

WIRELESS WEEKLY

Vol. 9, No. 4.

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Friday, Nov. 19, 1926.



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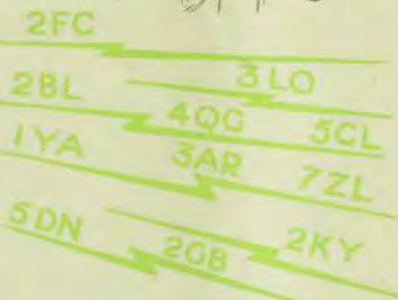
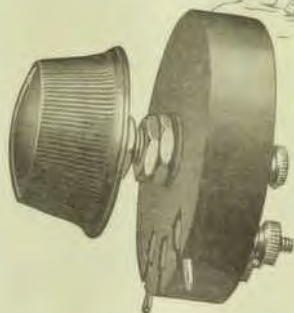
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Confessions of a Radio
Announcer: Alfred Andrew

3^d

Story of Marconi: E. T. Fisk
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Radio

for 1927

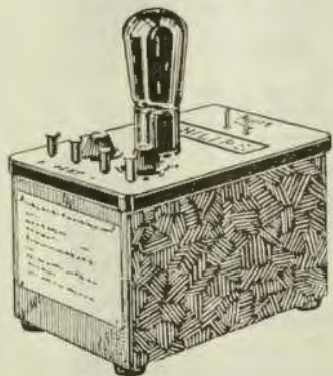
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Melbourne	265 Collins Street
Brisbane	93 Queen Street
Adelaide	10 Rundle Street
Wellington, N.Z.	42 Willis Street
Auckland, N.Z.	140 Queen Street

WIRELESS WEEKLY

VOL. 9. No. 4.

FRIDAY, NOV. 19, 1926.

The Odds Are On Radio

PICTURE a country store thronged with folk from all the farms or stations for miles around; the storekeeper busied over the dials of a radio set; all eyes on the loud speaker, and you have in your mind a scene in any one of a hundred country towns on Cup day last. Picture a solitary listener bending intently over his set, a distant look of pleased surprise on his face, it matters not whether the background be a Sydney flat or a river flat; or picture again a bustling crowd congesting a busy city street in front of the loud speaker in the doorway of a radio dealer and you have again pictures whose duplications were many.

A thrill that left thousands breathless. Once in a while we hear something which renews all our old enthusiasm for the radio and causes us to wonder anew. This thrill was like that, and through it radio is going to win some thousands of new admirers this Christmas.

The nature of the transmission introduced to radio a new public. The punter is perhaps the one member of the community who has been untroubled by wireless. The racing authorities right from the beginning placed barriers in the way of the broadcasting companies who wished to cater for him. They feared that patrons would stay home and listen, rather than attend sports meetings, if descriptions and results were broadcast.

This view showed lack of vision. They failed to estimate the tremendous advertising value of broadcasting. Last Tuesday week was the first occasion that the Melbourne Cup has been broadcast officially and with any attendant success. We believe that it demonstrated fully that the odds are that next year radio will enter into sport more than it has ever done before. The racing authorities must have realised that it is a stimulus to sport rather than a deterrent.

Miss Kitty Elliott, charming comedienne, heard regularly from 2FC. She is a sister of Madge Elliott, the well known actress.

Between You and Me and the Microphone

A LONDON amateur recently transmitted gramophone music half-way round the world. A case of using one record to break another.

THE staff of 3LO, Melbourne, took a brief respite from their ordinary duties on Thursday, November 4, when they enjoyed themselves and



entertained numerous friends at an informal dance in the new studio. It is whispered that with several portly lecturers a certain major demo was instructed in the intricacies of the Charleston.

The U.S. Department of Commerce is to instal 50 radio beacons and 35 communication stations for use of aviators on the 9487 miles of airways now in use.

THE BRITISH Broadcasting Company comes to an end at the end of this year. The service will continue, without any kind of interruption, on January 1, 1927, under the name of the British Broadcast Corporation (Incorporated by Royal Charter).

WIRELESS telephone equipment is to be installed on 35 express trains in Germany, where telephone subscribers throughout the country will be able to get into prompt communication with relatives and friends travelling on any one of the trains.

THE total value of American radio exports in 1925 of £1,980,757, was nearly £800,000 in excess of the total for the year 1924, and constituted 13 per cent. of the total electrical exports. Shipments of this modern communicating apparatus last year were over three times the value in 1922, the first big radio year.

THE United Kingdom proved the leading market for American equipment, taking £128,983 worth, nearly half the total of all Europe and four and a half times the value of apparatus bought in 1924. Spain was next, purchasing £46,053, while the Netherlands and Sweden followed in order, averaging about £26,000.

Conducted by

R. E. CORDER

A POETICAL contributor writes that he is in difficulties with a new radio verse. The only rhyme for "supersonic" he can think of is "simply chronic."

HERBERT GOTTING, Braemar, reports regular reception of KGO and KFI on a four-valve receiver. Quite recently he tuned in the former at loud speaker strength in full day light.

RUSSIA is showing the way to the rest of the world by installing in every city, village and hamlet radio receiving sets so that every one, no matter how poor, can enjoy broadcasting.

BY RADIO.

With black receiver tightly clamped

Against my eager ear

I listen to the sounds afloat

Upon the atmosphere;

A solo song, a monologue,

A bedtime tale for kids,

The daily news, a lecture on

The life of annebids.

But these are not the radiograms

I seek to gather from

The void where echoes of the

past

Perhaps yet faintly ham;

I hope to hear on ether waves

Still drifting to and fro

Some word immortal Caesar

rote

Long centuries ago.

—MUNA IRVING.

AN AERIAL invasion sweeping over Brisbane threatened to dislocate the 4QG service recently. Thousands of moths alighting on the aerial-wires and storming at the windows of the transmitting room would have caused several short circuits had they been admitted.

WIRELESS equipment shipped to Salamao, New Guinea, last August by Amalgamated Wireless for erection on the goldfields has been tested. To ensure the equipment from damage through the excessive rain that prevails on the mountains each unit of the equipment was packed in special tin-lined boxes. The only means of transport was by native carriers, who though normally only carry loads of 50lb., in this case were called upon to transport loads of 100 lb.

A. J. MORRISON, Hamilton, Newcastle, reports that the Extraordinary One-valve receiver, described in a recent issue, brings in 1YA, 5CL, 3LO, 2FC, 2BL, 2GB, 2AR. Truly remarkable reception!

AMONG the totally new subjects, of which there are many in the thirtieth edition of the Encyclopedia Britannica, broadcasting and other aspects of radio are covered with particular thoroughness. Articles by British and American authorities make it a most complete guide for the radio fan.

ANOTHER aspect of the broadcasting situation is revealed by Ralph Brown, vice-president of the Institute of Radio Engineers. While 1,105 stations had been licensed in the U.S. up to 1924, only 535 were surviving this year, he points out in an analysis.

AT a statutory meeting of Tasmanian Broadcasters Pty. Ltd. recently, the chairman of directors (Mr. R. A. Bunning) said that the company expected to receive an amount approaching £3000 when the station went on high power. He expected to have the plant erected before Christmas.

THE COAST of China has been from time immemorial exposed to the ravages of typhoons, or tornadoes of extreme violence from the south. A new station of enormous power has been erected at Praya, an island 80 miles south of Hongkong, from which it is hoped to detect the approach of storms and transmit timely warnings.



THE FEET of youth turn naturally toward dancing by the loud speaker and 3LO, Melbourne, is according full recognition to that physical fact by supplementing the usual evening session closing at 11 p.m. with a special programme by the 3LO dance band each night until 11.45 p.m.

Confessions

of a Radio Announcer

By **ALFRED ANDREW**
(in an interview)



Photo by Johnstone
and O'Shanassy,
Melbourne.

A Radio
PROPOSAL

A Radio
OPERATION

A Radio
RECOVERY

"DEAR Mr. Announcer, if you were ever so young and in love," began a lavender-tinted letter I received not very long ago, "please sing 'O Promise Me' next Wednesday night.

"I'm a young woman, twenty-six years old, and have brown eyes. I'm very much in love with a young man who has been calling on me for five years and who I know cares for me. But he's never proposed. For the past year he's been coming out every Wednesday night and we turn on the radio set and listen to the programmes. I happen to know that 'O Promise Me' is his favourite song; so if you will have it sung while we're there together maybe he'll propose. I'll see that the lights are low. Please, Mr. Andrew, I've done everything but ask him myself—if this doesn't work nothing will."

Well, I was young once myself. And as to whether I was in love—I repeat I was young once. According to schedule "O Promise Me" went on the air in the most melting baritone.

That was on Wednesday night. On Thursday I received a telegram. "It worked. Am to be married next month. Thank you ever so much."

THIS little story illustrates why I find so much that is interesting in the thousands of letters that come to me from listeners-in. They are so human and real. Some are humorous, some are pathetic—especially those from invalids and hospital patients—and some are intensely romantic. The radio seems to invite romance, due, perhaps, to the fact that it appeals to the imagination.

Once I received a letter from a woman asking many personal questions, among which were whether I was married or single, young or old, thin or fat; whether I felt the pang of love for the unknown writer, or if I was quite heartless.

Inasmuch as the type of letter practically forbade an address and a name, I was unable to answer it, but a few days later another letter arrived containing the glowing idea that I should answer her secretly through a code of songs.

"If you are single," the unknown wrote, "then sing 'All Alone'; but if you are married, sing 'The Battle Hymn'; if you are young sing 'At Dawning'; if you are old, sing 'Darling I am Growing Old'; if you want my love and want to meet me, sing 'I want to be Happy.'"

Now, having tasted most of the sweet and bitter experiences of this world I was tempted to make a single programme of all the songs together, but the programme director was firmly against this. He was quite right, too, for it would be foolish to acknowledge over the air the dozens of letters of this type received by announcers.

ALTHOUGH the romantic letters are by far the most entertaining and amusing received, they are few in number compared to those from more sober-minded listeners. Every announcer has been praised,

knocked, reprimanded, guided and informed by these well-meaning people.

If I happen to split an inflative during an announcement—thinking I'm among friends—several educational experts take me severely to task. During the production of the Belle of New York a comic opera devotee wrote saying that he objected to the Yankee accent of the principal character. Why couldn't we have good old English? he asked.

My rendering of the Stock Exchange and market reports are the cause of many indignant letters from listeners-in, whose feelings, outraged at my grammar, are often expressed in bad English—very bad English indeed. One writer criticised severely my pronunciation of the figures of thirty, forty, etc., as thirti, and fourth. Right here I will answer him. I do it, Mr. Critic, to avoid confusion with the teens. It is not original, but has been for decades the practice of Stock Exchange clerks.

Not long after I became an announcer, I happened to remark to an old friend as we stood in front of the "mike" that he was getting fat, forgetting that the control was not switched off. All the following week letters were sent to me to be forwarded to him containing various anti-fat diets and recipes for reducing. They were very valuable. Those were the days when I wished to be among those weighed and found wanting, so I used the diets myself.

IN those early days before almost everybody of importance had become accustomed to the microphone there were many amusing cases of "mike" fright. I remember an outside transmission from a meeting at which a parliamentarian was to speak on the settlement of international debts. The chairman, never having seen a microphone before, was excited both over the fact that he was to broadcast and the topic of the address. Desiring to impress the audience with the significance of the occasion, he said after naming the speaker and the subject, that both were important; really, very important, and in fact—

"The steak of nations is at fate."

The speaker nudged the chairman, who realised he had been guilty of a slip of the tongue and hastened to correct himself.

"I meant, of course," said the flustered chairman, "that the fate of stations is at stake."

This time he sensed his error, and floundered into a new correction—

"That is, the state of nations is a fake."

Finally, the speaker rising hurriedly, took it upon himself to extricate the chairman from his difficulties and explained that there was nothing more serious pending than that the fate of nations was at stake.

IHAD one broadcasting experience of an entirely different nature that I shall never forget. In the Alfred Hospital lay a small boy, a diabetic, who wrote letter after letter to me. They were injecting burning insulin into him every few hours. Doctors conferred over him and pronounced his case hopeless. His only diversion as he lay there was the radio which is laid on to every bed in the hospital. He wrote to say that he felt new hope when he heard my voice. My words had a soothing effect. But although the doctors said that I lengthened his span of life on this earth by removing his mind from thoughts of himself and Death I was unable to save him.

THE Alfred Hospital has been the scene of many such incidents. A little more than six months ago a patient with a badly injured thumb had to undergo an operation. His nerves were at high tension and it was feared that the sight of the doctors at work on his thumb despite the local anaesthetic would totally unnerve him and hinder the operation.

The difficulty was solved by Mr. MacDougall, the Hospital secretary, who suggested that the patient should listen-in while being operated upon and thus have his attention diverted.

Mr. MacDougall's faith in radio was entirely justified. We did not bear of his experiment until afterwards, but he told us that the man was quite calm as he listened to the studio orchestra—his mind away from the work of the surgeon.

LISTENERS-IN have a mighty soft spot in their hearts for hospital patients and shut-ins. A station like 3LO has only to broadcast a brief call for help and it is answered.

Calls for blood transfusion have been broadcast and answered almost immediately. At two minutes to two on Saturday afternoon what might be termed the zero hour of broadcasting, I received a telephone call from a North Fitzroy doctor who wanted volunteers urgently for blood transfusion. Within twenty minutes three men had called at his address and undergone tests.

If the patient had had to wait another twenty minutes he would have been beyond recovery. As it was he lived for many months afterwards.

I broadcast a similar announcement

for St. Vincent's Hospital not long ago. The surgeon had not time in which to make the appeal through the usual channels. The call was transmitted at one minute to two. At twenty minutes to three dozens of volunteers had reported at the hospital.

IT'S funny the idea people get of you through hearing your voice.

Some expect me to be either older or younger than I am. And others appear surprised, when they see me, that I'm not six feet tall, with a flowing tie, brown eyes, and tan shoes. Not so long ago two small boys came up to the studio and said they wanted to meet me. When I was introduced, they looked at me steadily for a moment, and then said in unison, "Bunk!"

Now, what could they have meant by that? If they read this, I hope they'll write to me and explain. That was the one time when I wished I looked like Tom Mix.

On the other hand many tell me that I live the part. Perhaps it is because of my long experience on and behind the stage, for producing a radio programme is very much like producing a musical comedy. Years of experience in a profession moulds one's character.

Curiously enough, I find that those used to appearing on the stage or platform are more likely to turn pale and tremble and forget their part before the microphone than those who have never faced the footlights or the public.

Even that fine old lady, Maggie Moore, after years of stage experience, when she last year said farewell by wireless, broke down at the end of her little speech, all tremble, and turning to me before I could switch off the microphone gave a hysterical giggle of nervous relief that the ordeal was over.

Do you wonder that I get a thrill out of broadcasting—at being on the air—no matter how many times I've done it? Each time I stand before the "mike" I get that same electrical enthusiasm.

There is life behind it.



The Romantic Story of Marconi

By E. T. FISK

Managing Director of Amalgamated Wireless
(Australasia) Limited

How the first practical radio transmission took place is told by Mr. Fisk below. This is the final article of the series on "Who Invented Wireless."

PROFESSOR Dolbear and Popoff are sometimes quoted as early discoverers of electromagnetic wave telegraphy, but they were not looking in that direction. Their apparatus was made and used for the detection of approaching thunderstorms, and they were apparently unaware of its possible use for wireless communication, neither could it have been used successfully for that purpose. The nearest approach among these early experimenters was made by Professor Hughes, but he dropped his work on the verge of success because he could not compel recognition from a learned society.

The important work of taking the electrical oscillation discovered by Henry, the theory of electromagnetic radiation propounded by Clerk Maxwell, and the Hertzian wave and combining them to make that system of practical wireless communication for which mankind had been seeking was left to the genius of a young Italian scientific student, Guglielmo Marconi, and it came about in the following manner.

Marconi was a student of physics under Professor Righi at Bologna University. Righi was keenly interested in the work of Hertz and had constructed an improved Hertzian oscillator for use in his laboratory. About the same time a French scientist, Nduard Branly, invented a new form of wave detector which differed in principle from the detector used by Hertz. These apparatus were employed by Righi at Bologna to repeat and demonstrate the experiments made by Hertz in 1886.

Righi's pupil, Marconi, at once realised the possibility of applying these principles for wireless communication, and commenced experimenting on his own account. The oscillator used by Hertz differed from the original Leyden jar. Instead of two metal coatings separated by a glass jar, Hertz used two large metal plates separated by air. This form of oscillator was used by Marconi in his first experiments. He found that the apparatus then known and available was only useful for laboratory work, and for repetition of the Hertzian experiments, but practically useless for the purposes of communication, and he turned his inventive mind to the problem of devising more suitable apparatus and his first important step was in the truly brilliant idea of eliminating the horizontally separated oscillator plates used by Hertz by substituting the earth for one plate and suspending the other plate at the top of a mast.

This ingenious arrangement immediately enabled him to send a Morse signal from one end to the other of his father's garden in Southern Italy and thus to send the first wireless signal ever transmitted by Hertzian waves. He then applied the same arrangement to his receiving apparatus, and obtained still further improvement in his communication. His next step was to improve the coherer because the one used so far was not satisfactory and he succeeded in making a new and superior type which could automatically receive telegraphic signals and cause them to print corresponding dots and



Senator Marconi.

dashes on a tape or alternatively to operate a call bell. This improvement in the coherer was an important step in the perfecting of his new communication system, but the earthed oscillator with one plate suspended above the earth was the most effective and brilliant stroke of genius and has proved to be a fundamental part of every wireless transmitting station ever since. Instead of a sheet of metal suspended in the air we see tall masts and a number of wires to-day, but the wires are merely a refinement and they perform the same function as Marconi's original elevated plate, and in every case the earth forms the other plate, whether it be connected directly or through a counterpoise.

Every ship at sea, every high power station, broadcasting station and coast station on land throughout the world uses this elevated antenna connected to earth, which constitutes a remarkable monument to the far-seeing soundness of Marconi's great invention of 30 years ago.

Marconi took his apparatus to England, where he obtained the first patent ever granted in any part of the world for a practical system of wireless communication. Marconi demonstrated his invention in England, and communicated first across a distance of half a mile, then five miles, and subsequently across the English Channel. Great public and scientific interest was aroused, Lord Kelvin was so impressed with Mar-

coni's results and the future possibilities that he insisted on paying for a message sent across the Channel from one experimental station to the other so that he could be the first man to send an actual wireless telegram.

Among other well known scientists, Sir Oliver Lodge evinced a keen interest in the new method of communication and carried out experiments. At a public lecture in 1898 he referred to a prophecy made by Sir William Crookes that communication with the aid of wires, posts and cables would ultimately be superseded by the new method of Marconi, but Lodge called attention to one serious problem that would arise if great ranges became practicable for wireless communication. He explained that only one wireless station would be able to send a message at any one moment because the messages would be sent out in all directions through a universal medium, and, therefore, every receiving instrument would pick up the message. He suggested that this difficulty might be overcome if the apparatus could be made capable of sending and receiving on various wavelengths so that each receiving instrument would respond only to the wavelength intended for it, and be unresponsive to all others. He saw great difficulty in achieving such a result, because a sending station could only produce a selective wavelength if it could continue oscillating for an appreciable period of time, a condition which was undesirable, because it was essential to get rid of the energy quickly and to radiate powerfully in order to send the waves across any great distance.

It was, at that time, manifestly impossible to make a Marconi antenna which could perform the two entirely opposed feats of keeping its energy for persistent oscillations and at the same time radiating it effectively into space. In the same year Lodge attempted a solution of this problem by taking the Marconi antenna and altering it so as to make a compromise between the two functions. He increased its oscillating quality by reducing its radiating quality, thus sacrificing

range to selectivity and he secured patent rights for his invention.

One year later Marconi's genius again supplied a more effective solution, which secured the result that Lodge had suggested was impossible. He invented a new method of feeding oscillating energy to his antenna in such a manner that the efficiency of radiation was not reduced, as in the Lodge invention, and the oscillating qualities were increased to a very high degree. This invention formed the subject of one of the most famous wireless patents the world has seen.

The importance of this invention may be gauged by the many attempts that were made in various parts of the world to attain the same result without using Marconi's invention, and the fact that all were unsuccessful and the validity of Marconi's patent was upheld whenever and wherever it was challenged. The remarkable effectiveness and fundamental nature of the solution are also demonstrated by the fact that, in spite of the great technical advances and the new methods now in use, every wireless transmitting station and every efficient receiving set in the world to-day still employs the principles and the electrical circuits of this famous invention made by Marconi in the year 1900.

In reality Marconi's new invention was the application, in the realm of electricity, of a fundamental principle in musical instruments. In the latter

case the sounding board is the radiating element, i.e., the part which projects the musical sounds into space, and the strings are the persistent oscillators which continually feed energy to the sounding board at a definite rate of oscillation. Marconi's first elevated aerial was analogous to a simple sounding board, which of itself could only send out an untuned impulse, similar to a mere wave, which would disturb everything within range. Lodge's invention was equivalent to an endeavour to make a musical instrument with a refined sounding board. Such an arrangement would be only slightly more selective than a plain Marconi aerial or its equivalent, a simple sounding board. Marconi retained the sounding board and attached the tuned strings, thus making the perfect instrument which, while radiating powerfully, could at the same time give a definite note or tune and thus give effective selectivity.

