist.  
8.19—Albert Urquhart, violinist.  
8.26—Cecil Trowbridge, tenor.  
8.33—Messrs. Jack Carter, and Charles Rickland, The Hawaiian Duo.  
8.40—Wynne Daniel, soprano.  
8.47—Phyllis Thompson, electricianist.  
8.53—Edward Mann, baritone.  
9—Albert Urquhart, violin.  
9.7—Arthur Kempton, baritone.  
9.11—The Hawaiian Duo.  
9.21—Cecil Trowbridge, tenor.  
9.25—Adrian Vazoo, Talk "The History of the Merino Sheep in Australia."  
9.45—Wynne Daniel, soprano.

- 9.50—Marjory Cooper and Phyllis Thompson, pianoforte duet.  
9.55—Edward Mann, baritone.  
10—Time Signal Chime.  
10.10—Hoyt's Premier Orchestra.  
10.40—Close down.

## 4QG

## EARLY MORNING SESSION.

- 6.30—Physical Culture Session.  
7—Close Down.  
MIDDAY SESSION.  
12.55—Time signal.  
12.58—Time Signal.  
1—Market Reports, Weather information, "The Daily Mail" and "The Daily Standard" news.  
1.25—From Hotel Carlton; Lunch Music from the Lounge; Hotel Carlton, played by Hotel Carlton Symphony Orchestra.  
2—Close down.

## AFTERNOON SESSION.

- 2.35—From Hotel Carlton; Afternoon Tea Music from the Lounge, Hotel Carlton, played by Hotel Carlton Symphony Orchestra.  
4.15—"The Telegraph" news.  
4.30—Close down.

## EARLY EVENING SESSION.

- 6—News Service supplied by the "Daily Standard"; Weather information, supplied by the Commonwealth Weather Bureau; Announcements.  
6.30—The Children's Session; Stories by "Little Miss Brisbane."  
7—From the Council of Agriculture; Market Reports; Lectures, "Marketing Christmas Poultry," by Mr. P. Rumball (Poultry Instructor).  
7.35—From the Studio; Stock Reports; Announcements.

## NIGHT SESSION.

- 7.45—Lecture Session: A Travelogue Talk by Mr. C. V. Woodland.  
8—Studio Concert.  
8.30—The Scotch Entertainers.  
9—Metropolitan Weather Forecast; Studio concert, continued.  
10—From the Studio: "The Daily Mail" News; Announcements; close down.

## Thursday, Dec. 2

## 2FC

## EARLY MORNING SESSION.

- 7—"Big Ben" and Announcements.  
7.5—Music from the Studio.  
7.10—Official Weather Forecast; Rainfall; Temperatures; Astronomical Memoranda; Shipping Intelligence; Commercial News; Mail Services.  
7.25—Investment Market; Mining Share Market; Metal Quotations.  
7.35—Wool Sales; Broadstuffs Markets; Interstate Markets; Produce Markets.  
7.45—"Sydney Morning Herald" News Service.  
8—"Big Ben"; "Ceerim" talk by Mr. J. E. Powell.  
8.15—Close down.

## MORNING SESSION.

- 9.15—The Chimes of 2FC.  
9.20—Music from the Studio.  
9.30—Marching Music for the School children.  
9.40—Music from the Studio.  
9.45—Talk by 2FC Racing Commissioner.  
10—"Big Ben" and Announcements.  
10.5—Late "Sydney Morning Herald" News Service.  
10.15—Music from the Studio.  
10.45—A Morning Reading.  
11—"Big Ben"; Australian Press Association and Reuter's Cables.  
11.10—Music from the Studio.  
11.00—Marching Music for School Children.  
11.35—Close down.

## MIDDAY SESSION.

- 12.—The Chimes of Big Ben; and Announcements.  
 12.5—Stock Exchange, First Call.  
 12.10—Music from the Studio.  
 12.30—Marching Music for the School Children  
 12.40—Music from the Studio.  
 12.45—From Farmer's Oak Hall: The Oak Hall Trio.  
 12.50—Rurly Wireless News.  
 12.55—Miss Annie Luciano, soprano.  
 1.—The Chimes of Big Ben: Weather Intelligence.  
 1.2—"Evening News" Mid-day News Service, producers' Distributing Society's Report.  
 1.30—From Farmer's Oak Hall—The Oak Hall Trio.  
 1.25—Stock Exchange—Second Call.  
 1.30—Marching Music for the School children  
 1.40—Miss Annie Luciano, soprano.  
 1.45—Music from the Studio.  
 1.50—From Farmer's Oak Hall—The Oak Hall Trio.  
 2—"Big Ben"; close down.

## AFTERNOON SESSION.

- 2.30.—The Chimes of 2FC and Announcements  
 (From the Pitt Street Congregational Church, an organ recital by the pupils of Miss Lillian Frost.  
 2.30—A Talk on "Country Women's Work."  
 2.35—Marching Music for the school children.  
 2.40—From Farmer's Tea Rooms: Miss Kathleen Beverley, soprano.  
 2.45—From Farmer's Tea Rooms, the Oak Hall Trio.  
 2.50—Music from the Studio.  
 2.—Miss Ethel Muller, contralto.  
 4.5—The Oak Hall Trio.  
 4.15—Music from the Studio.  
 4.20—Miss Kathleen Beverley, soprano.  
 4.25—From Farmer's Oak Hall—The Oak Hall Trio.  
 4.35—Music from the Studio.  
 4.40—Miss Ethel Muller, contralto.  
 4.45—Stock Exchange—Third Call.  
 4.46—Close down.

## EARLY EVENING SESSION.

- 5.45.—The Chimes of 2FC and announcements  
 5.50—The "Helle Ma" talks to the Children  
 6.30—A Serial Story for the older children.  
 6.45—Broadcast from the Hotel Australia, Orchestral items under the direction of Miss A. J. Egan.  
 7.10—From the Studio: "Evening News" late news service and Weather Information.  
 7.20—Dabney's Market Reports (Wool, Wheat, Stock), Fruit and Vegetable Market.  
 7.40—Close down.

## NIGHT SESSION.

- 7.45.—Announcements.  
 8.—"Big Ben"; Broadcast from the Ligonville State Hospital, a concert by the 2FC Hospital Concert Party, directed by Mr. Russ Garing.  
 8.30.—Mr. Wilfrid Thomas, basso, "On the Road to Mandalay" (Speaks), (b) "Why shouldn't I" (Euzell).  
 8.40.—Miss Lorraine Hammond, soprano (a) "Heigho the Sunshin'" (Phillips), (b) "The Silver Ring" (Chaminade).  
 8.45.—Mr. Arthur Prince, basso items.  
 8.50.—Mr. Arthur Powell and Miss Lila Rague, entertainers.  
 9.—Mr. Ernest Archer, tenor (a) "Snowy Breasted Pearl" (Old Irish), (b) "Look down dear Eyes" (Flaherty).  
 9.35.—Miss Peggy Dunbar, contralto, "Country Folk" (Brabe), (b) "Coming Home" (Willaby).  
 9.36.—Mr. Russ Garing with "Jerry."  
 9.40.—Mr. Wilfrid Thomas, basso, "Out on the Deep" (Lohr).  
 9.50.—Miss Lorraine Hammond, soprano — "How's to Love" (Rubens).  
 9.—Mr. Arthur Prince, basso solo.  
 9.5.—Burne and Powell, duo.