Marconi's two great discoveries, first of the elevated radiator commonly known as a wireless aerial or antenna, and second of the electrical equivalent of the simple sounding board, and secondly of the simple but efficient radiator, electrically coupled to a persistent oscillator, the electrical equivalent of the perfect musical instrument, are the most fundamental discoveries ever made in this great field of applied science, and these alone have marked this distinguished inventor, not as the inventor of wireless, a term both inapplicable and impossible, but as the greatest wireless inventor and the first to produce a successful system of communication by electromagnetic waves.

Many valuable inventions have been delayed in arriving at fruition and the resultant stage of value to mankind by insufficient courage on the part of the inventors or by lack of the financial means so essential to the development of all such things. Marconi's inventive genius was equalled by his courage in pushing on with his work in spite of the opposition and even ridicule that every innovation has to meet. He was also fortunate in having private means to support



A recent picture of Popoff.

(Continued on Page 41.)



The Architect Considers Radio

By R. BERGIN

In a lecture before the Institute of Architects recently

Mr. Bergin maintains that the progress of radio justifies architectural consideration. A house advertised as having all conveniences should have radio.



IN suggesting that the progress of radio broadcasting justifies the architect taking radio reception into account when planning a new building, an idea of the part radio is to play in our home life can be gathered from a few figures.

Broadcasting has been in general use in Australia now for a little over two years. During that period the number of broadcast listeners' licenses in New South Wales has grown to approximately 46,000. Other recent figures indicate that an increase is taking place at the rate of about six per cent. each month. If this rate of increase is maintained, in the course of the next two years we shall have licenses to the extent of one for every three or four homes.

Such a proportion as this leads one to believe that in any new building equipped for convenient use of radio reception, sufficient use of the facilities provided will be made to justify the small expenditure.

When carrying out the general electric wiring of a building provision should be made for a wiring circuit between the different parts of the house so that headphones or loud speakers may be conveniently used at some distance from the location of the receiving set itself. This special wiring requires a similar grade of wire and casing to that used for ordinary electric light service. At each listening-in point the wiring is connected to one of the many standard types of electric wall plugs in common use. The detachable portion of the plug is connected by a small cord to the loud speaker or headphones like a radiator or other electrical appliance.

Precaution must be taken to see that the type of wall plug used for the radio service is not interchangeable with those used for the ordinary light and power wiring in the same premises. The number of positions in which the broadcasting programmes can be heard will only be limited by the number of plug points and other apparatus available.

Installations already carried out have proved well worth the small initial cost, as they have provided a rapid means of taking the entertainment to the fireside on a winter's evening, or to the verandah on a summer's night, to the dining-room during meals, or to the bedrooms, or kitchen.

The cost of installing a circuit of plug-points as suggested, is estimated at approximately 50 per cent. of the rate payable for ordinary electric lighting points, the exact figures varying according to the type of material used, flush types or plugs are more expensive than ordinary surface type. For the expenditure of £5, a sufficient number of outlets in the average home could be installed during the erection of the building.

Another radio provision which should be made in the home is an additional standard electric power supply outlet in the room where the main receiving set is to be operated. The ordinary electric supply of 240 volts is becoming used extensively for re-charging the accumulator batteries and providing the "B" battery or high tension current required for radio reception. There would then be no need to take the accumulator away for recharging or for dry cell

"B" batteries. As the two plugs could be fixed close together the cost would be reduced to about half the usual rate per point, providing the circuit was not overloaded.

I suggest that the architect planning hospital buildings will save much expense by providing plug-points for each bed position in the course of the general equipment of the building. From 10/- to 15/- per bed will be sufficient to cover the supply and erection of plugs and wiring, terminating in a central distribution position ready for connection to the receiving set at any time.

In connection with "apartment" or "flat" buildings, where the tendency is always to provide a maximum of facilities for the tenants, I recommend the provision in each suite of an additional power plug for battery charging purposes. The more expensive types of receiving sets can be of course operated efficiently without either an external aerial or earth connection, but the types more commonly in use and within the means of the average person will require an efficient earth connection to the water service and some form of aerial outside the set itself but not necessarily outside the building.

A length of insulated wiring fitted behind or above the picture rail is a method largely adopted with good results. If this wire and the earth wire are terminated in the respective contacts of an electric plug base as before mentioned, everything is ready then for connecting up the receiving set without any trouble or probable damage and disfigurement to the finished interior of the room.

Yet Another Hospital Instals Radio

The Royal North Shore Hospital is the latest to have radio installed by the bedside of each patient. The problem of keeping patients interested in other things besides themselves is discussed here. Broadcasting offers a splendid opportunity to practically every institution.

THE Chatswood Wireless Circle, organised for the purpose of installing head phones by the beds in the Royal North Shore Hospital, held its final meeting on Friday last week. The Treasurer, Mrs. C. R. Ferris, reported a credit of £280, as the result of the Committee's activities during the past four months, amongst which were a large number of donors of inscribed head phones, at £1 each.

The Mayor of Willoughby then handed the cheque to Ald. R. T. Forsyth, a Director of the Hospital, and expressed the wish of the Committee that it would bring relief and contentment to the patients in the hospital.

This incident is just one of many which point towards the realisation of the aim of radio as a complete entertainer. It has often been said that the medical profession as a whole has responded more slowly to the innovations and inventions of modern progress than any other profession; and by the same token, hospitals tend to lag behind in the adoption of the newer advancements of science. It is just as well, perhaps, that this should be so in some degree, for many hospitals can ill afford to risk hard obtained moneys upon untried ventures. Between the rejection of all things because they are new and the blind adoption of every new project, there lies a middle course which every hospital should follow if it desires to remain in the van of institutional progress.

The problem of keeping patients interested in other things besides themselves is one which hospital adminis-



The 2FC Hospital Concert Party at the Royal North Shore Hospital. Gus Carling with "Jerry" is seen seated on the end of the bed, while the "Hello Man" is speaking to a small patient.

trators and others have pondered for many years. Occupational therapy, systematic exercises, physiotherapy, and allied fields are essentially devices for removing the patient from himself. To these has now been added that wonder invention of the ages—the radiophone—the voice that speaks for a thousand miles, and the music that travels with the speed of light far over every hill and dale. The possibilities of the radio are yet too colossal for mortal comprehension. It is as though the Great Architect of the Universe has revealed to us a little of the Unknown Beyond, where space shrinks before His will.

The radio has now reached a stage of standardization which will permit hospitals to purchase equipment without fear of radical changes and depreciation, within the next few years. Not that wireless telephony has reached its perfection, but the changes in the future will be small compared to the gigantic advances of the last five years. Similar, indeed, to the story of the motor; the great advances and changes in the construction of the internal combustion engine occurred subsequent to the first four years of the invention. The past twenty years have seen nothing but refinements of the original period of development.

During the past year, wireless telephony has rapidly standardized itself.

Lending readily to popular imagination it has easily become the study of more persons, perhaps, than any other one product of pure science. The result has been a continual simplification and perfection of equipment, making it possible for a child to build for himself a receiving set capable of "listening-in" on concerts given many hundreds of miles away.

The wards of the Royal North Shore Hospital were a scene of bustle and activity when over 80 members of the Australian Postal Electricians' Union wired the various wards for the reception of the wireless head phones. The organisation of this unit was under the charge of Mr. L. R. Stephens, the Senior Mechanic of the North Sydney Exchange, and his plans were so perfect that in four hours 150 beds in the general hospital were ready to receive the plug-in connections ready for use.

On Saturday afternoon, almost immediately after the installation of the headphones, a concert party from 2FC, Farmer's Broadcasting Station, visited the Royal North Shore Hospital, and broadcasted a concert from the Northern Suburbs' Ward. A happy atmosphere was introduced into the proceedings by the various artists, who relaxed from the usual concert ceremonial under the genial direction of Mr. William Anderson, who announced the various items.

Coming Programme Features

AN account of the work of a trawler at sea was broadcast by 2FC recently. An announcer from the station spent three days on the trawler and having recovered from a bout of sea-sickness described the whole operation of catching the fish. His words were sent from the trawler by wireless, picked up on the shore and retransmitted from the broadcasting company's high-powered station at Pennant Hills.

THE SANDMAN, versatile bedtime story entertainer at 4QG, recently introduced a novelty for the amusement of his little listeners. At the close of his session he indicated that he was going to take up a position at the highest point on the roof of the station, and would by means of a powerful flashing electric light signal to children whose homes were within view of 4QG. Evidently hundreds of kiddies welcomed the suggestion, for flashing lights were to be seen in all directions, and even at considerable distances away from 4QG signals could be discerned.

SEVERAL COUNTRY residents who are unable to visit the seaside frequently, have asked Station 2FC to broadcast the sound of the ocean waves and the crashing of the surf. Arrangements are being made to accede to this request, and in the near future a surf carnival will also be broadcast.

TROSE who were fortunate enough to receive invitations to the studio when Mr. Percy Grainger played for half an hour on each occasion, must be counted among the lucky ones of the earth for hundreds of applications had to be refused.

THE EXCELLENCE of the 3LO musical programmes arranged by Mr. Alberto Zelman is too well-known to call for comment in these columns and the opportunities of hearing him on the concert platform are all too few. For this reason, listeners will welcome the news that special arrangements have been made for the transmission of a concert from Upwey and is to take place on Saturday. The programme has been arranged with care, and the delightful vocal and instrumental solos and concerted items will appeal to all musical tastes.

AN INTERESTING evening for radio listeners is being worked up by 2FC. It will take the form of a visit to the home of Captain Frank Hurley at Point Piper. Captain Hurley will conduct his visitors through the house and will describe to them how he obtained the various trophies with which the rooms are decorated. Captain Hurley explored the Antarctic with Sir Ernest Shackleton. He has penetrated the least civilised of the islands of the Pacific; he has had thrilling adventures in Africa, and the trophies of his life would fill a fair-sized museum. Leading artists will be included in the visitors to Captain Hurley's home, from which the whole of the 2FC programme of the evening will be transmitted. The date has not yet been fixed.



Mr. Bryson Taylor, associated with 2FC, who is playing lead in "The Chocolate Soldier," produced by Mosman Musical Society, and to be broadcast from Mosman Town Hall by 2FC on November 20 and 23

ADMITTANCE to the 3LO studio for the evening session may now only be gained through invitation. Those invitations will be issued from the studio, and the management have made this rule in order that they may regulate the number of guests, and so prevent overcrowding.

2FC has initiated a series of talks by Mr. Harold Hardwick on aquatics. Mr. Hardwick is an ex-world champion swimmer, and is organising vacation swimming classes for children.

THERE ARE a number of remarkably fine artists from Russia in Sydney just now. Listeners are to hear a special programme by Alexander Sverjensky from Beale's salon on Wednesday evening, November 24. He will be heard in groups by various composers, and in association with Schuhaldin, the Russian violinist. A new arrival, Madame Pollakoff, a Russian lyric soprano, will be heard in conjunction with M. Swygin, a musician and conductor of note from St. Petersburg.



Mr. Montgomery Stuart, who as "Uncle Monty" delighted the kiddies during Mr. Cochrane's absence in Melbourne.

A Racing Announcer,—The 3LO Girl

Our 3LO correspondent discusses the broadcasting of the Melbourne Cup, the new competition, the Grainger concerts, and the 3LO party, in the article below.

I HAPPENED to be sitting alongside Mr. Priestly, of "The Sporting Globe," on Cup Day at Flemington, while he was broadcasting a description of the race. It was an amazing reflection that his words were being flashed across and through Australasia, that ships at sea were picking them up, that home-voyaging Australians three thousand miles away, wondering what horse had won this historic handicap should have the answer to their thoughts put beneath their eyes by this white magic of 3LO.

I suppose hardly anything could so bring home to the mass of the people the real meaning of broadcasting in the annihilation of distance as this description of a classic race, right from the racecourse. 3LO has broadcast descriptions of interesting events by the dozen. Waiting thousands have almost held their breaths while a wrestling match has been in the balance, they have listened with delight to historic functions, but there is nothing so universally interesting throughout the vast continent as the Melbourne Cup.

For months before the famous second Tuesday in November, bushmen have studied dirty newspaper cuttings with the list of entries. The arrival of the mail with acknowledgments of wagers, with lists of a "certain consultation," with tips from more fortunately-placed friends in cities has been awaited with impatience. But for the enterprise of broadcasting, these folk would be left in ignorance of the issue of the event for days after it has been decided. What a difference! Now 3LO engages one of Australia's most expert racing men, a man who knows the look, the form, the record of every horse engaged at the meeting, and he un-



Miss Elsie Davies, and the Auburn Methodist Choir, conducted by Mr. Sutton Crew, broadcasting for 3LO.

rolls before the eyes of listeners the story, almost yard by yard, of the great race, and the less important ones that make up the card. Extraordinary!

THE 3LO GIRL.

THIS competition threatens to put all others of a similar nature into the shade. It was the newspapers who first began the search for beauty. With their resources of publicity they had a huge success. But 3LO has resources far superior to those of the greatest newspaper ever established. Where a paper has to confine its search to a State, almost to one city in actual practice, 3LO ranges over a continent. The result ought to be surprising.

Modestly, the broadcasting company expects to get 3000 entries. I shall be surprised if it is not three times that number. Australia abounds with beauty in its younger women. I doubt if any country in the world has so many in proportion to population. Of course many of these refrain from anything in the nature of public competition, but woman's vanity rises superior to such considerations, especially when such valuable prizes await success. A trip through New Zealand's wonderland is the best of these, but pendant to it hang many

more, all attractive to women.

3LO has prepared an exquisite little booklet, wherein all these lures are set down. Anyone may obtain one by application at the studio, either personally or by post. Any listener can nominate a candidate, who can be married or unmarried. There are few conditions, except the essential one of beauty. This is to be a Perfect Girl, if search and the white light of publicity can produce one.

To illustrate the queer mentality of some folk, let me instance a letter received at the studio last week. It was written by a woman who was appealing for a gift for a church function. As a fine compliment, calculated to help her cause, she upbraids 3LO violently for instituting this competition. She considered that such a thing would breed only enmity and envy as only 'a conceited person would go in for such a thing.'

And then she sprang her own suggestion. Let Perfect Girls go hang. For her there was only one sort of woman who deserved a prize, the woman who had ten children. She suggested a search for such a one, clergymen to be allowed to nominate candidates.

It is an extraordinary thing that detractors should spring up to "crab"

every innocent scheme instituted. Everyone is proud of beauty; everyone is proud, too, to think that Australia breeds the most beautiful women in the world. It would seem to be the most innocent and interesting thing in the world for 3LO to set people looking for lovely girls. And yet here comes a cry of envy, of counter-suggestion. By all means, let us reward the mother of ten; she deserves well of her country; but don't let us overlook the fact that the likeliest woman to be a mother of a family is the type of beauty that 3LO has set out to find and reward.

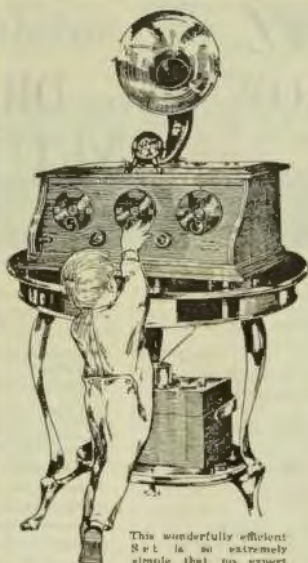
THE GRAINGER CONCERTS

What an inspiration the Grainger broadcast concerts were! What a magnificent way to introduce the pianist of democracy to the greatest number of his fellow countrymen. Jeremy Bentham once said that the secret of democracy was to bring about 'the greatest happiness of the greatest number.' After hearing Grainger play, there can be little question of his claim to have solved this secret. Certainly no artist ever engaged by 3LO has ever given such delight.

3LO'S PARTY

I happened to drop in the other night when 3LO was "giving a party" like Hans Breitman. It was a very jolly little affair, the music being broadcast, after being used by the dancers all they liked. I felt rather sorry for the announcer, however, for that good man had to remember what the guest forgot, that he was still "on the job," and had to make Australia hear his announcements.

Lord! What a clatter of tongues and tinkling of laughter! Correspondents complained of it, but I am sure if they had been there they would have sympathized. It was impossible not to, I think, however, that on another similar occasion, the announcer must have a little bell to tinkle like a schoolmaster before announcing the next item. At the sound of the bell the class must be silent till the announcement has gone through.



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Brass Low Loss Condensers: The Art-craft, .0005	0 12 6	A and B Battery Voltmeters: Read 0 to 50 and 0 to 10	0 8 9
Straight Line Frequency Low Loss Condensers: Advance	0 10 6	Sterling Brass Plate Variable Condensers, .00025	0 13 6
The famous Quaker S.L.F. Condenser: .0005	0 12 0	Rheostats: 30 or 6 ohms, Ajax	0 2 1
The new Walhart Univernier Dial: slow motion	0 9 6	Potentiometers: 400 ohms Ajax	0 3 0
The Emmco Slow Motion Dial: Metal Bakelite	0 9 6	Filkostats: Vernier all the way	0 9 6
The Mydir Accuratune Dial: With logging window	0 10 11	Amperites: For UV199 or DV3 valves	0 6 0
Certified Vernier Attachments: Complete with dial	0 3 0	Hellesen B Batteries: 40 volts, 11/9, 60 volts	0 17 6
Midget Low Loss Condenser: 5 plates	0 3 0	Wooden Rotors: For couplers, 3½ in., 9d.; 3 in.	0 0 7
Variocoupler parts: Including tube, spindle and rotor	0 4 11	Resin Core Solder, per yard	0 0 6
Dials: Standard black, 3 in., 1/5; 4 in.	0 2 4	Buwire: In straight 2 ft. lengths, per doz., square, 10d.; Round	0 0 11
Fixed Mica Condensers: .0001, .001, .002	0 1 6		
Mica Grid Condensers: With clips, .00025 or .0003	0 1 0		
Gridleaks: Fixed, in various values	0 1 0		
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An Easily Made Accumulator "B" Battery

This battery can be built at little cost to the constructor and requires no special skill.



It will meet the requirements of the listener wanting a "B" battery re-chargeable with a chemical rectifier.

I MET a man in the street the other day who was full of complaints regarding his radio set. It appeared that his greatest concern was the supply of "B" batteries. He looked so glum that I called at his home to investigate his complaint. There I saw arrayed on a table an excellent six-valve receiver to which was yoked two small capacity "B" batteries, which on test only registered 28 volts each. I was assured that these "B" batteries were not more than six weeks old, and I believed it.

After carefully working out the average number of hours the receiver was in use, I pointed out to this friend that he could hardly expect anything else. His main trouble lay in purchasing small capacity "B" batteries much against the instructions given by the makers. Small capacity "B" batteries are useful for one and two valve receivers, but with the advent of five to eight valve receivers small capacity "B" batteries will give very little service on these multi-valve sets. Realizing this the manufacturers of the "B" battery in question produced a larger capacity "B" battery, recommending all owners of three or more valves to use the large capacity in preference to the small capacity, as the life of the larger capacity is three to four times that of the smaller capacity. I mention this incident in order to point out to others who may be having a similar experience the futility of expecting good service on a multi-valve set from small "B" batteries.

Overcoming the Difficulty.

The "B" battery problem is not so

great a problem as it seems after all. There are many well-known makes of "B" batteries on the market to-day which will give excellent service, provided they are treated correctly. Without disparaging these batteries in any way it is proposed this week to give the constructional details of an easily made accumulator "B" battery which is rechargeable with a chemical rectifier. This will meet with the requirements of the man who wants a rechargeable "B" battery without going to the trouble of making specially pasted plates and winding a special transformer for charging purposes.

A battery of this type was described in "Wireless Weekly" about three years ago, and even to-day there is a constant demand for back numbers of this issue. This proves just how successful is a battery of the type being described, so the intending constructor need have no fears in carrying on with the construction. The list of parts annotated alongside are obtainable from many different shops. The specimen tubes may be had from Selby and Company, Bulletin Place, near Circular Quay, Sydney, and the lead, which is ordinary damp course lead, is obtainable from John Danks or Anthony Hardern's, of Pitt Street, or from Nock and Kirby, near the Quay. From either of the same sources may be purchased the aluminium for the rectifier.

Construction.

Lay your lead on a table, and measure off along the 12in. length 55 strips, 1in. wide. With a pair of

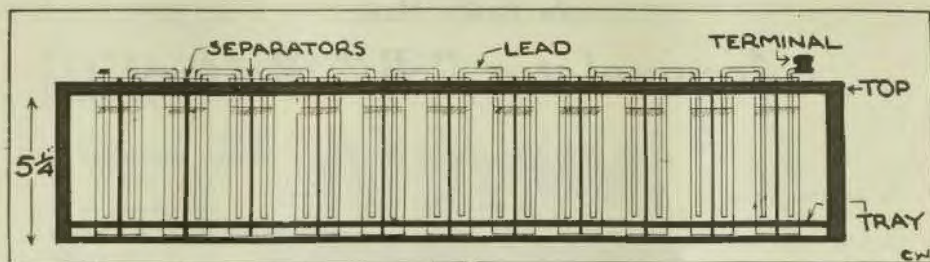
snips or old scissors, cut along these marked off lines, so that you have 55 pieces of lead, 12ins. long by 1in. wide. Borrow the rolling pin for a few moments and roll out each strip perfectly flat. Leave these out of harm's way while you construct the box container.

Pick up that piece of timber, size 24ins. by 12ins., and mark it out in 2in. squares. This will make it look something like a chessboard or a cross word puzzle. Putting this marked surface face down on the table, clamp that piece of board sized 22ins. by 10ins., on the top, so that 1in. is allowed clear at the edges all round. Turning the marked face upwards proceed to drill holes 1 1/2in. in diameter, taking the centres of the squares as position. Altogether 55 holes should be drilled right through the two pieces of timber. Unclamp the two pieces of timber now, and you will find that you have eleven rows of five holes, totalling altogether 55. Sandpaper the better surface of the larger board, not forgetting an occasional rub inside each hole to insure a smooth passage for the specimen tubes.

If desired, a couple of coats of shellac may be applied to this sandpapered surface, thus making it neat and tidy. Look at the drawing, and you will then see a plan of the completed battery which will be a guide to you in the work you have just done.

Box Construction.

Proceed now to build the box, which is shown both in the photographs and in the elevation drawing. For this purpose, there is required



Side view of the completed battery showing the compartments of the box.

two long sides, 24ins. long by 5ins. deep, and two short pieces of timber 10ins. long by 5ins. deep, also a baseboard, size 22ins. by 10ins. All this timber should be 1in. wide, and may be maple, oak, or pine, to suit one's individual taste. Sandpaper the sides and the ends, and apply one or two coats of shellac. As a means of supporting the tray, nail along each side two strips of timber 1in. wide by 1in. thick, by 2ins. long. Along the ends nail a strip of similar sized timber 10ins. long. These supporting strips should be attached one inch from the bottom in each case and on the inside, that is the side which is not shellaced. Now assemble this box, using ordinary nails or wood screws as desired.

When assembled slip in the tray, which should fit snugly and rest on the top of the supporting strips which have been provided. Now screw on your top. Thoroughly cleanse every specimen tube and allow to dry thoroughly. When dry slip one into each hole in the top of your box and right through each hole in the tray so that the specimen tubes rest on the bottom of the box. This should be a very simple matter provided the tray and the top have been drilled evenly and correctly and the specimen tubes will fit very snugly into their respective positions, no side-play being noticeable at all. The specimen tubes will protrude about 1/2 inch above the top of the box. This can be seen in the illustration.

Shaping the Electrodes.

Lay all your lead strips on the table in front of you and bend each of 51 strips into a U shape as shown

in the drawing. The other 4 strips are bent as shown at the ends. If desired, they can be bent at right angles, but bear in mind that one leg of each side of the U shaped lead has to be inserted into adjacent tubes, being careful to insure that the two lead plates in each tube do not touch. The plan will show you the four differently shaped pieces of lead for connecting the end tube in one row to the beginning tube in the adjacent row. When all these U pieces are inserted there will be found one over which is to be cut in two

at the U piece, the two portions to be slipped in to the respective end tubes as shown in the plan. Keep in mind all the time that these lead plates should not touch one another in the same tube.

I should have advised you previous to this to soak the 12 half plate negatives in water in order that the film may be easily scraped off. To remove the film from the soaked plate use a carpenter's scraper or even an old chisel which should easily remove the film. Now dry these plates and cut each longways into five equal portions. This will produce five strips from each plate, each strip 6 1/2 inches long by approximately 1/2 inches wide. Altogether 55 of these glass strips or separators, as they are known, are required, but I feel certain that you will break one or two in the process of using the glass-cutter, hence the reason for the extra five strips. Into each tube slip one of these separators between the lead plates. This will prevent one plate from touching the other.

Filling the Cells.

Fill each one of the tubes up to within 1/2 inch from the top with the sulphuric acid. This acid may be obtained from Elliott Bros., or the Australian Drug Co., and as is mentioned in the list of parts one gallon is sufficient. A small cream jug will be found very useful for filling the tubes, and be careful not to spill any on the top of the box or on any piece of furniture in the room or on the linoleum or the carpet. When using this acid wear old clothes, as if the acid comes in contact with your clothing that portion which is touched

List of parts for Accumulator "R" Battery.

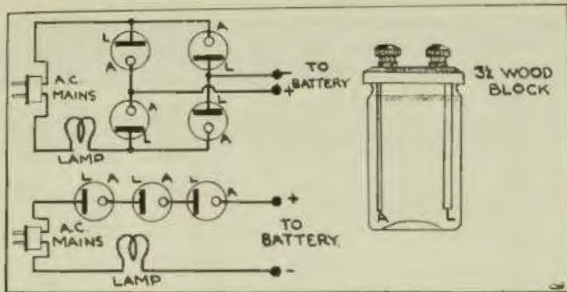
- 55 6in. x 1 1/4in. Specimen Tubes.
- 1 Piece of Dump Course Lead, 38ins. x 12ins.—3lb. lead is suitable.
- 12 Old Half Plate Negatives.
- 1 Gallon 1.240 S.G. Sulphuric Acid.
- 4 Terminals.
- 1 Piece of Timber, 24 x 12 x 1/2, top.
- 1 Piece of Timber, 22 1/2 x 10 1/2 x 1, bottom.
- 2 Pieces of Timber, 24 x 5 1/2 x 1, sides.
- 2 Pieces of Timber, 10 1/2 x 5 1/2 x 1, ends.
- 1 Piece of Timber, 22 1/2 x 10 1/2 x 1, tray.
- Small Scraps of Timber.
- 4 2lb. Jam Jars.
- 4 3in. Wood Blocks.
- 4 Strips of PURE Aluminium, 6ins. long by 1in. wide, NOT aluminium alloy.
- 1 Bayonet base battery holder for electric lamp.
- 2 yds. Electric Light Flex.
- 1 2-pin Plug for electric light socket.

will within a few days be burnt away. This completes the accumulator battery which is now ready for charging.

Rectifier Construction.

A chemical rectifier is required for charging purposes. This is where the four 2-lb. jam jars are pressed into service. Mix up a solution made from 1 lb. of ammonium phosphate dissolved in water of a sufficient quantity which when poured into the four jars will reach to within an inch and a half of the top. If preferred a solution of bicarbonate of soda and water may be used instead of the ammonium phosphate. With the soda make a three-quarter saturated solution in the same quantity of water and pour into the four jars.

Place these four jars in two pairs side by side and one aluminium plate and one lead plate are now placed in each jar, their ends being bent over the side of the jar to keep them in position opposite each other. Now connect the two middle aluminium plates together and the two middle lead plates together. Connect up the remaining lead plate of one jar to the remaining aluminium plate in the neighbouring jar. Repeat this operation with the two remaining electrodes in the other pair of jars. These connections are clearly seen in the drawing of the rectifier. One side of these latter plates is connected up by flex ready for plugging in to the electric light socket, the other side of course going through the lamp resistance as shown. A flexible lead is taken from one of the two aluminium plates connected together in the centre and a similar lead is taken from one of the two



Alternative circuits for rectifying, and a side view of the rectifying jar with lead and aluminium strip.

lead plates connected together in the centre. These leads go straight to your battery for charging.

Alternative Method.

To make a neat job of this rectifier a 3 1/2 inch electrician's wood-block may be placed in the top of each jar, two slits being cut in each wood-block 1 1/2 inches apart to allow the lead and aluminium electrodes to pass through. A terminal may be used to grip the electrodes. All four jars may then be placed in a box on the side of which can be arranged two terminals to which may be taken the flexible leads for your battery charging. A suitable lead to fit in the top of this box may have screwed thereto a layonet base batten-holder to contain the lamp and also two heavy terminals to which may be connected the electric light mains. This box construction will be left to yourselves to design to suit your own fancy.

At this stage it may be wise to mention that the aluminium for this rectifier should be thoroughly cleansed by scrubbing with sandsoap and water and rinsing thoroughly. It should be submerged about 3 inches in the electrolyte, the greater the quantity of aluminium under the electrolyte the greater the amount of current passed, regulated of course by the size of lamp used in the circuit. A rather big sized piece of lead should be used in each rectifying jar, the bigger the better really.

When the rectifier has been completed it may be tested. Insert a

60-watt lamp in the valve socket and plug the two ends marked A.C. mains into your electric light socket. The lamp should glow when the current is switched on, and a sizzling and sparking should take place in the four jars. Leave the rectifier with the current on for a few minutes in order that it "gets really used to itself." Now test for polarity on the two leads marked "Battery."

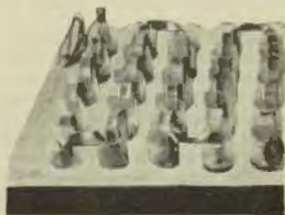
Polarity Location.

Fill a tumbler with water and immerse these two leads in the glass without allowing them to touch one another. Looking closely into the tumbler it will be seen that one of the leads bubbles or produces effervescent effects. Tie a label on this wire which is the negative lead of the charger. Another method of testing polarity is to stick the two wires already referred to in a raw potato. This time the positive lead leaves a green deposit in the potato. There are many different ways but either of these will suit your purpose.

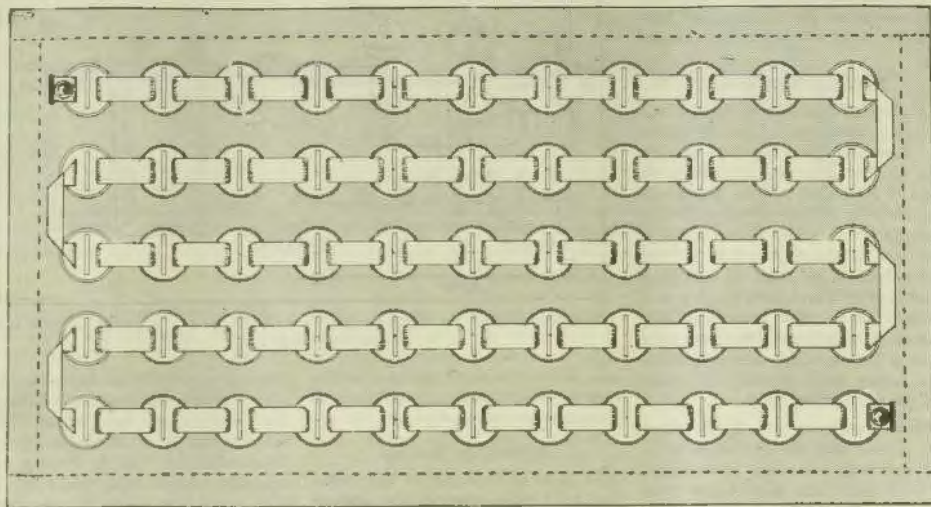
Initial Charge.

Having determined the polarity, switch off your current and connect the two leads from your rectifier to the respective beginning and end terminals of your "B" battery. Switch on the electric current and allow the battery to charge for half an hour. At the end of this time a close examination of the tubes in the battery will reveal a slight bubbling effect.

Sometimes perhaps the tubes may froth a little. Switch off your elec-



A sectional view of the cells of the battery from above.



A plan of the completed battery.

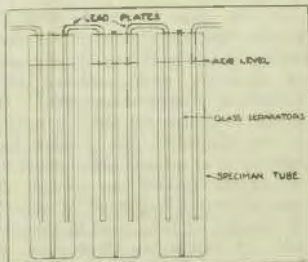
tric current and lift out one of the U shaped lead pieces from the battery and you will find that one side of this U piece is coloured a nice chocolate colour while the other one has remained in its natural grey state. The chocolate coloured one is the positive element in this cell and the natural coloured one is the negative. If you care to look at each U piece you will find that in each tube is a chocolate and a grey plate.

Now discharge your battery through your lamp. Disconnect your rectifier entirely and remove your lamp from the socket. Carefully place the positive lead of your battery to one side of your lamp, and the negative lead to the other side of the lamp. The lamp will now glow brightly momentarily and will then gradually fade away to nothing. This discharges all the current from your battery. It seems silly to do so, but it is wise.

Now recharge your battery, only this time connect your negative lead from your rectifier to the opposite end of your battery to which it was connected last time. That is, you reverse the polarity of your battery. Reinsert the lamp in its socket, of

course, switch on the electric current as before and allow the battery to charge for half an hour as you did previously. Repeat the process of discharging the battery, then recharge, again reversing polarity. This time the negative lead of the charger is connected to the negative lead of your battery as was done on the first charge. Leave the battery charging for a space of between two and three hours.

Read over the preceding paragraph very carefully again, in order that you completely understand this



Illustrating the method of placing the lead plates and the glass separator in the specimen tube.

charging, discharging and polarity reversing. This process assists greatly in forming the positive plates of your battery.

Testing the Battery

The battery is now ready for use and may be connected up to your set and tested out. When the plates are properly formed each cell in your battery should be of the E.M.F. of 2 volts. As you have altogether 55 cells or tubes the full value of the E.M.F. of the battery will therefore be 110 volts. This voltage will not be available for a few weeks, as this battery, like whisky, improves with age. However, it will be an easy matter to take a tapping for your detector and radio frequency valves, all that is required being the insertion of a terminal in one of the U pieces as there is in your yourself. As there are 11 cells in each row, each row is of the value of 22 volts. As this is the most suitable voltage for your detector a terminal may be inserted at the end of the first row counting from the negative lead. The end of the third row will produce 66 volts which is ideal invariably for radio frequency pur-

poses. Still you may decide this matter for yourselves.

Please understand that this battery will not hold its current at the beginning for more than perhaps two hours. At the end of this time it has to be recharged, 20 minutes to half an hour being long enough for the purpose. The more often it is used the longer will it hold its current and after twelve months' use it will be found to stand up for two nights. Even at the end of a week sufficient "B" battery will be provided for four or five hours' use. But remember, do not reverse your polarity after the first time in forming your plates.

Always connect from your rectifier negative lead to the specified negative terminal of your battery. If by accident you reverse polarity all you do is to recharge your battery in the orthodox manner. This accumulator "B" battery is practically indestructible, very little care and attention being required to keep it in order.

Once every three months or so, look closely at the level of the sulphuric acid in each cell and replace any evaporation with pure distilled water and never tap water. The longer it is used the better chocolate colour is found on the positive plates. There is no active material to shed out of the positive plates, hence the battery need not be cleaned excepting once every two years. It is really trouble proof, the only exception being, perhaps, the terminals, which may become coated with a green scaly matter which can be scraped off with a penknife.

Series Rectifier Described.

Before finishing off this article a further word about the rectifier will not be out of place. The rectifier which I have just described is known as a parallel rectifier. A series rectifier may be used if desired. A circuit diagram of a series rectifier will be found below the parallel rectifier in the drawings produced here. In the series rectifier it will be seen that three rectifying jars are in series, that is from the A.C. main

two pin plug is connected the lead electrode in the first jar, the aluminium electrode of this jar to the lead of the next, repeated into the third jar the aluminium of which is connected direct to the positive terminal of the "B" battery. The negative terminal of the "B" battery is connected through the lamp to the other side of the two pin plug of the electric mains. Those who experience a slight difficulty with the parallel rectifier may conveniently try the series form which will solve the problem immediately. The sizzling and sparking which takes place within the rectifying jars is quite natural and is not to be worried over.

Creeping Aluminium.

It may be found that on the surface of the electrolyte in these jars the aluminium may become coated with a crystal formation like soda salts. This is known as "creeping" and if not checked before going too far new aluminiums may have to be replaced in its jar. Some time ago I tried different substances to overcome this creeping and I found that a thin film of kerosene on the top of the electrolyte helped to arrest this action. Try it.

The rectifying electrolyte may require replacing every six months, and perhaps new aluminiums may be required. Still, this will reveal itself as time goes on. Earlier in this article I specified a 60-watt lamp for charging purposes. On the standard 240 volt electric light circuit a 60-watt lamp will pass one quarter of an amp. This amperage is arrived at by dividing the volts into the watts. Prove it. If a greater charging rate than a quarter of an amp is desired a 100-watt lamp will pass a little more current.

We know, of course, that a standard gas-filled lamp of 100-watts burns very brightly, and is of course to be avoided, therefore use a 32-candle power carbon filament lamp which is rated at approximately 3-watts per candle-power. In electrical circles a watt is the unit of input current and the candle-power is the unit of output brilliance. Most of us

who have been in the electrical trade know that candle-power is no true indication of the brilliance of the lamp, therefore in the near future it will be found that the ordinary electric bulb or lamp will be rated in a unit known as a Lumen. That is just by the way, however.

In Conclusion

This description together with the drawings and photographs will enable anyone to construct an everlasting "B" battery, which will give a minimum of trouble. Each night before sitting down to dinner this battery may be charged, and by the time dinner is finished, it is ready for use for the whole of the evening. It is really very simple and good. But, in presupposing a question, I might mention that the chemical rectifier described here is not suitable for charging an accumulator "A" battery, excepting that small type of Exide having only the two plates contained in a glass jar. The average "A" battery requires from 3 to 5 amps, to charge it successfully. This would necessitate a lamp of between 750 and 1500 watts, which besides making battery charging altogether too expensive would cause the electrolyte in the rectifying jars to boil. As it is passing the small amperage required for the "B" battery these jars become reasonably warm, and it must be understood that if the temperature of this electrolyte becomes too hot very little rectification takes place.

It follows that unless complete rectification from A.C. to D.C. takes place there is a danger of ruining an accumulator. Therefore, don't risk it. At some later date I will give you instructions on how to make a charger for charging your accumulator at home. The principle of rectification will be the chemical rectifier, but between it and the A.C. main is interposed something more tangible than a lamp. Still this is a matter which will come forward in some future issue of "Wireless Weekly."

PHILIPS HIGH TENSION SUPPLY UNIT

A Real "B" Battery Eliminator

Separate terminals for detector and Low Frequency circuits, with a Rheostat on each circuit.

THIS unit will eliminate "B" battery worries entirely. No more faulty reception — no more disappointment or spoilt programmes. Philips Unit gives an ample supply of High Tension Current direct from your A.C. house lighting circuit at an infinitesimal cost. PHILIPS is

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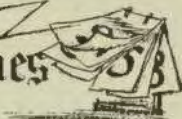
PHILIPS

LAMPS AND RADIO



Broadcasting Programmes

for the Coming Week.



Friday, Nov. 19

2FC

EARLY MORNING SESSION.

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

MORNING SESSION.

- 8.15—The Chimes of 2FC and Announcements.
9.20—Music from the Studio.
9.30—Marching Music for the School Children.
9.40—Music from the Studio.
9.5—The Chimes of "Big Ben." Music from the Studio.
10.5—Late "Sydney Morning Herald" News Service.
10.16—Music from the Studio.
10.45—A Morning Reading.
11—The Chimes of "Big Ben." Australian Press Association and Reuter's Cable service.
11.10—Music from the Studio.
11.16—Cooking talk and recipes, by Miss Ruth Funn.
11.20—Marching Music for the 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 for the Children.
12.40—Music from Studio.
12.45—From Farmer's Tea Rooms: The Oak Hall Trio.
12.50—Rusby Wireless News.
12.55—Miss Enid D'Arcy, soprano. "Down in the Forest" (Landoni, Bonaldi).
1—"Big Ben"; Weather information.
1.3—"Evening News" midday news service. Producers' Distributing Report.
1.35—From Farmer's Tea Rooms: The Oak Hall Trio.
1.28—Stock Exchange—Second Call.
1.30—Marching Music for the School Children.
1.40—Miss Enid D'Arcy, soprano. "Nymphs et Sylvains" (Benberg).
1.45—Music from the Studio.
1.48—From Farmer's Oak Hall: The Oak Hall Trio.

- 2—The Chimes of "Big Ben." Close down.
AFTERNOON SESSION.
2.15—The Chimes of 2FC and Announcements.

- 2.30—From the Studio: A Vocal and instrumental recital by the students of Professor Sauer—1. Song, "Vissi d'Arte" (Tomasi). Miss Lilian May, 2. Violin, "Romance" (Svedens). Miss Nellie Rowan, 3. Alto solo, "Icherste Nicht" (Schumann). Miss Esther McAlpin, 4. Piano, "Wagnerlied" (Kjerulf). Miss Dorothy Thomas, 5. Soprano, "Hebeus with his Love" (Sullivan). Miss Ruby Palmer, 6. Violin, "Cacannetta" (Tschickowski). Mr. Louis Ratner, 7. Harp, "Less than the Dust" (Woodford-Finden). Mr. H. Cavell, 8. Violin, "On Wings of Song" (Mendelssohn). Miss Ethel Broadhurst, 9. Soprano, "Villanelle" (Dell-Agnia). Miss Jean Edwards, 10. Piano.