## THE BATTERY SAVES THE DAY!

Blazing shell from the red-hot muzzles, wrapped in poisonous fumes and spattered with deadly shrapnel, served by an heroic handful of blackened gunners, the Battery held its ground!

Hour after hour till night fell over human abattoirs, the guns desperately raked the lines ahead, smashed the enemy advance, rallied the troops as they reeled back in disorder, and finally grew proudly silent in grime and grimness.

It is one of the grandest paragraphs written in the blood-stained volume of the Great War!

- 9.12.—Mr. Ernest Archer, tenor, "Molly Bawn" (Old Irish).  
 9.15.—Miss Peggy Dunbar, contralto, "Lee's old Sweet Song" (Melba).  
 9.20.—Mr. Wilfrid Thomas, basso, "When the Sergeant Major's on Parade" (Lombardi).  
 9.25.—Miss Lorraine Hammond, soprano, "Gamin' Thru the Rye" (Old Scotch).  
 9.28.—Mr. Ernest Archer, tenor, "Billy Horner" (Old English), accompanied by Bert Griffin.  
 9.32.—Miss Peggy Dunbar, contralto, "If I might come to You" (Squire).  
 9.36.—From the Wentworth Hotel, items by the Wentworth New Symphony Dance Orchestra.  
 9.42.—From the Studio: Mr. Harry Thomas in musical monologues.  
 10.—From the Crystal Palace, items by the Theatre Orchestra, under the baton of Mr. Harry Stone.  
 10.30.—From the Studio: Mr. Harry Thomas, eulogist.  
 10.40.—Wentworth Dance Orchestra.  
 11.—"Big Ben" Announcement.  
 11.5.—Items by the Wentworth Dance Orchestra until midnight.  
 12.—National Anthem; close down.

## 2BL

## EARLY MORNING SESSION.

- 7.16.—Musical Programme from the Studio.  
 7.18.—Physical Training and Health Exercises  
 7.25.—Health Hints.  
 7.30.—Physical Training and Health Exercises  
 7.45.—Weather Forecasts.  
 7.47.—Sporting Information.  
 7.51.—Broadcasters' Special News Service.  
 9.—G.P.O. Clock and Chimes; Close down.

WANTED.—All kinds secondhand Wireless Sets, Parts, Spenkers, etc. Best prices given. JACK RAKEN, 16 George Street West, MA 1198.

Yet Peace has its triumphs, its endurance, its proud records. The Philco "B" Battery stands in the same relation to the world's wireless as those indomitable guns did to the exhausted army. It goes grandly on under all tests, in every clime, dominating over all conditions and competitors, and giving its owner Service, Security and Satisfaction.

These Philco aristocrats of the Battery world pour out pure music, free from the annoying hum and buzzing of inferior types. Strong, clear and perfect, their rendition makes wireless a delight.

## Visible Charge Indicator

One of the most important features in a Philco "B" Battery is the novel charge indicator which is visible in the two front cells of each battery unit.

When both balls are up, then the battery is fully charged. When one ball is up and the other down, it is partially charged. When both balls are down, the battery has been discharged to a point when the owner should take it to the nearest garage or service station—or operate his own charger at the cost of a few pence.

Apart from its great efficiency the Philco 83X is cheaper. The cost of an 83X (replacing the 90 volt dry battery) and a Tanager charger is only about the same as a "B" Battery Eliminator, and the Tanager charger will re-charge your battery at a price of from 2jd. to 5d.

The capacity of an 83X is 3000 M.A.H., and 86H 6000 M.A.H. This is ample for the largest multi-valve set.

## Exclusive Features

The Philco rechargeable storage "B" Battery is absolutely the only means of obtaining strong uniform non-rippling current without hum, rone or buzz—an essential condition for clear unbroken long distance reception. Here are some of the exclusive features of the world's finest "B" Battery:

Glass Cells with acid-tight sealed covers which are safe anywhere in the home.

Mahogany-finished Cabinets, which add beauty to the most costly set.

Charge Indicators which throw the old hydrometer on the dust heap.

Tremendous Capacity—double that of an ordinary "B" battery.

Dynamic Feature—which means that the life of the battery does not begin until the acid has been poured in for the first time. There are no stale Philco batteries.

Philco batteries are the priceless gift of modern science.

You can buy them from high-class dealers. If you have any difficulty send a postcard to New System Telephones Pty. Ltd. in Sydney, Melbourne, or Adelaide.

**OSRAM TYPE DE2****Gives you 6-volt Results  
from a 2-volt Accumulator**

*Only .12 amp. filament current consumption at 1.8 volts*

Wireless users all over the country are welcoming the new D.E.2 OSRAM Valves. Their introduction spells cheaper wireless without loss of efficiency. Accumulator charges are halved or reduced by a third on account of the markedly low current consumption of the D.E.2

Use OSRAM Valve D.E.2 in conjunction with type D.E.6 for the last stage of amplification, and save money by using a 2 volt accumulator. Ask for illustrated OSRAM Valve folder describing all types.

**D.E.2 Characteristics (H.F. and L.F.)**

*for use with 2-volt accumulator*

H.F.	L.F.
Filament Volts, 1.8.	Filament Volts, 1.8.
Filament Current, 0.12 amps.	Filament Current, 0.12 amps.
Anode Volts, 40-100.	Anode Volts, 20-80.
Impedance, 45,000 ohms.	Impedance, 22,000 ohms.
Amplification Factor: 12.	Amplification Factor: 7.

Obtainable with either English or UX201A Base

**Price, 13/6 Each**



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**T H E R E ' S   A   T Y P E   F O R   E V E R Y   R E Q U I R E M E N T**

## Radio Movies

*The Belin method of transmitting moving pictures.*

"SENDING of moving pictures by wireless is no longer a problem for the inventor. It may be said to have been already solved, and all that remains is to simplify and cheapen the apparatus," Prof. Edward Belin declared in a public address at Vienna recently.

This famous French inventor said he succeeded some time ago in transferring small films through the air. He drew an interesting distinction between the projection of moving pictures on to a screen many miles away and the two other kindred processes whereby pictures are "telegraphed" and moving objects are photographed and reproduced simultaneously some distance away. The moving picture is sent from a series of true pictures to appear on a screen and as rapidly to disappear. In the telegraphing of ordinary pictures, they are reproduced as permanent pictures at the receiving station. In the third case, photographs of moving objects are sent by wireless to appear only temporarily on a screen.

Professor Belin has named the apparatus he employs the "Telestereograph." The diameter of the wire of the oscillograph loop is only 1.300 millimeter, which yields 6000 vibrations a second, although he has generally found 1000 per second sufficient to work with. He was the first to commence trials, in 1906, with a photoelectric cell, constructed by himself, and he was also the first, in 1912, to use intermittent current for transferring pictures. He has built a portable apparatus for his present experiments enabling him to connect it with any telephone line, and with this apparatus he could, for example, so to speak, telephone in pictures to a newspaper office. The very first wireless transmission of pictures took place, he reminded his audience, in 1921, when he sent pictures from Washington to Paris.

Professor Belin acknowledged that his studies many years ago in Vienna

*Guaranteed Workmanship & Clarity of Reproduction*



## The 'D.J. STANDARD 4'

# £25

*Absolutely complete No extras to buy*

This powerful and highly selective Set is simplified to the greatest possible extent, there are no moving coils to change or get out of order—only two dials, so simple that anyone can regulate the tuning. Once tuned in the "D.J. Standard-4" remains stable. There is no difficulty in picking up whichever station you want—all inter-State Stations at Loud Speaker Strength (except Perth).

*Here is what you  
get for your £25*

4 B 406 Phillip Valves, 4-volt 33-amp. Peto-Radford Accumulator, 2 large capacity Vulton "R" Batteries, 1 Trimm Entertainer Speaker, 1 pair Trimm Dependable Phones, 2 Phone Plugs, 100 feet of Aerial Wire, 30 feet of Insulated Lead-in Wire, 4 Insulators, 6 feet Flex Wire for connecting Batteries, 1 Lighting Arrestor. The whole encased in handsome cabinet of polished maple.

## *Buy it on Deferred Payments*

You can now have the pleasure of securing the "D.J. Standard-4" delivered into your own home on the deposit of £2 10/-; balance to be paid at the rate of 9/6 per week, to be completed within 12 months.

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The R. D. A. III.

R. D. A. Receivers are supplied absolutely complete in all details.

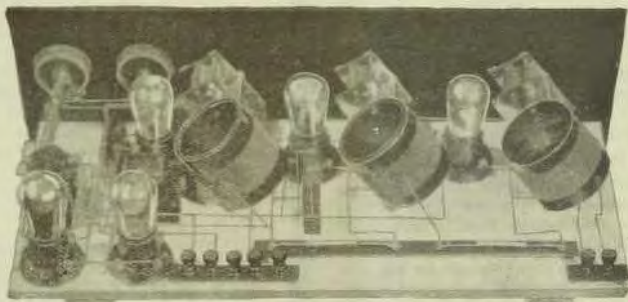


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An R. D. A. Receiver which is a guaranteed product and which embodies every modern factor essential to perfect radio reproduction, may be had for a very small deposit—the balance to be paid on our well-known easy payment system.

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under Professor Eder had laid the foundation for the present accomplishments. It is a fact long since forgotten, but pertinent now, that in 1897, or 1898, an unknown Austro-Polish teacher from Galicia announced that he had invented the sending of pictures by wireless. His name was Stepanik, and for some time his invention attracted attention, but the public fell away when a Frenchman was stated to have made a similar discovery prior to Stepanik.

No one knows to-day what became of Stepanik, from the experiments witnessed at the time over short distances, it is extremely unlikely that Stepanik's invention was the precursor of that of Belin; nor is it believed possible that Stepanik knew at all of the other Frenchman's findings. This story is not intended in any way to detract from the value of Professor Belin's successes, but is added simply to recall a name which should not at the moment be entirely forgotten.

#### BOOK REVIEW.

We have received from Garnett Whiteley & Co. Ltd. (England) a copy of their catalogue describing the well-known "Lotus" brand of wireless components. Included in this beautifully illustrated and attractive booklet is a description of practically all the lines which are manufactured by that concern. Two-way Vernier Coil Holders, three-way Vernier Coil Holders, single circuit, open and closed jacks, filament control jacks, push-pull jack switches, and the highly efficient Lotus Anti-Phonic valve holder—all these are featured and written up in a most pleasing manner in this catalogue.

Garnett Whiteley & Co. Ltd., acting on the principle that modern receiving methods demand the very highest degree of efficiency in radio components, have concentrated their attention upon the manufacture of specialised apparatus and the degree of success they have achieved in this worthy object is amply illustrated by the popularity of the "Lotus" products and their adaptability to the latest conditions of radio reception.

# FARMER'S

## High-Grade Radio Accessories of proved Reliability



### "Jefferson" Transformers Type 41, Price 18/6

"Jefferson" No. 41, an Audio Frequency Transformer, with a ratio of 3.75 to 1. In a class by itself and rapidly gaining in popularity for its superb functioning. Price—18/6

### "De Jur" Rheostats Single Hole Mounting

"De Jur" 30 ohm Rheostats, obtainable with special single hole mounting. Price, each—3/9



### "Mars" Strong Aerial Wire

"Mars" Aerial Wire, 84 strand super aerial cable. Obtainable in 100 feet lengths. Price, per length—12/6

"Phosphor" Bronze Aerial Wire, suitable for loop or outdoor aerial. Coils of 100 feet. Price—3/-

### "Atlas" Coils

The Atlas Coils, of 35 and 50 turns, suitable for reception of 2FC, are still obtainable at 5/- and 5/6 respectively.

### Lightning Arresters

"Electrad" Lightning Arresters, particularly during summer season, are a necessary safeguard to your installation as well as your house. Price—3/6

### "Radion" Panelling

"Radion" Panelling, in black or mahogany. 11d. per square inch

### Variable Condensers

"Commodore" .0005 Variable Condensers, straight line frequency Price—15/9

## FARMER'S, SYDNEY

BOX 497 AA, G.P.O.

RADIO SUPPLIES GROUND FLOOR

# Cutting Down the Cost of Radio

## *A Tip on Battery Economy*

Because more electrical energy is packed into Clyde Batteries they contain PLUS POWER.

Because they pick up and restore that energy which flows out in strong, smooth current whilst the set is in operation, during the periods it is not in use, they have EXCEPTIONALLY LONG LIFE.

That is why CLYDE is known as the **super power battery** . . . Why they are always ready to deliver vigorous, smooth-flowing energy . . . Why Clyde Radio batteries actually cost you less per hour of radio reception.



For clear, steady volume; for even, uniform reception month in and month out; for more enjoyable, less costly radio reception — demand CLYDE BATTERIES.

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Granville, N.S.W.

FOR THE MOTOR.

Quick starts, ready ignition, good pulling power. Have a Clyde and you have all these.

**Main Service Station :: :: 106-10 Goulburn Street, Sydney**

# All Readers' Queries Answered Here

In conjunction with Farmer's Broadcasting Service the Technical Editor of "Wireless Weekly" will answer all listeners' queries arising from the wavelength change. Answers will appear in these columns and will be broadcast from 2FC each Thursday night.