Farmer's Service, Sydney, call sign 2FC, wave length 442 metres.

Broadcasters Ltd., Sydney, call sign 2BL, wave length 353 metres.

Trades Hall Broadcasting Station, call sign, 2KY, wavelength, 230 metres.

Theosophical Broadcasting Service, call sign, 2GB, wavelength, 318 metres.

Hargin Electric Coy. Ltd., Sydney, call sign, 2BE, wavelength, 314 metres.

Broadcasting Co. of Australia, Melbourne, call sign 5LO, wave length 371 metres.

Associated Radio Co., Melbourne, call sign 3AR, wave length 484 metres.

Queensland Radio Service, Brisbane, call sign 4QG, wave length 365 metres.

Central Broadcasters Ltd., Adelaide, call sign 3CL, wave length 395 metres.

Radio Broadcasting Co. of N.Z., Auckland, call sign 1YA, wave length 420 metres.

Western Australian Farmer's, Perth, call sign 5WF, wave length 1250 metres.

Tasmanian Broadcasting Pty. Ltd., Hobart, call sign 72L, wave length, 355 metres.

"Wedding of Troldhaugen" (Grieg), Master Leslie Nicholls; 11. Alto, "The Hills of Heaven" (Loch), Miss Nellie Rowan; 12. Violin, "Oberitas" (Masurka) (Wieniawski) Master Bruce Hudson.

3.5—Marching Music for the School Children.

4—Miss Peggy Dunbar, "Frais" (Wood).

4.5—Music Talk by Mr. Ewart Chapple.

4.15—Music from the Studio.

4.20—Miss Dorothy Mould, soprano.

4.25—From Farmer's Oak Hall: The Oak Hall Trio.

4.5—Music from the Studio.

4.40—Miss Peggy Dunbar, contralto, "Where my Caravan has Rested" (Loch).

4.45—Stock Exchange. Third Call.

4.48—Close down.

EARLY EVENING SESSION.

5.45—The Chimes of 2FC.

5.50—"The Hello Man" Talks to the children.

5.55—A Story for the Older Children.

6.45—Broadcast from the Hotel Australia, items by the hotel orchestra, under the

direction of Miss A. J. Egan.

7—From the Studio: Last minute sporting information, by the 2FC Racing Commentator.

7.15—"Evening News" late news service; weather information.

7.30—Daleys's Market Resursa (wool, wheat, stocks), fruit and vegetable markets.

7.40—A talk on next week's film releases.

NIGHT SESSION.

7.55—Announcements.

8—Broadcast from the Lyric Wintergarden Theatre, items by the Theatre Orchestra, under the baton of Mr. Emmanuel Axness.

8.30—From Palling's Concert Hall: Mr. Walter Kitzley, baritone.

8.35—Special Engagement of Monsieur Antoine Konstant, the distinguished French Pianist, who is presenting a Special Broadcast Programme—a "The Cuckoo" (Daquin) b. "Aria con Variazioni" (Haydn); c.

"Gavotte" (Kirchner); d. "Tambourin" (Rameau); e. "Sitting Song" (Mendelssohn) f. "Study op. 72 No. 25" (Bertini); g.

"Study op. 72 No. 2" (Moszkowski).

8.45—Miss Elsie Forbus, soprano. "Theme avec variations" (Puck); (h) "A Japanese Love Song" (May Strabel).

9.2—Mr. Victor Gouret, comedian. "The Story of a Tin Task" (Scott and Cotes).

9.12—Mr. Walter Kitzley, baritone.

9.20—Mon. Antoine Konstant, pianist;—a.

"Fantasia" (Chopin); b. "La Fille aux Cheveux de Lin" (Debussy); c. "Rhapsodie a Ausgergen" (Saint-Saens).

9.35—Mr. Kerwin Macraeth, in some Radio Cartoons, and patter.

9.45—Miss Elsie Forbus, soprano. "Gentle Bird of the Morning" (Gounod); "Five Little Flowers" (Antonin).

9.52—Mr. Victor Gouret. "Motoring to the Wedding" (Unknown).

10—From the Lyric Wintergarden Orchestra, during which Mr. E. H. Bowden will describe the new films from the projection room of the Film House, to be released in Sydney next week.

10.50—From the Wintergarden Hotel, Sydney, items by the new Synchro Orchestra.

11—"Big Ben" and Announcements.

11.5—Items by the Wintergarden Orchestra until midnight.

2BL

EARLY MORNING SESSION.

- 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.
7.50—From Farmer's Tea Rooms: 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.
10.10—Broadcasters' Special Rugby Service.
10.17—Shipping Information, Arrivals and Departures.
10.20—Information re Interests and Overseas Mails.
10.23—Musical programme from the Studio.
10.35—Sydney "Daily Telegraph" news service.
10.50—Musical programme from the Studio.
11—G.P.O. Clock and Chimes. Fruit and Vegetable Reports.
11.5—London Metal Quotations.

There's a size in Burgess for every Cabinet.

- 11.10—Broadcasters' Information Service. Boats in sail by wireless. Shipping, Weather, and Rainfall. Mails.
- 11.25—Musical Programmes from the Studio.
- 11.40—Women's Session, conducted by Mrs. Jordan. Social notes.
- 11.50—Mrs. Jordan replies to correspondents.
- 12.0—G.P.O. Clock and Chimes: Feeding the Family. Mrs. Jordan.
- 12.25—A Talk by Miss Helen Jean Beegling, on "Mahjong."
- 12.30—Sydney Stock Exchange Calls.
- 12.45—Hillier's Instrumental Quartette, under the direction of Caryl Casling.
- 1.20—Sydney Stock Exchange calls.
- 1.45—Latest sporting information from the "Sun."
- 1.60—"Sun" Newspapers news service.
- 1—G.P.O. Clock. Close down.

AFTERNOON SESSION.

- Rearing 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, Govt. Meteorologist.
- 3.5—Social notes from "The Sun."
- 3.10—"Sun" Newspapers News Service.
- 3.15—Civil Service Restaurant Trio, under the direction of Miss De Cuzey Bremer.
- 3.30—"Sun" Newspapers News Service.
- 3.45—Musical Programmes from the Studio.
- 4—G.P.O. Clock and Chimes: Civil Service Stores Trio.
- 4.15—Serial Story.
- 4.30—Musical programme from the Studio.
- 4.45—Producers' Distributing Society's Vegetable and Fruit Markets Report.
- 4.50—Shipping information when available.
- 4.55—Day's racing results when available.
- 4.58—News from "The Sun."
- 4.58—Resumé 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 kiddies.
- 6.40—Pavilion Dinner Orchestra, under the direction of Mr. Cec. Morrison.
- Special Country Session.
- 7—G.P.O. Clock and Chimes: Australian Mercantile Land and Finance Coa Stock, Wool and Hide Report.
- 7.5—Weather Report and Forecast, by courtesy of Mr. C. J. Mares, Government Meteorologist.
- 7.6—Stock Exchange Reports.
- 7.14—Producers' Distributing Society's Vegetable and Market Fruit Report.
- 7.15—Fruit and Vegetable Report ("Sun").
- 7.20—Grain and Fodder Report ("Sun").
- 7.25—Dairy Produce Report ("Sun").
- 7.30—Country news from "Sun."
- 7.40—Talk on The Electrical part of a Car, by Mr. Fred Brown.

NIGHT SESSION.

Concert from the Studio: Miss Amy Ostinga (contralto); Mr. Peter Sutherland (bass), Mr. A. T. Miles (tenor), Miss Molly Bayour (soubrette), Miss Ida Leggett (soprano) and a sporting talk by the Senior Sporting Expert of "The Sun."

2GB

NIGHT SESSION.

- 6.45—Talks to children, by "A.B.C."
- 7.55—Mr. William Green, songs.
- 8.3—Address by Dr. J. L. Van der Leeuw.
- 8.20—Instrumental Trio.
- 8.30—Miss Elsie Graham, solos.
- 8.35—Prof. Ernest Wood, address.
- 8.53—Lloyd Davies, violin solos.
- 9—Announcements.
- 9.5—Mr. William Green, songs.
- 9.15—Instrumental Quartette: Dan Scully, Monica Hester, Lloyd Davies, Ada Brock.
- 9.30—Talk: "Radio Values," Mr. E. G. Heard.
- 9.40—Mr. Dan Scully, violin.
- 9.45—Miss Elsie Graham, solos.
- 9.50—Great Thoughts from Great Men.
- 9.55—God Save the King!

3LO

MIDDAY SESSION.

- 12—Time Signal. British Official Wireless News from King's, 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.

EARLY AFTERNOON SESSION.

- 1.10—Studio Orchestra.
- 1.10—Alma Horlock, soprano.
- 1.17—Dorothy Roxburgh, viola.
- 1.22—Studio Orchestra.
- 1.30—Health Week Talk.
- 1.35—Original sketch, written by Eardley Turner.
- 1.50—Alma Horlock, soprano.
- 1.57—Studio Orchestra.
- 2—Close down.

AFTERNOON SESSION:

- 3—Studio Orchestra.
- 3.10—"Au Fait," of Messrs Buckley & Nunn Ltd., Fashion Talk.
- 3.20—Eulalie Hong, soprano.
- 3.35—Thelma Ready, banjo.
- 3.40—Health Week Talk.
- 3.45—Studio Orchestra.
- 3.55—Walter Smith, cornet.
- 4—Mrs. M. Callaway Mahood, Art in Modern Lighting.
- 4.15—Studio Orchestra.
- 4.25—Thelma Ready, banjo.
- 4.30—Studio Orchestra.
- 4.45—"Herald" News Service: Stock Exchange Information.
- 5—Close down.

EVENING SESSION.

- 5.45—Children's Hour. Answers to letters and birthday greetings.
- 6—Yvett Landau.
- 6.7—Billy Bunny.
- 6.15—Yvett Landau.
- 6.24—Billy Bunny.
- 6.40—"Argus" and "Herald" News Services: Reuters and the Australian Press Association Cables.
- 6.55—Weather Synopsis; Shipping Movements.
- 6.55—Stock Exchange Information.
- 7.2—Fish Market reports by J. R. Borrett Ltd.
- 7.5—River Reports.
- 7.6—Market Reports by the Victorian Producers Co-operative Co. Ltd.: Haymarket Sheep Sales; poultry, grain, chaff, hay, straw, jute, dairy produce, potatoes and lemons, supplied by the Victorian Central Citrus Association Pty. Ltd.

NIGHT SESSION.

- 7.20—Under the auspices of the Department of Agriculture, Mr. W. C. Ruge, Poultry Expert; Seasonal Hints for Poultry Keepers.
- 7.30—Miss Babette Odell, now appearing in "Katie" will speak to you from her dressing-room at His Majesty's Theatre, by permission of J. C. Williamson Ltd.
- 8—Health Week Talk.
- 8.5—Studio Orchestra.
- 8.10—Mr. E. C. H. Taylor, will talk to the boys on School Life and School Sport.
- 8.30—Dr. Floyd, organ recital.
- 8.5—Studio Orchestra.
- 9.10—Colin Crane, baritone.
- 9.17—Collingwood Citizens' Band.
- 9.27—One Act Playlet.
- 9.47—Collingwood Citizens Band.
- 9.57—Colin Thompson, tenor.
- 10.4—Mr. H. K. Love, in a Technical Talk.
- 10.9—Gwen Barbara, contralto.
- 10.16—Collingwood Citizens Band.
- 10.25—"Argus" News Service: British Official Wireless News; Meteorological information; Announcements; Road Notes, supplied by the Royal Automobile Club of Victoria.
- 10.40—Colin Thompson, tenor.
- 10.47—Collingwood Citizens Band.

- 11—Our Great Thought for To-night: "The habit of looking on the best side of every event is worth more than a thousand pounds a year"—Johnson.
- 11.15—3LO Melody Masters.
- 11.45—God Save the King.

3AR

MORNING SESSION.

- 11.30—British Official Wireless Press, received from Rugby Super Wireless Station, England, by 3AR's Operator, Express Train Information. "Age" News Bulletin, exclusive to 3AR.
- 12—Time Signal Chime from G.P.O. Studio Barometer Readings. 1st Weather Forecast. Events of the day.
- 12.5—Musical selections from Hoyt's De-Luxe, Bourke Street. Mr. T. L. Campbell at the Wurlitzer.
- 12.30—Stock Exchange News. Market Reports.
- 12.40—Musical Selections.
- 12.55—Shipping Movements. Mail Notices.
- 1—Close down.

AFTERNOON SESSION.

- 2.30—Hoyt's Premier Orchestra. Cecil W. France, conductor.
- 3—Musical selections from Studio, by the Ron Brearley Quartette.
- 4—Time Signal Chime. 2nd Weather Forecast. Cooking lecture, by courtesy of Metro-politan Gas Company, by Miss Emily Noble.
- 4.30—Health Week Talk: Mr. George Beattie, "The Pleasure of Exercise."
- 4.40—Gardening Chat to Children: Mr. R. Stanley Haines.
- 4.55—Evening Amusement Guide.
- 5—Time Signal Chime. Studio Barometer Readings. Close down.

EARLY EVENING SESSION.

- 5.45—Children's Corner, by "Uncle Ned."

EVENING SESSION.

- 7.30—Health Week Talk: "A Talk on Vitamins," by Dr. Young.
- 7.45—British Official Wireless Press. Studio Barometer Readings. Rearing Anticipations and Sporting Events reviewed, by "Field Glass."
- 8—Time Signal Chime. Mr. Jack Holt, pianist.
- 8.7—Mr. Edwin Alexander, entertainer.
- 8.14—The Harmonium Trio.
- 8.24—Miss Margaret Chisholm (dramatic contralto), solo.
- 8.31—Mr. R. Stanley Haines will give his Weekly Gardening Talk.
- 8.46—Mr. James G. Croft, humorist.
- 8.55—Miss Flora Beckett, mezzo.
- 9—The Harmony Trio.
- 9.2—Miss Margaret Barton, songs at the piano.
- 9.14—Mr. Jack Holt, pianist.
- 9.21—Miss Margaret Chisholm, contralto.
- 9.28—The Harmony Trio.
- 9.38—Mr. Edwin Alexander, entertainer.
- 9.44—Mr. James G. Croft, humorist.
- 9.51—Miss Flora Beckett, mezzo.
- 9.57—Miss Cammie Barton, songs at the piano.
- 10—Time Signal Chime. Studio Barometer Readings. "Age" News Bulletin, exclusive to 3AR.
- 10.10—Leggett's Ballroom Orchestra. Replayed from Greville Hall, under the leadership of Mr. Harry Nangle.
- 11—Time Signal Chime. Close down.

4QG

MIDDAY SESSION.

- 12.05—Time Signal.
- 12.15—Time Signal.
- 1.1—Market reports: weather information; "The Daily Mail" news; "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.

- 2.30—From Hotel Carlton. Afternoon-music from the Lounge, Hotel Carlton, played by Royal Carlton Symphony Orchestra.
4.15—From the Studio: "The Telegraph" news.
4.30—Close down.

EARLY EVENING SESSION.

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

NIGHT SESSION.

- 7.45—Lecture Session: A Talk by Mr. W. McCosker, "Peritend Workers' Educational Association."
8.—The Studio Orchestra and musical items.
9.—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 Day Art.
11.40—"Advertiser" News Service.
11.55—Vocalion number.
12.—G.P.O. Chimes.
12.1—"Advertiser" news service.
12.16—Stock Day Art number.
12.30—5CL Studio Orchestra Selection, "The Gaiety Girl."
1.55 (approx.)—Ward & Co's Stock Exchange Intelligence, Weather Reports and Station Announcements.

AFTERNOON SESSION.

- 2.—G.P.O. Chimes.
2.1—Relay from "Maple Leaf" Cafe—Orchestral numbers.
2.15—Stock Day-Art numbers.
4.—G.P.O. Chimes.
4.1—Relay from "Areadia" Cafe—Orchestral numbers.
4.45—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, by "Auntie Peggy."
7.—Market Reports.
7.40—Sporting Talk, by "Old Timer."
8.—G.P.O. Chimes.
8.15—Miss Linda Wald, solo.
8.5—Relay from Malcolm Reid's—Malcolm Reid's Orchestra.
8.20—Mr. Ray Piercey, baritone.
8.24—Merry-makers' Orchestra.
8.30—Miss Thomas Balls, solo.
9.—G.P.O. Chimes.
9.1—Weather reports.
9.34—Relay: Malcolm Reid's Orchestra.
9.35—Miss Patty King, soprano.
9.—Mr. Seth Smith, banjo.
9.10—Miss Linda Wald, soprano.
9.14—Mr. W. Runze, solo.
9.15—Merry-makers' Orchestra.
9.24—Mr. Ray Piercey, solo.
9.28—Mr. Seth Smith, banjo.
9.32—Miss Thomas Balls, solo.
9.36—Miss Patty King, soprano.
9.40—Merry-makers' Orchestra.
9.50—Miss Linda Wald, solo.
9.51—Mr. W. Runze, baritone.
10.—G.P.O. Chimes.
10.—Mr. Ray Piercey, baritone.
10.4—Merry-makers' Orchestra.
10.15—"Advertiser" News Service.

- 10.25—Miss Thomas Balls, solo.
10.28—Mr. Seth Smith, banjo.
10.33—Miss Patty King, soprano.
10.37—Merry-makers' Orchestra.
10.47—Mr. W. Runze, solo.
10.51—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, "Solonola" selections.
12.—G.P.O. Clock Chimes. Close down.

AFTERNOON SESSION.

- 2.—G.P.O. Clock Chimes.
2.15—Musical items from the Studio.
2.30—Hobart Stock Exchange quotations.
2.35—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 Tasmanian news service. Railway auction produce sales. Weather information.
8.15—Hobart Stock Exchange quotations.
8.16—Weekly Gardening chat, by Mr. George Nation.
8.20—Sports Budget, supplied by Mr. T. W. Newton, of Hobart Sports Depot.
8.30—Concert from the Studio: Miss Jean Hibbard, mezzo soprano; Miss Kathleen Pearce, contralto; Miss Georgia Henderson, mezzo soprano; Mr. Thomas Sparrow, tenor; Master Victor Pharoah, baritone solo; Reverend Arthur C. Nelson, organist.
9.15—Produce reports from Roberts & Co., Ltd., Murray Street, Hobart. Tasmanian District Weather reports.
9.50—"The Mercury" special interstate news service. Weather synopsis. Station announcements. National Anthem.

Saturday, Nov. 20

2 FC

EARLY MORNING SESSION.

- 7.—Chimes of "Big Ben" and Announcements.
7.5—Music from the Studio.
7.10—Official Weather Forecast; Rainfall; temperature; Astronomical Memoranda; Shipping Intelligence; Mail Services.
7.21—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.—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.
10.—Chimes of "Big Ben" and music from the Studio.
10.5—Lair "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 Gem" (J. G. Lockley).
11.30—Close down.
Note.—At 11.15 a.m. music is given from the Studio on Mondays and Thursdays. A talk on Home Cooking and Recipes, by Miss Ruth Furst, on Tuesdays, Wednesdays, and Fridays.

At 11.15 on Saturday mornings a talk on "Gardening" is given by Mr. J. G. Lockley ("Red Gem").
Every morning at 8, a "Cheerful" Talk is given by Mr. H. K. Dwyell, until further notice.

MIDDAY SESSION.

- 12.30—Chimes of 2FC and Announcements.
During the afternoon, the usual sporting information will be given, and the A.Z.C. Meeting at Randwick will be fully described by the 2FC Racing Commissioner, including results of the Midland Races.
4.30—Results of the sporting results. During the afternoon, between sporting events, Mr. Cliff Arnold (novelty pianist) will play the following numbers:—"Say, Mister, have you seen Rosie's Sister" (Harrison, Rose), "Ginny" (Lewis-Yong-Akai), "Merry-go-round" (Hirsch), "Kentucky's way of saying Good-morning" (Kahn-Yong-Akai), "After I say I'm sorry" (Donald-Lymant), "Love's Cigarette" (Frost-Simpson).

EARLY EVENING SESSION.

- 5.45—The Chimes of 2FC and Announcements.
5.50—The "Hello Man" talks to the children.
6.20—A Story for the older children.
6.45—Broadcast from the Hotel Australia, Orchestral Items.
7.15—From the Studio: "Evening News" late news service and sporting information.
7.40—A talk on "Swimming," by Captain Fred Aarons.

NIGHT SESSION.

- 7.55—Broadcast from the Moorman Town Hall, the first broadcast performance of the delightful comic opera, "The Chocolate Soldier," by Oscar Straus, produced by the Moorman Musical Society, by arrangements with Messrs. J. C. Williamson Ltd. Acts 1 and 2 will be broadcast to-night, and Act 3 on Tuesday, November 23. Musical numbers: Act 1, Introduction, and Trio; Miss Lois Evans, Miss Mary Hosking, and Miss Gwendy Howling; Waltz song, "My Hero," Miss Lois Evans, Ensemble, "Seek the Sea," Milton Chiek, Bryson Taylor, Miss Lois Evans, Miss Mary Hosking, Miss Gwendy Howling, and chorus. Finale, "Romance and Scene," Miss Lois Evans, Miss Mary Hosking, and Miss Gwendy Howling.
9.—From the Studio: Miss Ellen Boyd, contralto, makes her first studio appearance.
9.8—Miss Kitty Elliott, soprano.
9.12—From the Moorman Town Hall: 2nd Act of "The Chocolate Soldier," produced by the Moorman Musical Society. Musical numbers: March and Serenade, "Ours Boys Come," Scitosa, chorus, "Aloha the Heroine," Miss Lois Evans, Miss Mary Hosking, Miss Gwendy Howling, Mr. James Donnelly, Mr. Milton Chiek, and Mr. Jack Westwood. Duet, "Never was there such a lover," Miss Lois Evans and Mr. James Donnelly. Sextette, "The Tale of a Coat," Misses Lois Evans, Mary Hosking, Gwendy Howling, Messrs. Bryson Taylor, Bryson Donnelly, and Jack Westwood. Duet, "That would be lovely," Miss Lois Evans and Mr. James Donnelly. Finale.
10.—From the Studio: 2FC Dance Band, Mr. Eric Pearce, conductor.
10.10—Mr. Douglas McKinnon, concertina items.
10.15—Miss Ellen Boyd, contralto.
10.25—2FC Dance Band.
10.45—Late sporting information, including Newcastle Race results.
10.50—Miss Kitty Elliott, soprano.
10.55—2FC Dance Band.
10.52—Mr. Douglas McKinnon, concertina items.
11.—"Big Ben" 2FC Dance Band.
11.30—New Southampton Orchestra, Wentworth Hotel, Sydney.
12.—"Big Ben." Close down.

2 BL

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.
7.45—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. Musical Programme from the Studio.
11.10—Broadcasters' Special Rugby News Service.
11.17—Sporting Information. Arrivals and Departures.
11.29—Information re Interstate and Overseas Mails.
11.33—Sydney "Daily Telegraph" News Service.
11.28—Broadcasters' Information Service. Notes in call by wireless Weather and Rainfall. Mails.
11.49—Women's Session, conducted by Mrs. Jordan; Social Notes.
11.59—Mrs. Jordan replies to correspondents.
12—G.P.O. Clock and Chimes. Talk by Mrs. Jordan on "Simple Cooking for Children."
12.25—London Metal Quotations.
12.30—Musical Programme from the Studio.
12.45—News from "Sun" cable edition.
12.55—Musical programme from the Studio.

AFTERNOON SESSION

- 1—G.P.O. Clock and Chimes. Sydney "Daily Telegraph" news service.
1.15—Musical programme from the Studio.
1.29—Talk on sporting and athletic features for the day. Lacrosse, Hockey, Tennis, Cricket, Sailing, Boating, Athletics, Ride 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. Cec. Morrison.
7.15—Results of all sporting information, including Sailing, Swimming, Racing, Coursing, Bowls, by courtesy of Sun Newspapers.
7.30—Country News from the Sun and results of all sporting and athletic fixtures.
7.45—Close down.

NIGHT SESSION.

- The night programme will commence with a Scottish Concert by the Canopus District Scottish Association, and will feature the following artists and numbers—Scottish Pipe Selections, Bessie Sheish in soprano solo, Amy Oetina contralto, Charles Venzetti baritone, Stanley Catlett tenor, and Stewart and Lorraine musical entertainers.
9—Concert from the Studio: Rings, Miss Corrie Ward, and Mr. W. E. Lewis, Bessie Cooke contralto.

3 LO

MORNING SESSION.

- 11—Harold Rodgers, organ.
11.10—Sonora Recital.
11.10—Rupert Hazel and Elsie Day in Harmony.
11.30—Harold Rodgers, piano.
11.40—Sonora Recital.
11.50—Rupert Hazel in comicities.
12 noon—Time Signal; British Official Wireless News from Sydney; Reuters and the Australian Press Association Cables; "Argus" and "Herald" News Service; Shipping Intelligence.
12.45—Stock Exchange Information.
12.50—Meteorological Information. Weather forecast for Victoria, Tasmania, South Australia and New South Wales; Ocean Forecast; River Reports.
1—Time Signal.

- 1.1—Studio Orchestra.
1.10—Harry Woodman, concertina selections.
1.20—Health Week Talk.
1.25—Sylvia Van Asche, soprano.
1.32—Studio Orchestra.
1.42—Harry Woodman, concertina.
1.47—Sylvia Van Asche, soprano.
1.54—Studio Orchestra.
2—Close down.
2.40—Result of Two Year Old Handicap, Epsom Races.

AFTERNOON SESSION.

- 3—Result of Two Year Old Handicap, Epsom Races, and Open Haultrap.
3.1—The 31.0 Melody Masters.
3.30—Description while race is in progress. Brush Steeple, Epsom Races.
3.35—The 31.0 Melody Masters.
3.4—Description while racing, Epsom Handicap—Epsom Races.
3.45—The 31.0 Melody Masters.
3.50—Result of Trial Plate, Epsom Races.
4.31—The 31.0 Melody Masters.
4.4—"Herald" News Service; Stock Exchange Information; Sporting Results.
5—Result of Trial Purse; Close down.

EVENING SESSION.

- 5.30—All Sporting Results.
5.40—Children's Hour, Answers to letters and birthday greetings.
6—Yetty Landau, monologues.
6.7—Mary Gumleaf, poem and story.
6.17—Yetty Landau, monologues.
6.24—Mary Gumleaf, story for boys and girls.
6.45—"Argus" and "Herald" News Services; Sporting Results; Reuters and the Australian Press Association Cables.
6.53—Weather Synopsis; Shipping Movements.
6.57—Stock Exchange Information.
7.2—Flah Market Reports by J. K. Dorrett Ltd.
7.4—River Reports.
7.6—Market Reports, by the Victorian Producers Co-operative Co. Ltd. grain, chaff, hay, straw, tate, dairy produce, potatoes, and onions.

NIGHT SESSION.

- 7.50—Mr. E. E. Prescott: Flowering Gum Trees.
7.40—Dr. J. Leach: Peculiarities of Australian Birds.
8—Health Week Talk.
8.5—Concert arranged by Mr. Alberto Zelman, transmitted from Upwey.
10—From the Studio: Rupert Hazell and Elsie Day in harmony.
10.15—British Official Wireless News from Rugby; Announcements; The 31.0 Girl.
10.20—Rupert Hazell and Elsie Day will entertain.
10.30—Cr. H. A. Abbott, Vice President.
V.A.A.: The Olympic Games.
10.40—"Argus" News Service; Weather Forecast; Sporting Results.
10.50—"The 31.0 Melody Masters."
11—Great Thought for To-night: "Meditation is the tongue of the soul, and the language of our spirit."—Jeremy Taylor.
11.1—The 31.0 Melody Masters.
11.40—God Save the King.

3 AR

MORNING SESSION.

- 11.30—The British Official Wireless Press, relayed 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 Exchange rates of the world, supplied by the courtesy of Messrs. Thos. Cook & Son; Market Reports.
12.40—Musical Selections.
12.55—Mail Notices. Shipping Movements.
1—Close down.

AFTERNOON SESSION.

- Epsom Racing Club Meeting.
2.15—Result of 2 Year Old Handicap.
2.30—Hoyt's Premier Orchestra.
2.45—Result of Open Handicap.
3.15—Description of Epsom Handicap.
3.45—Result of Handicap. Brush Steeple.
4—Time Signal Chime; 2nd Weather Forecast; Hoyt's Premier Orchestra.
4.15—Result of Welter Handicap.
4.45—Result of Jumpers Flat.
5—Time Signal Chime; 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. Local Sporting and Racing Results. Local news.
8.15—The Rhythmic Dance Orchestra.
9.00—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.

4 QG

NO MIDDAY TRANSMISSION.

AFTERNOON SESSION.

- 5.25—Tune-in.
8.30—A Matinee for Little Listeners by "Miss Warburton."
4.30—Close down.

EARLY EVENING SESSION.

- 6.25—Tune-in.
6.30—The Children's Session: Bedtime stories by "Uncle Ben" and "Uncle Jim," assisted by "Mabel Sunshine."
7.15—Sporting News.
7.30—"Safety First."

NIGHT SESSION.

- 7.45—A Sporting Talk.
The first portion of programme will be provided by a party arranged and organised by Mr. A. N. Falk.
8—Orchestral and musical items.
9—Metropolitan Weather Forecast.
9.5—From Lennon's Hotel, Dance Music by the Ajax Novelty Band, also musical items from the Studio.
10—From the Studio: "The Sunday Mail" news service. Close down.

5 CL

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.

- Relay from Cheltenham Racecourse, Running description of the programme by Mr. Arnold Trehear.
From Studio: Country and Interstate Sporting results.

EVENING SESSION.

- 6.30—G.P.O. Chimes.
6.31—Bedtime stories.
7.30—Market reports.
7.40—Resume of the chief sporting results throughout the Commonwealth.
8—G.P.O. Chimes.
8.1—Rolsy Henley Beach; Holden's Silver Band.
8.15—Mr. Don Parnell, comedian.
8.20—Miss M. Ruckan, soprano.
8.24—Mr. M. Skinner, baritone.
8.28—Relay Hoolby Beach; Holden's Band.
8.45—Mr. R. Sim, tenor.

- 8.49—Mr. S. Dunks, solo.
 8.53—Mr. Don Carnell, comedian.
 9.—G.P.O. Chimes.
 9.1—Weather reports.
 9.3—Rally Floating Palais.
 10.15—Sporting results.
 10.30—Mr. H. Sim, tenor.
 10.34—Miss M. Buckan, soprano.
 10.38—Mr. M. Skinner, baritone.
 10.42—Rally Palais Royal.
 10.52—Mr. S. Dunks, solo.
 10.56—Mr. M. Skinner, baritone.
 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" Sections.
 11.45—Hobart Stock Exchange quotations.
 12.—G.P.O. Chimes. Close down.

EVENING SESSION.

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

NIGHT SESSION.

- 8.—G.P.O. Clock Chimes. The "Mercury" special Tasmanian news service. Railway auction, produce sales, weather information and sporting results.
 8.48—Hobart Stock Exchange quotations.
 8.15—"Come to Tasmania" movement, by Mr. Leary.
 8.30—Dance numbers from the Studio.
 9.45—British Official Wireless News, copied direct from Rugby by our own operator.
 9.50—Further graciously. Station Announcements. National Anthem.

Sunday, Nov. 21

2FC

MORNING SESSION.

- 10.55—Chimes of ZFC. Announcements.
 11.—Chimes of "Big Ben." Broadcast from All Saints' Church of England, Woolahra, the Morning Service.
 12.30—Close down.

AFTERNOON SESSION.

- 2.35—Programme Announcements.
 12.15—From Studio: News Service.
 3—"Big Ben." Broadcast from the Lyceum Methodist Hall, a pleasant Sunday afternoon programme arranged by the Central Methodist Mission. Rev. F. H. Rowland, chairman. The whole afternoon's programme will be devoted to items of Welsh origin.
 4.45—Close down.

EARLY EVENING SESSION AND NIGHT.

- 6—"Big Ben" and Announcements. A programme arranged by Florent Boeckstyn, submitting violin solos and concerted work for two violins.
 6.50—From Lyceum Hall: Organ Solos.
 7—The evening service from the Lyceum Hall, the Central Methodist Mission, conducted by the Rev. W. A. Foreman.
 8.15—From the band stand, Manly Ocean beach, a Sunday evening band recital, by the Manly Municipal Band, under the baton of Mr. J. Pheloung.
 8.30—From Studio: Mr. Alfred Cunningham, baritone, makes his first appearance at the ZFC Studios.
 9.35—Madame Emily Marks, soprano.
 9.45—Mr. Horace Keats, pianist.
 9.50—Mr. Alfred Cunningham, baritone.
 9.54—Madame Emily Marks, soprano.
 10—Mr. Horace Keats, piano solo.
 10.5—Mr. Alfred Cunningham, baritone.
 10.15—Close down.

2BL

MORNING SESSION.

- 11.—Service, broadcast from Palmer Street Presbyterian Church.

AFTERNOON SESSION.

- 3.35—Bible Class, conducted by Mr. W. "Catre" Bradley.
 4—Organ Recital, by Miss Alice Bryant, broadcast from Manly Presbyterian Church.

EVENING SESSION.

- 7.—Service, broadcast from Manly Presbyterian Church.
 8.30—Studio Concert, including: Miss Margaret Mosenbarb (dramatist), Mr. Les. Herford (baritone), Miss Hilda Walker (soprano), Miss Edna Lister (contralto), and Mr. Norman Wright (tenor).

2GB

MORNING SESSION.

- 10.30—Organ music from St. Alban's Church, Redfern.
 10.35—Morning Service from St. Alban's Liberal Catholic Church. Celebration of Holy Eucharist. Sermon.
 12.—Close down.

EVENING SESSION.

- 8.45—Music from Studio.
 9.—Lecture from Albany Hall, by Dr. Van Der Leeuw, entitled "The Message of Life."
 9.—Music from Studio.
 9.15—Vocal Quartette.
 9.22—Tom Armstrong, songs.
 9.30—Violin solos, by Dan Scully.
 9.35—Ayesa MacDermid, songs.
 9.45—Ladies' chorus.
 9.52—Monica Horler, violin solo.
 9.56—Announcements.
 9.—Enid Clarke and Clement Hosking, duet.
 9.5.—Music from Studio.
 9.10—Vocal Quartette.
 9.15—Ayesa MacDermid, solos.
 9.20—Ladies' chorus.
 9.25—Duet for two violins and piano—Dan Scully, Monica Horler, Ada Brook.
 9.30—Enid Clarke and Tom Armstrong, duet.
 9.34—Clement Hosking, songs.
 9.40—Vocal Quartette.

3LO

MORNING SESSION.

- 10.54—Express Train information.
 11.—Service from the Australia Church, Russell Street, Melbourne. Rev. Dr. Charles Strong, officiating clergyman.

AFTERNOON SESSION.

- 3.—Pleasant Sunday Afternoon Service, from Wesley Church, Lonsdale Street. Address by Dr. Harrington Lees, Archbishop of Melbourne.
 4.30—Close down.

EARLY EVENING SESSION.

- 5.45—Children's Hour; Chorus by Billy Bunny and his Brev Rabbits.
 1.—Sunshine, sunshine in my soul to-day, Sunshine, sunshine all along the way. Since my Saviour found me, took away my sin.
 I have had the sunshine of His love within.
 2.—Out and out for Jesus I would always be. Not ashamed to own letting others see. Altogether, always His and everywhere I go.
 By His Grace I'll be fit and the world shall know.
 6.—Answer to letters and birthday greetings.
 6.15—Another Home by Billy Bunny and his Brev Rabbits.
 6.22—Stories by Billy Bunny; Mimosa and Ariston Life.
 6.45—Close down.

NIGHT SESSION.

- 7.—Service from the Welsh Church, Latrobe

Street, Melbourne. Rev. Dr. D. Ebyrn Jones.

- 8.30—Goshing City Band.
 8.40—Signor D'Allisandro, tenor.
 8.47—Melbourne Flute Quartet.
 8.57—Erie Davies, soprano.
 9.4—Goshing City Band.
 9.14—Signor D'Allisandro, tenor.
 9.21—Melbourne Flute Quartet.
 9.31—Erie Davies, soprano.
 9.35—Goshing City Band.
 9.48—"Argus" news service. Weather Forecast; Announcements.
 9.55—"Our Great Thought for tonight is:—The most delicate, the most sensible of all pleasures consists in promoting the pleasure of others."—Bruyere.
 10.—God Save the King.

4QG

MORNING SESSION.

- 10.45—Tune-in.
 11.—The complete Morning Service will be relayed from the Wharf Street Congregational Church; Close down.

AFTERNOON SESSION.

- Home Mission Rally—A Model Home Mission rally arranged by the Abkhon Baptist Church will be broadcast from the Studio of 4QG from 2 p.m. with musical items.
 4.15—Band Concert by mixed bands of Brisbane, relayed from the Botanic Gardens.
 4.30—Close down.

NIGHT SESSION.

- 5.—Tune-in; The Complete Evening Service will be relayed from the Wharf Street Congregational Church.
 At the conclusion of the Church Service, the concert by the Greater Brisbane Municipal Concert Band, will be relayed from Wickham Park.
 8.30—Close down.

3AR

MORNING SESSION.

- 10.20—The bells from St. James' Old Cathedral
 11.—Morning Service from St. John's Church, Latrobe Street. Preacher: Rev. A. E. Y. Young.

AFTERNOON SESSION.

- 3.—Studio Concert: String Quartette.
 3.7—Miss Jean Keating, soprano.
 3.14—Mr. Hamilton Bateman, violin.
 3.21—Miss Sheila Macfie, cellist.
 3.28—String Quartette.
 3.42—Miss Lily Timms, clarinetist.
 3.47—Mr. Hamilton Bateman, violin.
 3.56—Miss Dorothy Graham, pianist.
 4.—Miss Jean Keating, soprano.
 4.7—Miss Sheila Macfie, cellist.
 4.15—Close down.

EVENING SESSION.

- 6.—The Children's Entertainment, by Ladybird.
 6.45—Bells from St. James' Old Cathedral.
 7.—Evening Service from St. John's Church, Latrobe Street.
 8.—Studio Concert by Prahran Opera Company.
 8.34—Mr. S. J. Allan, tenor.
 8.38—Miss Pearl Rensela, soprano and Mr. S. J. Allan (duet).
 8.42—Miss Loin Jackson, soprano.
 8.47—Miss Minnie Dorsett, clarinetist.
 8.57—Instrumental Trio.
 9.4—Miss Adeline Whitbourne, cellist.
 9.11—Miss Kathleen Darcy, violinist.
 9.18—Instrumental Trio.
 9.25—Dr. M. J. Robinson, M.D., talk on "Mental Care."
 9.35—Mr. Arnold Aswhorth, baritone.
 9.40—Mr. Walter Wood, baritone.
 9.48—Miss Evelyn Ringwood, soprano.
 9.55—"Age" News Bulletin (exclusive to 3AR).
 10.—Close down.

5 CL

MORNING SESSION.

11—Relay from Flinders Street Baptist Church—Divine Service.

EVENING SESSION.

9.30—G.P.O. Chimes.
 9.31—Sunday stories for the children.
 7—Relay from St. Peter's Cathedral—Divine Service.
 8.15 (approx.)—Relay from Hanley Beach Rotunda—Hollen's Silver Band.
 8.45—From the Studio: Mr. P. H. Nicholls, will talk on immancence.
 9—G.P.O. Chimes.
 9.1—Weather reports.
 9.3—Relay Hanley Beach—Hollen's Band.
 10—G.P.O. Chimes. National Anthem. Close down.

7 ZL

EVENING SESSION.

7—Service from Wesley Church, Melville St. Preacher, Rev. R. A. Overend, R.A., President of Victorian and Tasmanian Conference.
 8.45—Concert from the Studio: Miss Frances Young, contralto; Miss Maureen Jones, contralto; Miss Ruby Plesse, pianist; Mr. W. E. Fuller, dramatic recital; Mr. Larry.
 9.45—The "Mercury" Special Interstate news service; Weather Synopsis, Station Announcements; National Anthem.

Monday, Nov. 22

2 FC

MIDDAY SESSION.

12—The Chimes of "Big Ben." 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—Music from the Studio. Miss Florence Barrow, contralto. "Like to the Danish Rose" (Klear).
 1—Chimes of "Big Ben." Weather Intelligence.
 1.10—"Evening News" midday news service.
 1.24—The Oak Hall Trio.
 1.25—Stock Exchange, Second call.
 1.30—Marching Music for School Children.
 1.40—Music from the Studio: Miss Florence Barrow, contralto. "Yonder" (Oliver).
 1.45—The Oak Hall Trio.
 2—Close down.

AFTERNOON SESSION.

2.30—Chimes of 2FC and Announcements.
 2.35—Broadcast from the Tivoli Theatre (by courtesy of the management of Tivoli Theatres Ltd.), items by the Tivoli orchestra, under the baton of Mr. Will Quintrell.
 3.15—A Reading from the Studio.
 3.30—Marching Music for the School Children.
 3.40—Miss Joyce Gillespie, soprano. "Late September" (Barker).
 3.45—From Farmer's Oak Hall: The Oak Hall Trio.
 3.55—Music from the Studio.
 4—Miss Dorothy Benbow, contralto. "The String of Pearls" (Phillips).
 4.5—A Serial Story.
 4.30—Miss Joyce Gillespie, soprano. "Wert Thou a Slave" (Kühner).
 4.25—From Farmer's Oak Hall: Oak Hall Trio.
 4.55—Music from the Studio.
 4.40—Miss Dorothy Benbow, contralto. "The Songs My Mother Sang" (Grimshaw).

4.45—Stock Exchange—Third Call.
 4.46—Close down.