R.P.C. (Manroba):—

We regret to hear of your trouble. Have you inserted the fixed condenser across the primary of the first transformer? Try placing a .0025 fixed condenser in series with your aerial lead, and use an aerial 30 feet long. To locate such a fault, it would be necessary to actually test your receiver.

R.G.H. (Aulden):—

Perservers with tuning. The Jefferson transformers are quite O.K.

H.C.F. (Brisbane):—

Your valves are quite O.K.

F.J.A. (Yeovil):—

We recommend the Neutrodion, but please use five valves of the one make, or of similar characteristics. You have 5 volt and 3 volt valves all mixed up, so you must not expect good results.

J.S.R. (Torralba):—

Your fixed condenser if used is broken down.

Test it.

H.T.W. (Dunoon):—

We were not intending at the time you mention, so we can't say which station it was that you heard. Try again for the call sign. Send along the copy of your circuit, and we will advise you further.

E. B. G. (Parramatta):—

Q: I have built the Hamil Crystal Receiver, but have used a .001 and a .005 variable condenser, but have only been able to pick up 2FC and completely cut out this station. I would be glad of your advice in this matter.

A: You should use two .005 condensers, as specified. Still, cut down the size of coil governed by the .001 variable condenser.

E. J. (Wondai):—

Q: There are two aerials and two receivers in my home which are frequently tuned to the one station. When one is switched off or another station sought the other set is tuned off completely. Can you tell me why this is so?

A: The closeness of your aerials makes one set dependent on the other when being tuned. A certain amount of radiation takes place which when withdrawn by switching off or seeking another station alters the tuning of the second set.

R. P. (Hika):—

Q: I wish a wireless receiver interferes with a telephone if both are connected to the same earth?

A: 1: No.

Q: 2: Is an A battery of 150 cells too much for a two-valve set using Philips A300 valves?

A: 2: No.

Q: 3: Is a C battery any improvement in a three-valve set?

A: 3: Yes. Connect the minus lead of the B battery to the minus of the C battery and join the positive C to the minus A battery.

L. R. (Berby):—

Q: I have a four-valve Belmont receiver with one stage of radio frequency, but the tuning is broad. Can you tell me how to remedy this?

A: See "Wireless Weekly," 8/11/26.

R. W. (Griffith):—

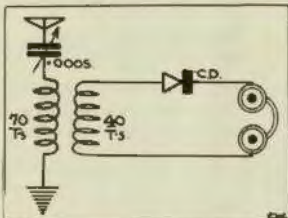
Q: I would like to know if the Harkness Boxes will receive Sydney and Melbourne on long waves in this district?

A: Yes. At Dulwich Hill on tent this receiver gave 4QC Brisbane at excellent loud speaker strength.

Writing to the Technical Editor, E. A. Dunstan, Camperdown, says:—

"I have hit upon a crystal circuit which has proved wonderfully selective, as far as the metropolitan stations are concerned. It may be, however, that the circuit will suit only those listeners residing right in the city limits.

"I live at Camperdown, and in common with most users of the simpler sets suffered from interference rather badly, especially since 2FC changed to a lower wavelength. In



most crystal sets employing a loose-coupled circuit the primary coil is the smaller, but in my set I have reversed the order. The primary is a coil of 70 turns on a 4 inch cardboard tube and using covered wire, about 24 gauge. On the same tube and about 1½ inches away is the secondary coil of 40 turns. I tune with a .0005 variable condenser in the primary circuit between the aerial and coil. In my set the results are so good that the receivers makes all the difference and is very useful.

"The aerial is an enamelled one of 100 feet inside the house."

F. R. B. (Tarco):—

Q: I desire to use a D2A valve on the Marco Four-valve. Please give me the number of turns suitable for the coil L2?

A: The same number is specified for the 20A valve. "A" circuit a grid keeps the signals away."

G. D. (Clovans):—

Q: 1: Where can I purchase the Baldwin Unit required for the Cone loud speaker?

A: 1: Any advertiser in "W.W." will supply one of these.

T. H. K. (Wannaring):—

Q: I am desirous of building a five or six-valve super heterodyne receiver and wish to obtain blue prints with constructional details. Can you tell me where to obtain these?

A: A five-valve super heterodyne is not to be recommended. There are some six-valve receivers on the market, one being the French. Any of our advertisers will supply you with this kit, which includes blue prints. The Emeco manufacturers, of this town, are now producing a super heterodyne kit, the completed receiver being either seven or eight valves. Absolutely complete instructions are given, including full size blue prints (4), and several photographs. It is a good one!

T. L. (Clayton River):—

Q: 1: My four-valve set, built from instructions in "W.W.," 6/8/26, only brings in 2FC, 2HI, 4QC and 3I.O. My aerial is 150 feet long. If I change it and make it shorter will I be able to receive 3AR, 2HF, 1YA, 2KY and 2GR?

A: 1: Yes, cut off 10 or 20 feet, and these stations should be available if you use the correct coils specified.

Q: 2: I find that fading takes place. Please tell me why this is so?

A: 2: Oh! we wish we could! Fading is a phenomenon which is to this day inexplicable. It has nothing to do with any fault in the receiver. A neutralising condenser won't help you.

W. D. (Parramatta):—

Q: 1: I would like to know if it is wise to use five wires of 1/32 or five wires of 3/32 on a cage aerial made with hoops?

A: This is a matter for individual taste. The 7/32 would prove very heavy. The writer has a cage aerial of five wires of No. 20 gauge wire on two inch curtain rings, each ring being three feet from his neighbour. It is very efficient.

E. B. P. (Hazelbrook):—

Q: 1: Please tell me the comparison between Japan and N.S.W. in time?

A: 1: Japan is one hour behind N.S.W.

Q: 2: What is the wavelength of 10AK?

A: 2: 360 metres. Write Wireless Institute for other wavelengths.

J. A. C. (Brisbane):—

Q: 1: I can't hear 2FC, whom 4QC (nine miles away) closes down. This is on a crystal set. As I am desirous of hearing 2FC while Brisbane is transmitting, should I add a stage of radio frequency?

A: 1: We are afraid neither would help you in the matter of selectivity. Why not build the Extraordinary Single Valve of "W.W.," 22/10/26?

A: 2: We are afraid neither would help you in the matter of selectivity. Why not build the Extraordinary Single Valve of "W.W.," 22/10/26? Many Queensland readers have written us telling us of their good interstate results with this little marvel.

T. W. S. (Yandina, Q):—

Q: 1: Would spider-web formers be suitable for the Hamil Crystal Receiver?

A: 1: Yes, wind the same number of turns as on a honeycomb.

Q: 2: Would 20 gauge wire do instead of 22 and 24 for the Anti-Loi former?

A: 2: Certainly.