EARLY EVENING SESSION.

5.45—The Chimes of 2FC. Announcements.
 5.50—The "Hello Man" talks to the children.
 6.00—A talk to the older children, by Captain Fred Anrons.
 7—Broadcast from the Hotel Australia, Sydney; Orchestral Items.
 7.15—From the Studio: "Evening News" Late News Service and Weather Information.
 7.30—Dairies' Market Reports (wool, wheat, stock), fruit and vegetable markets.
 7.40—Bolhoff—late of the Anna Pavlova Company, will talk on Ballets, taking for his subject, "Character and Grotesque Danc-ing."
 NIGHT SESSION.

7.55—The Chimes of 2FC and Announcements.
 8—Broadcast from the Haymarket Theatre, items by the operatic orchestra, of 20 members.
 8.25—From the Studio: Mr. Norman Frances, tenor.
 8.29—The Rev. F. H. Baward will continue his Australian Natural History Talks, dealing with "Mohair and Silbch Goats."
 8.41—From the Baptist Hall, items by the Sydney Madrigal Society's Choir, conducted by Mr. William Bourne.
 9—Miss Lucielle Allen, Queensland soprano.
 9.5—The Vocal Act from the Haymarket Theatre.
 9.30—From the Studio: Mr. Norman Frances, tenor.
 9.28—Mr. Charles Lawrence, entertainer, and Miss Hallett, soubrette, in popular numbers.
 9.45—From the Baptist Hall, further items from the Sydney Madrigal Society's Choir.
 9.54—From the Studio: Mr. Norman Frances, tenor.
 9.55—From the Studio: Miss Lucielle Allen, Queensland soprano.
 10—Further items from Mr. Charles Lawrence, entertainer, and Miss Non Hallett.
 10.15—From Haymarket Theatre, items by the theatre orchestra, under the baton of Mr. Stanley Porter.
 10.30—Miss Lucielle Allen, soprano.
 10.35—Mr. Charles Lawrence and Miss Non Hallett.
 10.45—2FC Dance Band from the Studio. Mr. Eric Pearce, conductor.
 11—"Big Ben" and Announcements.
 11.5—2FC Dance Band, until midnight.
 National Anthem.
 12—Close down.

2 BL

EARLY MORNING SESSION.

7.15—Physical Training and Health exercises.
 7.25—Health Hints.
 7.30—Physical Training & 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.

10—G.P.O. Clock and Chimes; Musical programme from the Studio.
 10.30—Broadcast Direct News Service from the Studio.
 10.35—Weather Reports 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.
 11.20—Broadcasters' Information Service, including Mails, Boats in call by wireless Shipping, Weather and Rainfall.
 11.31—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; A Talk by Mrs. Jordan.

12.35—A Talk by Miss Helen Joan Beagling.
 12.30—Spitney Stock Exchange calls.
 12.45—Hiller's Instrumental Quartette, direction Caryl Castling.
 1.30—G.P.O. Clock and Chimes.
 1.31—Spitney Stock Exchange Calls.
 1.36—Latest Sporting Information and Race results, on race days.
 1.46—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, Govt. Meteorologist.
 3.5—Social Notes from the Sun.
 3.10—Sun Newspaper's News Service.
 3.15—David Jones' Tea Room Trio.
 3.20—Sun Newspaper's News Service.
 3.45—Musical programme from the studio.
 4—G.P.O. Clock and Chimes; David Jones' Tea Room Trio.
 4.15—Serial Story.
 4.30—Musical Programme from the studio.
 4.45—Broadcasters' Distribution Society's Vegetable and Market Fruit Report.
 4.50—Shipping Information when available.
 4.55—Day's Racing resume on race days.
 4.55—News from the Sun.
 4.58—Resume of to-day's programme.
 5—G.P.O. Clock; Close down.

EAILY EVENING SESSION.

5.45—G.P.O. Clock; Uncle George and the Kiddies.
 6.40—Pavilion Dinner Orchestra under the direction of Mr. Gen. 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. Mares, Govt. Meteorologist.
 7.9—Stock Exchange Reports.
 7.16—"Producers' Distribution Society's Fruit and Vegetable Report."
 7.20—Fruit and Vegetable Reports (Sun).
 7.24—Grain and Fodder Reports (Sun).
 7.27—Egg and Poultry Reports (Sun).
 7.30—Primary Producers' Newspaper Report on London Butter Market.
 7.33—Country News from the Sun.
 7.45—Lecture by J. Holmes.

NIGHT SESSION.

8—G.P.O. Clock and Chimes; Broadcasters' Topical Chorus.
 8.1—Newtown Band, broadcast from Industrial Hall, Newtown.
 8.23—Miss Camille Alder (soprano).
 8.30—Mr. Reg. Harrison, comedian.
 8.37—Mr. Lance Jeffree, tenor.
 8.41—Ivy and Eric Butterfield, steel guitars.
 8.51—Miss Grace Saville, contralto.
 8.58—Resume of following day's programme.
 9—G.P.O. Clock and Chimes.
 9.1—Mr. Jack Gainsford, baritone.
 9.8—Miss Camille Alder.
 9.15—Newtown Band.
 9.25—Interval.
 9.40—Mr. Lance Jeffree.
 9.47—Ivy and Eric Butterfield.
 9.54—Miss Grace Saville.
 10.1—Mr. Reg. Harrison.
 10.8—Mr. Jack Gainsford.
 10.15—Ambassadors' Dance Band.
 12—G.P.O. Clock and Chimes; National Anthem.

2 GB

EVENING SESSION.

6.45—Talks to Children by A.R.C.
 7.55—Instrumental Trio.
 8.3—Address by Professor Ernest Wood.
 8.20—Songs by Mr. E. B. Butterworth.
 8.28—String Quartette: Lloyd Davis, M. Horder, Chas. Boulé, M. Lang.
 8—Announcements.
 9.5—Duets for two violins and piano: Dan Bouly, Muriel Monica Horder, Ada Brook.

- 8.12—Talk on Wireless by Mr. E. G. Beard.
 9.27—Violin solos by Ben Scully.
 9.37—Songs by Mr. E. B. Rutzenworth.
 9.43—Instrumental Quartet.
 9.53—Great Thoughts of Great Men.
 9.56—God Fave the King.

3 L O

MIDDAY SESSION.

- 12 noon—Time Signal; British Official Wireless News from Rugby; Reuters and the Australian Press Association Cables; "Argus" and "Herald" News Services.
 12.45—Stock Exchange Information; Shipping Intelligence.
 12.50—Meteorological Information; Weather Forecast for Victoria, Tasmania, South Australia, and New South Wales; Ocean Forecast; River Reports.
 1.3—Time Signal.
 1.5—Studio Orchestra.
 1.16—Elicie Day, soprano.
 1.17—Tanna Tiernan, cello.
 1.24—Studio Orchestra.
 1.34—Euphonium played in a wonderful mood.
 1.40—Beside Gausman, violin.
 1.47—Studio Orchestra.
 2—Close down.
 Race results will be given as they come to hand.

AFTERNOON SESSION.

- 2—Studio Orchestra.
 3.10—Mrs. Dorothy Silk, Homericists talk.
 3.25—Cantor & White, Yodeling solo.
 3.32—Studio Orchestra.
 3.42—Elicie Davies, soprano.
 3.49—Miss Flora Pell, Supervisor of Domestic Arts, Education Department; Domestic Economy.
 4.4—Cantor & White.
 4.11—Studio Orchestra.
 4.21—Elicie Davies, soprano.
 4.30—Franklin Stinson, clarinet.
 4.35—Studio Orchestra.
 4.45—"Herald" News Service; Stock Exchange Information.
 5—Close down.

EVENING SESSION.

- 5.45—Children's Hour; Answer to letters and Birthday Greetings.
 6—Green Humray will sing.
 6.7—Little Miss Kookaburra.
 6.20—Dwot Humray.
 6.27—Little Miss Kookaburra will tell the next instalment of The Trials of the Twins.
 6.40—"Argus" and "Herald" News Service; Reuters and the Australian Press Association Cables.
 6.53—Weather Synopsis; Shipping Movements; Overseas Shipping.
 7—Stock Exchange Information.
 7.5—Fish Market Reports by J. B. Horwell 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 Show Sales; Poultry, grain, chaff, hay, straw, lute, dairy produce, potatoes and onions; Market prices of oranges and lemons, by the Victoria Central Citrus Association Pty. Ltd.

NIGHT SESSION.

- 7.50—Under the auspices of the Develop Australia League, Mr. J. R. A. O'Keefe, B.A., M.C., Australia and Australians.
 7.40—Under the auspices of the Department of Agriculture, Mr. J. M. Kerr, Chief Dairy Inspector; Influence of a good Dairy Sire—Studio Orchestra.
 8.10—Edna Harley, winner of the first prize, senior section, Children's Radio Voice Competition, will sing.
 8.17—New Superbionic Sonora Recital.
 8.32—Bexinal Bradley and Agnes Fortune.
 8.40—Edna Herz, winner second prize, Children's Radio Voice Competition, senior section.
 8.47—Studio Orchestra.
 8.57—George Hall, winner of third prize, Radio Voice Competition, senior section.
 9.2—Tanna Tiernan, cello.
 9.10—Maunder's beautiful cantata, Bethlehem,

will be rendered by the High Church (Presbyterian) Augmented Choir, transmitted from the High Church, Chertinup St., Geelong.

- 10.10—British Official Wireless News from Rugby; Weather Forecast; "Argus" News Service; Announcements; H.O. Girl.
 11—Our Great Thought for To-night is:—
 "There is no action so slight or so mean but it may be done to a great purpose, and enabled thereby."—Ruskin.
 11.1—H.O. Melody Masters.
 11.49—God Save the King.

3 A R

MORNING SESSION.

- 11.30—British Official Wireless News, received from Rugby Super Wireless Station, England; Express Train Information; "Argus" News Service.
 12—Time Signal (Chime); Studio Harmonium Readings; 1st Weather Forecast; Sporting Pictures; Events of the day.
 12.30—Musical selections, relayed from Hoyt's, De-Luxe, Bourke Street. Mr. T. L. Campbell at the Warbler.
 12.30—Stock Exchange news, Market reports, Contingents.
 12.40—Musical selections.
 12.55—Shipping Movements and Notices.
 1—Close down.

AFTERNOON SESSION.

- 2.30—Hoyt's Premier Orchestra, under direction of Cecil W. Fraser.
 3—The Melbourne Piano Trio.
 3.15—Miss Jean Kilam, soprano.
 3.23—Mr. Ronald Eganby, cellist.
 3.30—Miss Jean Kilam, soprano.
 3.37—Mr. Bert Pettifer, violinist.
 3.42—The Melbourne Piano Trio.
 1—Time Signal (Chime); Studio Harmonium Readings.
 4.55—Evening Amusement Guide.
 5—Time Signal (Chime); 2nd Weather Forecast; Close down.

EARLY EVENING SESSION.

- 6.45—Children's corner, by Uncle Ned.
 EVENING SESSION.
 7.55—British Official Wireless Press, Studio Harmonium Readings.
 8—Time Signal (Chime); Relayed from Queen's Hall, Collins Street, Anniversary of discovery day and the landing of the Bontoc.
 8.33—Miss Bally Laska, entertainer at the piano.
 8.40—Mr. Tom Reilly, baritone.
 8.47—Miss Edna Stammers, soprano.
 8.54—Harmonium Two.
 9.8—Mr. Tom Reilly, baritone.
 9.15—From Queen's Hall, Collins Street, Children's Club.
 9.25—Mr. Arthur Kempton, baritone.
 9.32—Address by Benjamin Howe, Eng.
 9.32—From Studio; Miss Edna Stammers, soprano.
 9.50—Mr. W. Kewen, entertainer.
 10.16—"Argus" News Bulletin, exclusive to 3 A R, Hoyt's Premier Orchestra.
 10.40—Close down.

4 Q G

MIDDAY SESSION.

- 12.55—Time Signal.
 1.1—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."
 1.20—From Hotel Carlton; Lunch Music from the Lounge, Hotel Carlton, played by Royal 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."
 4.30—Close down.

EARLY EVENING SESSION.

- 6—News Service, supplied by the "Daily Standard"; Weather information, supplied by the Commonwealth Weather Bureau; Announcements.
 6.30—Children's Session; Stories by "The Sandman."
 7—From the Council of Agriculture Studio; The Farmers' Section; Market Reports; Lectures; "Export of Bacon and Hams," by Mr. E. J. Shelton, Instructor in Pig Raising.
 7.50—From the Studio of 4 Q G, Stock Reports; Announcements.

NIGHT SESSION.

- 7.45—Lecture Session: "A National Necessity," by R. A. McInnis (under the auspices of the Town Planning Association of Queensland).
 8—The first portion of the programme will be relayed from "The White House" (Olson and Guelchak), Woolloomooloo, including musical and vocal items.
 8.3—Metropolitan Weather Forecast; Studio Concert; Contingents.
 10—The "Daily Mail" News; Announcements; Close down.

5 C L

MORNING SESSION.

- 11.30—G.P.O. Chimes.
 11.31—Featuring a Stock Dow Art number.
 11.40—"Advertiser" news service.
 11.55—Vocalion number.
 12—G.P.O. Chimes.
 12.1—"Advertiser" news service.
 12.16—Featuring a Stock Dow Art number.
 12.58—5 C L Studio Orchestra in concerted numbers.
 1.45—Ward & Co's. Stock Exchange Intelligence, official weather synopsis, and station announcements.
 2—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 Dow-Art and Vocalion numbers.
 6—G.P.O. Chimes.
 6.1—Relay from "Arendia" Cafe—Orchestral numbers.
 6—G.P.O. Chimes.

EVENING SESSION.

- 6.20—G.P.O. Chimes.
 6.31—Bedtime stories.
 6.36—Market reports.
 7.49—Mr. Frederickson, automotive engineer, 15 Vacuum Oil Company.
 8—G.P.O. Chimes.
 8.1—Studio Concert.
 8.25—Twinkler's Boxy Club.
 8.30—Relay Floating Palms.
 9—G.P.O. Chimes.
 9.1—Weather reports.
 9.35—Studio Concert, continued.
 9.45—Relay Floating Palms.
 9.55—Studio Concert, continued.
 9.45—Relay Floating Palms.
 10—G.P.O. Chimes.
 10.1—Studio Concert, continued.
 10.15—"Advertiser" news service and ships within wireless range.
 10.25—Studio Concert, Continued.
 10.35—Relay Floating Palms.
 10.55—Station announcements.
 11—G.P.O. Chimes. National Anthem. Close down.

7 Z L

MORNING SESSION.

- 11—G.P.O. Clock Chimes. The "Mercury" news, Stock Market, Shipping, Commercial Intelligence, Weather Information, "Salonika" selections.
 12—G.P.O. Clock Chimes. Close down.

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AFTERNOON SESSION.

- 3.—G.P.O. Clock Chimes. Musical items from the Studio.
- 2.30—Hobart 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 Pal.

NIGHT SESSION.

- 8.—G.P.O. Clock Chimes. The "Mercury" special Tasmanian news service. Railway action produce sales. Weather information.
- 8.5—Hobart Stock Exchange quotations.
- 8.10—Talk by the Dean of Hobart, subject, "Folk Songs and Carol hymns."
- 8.30—Concert from the Studio: Miss Doreen Glover, mezzo soprano; Miss Jean Smiles, soprano; Miss Amy Butterworth, pianist; Miss Joan Dodd, clarinetist; Mr. Rolf Lyons, baritone; Mr. Roy Sutcliffe, cornet solo; Mr. N. Govland, baritone.
- 9.15—Tasmanian District Weather Reports.
- 9.50—The "Mercury" special interstate news service. Weather synopsis, Station announcements. National Anthem.

Tuesday, Nov. 23

2 FC

MIDDAY SESSION.

- 12.—The Chimes of Big Ben; and Announcements.
- 12.5—Stock Exchange. First Call.
- 12.10—Music from the Studio.
- 12.40—Marching Music for the School Children.
- 12.45—Music from the Studio.
- 12.55—Music from the Oak Hall: The Oak Hall Trio.
- 12.50—Rugby Wireless News.
- 12.55—Music from the Studio.
- 1.—Chimes of "Big Ben." Weather intelligence.
- 1.5—"Evening News" midday news service.
- 1.20—Oak Hall Trio.
- 1.30—Marching Music for School Children.
- 1.40—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 "Big Ben." From the Crystal Palace Theatre, items by the Orchestra, under the direction of Mr. Harry Stone.
- 3.—A Reading from the Studio.
- 3.15—Some new Records.
- 3.30—Marching Music for the School Children.
- 3.40.—From Farmer's Ten Rooms: Miss Kathleen Beverley, soprano, "Woe" not for the Hoes" (Sister).
- 3.45—Oak Hall Trio.
- 3.55—Music from the Studio.
- 4.—Miss Ellen Semple, contralto, "Farrei" (Tosti).
- 4.—The Oak Hall Trio.
- 4.15—Music from the Studio.
- 4.20.—Miss Kathleen Beverley, soprano, "Love makes the Sunshine" (Neale).
- 4.25—The Oak Hall Trio.
- 4.35—Music from the Studio.
- 4.40.—Miss Ellen Semple, contralto, "Lad's Love" (Conningsby Clarke).
- 4.45—Stock Exchange: Third Call.
- 4.45—Close down.

EARLY EVENING SESSION.

- 5.45—Chimes of 2FC.
- 5.50.—The "Hells Man" talks to the Children
- 6.—A Talk to the Older Children, by Captain Fred Arvan.
- 6.45.—From the Hotel Australia, items by the orchestra, under the direction of Miss A. J. Ryan.

- 7.15.—From the Studio, "Evening News" Service, late news.
- 7.30.—Daily's Market Reports (Wool, Wheat, Stock, Fruit, and Vegetable Markets).
- 7.40—Close down.

NIGHT SESSION.

- 7.55—Announcements.
- 8.—From the Studio: Miss Gwladys Finlater, soprano.
- 8.5.—Broadcast from Adyar Hall, the revue, "Misses Mary and Co. in aid of the Rachel Forster wing of the Infants' Home, Ashfield. (1) Overture, "The Gondoliers" (Sullivan); (2) Australiana Trio.
- 9.15—(2) Recollections of Camel Opera, arranged and produced by Miss Yvonia de Leltie (Mrs. Howard Vernon), including: "Misses Mary Quite Contrary"; "Roll of New York"; "The Golem"; "Le Cloches de Corneville"; "Maid of the Mountains"; "Yes, Uncle"; "Ermine"; "Gay Gordons"; "Merry Widow"; "Irvee."
- 9.30.—From the Studio: Miss Gwladys Finlater, soprano.
- 8.45.—From the Adyar Hall, Camedr, "Every-body's Husband," by Gausson, produced by Mr. J. C. Williams.
- 9.5.—From the Studio: Mr. Walter Kingsley, baritone.
- 9.15.—Mr. Lionel Lawson, violinist.
- 9.24.—Mr. Oliver Waters, tenor.
- 9.35.—Mr. Charles Renton, comedian, "Wireless in the Home," "On a Saturday Night."
- 9.50.—Miss Gwladys Finlater, soprano.
- 9.44.—Mr. Walter Kingsley, English baritone.
- 9.53.—Mr. Lionel Lawson, violin solo.
- 10.—Mr. Charles Renton, comedian (a) "I don't want to go to the Seaside," (b) "Tell 'em they're beautiful, they love it."
- 10.15.—Broadcast from the Mosman Town Hall: 3rd Act of Oscar Strauss's delightful comic opera, "The Chocolate Soldier," produced by the Mosman Musical Society, by arrangements with Messrs. J. C. Williams and Ltd. Musical numbers—Intermezzo and chorus; duet, "Falling in Love," Mr. James Donnelly and Miss Lois Evans; solo, "The Letter Song," Miss Lois Evans; scene and melodrama, Mr. James Donnelly; duet, "The Letter Song," Miss Lois Evans and Bryson Taylor.
- 11.—Broadcast from the Wentworth Hotel, directed by the Worcester New Symphonic Orchestra, under the direction of Mr. Sydney Simpson.
- 12.—National Anthem. Close down.

2 BL

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.
- 7.45—Weather Forecast.
- 7.47—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.
- 11.5.—Market Reports.
- 11.20.—London Metal Quotations.
- 11.24.—Broadcasters' Information Service, including Mail, Boats 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 "Toilet Hints," by Mrs. Jordan.

- 12.20.—A Talk by Miss Helen Jean Beegling
- 12.30.—Sydney Stock Exchange Calls.
- 12.45.—Hilbert's Instrumental Quartette, direction Carl Castling.
- 1.30—Sydney Stock Exchange Calls.
- 1.35—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.
- 8.—G.P.O. Clock and Chimes; Weather Report and Forecast by courtesy of Mr. C. J. Mares, Government Meteorologist.
- 8.25.—News from "The Sun."
- 8.10—"Sun" Newspapers news service.
- 8.15—Civil Service Stores' Trio, direction Miss de Curye Rowett.
- 8.35.—G.P.O. Clock and Chimes. "Sun" newspapers news service.
- 8.45—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—Producer's Distributing 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.