J. H. (Lanark):—

Q: 1: When the diameter of coil formers are not specified in a particular circuit, is it to be understood that three-inch diameter tubing is used?

A: 1: Generally. This diameter tubing is most popular.

(Continued on Page 51.)

# DE FOREST

## The Quality Valve



**13/6 each**

Filament, 3 Volts, .06 Amp.  
 Detector, 16 to 45 Volts.  
 Amplifier, 45 Volts to 150 Volts.  
 Fits Standard American Socket.

De Forest Valves  
 were the first made.

Lee De Forest inven-  
 ted the valve, so you  
 can rest assured that  
 De Forest Valves are  
 the best.

DON'T BE MISLED.

DE FOREST is the  
 "QUALITY TUBE,"  
 and is correct in de-  
 sign and manufac-  
 ture.



**12/- each**

Filament, 5 Volts, 1/2 Amp.  
 Detector, 12 to 22 1/2 Volts.  
 Amplifier, 45 to 180 Volts.  
 Fits Standard American Socket.

**DE FOREST VALVES FOR DEPENDABILITY**

FACTORY REPRESENTATIVES:

**INTERNATIONAL RADIO COMPANY, LIMITED**

200 CASTLEREAGH ST., SYDNEY, N.S.W. ALSO AT 91-93 COURTENAY PLACE, WELLINGTON, N.Z.



Little Miss Brisbane with her ukolele, Bebe at the piano, and Banti with the mandolin. They are a favourite bedtime story combination at 4QG on Wednesday nights.

## Remarkable Progress of 4QG

WHEN the State Government decided to establish the broadcasting movement in Queensland as a public utility, there was a mere handful of listeners in Northern Australia, mainly enthusiasts who listened-in to programmes from the south. All who had sets, however, realised that long distance reception especially during the summer months was not satisfactory and the decision to erect a powerful station in Brisbane was hailed with delight by the radio enthusiasts of the day.

Station 4QG, Brisbane, has been operating on full power now for six months and during that period the broadcasting movement has spread with lightning rapidity.

According to the latest figures supplied by the Postmaster-General's Department there were 8410 licenses at the end of September, and large numbers of new licenses are being taken out weekly. The extent to which the movement has progressed in Queensland may be gauged when it is pointed out that in six months the density of listeners' licenses in Queensland has exceeded that of New South Wales where two stations have been operating for almost three years.

Since the beginning no less than

1050 different individual artists have been broadcast from 4QG. This number has not been arrived at by counting all the performers in bands but each different combination of performers has been regarded as one artist.

4QG has presented to the listeners of Queensland an average of three different individual artists each night ever since it began. These facts and figures should be of especial interest to the musical world inasmuch as they serve to show the opportunities which the station has given vocalists and instrumentalists and other artists. It is safe to assume that Queensland has never in its musical history placed before it a movement which would enable 1050 different artists to perform during the short space of twelve or fourteen months.

Station 4QG at present has lines connecting it with outside points and these include churches of all denominations, dance halls, picture shows, lecture halls, and the leading hotels. The permanent staff at 4QG totals sixteen, and in order to carry on operating work and at the same time enable every engineer to obtain a full measure of relaxation three distinct watches are arranged in the station.

### SLINGSBY & COLES Limited

Under Central Station,  
482 PITT STREET.

Ask for THE BLUE SPOT.

A revolution in Head Phones—the lightest, most sensitive, and accurate ever sold in Australia, 35/- per pair.



Ask for  
THE  
BLUE SPOT.

MULTIDYNE COIL.

For 3-Coil Sets—No changing Coils for various Wave Lengths.

The New

## RADIOKES COIL KIT

For use in the Famous

Neutrodyne Circuit



The Coils you will eventually buy  
At all leading Radio Dealers

32/6 per set

Wholesale only

Metropolitan Electric Co., Ltd.

27-9 King Street, SYDNEY.

Late

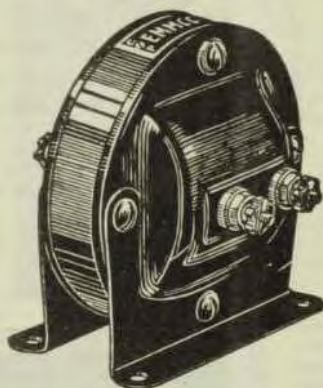
Keith Stokes Pty., Ltd.

# BUILD A 1927 MODEL SET



Bakelite Frame . . . . . 9/6  
Metal Frame . . . . . 6/9

If you want fine tuning, selectivity (essential to a perfect radio set), you must have perfect tuning control. The Emmco Vernier dial gives you just that. Its hair-line adjustment makes tuning easy and precise. Its special logging window makes re-tuning simplicity itself.



Price . . . . . 21/-

The transformer is actually the musical heart of your receiver. Therefore, it must be strong, sturdy, and super-efficient. The Emmco Transformer meets every demand. It amplifies, perfectly, every note or tone. It gives improved volume, and better distance reception.

## EMMCO JACKS.

Open Circuit . . . . .	2/6
Double Circuit . . . . .	3/-
Jack Switch . . . . .	4/6

Every year radio is advancing more and more. Every one is striving for perfection.

Be up-to-date. Look ahead. Have a perfect radio receiver.

The fundamental rules towards attaining this end are: A thoroughly proved circuit; careful workmanship; good radio parts.

Every part you put into your set goes to improve it or cripple it. Every part should be selected with the utmost care.

Be safe! Get Emmco parts. They do not claim to work MIRACLES. But they do work WELL.

YOU CAN GET THEM AT  
YOUR DEALERS



Emmco Rheostats are consistent, precise, mechanically perfect. Firm, strong sliding contact gives perfect filament control.

Price . . . . . 4/6.

Manufactured by  
**Electricity Meter Manufacturing Company, Ltd.**  
SYDNEY, N.S.W.



## More Studio Notes

*Fred Paul and Irwin Douglas playing in "High Jinks" to be broadcast by 2FL on November 27 and December 1, are seen above.*

AS THE hot weather approaches, broadcasting station 2BL Sydney is giving instructions to listeners on the making of summer drinks, cordials and meatless dishes. Having an expert knowledge of food values, Mrs. Jordan, who speaks on these subjects advises on the best hot weather diet combining nutritive content with palatable appeal. Interesting talks on the care of pot plants and what to plant have led to many inquiries from radio friends of 2BL, and incidentally the lecturer has planned "over the air" the garden plots of many listeners. Her correspondents are of all ages; last week a letter of appreciation was received from a lady of seventy years, who deplored the fact that "in my young days there was no such easy method of learning cooking and receiving instructions as the young women get to-day per radio."

**THEOSOPHICAL.** Broadcasting Station, 2GB, Sydney, has arranged a series of dressmaking classes by radio for listeners. The instructor is Miss Madden, who for many years conducted her own dressmaking establishment. Listeners will be asked to use a sheet of paper and to fold or cut it as directed, and it is stated that the whole of the instructions can be followed without any difficulty and that a young woman will quickly learn to make her own clothes. Each week a new pattern will be given.

PRODUCED by the Parramatta Operatic Society, the popular opera, "High Jinks," will be broadcast from the Parramatta Town Hall by 2FC on November 27 and December 1. A strong cast will interpret the opera including Irwin Douglas (top right), as Mr. J. J. Jeffreys, Fred Paul (top left), the producer, as Dr. Thorne, and Nancy Cummings (below) as Adelaide Fontaine.

TWO SPECIAL programmes from 2FC in which picked boys' choirs will compete in friendly rivalry will be heard early next month. On December 7 will be heard the boys of the Marist Brothers School at Mosman; the choir includes 100 voices, under the direction of Brother Barnabas, and on Monday, December 13, the choir from the Marist Brothers School at North Sydney will be heard.

UNDER THE auspices of the "Advance Australia Radio Club," Matron Elizabeth McMillan, of the Australian Mothercraft Society, has started a series of talks to mothers about their babies from broadcasting station 2GB, Sydney.

**MR. HOWLETT ROSS**, who has delivered many enlightening talks, among which may be specially mentioned "Armistice Day" and "Trafalgar Day," is giving another lecture on "The History of Old Hymns" from 3LO. As usual, each hymn that is rendered by the choir will be discussed by Mr. Ross with reverence and sincerity.



*Nancy Cummings, also in "High Jinks."*

## A TRULY SHOCK-PROOF VALVE

There is little need to ask, "Which is the most vulnerable part of a valve." Even a man who had never owned a wireless set would be able to guess the answer. Ever since Edison ransacked the world for filament material for his first electric lamp, the glowing thread within the crystal globe has been an object of special regard.

As the filament is such a fragile thing, we must do all we can to preserve it from shocks, and although the filament in the latest product of the factory of Messrs. A. C. Cossor Ltd., is by no means a weak one (in this case low consumption has not been obtained by a whittling down of the filament), yet a novel and efficient method of supporting the filament has been evolved. The grid of the valve ends in two prongs which are inserted into the base of a small porcelain insulator. The anode rests on a wide flange provided, and is welded at its base to two stout nickel supports, even extreme force cannot alter the relative positions of these two elements.

Through the centre of the porcelain tube runs a fine wire, which holds the filament in its correct position. Thus it has been found possible to evolve a system of construction which will resist without harm the hardest of shocks.

A further point of great importance in this Cossor Point One is that should the elements be displaced by an accidental blow, they must always be in the same relative positions.

With its low current consumption (point one of an ampere), this valve clearly represents the most far-reaching advance in valve design that has yet been made. One Super-heterodyne receiver fitted with seven Cossor Point One valves actually takes less current than a single valve set using one ordinary valve.

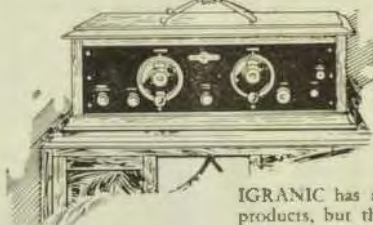
## CHATTERTON COMPOUND.

In our issue of November 5, we referred an inquirer for Chatterton Compound to the Australian General Electric Co. Ltd. We should have mentioned in this reply that Chatterton Compound is also obtainable from W. G. Watson & Co. Ltd., Clarence Street, Sydney.

# The New IGRANIC

## SUPER HETERODYNE

### *The Most Perfect Set Yet Produced*



*There is no finer performance than  
Super-Heterodyne performance and no  
finer Super-Heterodyne than Igranic*

IGRANIC has always set an exceedingly high standard in all its products, but the latest product of this famous British Factory has created a tremendous interest that is world-wide.

The advantages possessed by a well-designed Super-Heterodyne Radio Receiver are Range, Volume, Sensitivity, Selectivity, Stability, Purity and Ease of Operation. The Igranic Super-Heterodyne Receiver offers all these. For instance, it is capable of receiving from all interstate stations (with the possible exception of Perth), and from Auckland, N.Z., on a frame or indoor aerial at full loud speaker strength.

It is exceedingly selective, no trouble being experienced in tuning-out any station not required.  $\pm$ BL,  $\pm$ FC and  $\pm$ LO might be a thousand or only ten metres apart for all it matters to the Igranic Super-Heterodyne. It is pleasingly free from all extraneous noises, and the purity of tone and absence of distortion are a revelation even to the most exacting critic.

Price (including everything) from £75, according to cabinet work.

TERMS MAY BE ARRANGED

Ask for demonstration either at our Showroom  
or in your own home. Absolutely no obligation.

## Colville Moore Wireless Supplies Ltd.

10 ROWE STREET (Near Hotel Australia) SYDNEY

*I have recently completed one of your "Igranic" Super-Heterodyne Kits and wish to inform you that I am exceedingly pleased with it in every way.*

*I have not heard any set to give such volume on the same number of valves and I was able to tune-in all the Australian stations on the loop with considerable strength. The New Zealand station VYA was very neatly as loud as Melbourne.*

*The selectivity is all that could be desired and no trouble was experienced from interference between  $\pm$ BL and  $\pm$ LO.*

*The original of this letter from a leading Sydney expert may be seen on request.*



### NEW OSRAM VALVES FOR RECTIFYING

There is an increasing tendency among broadest listeners fortunate enough to have electric lighting mains available to eliminate the H.T. battery and operate their sets directly from the mains. Where the user's mains are D.C., the supply of H.T. current is a relatively simple matter, but provision is necessary for some rectifying device where A.C. is concerned.

Efficient rectifying valves for H.T. supply have not hitherto been obtainable in Great Britain, and for this reason the inclusion in the already extensive range of Osram valves of two new types specially designed for rectification should be very welcome.

These two new valves have been given distinctive letters and numbers in accordance with the usual practice, one for single phase rectification, bearing the title U.4, and the other for bi-phase rectification, bearing the title U.5.

The U.4 is a two-electrode dull-emitter valve designed for use as a rectifier for supplying high tension current from A.C. mains to wireless receivers direct through smoothing circuits. The valve provides half-wave rectification, and can be operated at an applied A.C. voltage to the anode of 220 volts maximum (R.M.S.)

The maximum direct current output of the U.4 is of the order of 15 milliamperes, the valve being intended for use with two or three valve sets in which low impedance power valves are not employed. For receivers incorporating low impedance power valves such as the Osram D.E. 5a., etc., the larger U.5 type should be used.

When operating the U.4 the filament should always be run at not less than 5.0 volts, otherwise its life will be considerably shortened. The average working voltage should be 5.8. When running on a 6-volt filament supply no filament rheostats should be employed, and variation in output voltage should always be effected by tapings on the input anode transformer. The dimensions of the valve are similar in all respects to the ordinary type of Osram receiving valve.