- 5.45.—G.P.O. Clock and Chimes. Uncle George and the Kiddy.
- 5.40.—Pavilion Dinner Orchestra, under the direction of Mr. Cec. 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.
- 7.10—Stock Exchange Reports.
- 7.15—Producers' Distributing Society's Fruit and Vegetable Report.
- 7.25—Fruit and Vegetable Reports (Sun).
- 7.23—Grain and Fodder Report (Sun).
- 7.28—Eggs and Poultry Report ("Sun").
- 7.30—Country news from "The Sun."
- 7.45—Talk on "The Mountains of Tasmania."

NIGHT SESSION.

- 8.—G.P.O. Clock and Chimes; Broadcasters' Tropical Chorus.
- 8.5.—Mr. Clem Williams, baritone.
- 8.10—Male Quartette.
- 8.20.—Mr. Stanley R. Catlett, tenor.
- 8.27.—Mr. Raymond Pechotich, violinist.
- 8.45—Miss Alice Frowse, contralto.
- 8.54.—Mr. J. M. Post, solo solo.
- 9.—G.P.O. Clock and Chimes; Resume of following day's programme; Weather Report and Forecast by courtesy of Mr. C. J. Mares, Govt. Meteorologist.
- 9.6—Neil Crum and Alf J. Lawrence.
- 9.28—Broadcasters' Miniature Orchestra.
- 9.35—Miss Gladys Verena, soprano.
- 9.55—Interval.
- 10.—G.P.O. Clock and Chimes.
- 10.1.—Broadcasters' Miniature Orchestra.
- 10.11.—Mr. Clem Williams.
- 10.18.—Mr. J. M. Post.
- 10.25—Male Quartette.
- 10.35.—Broadcasters' Miniature Orchestra.
- 10.48.—Mr. Stanley R. Catlett.
- 10.55—Miss Alice Frowse.
- 11.—G.P.O. Clock and Chimes; Paragon Orchestra, under the direction of Mr. S. Bennett.
- 12.—G.P.O. Clock and Chimes; National Anthem.

3 LO

MIDDAY SESSION.

- 12 noon—Time Signal; British Official Wireless News from Sydney; Reuters and the Australian Press Association Cables; "Argus" and "Herald" News Services.

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- 12.45—Stock Exchange Information; Shipping Intelligence.
- 12.50—Meteorological Information; Weather Forecasts for Victoria, Tasmania, South Australia, and New South Wales; Ocean Forecast; River Reports.
- 1—Time Signal.
- 1.1—Studio Orchestra.
- 1.10—Elsie Davies, soprano.
- 1.17—C. Richard Churg, flutes.
- 1.24—E. Mason Wood, baritone.
- 1.31—Studio Orchestra.
- 1.38—Elsie Davies, soprano.
- 1.43—Studio Orchestra.
- 1.54—E. Mason Wood, baritone.
- 2—Close down.

AFTERNOON SESSION.

- 3—Will Page and his Popular Players.
- 3.10—"Au Fait" of Mezes, Buckley and Nunn Ltd., "Fashion Talk."
- 3.25—Will Page's Popular Players.
- 3.35—Rupert Hasell and Elsie Day in harmony.
- 3.42—Will Page and his Popular Players.
- 3.52—One Act Play.
- 4.17—Will Page and his Popular Players.
- 4.17—Rupert Hasell and Elsie Day, harmony.
- 4.24—Will Page and his Popular Players.
- 4.30—Matron Moreland, will give a talk on Infant Welfare.
- 4.40—Will Page and his Popular Players.
- 4.50—"Herald" News Service; Stock Exchange Information.
- 5—Close down.

EVENING SESSION.

- 5.45—Children's Hour: Answers to letters and Birthday Greetings.
- 6—Gwen Humfray, will sing.
- 6.15—Mary Gumleaf, poems.
- 6.20—Gwen Humfray.
- 6.24—Mary Gumleaf, Stories.
- 6.40—"Argus" and "Herald" News Service; Reuters and the Australian Press Association Cables.
- 6.55—Stock Exchange Information.
- 7—Fish Market Reports, by J. R. Borrett, 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; Poultry, grain, chaff, hay, straw, juve, dairy produce, potatoes and onions; Market prices of oranges and lemons, by the Victorian Central Citrus Association Pty. Ltd.

NIGHT SESSION.

- 7.30—Under the auspices of the Town Planning Association, Mr. F. C. Cook, Surveyor to the Town Planning Commission; Traffic Centres.
- 7.40—Under the auspices of the University Extension Board, Mr. C. R. Long, M.A.: The Coming of the first ship to Australia.
- 8—Agnes Fortune, pianoforte.
- 8.7—Wilma Rutz, Keith Hamilton, Nancy McCannan, winners of the 1st, 2nd and 3rd prizes in the Radio Voice Competition, Junior Section, will each sing a little song.
- 8.17—The New Superphonic Sonora Recital.
- 8.27—Thelma Watt, Hettie Gibbs, Mace Ellrichmann, winners of the 1st, 2nd, and 3rd prizes of the SLO Radio Voice Competition, Intermediate Section, will sing to 294.
- 8.35—Dr. Floyd, organ recital transmitted from St. Paul's Cathedral.
- 8.6—Dr. Loftus Hiller, Popular Science.
- 8.21—British Official Wireless News from Rugby; Announcements; SLO Girl.
- 9.30—Bert Howell and his Concert Orchestra, transmitted from the Victory Theatre, St. Kilda.
- 10.40—"Argus" News Service; Weather Forecast; Announcements.
- 11—Our Great Thought for To-night is—"It is the greatest possible praise to be granted by a man who is himself deserving of praise."—From the Latin.
- 11.1—"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, Eng-

land, by IAR's operator. Express Train information. Events of the day. "Age" news bulletin, exclusive to IAR.
 12.—Time Signal Chime from G.P.O. Studio
 13.—Barometer Readings. 1st Weather Forecast. Sporting Pictures.
 12.5.—Musical Selections from Hoyt's De-Luxe, Bourke Street. Mr. T. L. Campbell at the Wheel.
 12.30.—Stock Exchange News. Market Reports.
 12.—Musical Selections.
 12.55.—Shipping Movements. Mail Notices.
 1.—Close down.

AFTERNOON SESSION.

2.30.—Hoyt's Premier Orchestra, under direction Cecil W. Fraser.
 3.—Trio Con Trio.
 3.10.—Miss Ivy Mills, contralto.
 3.17.—Mrs. A. Smythe, violinist.
 3.24.—Mr. Walter Quirk, pianist.
 3.31.—Trio Con Trio.
 3.46.—Miss Ivy Mills, contralto.
 3.55.—Miss Ruby Stevenson, violinist.
 4.—Time Signal Chime. 2nd Weather Forecast. Hoyt'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 Uecla Steve.

EVENING SESSION.

7.45.—The Mental Side of Home Furnishing, by Mr. A. E. Higgins, of Higgins & Co., Collins Street, Melbourne.
 7.45.—British Official Wireless Press. Studio Barometer Readings. Fat Sheep and Cat Report, supplied by courtesy of Messrs. John McNamara & Co. Pty., Ltd.
 8.—Time Signal Chime. Miss Beatrice Phillips, violinist.
 8.1.—Mr. Eric Kirke, advertisementist.
 8.14.—Miss Elsie Mitchell, pianist.
 8.21.—Mr. Trevor Wilson, Theosophical Talk.
 8.27.—Mr. John Farrell, cellist.
 8.35.—Miss Beatrice Platt, entertainer.
 8.50.—The Peerless Trio.
 9.5.—Mr. D. J. Moore, manager, by courtesy Lincoln's, Melbourne Ford Headquarters.
 9.—National Talk—"The Australian Factory."
 9.20.—Mr. Moy Ling, baritone.
 9.27.—One Act Play—"Desperate Remedies."
 9.41.—Mr. Moy Ling, baritone.
 9.45.—The Peerless Trio.
 10.—Time Signal Chime from G.P.O. Studio Barometer Readings. "Age" news service, exclusive to IAR.
 10.10.—Leggert's Ballroom Orchestra.
 11.—Time Signal. Close down.

4 Q Q

MIDDAY SESSION.

12.35.—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.

3.30.—A Programme of Music from the Studio.
 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 "Uncle Ben" and "Uncle Jim."
 7.—From the Council of Agriculture, Studio: The Farmers' Session. Market Reports. Hot Weather. Mr. P. Rumball, Poultry Inspector.
 7.30.—From the Studio: Stock Reports; Announcements.

NIGHT SESSION.

To-night's programme comprises the first of two which have been arranged by the Australian Natives' Association. The artists taking part in it are the prize-winners at the recent A.N.A. Etюдioid, Lecturette, Poultry Talk, "Care of Eggs in A.—A.N.A. concert.
 10.—"The Daily Mail" News; Announcements; Close down.

5 C L

MORNING SESSION.

11.30.—G.P.O. Chimes.
 11.31.—Featuring a Stock Dow Art number.
 11.43.—"Advertiser" news service.
 11.55.—Vocalion number.
 12.—G.P.O. Chimes.
 12.1.—"Advertiser" news service.
 12.10.—Featuring a Stock Dow Art number.
 12.19.—N.C.I. Studio Orchestra.
 1.50.—Ward & Co. 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: Stock Dow Art and Vocalion numbers.
 4.—G.P.O. Chimes.
 4.1.—Relay from the "Aradia" Cafe—Orchestral numbers.
 5.—G.P.O. Chimes.

EVENING SESSION.

6.30.—G.P.O. Chimes.
 6.41.—Relating stories.
 7.30.—Market reports.
 7.40.—Milling talk, by Mr. Jakkett.
 8.—G.P.O. Chimes.
 8.1.—Relay from leading picture theatre.
 8.15.—Miss Lorna Kerrison, soprano.
 8.18.—The Cadenza Quartette.
 8.25.—Baritone, Signor Torre.
 8.28.—Baritone, Mr. W. Rouse.
 8.32.—Comedian, Mr. W. Rowett.
 8.38.—The Cadenza Quartette.
 8.41.—Baritone, Mr. M. Jones.
 8.45.—Solo, Miss Jessie Anderson.
 8.48.—Tenor, Mr. Gill Evans.
 8.56.—Baritone, Mr. Broadland Ronke.
 9.—G.P.O. Chimes.
 9.1.—Weather Reports.
 9.1.—The Cadenza Quartette.
 9.3.—Soprano, Miss Lorna Kerrison.
 9.13.—Baritone, Signor Torre.
 9.17.—Relay from Leading Picture Theatre.
 9.19.—Baritone, Mr. M. Jones.
 9.24.—Solo, Miss Jessie Anderson.
 9.38.—Cadenza Quartette.
 9.41.—Relay from Leading Picture Theatre.
 10.—G.P.O. Chimes.
 10.1.—Baritone, Mr. Broadland Ronke.
 10.5.—Comedian, Mr. W. Rowett.
 10.15.—"Advertiser" news service.
 10.25.—Baritone, Mr. W. Rouse.
 10.30.—Soprano, Miss Lorna Kerrison.
 10.52.—Cadenza Quartette.
 10.59.—Baritone, Signor Torre.
 11.41.—Solo, Miss Jessie Anderson.
 11.48.—Tenor, Mr. Gill Evans.
 11.52.—Cadenza Quartette.
 11.56.—Station Announcements.
 11.—G.P.O. Chimes; National Anthem; and Close Down.

7 Z L

MORNING SESSION.

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

AFTERNOON SESSION.

2.—G.P.O. Clock and Chimes; Selected Piano

forte Solos by Mr. Maurice Landa; Musical Items from the Studio.
 3.30.—Robert Stock Exchange Quotations.
 4.5.—Weather Information.
 4.—G.P.O. Clock Chimes; Close Down.

EVENING SESSION.

7.—Children's Corner, "Big Brother" chat to his pals.
 7.15.—The Adventures of George, the Bookshelf Cat, by "Aunt Stella."
 8.—Close down.

NIGHT SESSION.

8.—G.P.O. Clock Chimes; the "Mercury" Special Tasmanian News Service; Railway Auction Produce Sales; Weather Information.
 8.5.—Robert Stock Exchange Quotations.
 8.10.—Literary Luncheon and Library Lists by Mr. W. E. Fuller.
 8.30.—Musical items from the Studio—special request numbers.
 8.15.—Tasmanian District Weather Reports.
 9.00.—"The Mercury" Special Interstate News Service; Weather Synopsis; Station Announcements; National Anthem.

Wednesday, Nov. 24
2 F C

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.
 12.50.—Rugby Wireless News.
 1.2.—Music from the Studio.
 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.
 1.25.—Stock Exchange—Second Call.
 1.30.—Marching Music for the School Children.
 1.40.—Music from the Studio.
 1.50.—From Farmer's Oak Hall: The Oak Hall Trio.
 2.—"Big Ben"; Close Down.

AFTERNOON SESSION.

2.30.—Announcements.
 2.35.—From the Studio: A Recital by the Students of Malsons Emily Marks.
 3.20.—Music from the Studio.
 3.30.—Marching Music for School Children.
 3.40.—Miss Thelma Lansdowne, mezzo, "I Love the Moon" (Resubena).
 3.45.—From Farmer's Oak Hall: Oak Hall Trio.
 4.—Miss Ethel Miller, contralto, "I did not know" (Trovare).
 4.5.—The Oak Hall Trio.
 4.55.—Miss Thelma Lansdowne, mezzo, "A Brown Bird Singing" (Wood).
 4.55.—From Farmer's Oak Hall: The Oak Hall Trio.
 4.40.—Miss Ethel Miller, contralto, "My Messenger" (Guy D'Harlelot).
 4.45.—Afternoon Call, Stock Exchange.
 4.45.—Close down.

EARLY EVENING SESSION.

5.45.—Chimes of 2 F C.
 5.50.—The "Radio Man" talks to the Children.
 6.50.—A Talk to the older children by Captain Fred. Aaron.
 6.45.—From the Hotel Australia: Items by The Hotel Orchestra, under the direction of Miss A. J. Egan.
 7.30.—From the Studio, "Evening News" Service; and Weather Information.
 7.30.—Delightful Market Reports (Wool, Wheat, Stock, Fruit, and Vegetable Markets).
 7.40.—Close down.

NIGHT SESSION.

- 7.55—Programme Announcements.
- 8—"Big Ben"—Broadcast from the Lindfield Picture Theatre, the first broadcast performance of the popular Musical Comedy, "The Orchid," produced by the Kurungis Operatic Society, by arrangements with J. C. Williamson Ltd., conducted by Mr. A. E. Champion. Act 1.—Musical numbers, Overture; 2. Opening Chorus; 3. Song, "The Lady Secretary." Mildred Roberts and Chorus; 4. Quintet, "Oh! Mr. Registrar, Miss Constance Jamieson, Miss Trixie Hall, Stewart Tullock, Neil Brown, and Bert Cooke; 5. Chorus and Solo, "The Debutante." 6. Quintet, "Our Marriage Lines." C. Jamieson, Trixie Hall, Neil Brown, Stewart Tullock; 7. Song, "I do all the Dirty Work." Bert Cooke, Chorus and Ballet; 8. Solo Dances, "The Dragon Fly," Joyce Fisher; 9. Duet, "Fancies," Irene Forsyth and Bert Cooke; 10. Chorus, "Prizes"; 11. Finale, "What a most Romantic History."
- 9.26—From the Studio: Miss Mabel Batchelor, soprano.
- 9.38—Mr. Wally Baynes, comedian.
- 9.45—Broadcast from the Lyric Wintergarden Theatre, items by the orchestra, under the direction of Mr. Alfred Moulton.
- 10.15—From the Studio: Miss Mabel Batchelor, soprano.
- 10.24—RFC Dance Band in Dance numbers, conductor, Mr. Eric Pearce.
- 10.45—Mr. Wally Baynes, comedian.
- 10.46—RFC Dance Band in Dance Music.
- 10.54—Mr. Wally Baynes, comedian.
- 11—"Big Ben": further Dance Music from the RFC Dance Band.
- 11—"Big Ben": National Anthem; Close down.

2 BL

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.
- 7.45—Weather Forecast.
- 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.
- 10.15—Broadcasters Direct News Service from Rugby.
- 10.35—Daily Telegraph News Service.
- 10.57—Weather Report by courtesy of Govt. Meteorologist.
- 11—G.P.O. Clock and Chimes.
- 11.1—Musical Programme from the Studio.
- 11.15—Market Reports.
- 11.20—London Metal Quotations.
- 11.24—Broadcasters' Information Service.—Hosts in call by wireless, shipping, weather and rainfall, mails.
- 11.34—Daily Telegraph News Service.
- 11.40—Women's Session, conducted by Mrs. Jordan; Social Notes.
- 11.50—Mrs. Jordan replies to correspondents.
- 12—G.P.O. Clock and Chimes; A Talk by Dr. Morris on Infant Welfare.
- 12.25—A Talk by Miss Helen Jean Beazling.
- 12.30—Sydney Stock Exchange Calls.
- 12.45—Musical programme from the Studio.
- 1—G.P.O. Clock and Chimes; Midday Music broadcast from Christ Church, St. Laurence.
- 1.45—Sydney Stock Exchange Calls.
- 1.50—Latest Sporting Information and race results on race days.
- 1.55—Sun Newspaper's News Service.
- 2—G.P.O. Clock and Chimes; Close down.

AFTERNOON SESSION.

- Racing Information broadcast by courtesy of the Sun.
- 2—G.P.O. Clock and Chimes; Weather Report and Forecast by courtesy of Mr. C. J. Mares, Government Meteorologist.
- 2.5—Social notes from "The Sun."
- 3.10—"Sun" Newspaper's news service.
- 3.15—Musical Programme from the Studio.
- 3.30—"Sun" Newspaper's news service.
- 3.45—Musical programme from the Studio.

- 4—G.P.O. Clock and Chimes. "Sun" Newspaper's news service.
- 4.15—Serial story, entitled, "Stories, Near and Far" (Locke).
- 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 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.

- 6.45—Ulelo George and the Kiddies.
- 6.49—Travelling Dinner Orchestra under the direction of Mr. C. J. Mares.
- 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. Mares, Government Meteorologist.
- 7.9—Stock Exchange Reports.
- 7.15—Producers' Distributing Society's Fruit and Vegetable Report.
- 7.20—Fruit and Vegetable Reports (Sun).
- 7.24—Grain and Poultry Reports (Sun).
- 7.27—Egg and Poultry Report (Sun).
- 7.30—Country news from the Sun.
- 7.45—Talk on Hooks, Wives and Otherwise.

NIGHT SESSION.

- 8—G.P.O. Clock and Chimes. Broadcasters' Tiptical Chorus.
- 8.3—Mr. Roger Jones, baritone.
- 8.19—Miss Elsie Findlay, soprano.
- 8.17—Mr. Bert Warme, comedian.
- 8.24—Mr. Norman Wright, tenor.
- 8.31—Mr. Stanley Crittenden will talk on "Building a Valve."
- 8.41—Miss Edna Lietzer, contralto.
- 8.58—Resume of following day's programme.
- 9—G.P.O. Clock and Chimes; Weather Forecast by courtesy of Mr. C. J. Mares, Govt. Meteorologist.
- 9.1—Mr. Howard Leighton, novelty pianist.
- 9.15—Molly Resnor and John Rutherford Broadcasters Players.
- 9.34—Interval.
- 9.39—Mr. Roger Jones.
- 9.46—Miss Elsie Findlay.
- 9.53—Mr. Bert Warme.
- 10—G.P.O. Clock and Chimes.
- 10.1—Miss Edna Lietzer.
- 10.8—Mr. Norman Wright.
- 10.15—Al Hamm and the Ambassadors Dance Band, broadcast from the ballroom of the Ambassadors. During the interval between dances, News Reports by courtesy of the Sun will be broadcast.
- 12—G.P.O. Clock and Chimes; National Anthem.

2 GB

EVENING SESSION.

- 6.45—Talks to Children by A.B.C.
- 7.55—Unaccompanied duets for two violins.
- 8.25—Talk by Dr. J. J. Van Der Leeuw.
- 8.45—Vocal Quartette.
- 8.50—Talk, "Betty Comes to Town."
- 8.46—Songs by Ethel Jones.
- 8.48—Violin solos by Monlon Herder.
- 8.55—Talk, "Ocean Promenade Piers," by G. I. James, Consulting Engineer.
- 9—Vocal Quartette.
- 9.10—Dramatic Reading.
- 9.30—Piano Solos, Ada Brook.
- 9.33—Great Thoughts from Great Minds.
- 9.35—Good Save the King.

3 LO

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.

AFTERNOON SESSION.