The U.5 type of rectifying valve is an entirely new departure in rectifying valve, and is of a special design incorporating a double electrode system in one bulb, which provides for full rectification of both cycles of the A.C. wave and simplifies smoothing. The filament is of a special dull emitter variety rated at 5 volts, 1.6 amperes, and is designed for consistent service and long life.

The valve will withstand an applied anode voltage of 250 + 250 (R.M.S.) maximum, and will provide a direct current up to 50 milliamperes. It is designed for supplying H.T. current direct through smoothing circuits from A.C. mains in cases where one or more low impedance valves are incorporated in the receiver and the total anode current does not exceed 50 milliamperes. To ensure uniform output and long service it is advisable

## A Remarkably Clear Speaker

PRICE 25/-



Equipped with a non-metal horn, the Western Electric Loud Speaker illustrated, reproduces broadening with a purity of tone superior to some loud speakers selling at many times the price.

Only a limited number are available, so if you would secure a REMARKABLY CLEAR Speaker at a price less than that charged for head receivers, place your order without delay.

### STANDARD TELEPHONES AND CABLES

(AUSTRALASIA) LIMITED

Formerly

Western Electric Company (Australasia) Ltd.

191-4 CASTLEREAGH STREET, SYDNEY

# ELECTRON WIRE

## THE PERFECT AERIAL

### Made Broadcasting Popular in Great Britain



You could not obtain better results than those given by ELECTRON WIRE—the aerial which popularised broadcasting in Great Britain.

It is the only aerial which gives long-distance reception with volume and clearness.

ELECTRON WIRE is reliable—it brings in signals when other aerials would fail. That is why ELECTRON WIRE is so popular in Great Britain.

Electron Wire brings Wireless Within the Reach of Everybody

- |                          |                      |
|--------------------------|----------------------|
| It Abolishes Insulators. | It Promotes Comfort. |
| It Abolishes Masts.      | It Saves Money.      |
| It Abolishes Renewals.   | It Brings Results.   |

Fool-proof — Storm-proof — Trouble-proof

Price **2/6** Retail

IT'S SO EASY TO FIX, TOO!!

You can simply fling it over a tree, over the roof, round a chimney, run it along the fence, around the picture rail, across the room, hang it out of the window, or where and how you like, and the results are there. Connect one end to your set, let the other be free, use a short piece as an earth and—there you are. Perfect reception and immediate satisfaction.

THE ELECTROLLOON CO. LTD.

Manchester Unity Buildings, 185 Elizabeth St., SYDNEY Phone, MA 1431  
Proprietors: The New London Electron Works Ltd., London, England.

AERIAL MASTS  
ABSOLUTELY  
UNNECESSARY



# Voices from Peril!

**I**n the wild deadly places of the Unknown—from the white ice-grip of the Poles to the inferno of a New Guinea jungle—eager young life is ever adventuring with death. But Victory or Defeat is no longer voiceless! Burgess Radio Batteries send the story from Pole or Jungle to the Loud Speakers of every Continent.

Ringed in by bewildered savages, Captain Hurley listened eagerly to the world from the depths of the New Guinea jungle. Burgess Batteries caught the messages as clearly and strongly as if received in some peaceful room in Sydney.

Burgess Radio Batteries flew with Byrd in his daring dash across the North Pole and helped his gallant rival, Captain Wilkins; plunged with Rice into trackless Brazil; chatted to millions from the swaying basket of the winning balloon in the recent International contest.

## The Same Batteries Will Serve You!

"Ask Any Radio Engineer."

Obtainable Only from High-class Dealers.

WHOLESALE:

New System Telephones  
Pty. Ltd.

280 Castlereagh Street,  
Sydney.

27 Queen's Bridge Street,  
Melbourne,  
Charles Street,  
Adelaide.



S-B

that the valve should be operated at the full 5 volts. Variation in output voltage should be effected by tapping on the input anode transformer as in the case of the U.4, or, alternatively, by a potentiometer in the output circuit. Care should be taken that the resistance of the potentiometer is sufficiently high to limit the circuit taken on full load to 50 milliamperes.

The introduction of these two new Osrarn Valves will be welcomed by a large number of those interested in wireless who, in the interests of efficiency and economy, seek to adopt the highly approved principle of providing current supply for operating purposes which these new types of valves permit.

A most interesting testimony to the Osrarn U.4 valve has been received from the Wireless and Experimental Association (of which Mr. William Le Queux is president and Captain P. P. Eckersley and Sir Frederick Hall vice-presidents).

### WHERE SELECTIVITY IS ESSENTIAL

It is not only in the wireless sets described in "W.W." that you come across real selectivity. You will also find it at the telephone switch-board at 2FC. The following conversation, I am told, took place the other night:—

Lady Culler: Can I speak to an engineer about my set?

Highly Selective Operator: Sorry, the engineers have gone home.

L.C.: Oh, well; perhaps you can help me?

H. S. O.: Perhaps.

L. C.: You see, I can't hear a thing. Do you think it would improve matters if I warmed the set?

H. S. O.: You might try.

L. C.: Thanks awfully; good-bye.

MADAME EVELYN ASHLEY has been re-engaged for another short season by SLO. Madame Ashley's beautiful soprano voice is too well-known both from SLO and on the concert platform in Melbourne to need an introduction. For her forthcoming season she will select gems from Opera and Oratorio.

# Look Inside Any Ray-O-Vac Battery



Note its unusual  
Construction



No. 231R.

The Exclusive construction of Ray-O-Vac "B" batteries combines a number of characteristics which easily distinguish them as leaders in the "B" battery field. Nine features are outstanding:

- 1.—Zinc can of rolled sheet steel.
- 2.—Water and acid proofed egg crate partition.
- 3.—Connecting wires securely soldered.
- 4.—Insulating compound between cells.
- 5.—Waterproof outer container.
- 6.—Screw Post Terminals make positive connections with wire, crystal or plate connector.
- 7.—Binder in upper seal.
- 8.—Heavy non-hulking top seal.
- 9.—Screw post terminal soldered securely to individual cells.



No. 2303.

No. 9303—The Master Ray-O-Vac 45 volt; double the amperage of ordinary 45	£1 15 0
No. 2301—45 volt flat, with 7 tappings	1 6 0
No. 2302—45 volt upright, with 3 tappings	1 6 0
No. 2151—22½ volt flat, with 6 tappings	0 15 9
No. 2153—22 volt upright, 2 terminals only. Specially recommended for detector valve	0 15 9
No. 5151—BP 22½ volt medium	0 12 6
No. 4151—22½ volt for portable sets	0 10 6
No. 231R—14 "C" battery. Voltage adjustment of 1½, 3, and 4½ volt; can be used as A, B, or C battery	0 4 6
No. 531R—4½ volt Grid Bias C Battery	0 3 6
No. 1211—1½ volt A battery—the best 1½ volt single cell on the market to-day	0 3 3
No. 6—1½ volt cell for radio or telephone use	0 3 3
No. 1231—3 cell 4½ volt A battery in one case	0 12 6

IF YOUR DEALER DOES NOT YET STOCK THESE PARTS, WRITE TO US DIRECT

Sole Agents for Australia and New Zealand:

## United Distributors Limited

(WHOLESALE ONLY)

72 Clarence Street, Sydney

343 Queen St., BRISBANE. 27 Chesser St., ADELAIDE. 26 Queen St., Cr. Jervois Quay & Harris St., PERTH. 66 Charles St., WELLINGTON, N.Z. 664 Bourke St., MELBOURNE. LAUNCESTON, Tas.

# PHILCO

## DRYDYNAMIC RADIO BATTERIES

**P**UREST music I ever heard from the air. These Philco batteries do make an amazing difference. That will be the verdict of your friends when the heart of your radio set is a Philco Rechargeable "B" Battery. But if your battery is bad, don't blame crackles on to "static!"

**P**HILCO batteries can be used for two hours every night in the week, yet not need recharging for three or four months. When a Philco does run down, any garage or service station will recharge for 1/6 or 2/6, or you can do it for 5d. with a charger.

## The New Eighty-Three X

**T**HAT is the name of the new Philco "B" Battery specially designed for Super-Hets and other sets having four or more valves. It gives trouble-free service for years and speedily pays for itself. All Philco types are known to experts as the aristocrats of the "B" battery field.

**H**ERE are a few points in which Philco Batteries lead the world:

*Square Glass Cells*  
*Mahogany-finish Cabinet*  
*Built-in Charge Indicator*  
*Tremendous Capacity*  
*Drydynamic Features*

Obtainable only from High-Class Dealers

WHOLESALE:

New System Telephones  
Pty. Ltd.

280 Castlereagh St., Sydney  
27 Queen's Bridge St., Melbourne  
Charles St., Adelaide

Finest  
B  
Battery



In  
the  
World

## Readers' Queries

(Continued from Page 41)

**Q. 2:** Are all the receivers published in "W.W." tried out on the same aerial? If so, what is its length?

**A. 2:** Every receiver published by us is tried out on three different sized aerials also with counterpoise and earth. One aerial is average height 40 feet, overall length 75 feet, 3 strands of No. 20 gauge wire on two-inch rings. Provision is made to switch into circuit either 9040 or 90625 or 90915 pfd. fixed condensers as well. The second aerial is almost perpendicular and is 25 feet long. No 26 wire is used for this. The third is an indoor aerial 20 feet long of No. 20 BCC wire. Every receiver is tested on the three aerials and results noted. In future we will advise the best aerial. It may be interesting to learn that every receiver is tested before the members of Marriekville and District Radio Club, any member of which will substitute all other make for the receivers.

**Q. 3:** Would it be possible to make an autotuned radio frequency transformer to cover from 150 to 800 metres on the same principle as the transformer described in the Barkness Reflex?

**A. 3:** We would not advise this. Your letter is very interesting. Let us hear from you again in time.

**J. W. (Hindell):**

**Q. 1:** I am thinking of building the Marco four-valve, but I desire to use a three-valve builder?

**A. 1:** You would be well advised to stick to the original specification.

**J. H. M. (Punjabow):**

**Q. 1:** I altered my set in accordance with the instructions in "W.W." 23/10/26, and am getting good results on the local stations, but H.O. and I.Q.S. are very faint. Please tell me how to clear up these stations (primary 10 turns) as well as how to get the others necessary. Reaction is 42 turns.

**A. 2:** Carefully adjust your detector rheostat and remove 4 to 10 turns from the reaction. Don't use too much plate current on your detector valve.

**D. R. R. (Clayfield, Q.):**

**Q. 1:** Is the enclosed circuit suitable for loud speaker results on the local station?

**A. 1:** The circuit you enclose is not suitable for loud speaker results, as it employs a stage of radio frequency. Radio frequency is used for bringing in the distant station. Audio frequency is required for loud speaker results. The circuit again is not heavily coupled thereby being not as selective as could be. See "Wireless Weekly," of 8/12/25 for a suitable receiver.

**Q. 2:** Is it possible to obtain a wiring diagram of the Barkness Reflex and Brown-Drake?

**A. 2:** See "W.W." 15/10/26 and 1/10/26. We cannot quote prices for parts, nor can we draw comparisons of various receivers. Being matters of opinion, different people vary.

**H.S. (Colse, Vic.):** Use the Harlin Detector.

**R.W.S. (Moama):**

**N.L.S. (Auburn):** Test the fixed condensers on the first audio transformer.

**F.M.D. (Wollongong):** No, just the same. Perhaps your accumulator is run down.

**A.E.H. (Bell, Q.):** It appears to us that your "A" or "B" Batteries are worn out. The symptoms you describe are in keeping with our statement. You may use the coupler of the "Old Rollabak."

**H.M.C. (Epsfield):** See "W.W." 19/11/26.

**T.D. (Bunawodere):** A receiver of this type will shortly appear in "W.W."

**H.B.M. (Rose Bay):** It is very difficult to diagnose your trouble without hearing the receiver. Why not run it into your radio dealer?

**M.E. (Wyalong):** The set is already earthed through the car battery.

**H.C.E. (Nabiac):** Your materials are quite O.K.



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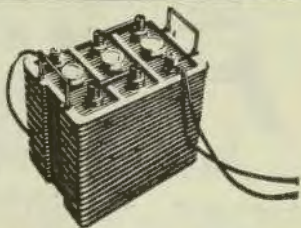
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Without Terminals  
4/7.

With Terminals  
4/8



### A Fisherman I Would Be

(Continued from Page 11.)

back, and also hailing from Arbroath, your programme from the trawler was all the more interesting to me," writes a man from Croydon.

"The only time we were disappointed was on Saturday night, when you were all too ill to broadcast. "The writer of the letter, from which the above is an extract, says he enjoyed the broadcasting from the trawler very much—but he would have kept his distance from the sharks, which the announcer described.

A little girl at Pennant Hills writes: "It must have been a wonderful night; we could hear the songs as they ran through the pulleys. Your voice was very clear—we could hear the waves beating against the side of the boat, and the roar of the ocean quite plain. The songs of the fishermen and the engineer were very good."

"Hoping your staff have got over their seasickness, allow me to congratulate —" says another listener. This writer concludes by asking permission to inspect the broadcasting station—a permission readily granted.

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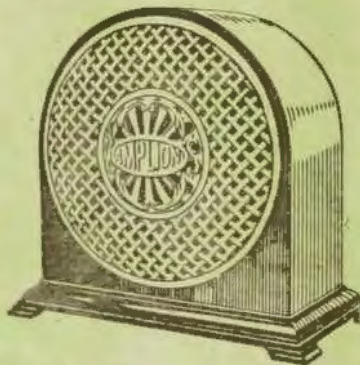
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