- 1—Time signal.
- 1.1—Rita Hilton in songs at the piano.
- 1.7—Hann Johnson's Monte Carlo Band.
- 1.53—Rita Hilton, entertainer.
- 2—Description of Hurdle Race, Bendigo races, will be given by "Musket," of the Sporting Globe.
- 2.5—First Act of "Katja," will be transmitted from His Majesty's Theatre, Exhibition Street, Melbourne, by permission of J. C. Williamson Ltd.
- 2.40—Description of Epsom Flat Race, by "Musket," of the Sporting Globe—Bendigo Races.
- 3.10—Description of Bendigo Cup, by "Musket," of the Sporting Globe.
- 3.15—Miss Frances Fraser, "London—The East End."
- 3.30—Studio Orchestra.
- 3.41—Description of Epsom Purse by Musket.
- 3.45—Signor D'Albanoro, tenor.
- 3.52—Dorothy Ruxburgh, viola.
- 3.57—C. Richard Chung, flute.
- 4.4—Studio Orchestra.
- 4.15—Description of President's Welter by Musket, Bendigo Races.
- 4.20—Signor D'Albanoro, tenor.
- 4.27—Studio Orchestra.
- 4.45—Description of Novice Handicap, by Musket, Bendigo Races.
- 4.50—"Herald" News Service; Stock Exchange Information.
- 5—Close down.

EVENING SESSION.

- 6.45—Children's Hour; Answers to letters and Birthday Greetings.
- 6—Musical programme for Children, arranged by Mr. Felix Hart.
- 6.40—"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.
- 7.6—River Reports.
- 7.7—Market Reports by the Victorian Producers' Co-operative Co. Ltd.; Haymarket Sheep Sales; Poultry, Grain, Chaff, Hay, straw, jute, dairy produce, potatoes and onions; Market prices of oranges and lemons, by the Victorian Central Citrus Association Pty. Ltd.

NIGHT SESSION.

- 7.20—Under the auspices of the Department Mr. R. Crowe, Superintendent of Exports, "Market Comments."
- 7.40—Mr. C. H. Slocumb, "Photographic Chat."
- 8—Concert Transmitted from the Preston Town Hall, Preston City Band.
- 8.6—Miss Hazel Morrison, solo.
- 8.15—Miss Peggy Lett, solo.
- 8.23—Duet, Hazel Nissen and Mr. Vivian McGraw.
- 8.30—Preston City Band.
- 8.40—Mr. Vivian McGraw, solo.
- 8.47—Preston City Band.
- 8.57—Mr. Oliver Bell, solo.
- 8.41—Duet, Messrs. Bell and Honker.
- 9.00—Preston City Band.
- 9.15—Captain Peters, "Books, wise and otherwise."
- 9.30—String Quartette.
- 9.40—Soprano-horn Soloist Recital.
- 9.47—Signor D'Albanoro, tenor.
- 9.54—Reginald Bradley, violin, and Agnes Fortune, piano.
- 9.59—Archdeacon Hayman will speak on the "Cathedral Spires Appeal."
- 10.5—Clarinet Quintet, soloist, Franklin Stotham.
- 10.19—Signor D'Albanoro, tenor.
- 10.35—British Official Wireless News from Rugby; Announcements; MLO Girl.
- 10.46—Reginald Bradley, violin.
- 10.52—"Argus" News Service; Weather Forecast.
- 11—Our Great Thought for to-night is—"Think wrongly if you please, but in all cases—think for yourself"—Lesing.
- 11.1—Rita Hilton, Orchestra.
- 11.45—Good Save the King.

3AR

MORNING SESSION.

- 11.30—British Official Wireless Press, received from Rugby Super Wireless Station, England, by 3AR's Operator. Events of the Day; Express Train Information; "Age" News Bulletin.
- 12—Time Signal Chime from G.P.O.'s Studio Barometer and Outdoor Thermometer Readings; First Weather Forecast; Sporting News.
- 12.15—Musical Selections relayed from Hoyt's De-Luxe, Bourke Street, Mr. T. L. Campbell at the Wurlitzer.
- 12.36—Stock Exchange News; Market Reports.
- 12.40—Musical Selections.
- 12.45—Shipping Movements; Mail Notices.
- 1—Close Down.

AFTERNOON SESSION.

- 2.30—Hoyt's Premier Orchestra, under direction of Cecil W. Fraser.
- 4—The Classic Trio.
- 3.16—Miss Marion Daniels, mezzo contralto.
- 3.19—Miss Amelia Daniels, violinist.
- 3.30—Miss Marion Daniels, mezzo contralto.
- 3.37—Miss Violet Woods, pianist.
- 3.40—Mr. Bryan Stafford, cellist.
- 3.41—The Classic Trio.
- 4—Time Signal Chimes; 2nd Weather Forecast; Hoyt's Orchestra.
- 4.55—Evening Announcements.
- 5—Time Signal Chimes; Studio Barometer Readings; Close Down.

EARLY EVENING SESSION.

- 6.45—Children's Corner, by Uncle Ned.

EVENING SESSION.

- 7.50—British Official Wireless Press; Studio Barometer Readings.
- 8—Time Signal Chime; Instrumental Trio.
- 8.10—Miss Mary Fraser, soprano.
- 8.17—Mr. Ernest Sage, baritone.
- 8.24—Mr. Lionel Davies, pianist.
- 8.34—Hilda Parsons, violinist.
- 8.41—Messrs. Ken and Owen Jones, Hawaiian Instrumentalists.
- 8.45—Mr. Will Alexander, humorous entertainer at the piano.
- 8.55—Miss Marjorie Vines, violinist.
- 9.2—Mr. Lionel Davies, pianist.
- 9.9—Miss Hilda Parsons, violinist.
- 9.16—Parma Trio.
- 9.28—Mr. Ernest Sage, baritone.
- 9.33—Mr. Adrian Vercou will commence a series of talks for the country folk on "The History of Merino Sheep in Australia."
- 9.47—The Hawaiian Duo.
- 9.54—Mr. Will Alexander, entertainer.
- 10—Time Signal Chime; Miss Dolly Haines, cellist.
- 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—Tune in.
- 12.58—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.

- 3.50—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.

- 5—News Service supplied by the "Daily Standard"; Weather information, supplied by the Commonwealth Weather Bureau; Announcements.
- 6.30—"The Children's Season: Stories by 'Little Miss Brisbane'."
- 7—From the Council of Agriculture; Market Reports; Lecture: "Sheep Climate for Beginners," by Mr. W. G. Brown, Instructor in Sheep and Wool.
- 7.15—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—From the Studio of Mr. Luis Amadeo Pares ("The Hall of the Muses"); Grand Violin Ensemble, by seven violins.
- 8.45—From the Studio of 4QG.
- 9—Metropolitan Weather Forecast; Studio concert, continued.
- 9.30—From the Centennial Hall: Dance Music.
- 10—From the Studio: "The Daily Mail" News; Announcements; close down.

5CL

MORNING SESSION.

- 11.30—G.P.O. Chimes.
- 11.33—Stock Duo Art number.
- 11.45—"Advertiser" News Service.
- 11.55—Vocalion Number.
- 12—G.P.O. Chimes.
- 12.1—"Advertiser" News Service.
- 12.15—Featuring a Stock Duo Art number.
- 12.30—G.L. Stock Orchestra.
- 1.55—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 "Maple Leaf" Cafe—Orchestral Numbers.
- 3.45—From the Studio—Stock-Duo Art numbers.
- 4—G.P.O. Chimes.
- 4.1—Relay from Arcadia Cafe—Orchestral and vocal numbers.
- 4.55—Stock Exchange Reports; General Information and Station Announcements.
- 5—G.P.O. Chimes.

EVENING SESSION.

- 6.50—G.P.O. Chimes.
- 6.31—Bedtime Stories.
- 7.20—Market Reports.
- 7.40—Boy Scouts' Corner.
- 8—G.P.O. Chimes.
- 8.1—Programme of Instrumental and Vocal numbers by H. St. Clair's Dixie Pierrots.
- 8—G.P.O. Chimes.
- 8.1—Weather Reports.
- 9.3—Concert Continued.
- 10.15—"Advertiser" News Service.
- 10.25—Dixie Pierrots concert continued.
- 10.55—Station Announcements.
- 11—G.P.O. Chimes; National Anthem.

7ZL

MORNING SESSION.

- 11—G.P.O. Clock Chimes; the "Mercury" News; Stock Market; Shipping; Commercial Intelligence; Weather information, and Sporting Anticipations; Salonica Selections.
- 12—G.P.O. Clock Chimes; Close Down.

AFTERNOON SESSION.

- 3—G.P.O. Clock Chimes; Musical Items from the Studio; Story from Illustrated Tasmanian Mail.
- 3.15—Hobart Stock Exchange Quotations.
- 3.55—Weather Information.
- 4—G.P.O. Clock Chimes; Close Down.

EVENING SESSION.

- 7—Children's Corner, "Big Brother's" chats to his pals; Story from Illustrated Tasmanian Mail.
- 7.15—Story from Illustrated Tasmanian Mail.
- 7.50—Talk on "Guiding" by "A Guider."

NIGHT SESSION.

- 8—G.P.O. Clock Chimes; the "Mercury" Special Tasmanian News Service; Railway Auction Produce Sales; Weather Information and Sporting Results.
- 8.5—Hobart Stock Exchange Quotations.
- 9.15—Abattoirs and Stock Market Reports from Roberts and Co. Ltd., Murray St., Hobart.
- 9.15—Physical Culture talk by Mr. George Collie.
- 9.30—Concert from the Studio: Miss Mona McCulloch, soprano; Miss Valma Battersworth, violinist; Miss Katharine Cullinane, clarinetist; Miss Zevie Butterworth, violinist; Miss Olga Smith, accompanist; Miss Piessie, pianist; Mr. Jack Broadbent, baritone; Mr. EVEL DOWLING, tenor.
- 9.15—Tasmanian District Weather Reports.
- 9.50—"The Mercury" Special Interstate News Service; Weather Synopsis; Station Announcements; National Anthem.

Thursday, Nov. 25

2FC

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.
- 12.55—Rugby Wireless News.
- 1.30—Music from the Studio; Miss Kathleen Crankell, contralto.
- 1—The Chimes of Big Ben; Weather Intelligence.
- 1.5—"Evening News" Mid-day News Service.
- 1.20—From Farmer's Oak Hall—The Oak Hall Trio.
- 1.28—Stock Exchange—Second Call.
- 1.30—Marching Music for the School children.
- 1.40—Miss Kathleen Crankell, contralto.
- 1.45—Music from the Studio.
- 1.50—From Farmer's Oak Hall—The Oak Hall Trio.
- 1.55—Last Minute Sporting Information by the 2FC Sporting Commissioner.
- 2.10—Close Down.

AFTERNOON SESSION.

- 2.30—The Chimes of 2FC.
- 2.35—From the Studio: A Recital by the pupils from the Studio of Mr. Lindley Evans, pianist.
- 3.00—Marching Music for the school children.
- 3.45—From Farmer's Oak Hall: The Seeds Trio, (a) "Linga-Longa Lane" (Hentze).
- 3.45—From Farmer's Tea Rooms, the Oak Hall Trio.
- 3.55—Music from the Studio.
- 4—The Seeds Trio, "While the years go swiftly by" (Kahn-Bourke).
- 4.5—From the Studio: A Serial Story.
- 4.15—Music from the Studio.
- 4.25—The Seeds Trio, "Where'd you get those eyes" (Debnar).
- 4.25—From Farmer's Oak Hall—The Oak Hall Trio.
- 4.35—Music from the Studio.
- 4.40—The Seeds Trio, "Palm Tree Bay" (Gurick).
- 4.45—Stock Exchange—Third Call.
- 4.45—Close down.

EARLY EVENING SESSION.

- 6.45—The Chimes of 2FC and announcements.
- 6.50—"The Daily Mail" talks to the Children.
- 6.50—A talk to the older children by Cap-

- tain Fred Aaron.
6.43—Broadcast from the Hotel Australia, Orchestral items under the direction of Miss A. J. Egan.
7.15—From the Studio: "Evening News" late news service and Weather information.
7.30—"Some Adventures out-back," by Rev. S. J. Kirby.
7.50—"A Ten-minute" talk by the Technical Editor of "Wireless Weekly."

NIGHT SESSION

- 8—"Big Ben" and Announcements.
8.6—Broadcast from the Belmont Town Hall a concert programme arranged by the Later Day Saints, in aid of the Home Mission work. The concert under the direction of Mr. Brunton Gibb.
8.5—1. Choral Song, "Kings of Kings," cantant Chorus, conductor J. Parke.
8.10—2. Violin Solo, "On Wings of Song" (Mendelssohn), Miss Mary Judd.
8.18—3. Tenor solo, "In the Garden of your Heart," Mr. Sam Lyons.
8.24—4. Musical Monologue, "Geece and Gay," Mr. Brunton Gibb and Miss Ethel Lang.
8.34—5. Song, "Summer Highland Days" (Gibb), Mr. Eobhard McClelland.
8.42—6. Song, "Spring is Here" (Wengerberg), Miss Ethel Perless.
8.50—7. Character Study, "The Disagreeable Musician," Mr. Brunton Gibb.
9—8. Quartette, "Com Melodies," The Four Warfs.
From the Studio: Mr. Lindley Evans in piano solos.
9.10—From Pallin's Concert Hall, a Choral programme, supplied by the Sydney Madrigal Society of 100 voices, conductor, Mr. Arnold Motz.
9.40—From the Studio: Mr. Lindley Evans, radio solos.
9.50—From the Lindfield Picture Theatre, Act 2 of "The Orchid," produced by the Kurling-Gal Operatic Society (by arrangement with J. C. Williamson Ltd.) conducted by Mr. A. L. Champlin. Musical numbers: Entracte, Opening Chorus, "Pas de Ballet," Song, "Fancy Dress," Irene Pinesch, Song, "Little Mary," Tricie Hall; Song, "I must Propose to You," Constance Jamieson; Song, "Come along with Me," Tricie Hall, Chorus and Ballet; Comedy Dance, Ralph Conning, Kenneth Fisher, and Max Napier; Waltz Song, Florida, "At the Fancy Ball."
11—From the Wentworth Hotel, items by the New Symphonic Dance Orchestra, under the baton of Mr. Sydney Simpson.
12—National Anthem; close down.

2BL

EARLY MORNING SESSION

- 7.15—Musical Programmes 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

- 10—G.P.O. Clock and Chimes; Musical programme from the Studio.
10.30—Broadcasters' Direct News Service from Rugby.
10.35—"Daily Telegraph" News Service.
10.47—Weather Report by courtesy of the Government Meteorologist.
10.50—Ten minute's talk supplied by the N.R.M.A.
11—G.P.O. Clock and Chimes.
11.1—Musical Programme from the Studio.
11.15—Market Reports.
11.20—London Metal Quotations.
11.24—Broadcasters' News Service; Boats in call by Wireless; Shipping; Weather and Rainfall; Misc.
11.34—Early "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; A Talk by Mrs. Jordan.

- 12.25—Miss H. J. Beagling will talk on Cheerfulness.
12.30—Sydney Stock Exchange Calls.
12.45—Miller's Instrumental Quartette, direction Caryl Castellan.
1.30—Sydney Stock Exchange Calls.
1.35—Latest Sporting information and Race Results on Race Days.

- 1.45—"Sun" Newspapers' News Service.
2—G.P.O. Clock and Chimes; Close Down.

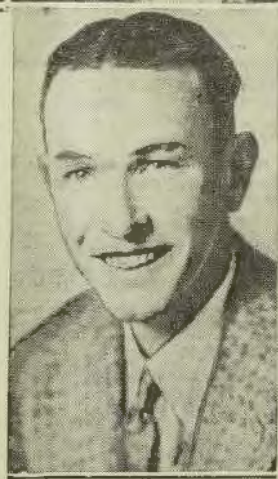
AFTERNOON SESSION

- 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, Govt. Meteorologist.
3.8—Social Notes from the Sun.

Oakland on the Air



OAKLAND, CALIF., will broadcast Thanksgiving greetings to the South Seas and Australia from 1 to 2:30 a. m., Pacific U. S. standard time, Nov. 24. Richard A. Carrington Jr., publisher of The Oakland Post-Enquirer, upper right, will deliver the opening address. Dorothy Raegen Talbot, upper left, famous American radio soprano, and E. Harold Dana, at the left, are to sing. Dana is one of the best baritones on the American Pacific coast.



- 3.10.—Sun Newspaper's News Service.
 3.15.—David Jones' Ten Room Trio; Pianist, M. Chapman; violinist, Mr. Ashton, cellist, Mr. Chever.
 3.30.—G.P.O. Clock and Chimes; Women's Session.
 4.—Music from the Studio.
 4.—G.P.O. Clock and Chimes; David Jones' Ten Room Trio.
 4.15.—Serial Story.
 4.30.—Musical programme from the studio.
 4.45.—Producers' Distributing Society's Vegetable and Fruit Markets.
 4.50.—Shipping Information when available.
 4.55.—Day's Racing Resume on Race Day.
 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.

- 5.45.—Uncle George and the Kiddies.
 6.40.—Pavilion Dinner Orchestra, under the direction of Mr. Cec. 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. Mares, Govt. Meteorologist.
 7.5.—Stock Exchange Reports.
 7.6.—Producers' Distributing Society's Fruit and Vegetable Report.
 7.20.—Fruit and Vegetable Report (Spec).
 7.24.—Grain and Fodder Report (Spec).
 7.27.—Dairy Produce Report (Spec).
 7.30.—Country News from the Sun.
 7.45.—Lecture.

NIGHT SESSION.

- 8.—G.P.O. Clock and Chimes; Broadcasters' Special Chorus.
 8.1.—The Ambassadors' Instrumental Salon Quartet, under the direction of Mr. Claude McGlynn.
 8.2.—Concert from the Studio, including: Miss Myrtle Hobbs, lyric soprano; Chas. O'Mara, Irish comedian; lecture by Mr. Roland Foster with musical illustrations.
 10.—The Hammond and the Ambassadors' Special Dance Band broadcast from the Ballroom of the Ambassadors. During the intervals between dances, News Reports by courtesy of the Sun Newspaper will be broadcast.
 12.—G.P.O. Clock and Chimes; National Anthem.

3 LO

MID-DAY SESSION.

- 12 noon.—Time Signal, British Official Wireless News from Rugby; Reuters and the Australian Press Association Cables; "Argus" and "Herald" News Services; Shipping Intelligence; Stock Exchange Information.
 12.20.—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.—Thelma Ready, band.
 1.20.—"St. Alban's" Quartet.
 1.24.—Studio Orchestra.
 1.34.—Thelma Ready, band.
 1.40.—"St. Alban's" Quartet.
 1.47.—Studio Orchestra.
 2.—Description of Trial Handicap, Bendigo, by "Musket," of the "Sporting Globe."
 2.40.—Description of Epsom Handicap, Bendigo, by "Musket"; close down.
 AFTERNOON SESSION
 2.—Studio Orchestra.
 2.15.—Description of Bendigo Handicap, by "Musket."
 2.35.—Mr. C. R. Long; A Talk on Stake-owners' Plays.
 2.35.—Signor D'Alisandro, tenor.
 2.40.—Description of Brush Stowp, by "Musket."
 2.45.—Reginald Bradley, violin.

- 3.55.—"Mary Gumblet," "Elizabeth Barrett Browning—The Woman and her Poems."
 4.—Description of Distance Trot by "Musket."
 4.20.—Signor D'Alisandro, tenor.
 4.27.—Facts about Kenang.
 4.37.—"Herald" News Service; Stock Exchange Information.
 4.45.—Description of Welter Handicap, by "Musket."
 4.45.—Evening song from St. Paul's Cathedral.
 5.30.—Close down.

EVENING SESSION.

- 5.45.—Children's Hour; Answers to letters and birthday greetings.
 6.—Gwen Humphrey will come to the children.
 6.7.—"Mary Gumblet" will recite.
 6.20.—Gwen Humphrey will sing.
 6.27.—"Mary Gumblet" for the boys and girls.
 "The Happy Prince" Song by Eton Her Silver Medalist in the B.L.O. Radio Voice Competition.
 6.40.—"Argus" and "Herald" News Services; Reuters and the Australian Press Association Cables; Shipping Movements; Overseas Shipping and Weather Synopses.
 7.—Stock Exchange Information.
 7.4.—Fish Market Reports by J. R. Borrett Ltd.
 7.6.—River Reports.
 7.8.—Market Reports by the Victorian Producers' Co-operative Co. Ltd.; Haymarket Sheep Sales; Poultry, grain, chaff, hay, straw, jute, dairy produce, potatoes and onions; Market prices of oranges and lemons; by the Victorian Central Citrus Association.

NIGHT SESSION.

- 7.20.—Mr. J. Howlett Ross, "The Honorable George Coppin."
 7.40.—Mr. A. W. Jackson, "Gelt."
 8.—B.L.O. Melody Masters.
 8.10.—Rupert Hazel and Elsie Day.
 8.14.—B.L.O. Melody Masters.
 8.21.—Pat McLean, humorist.
 8.25.—B.L.O. Melody Masters.
 8.48.—Archie Clarke, comedian.
 8.48.—B.L.O. Melody Masters.
 8.52.—Bob Molynoux, baritone.
 9.00.—B.L.O. Melody Masters.
 9.04.—Rupert Hazel, soprano-solo.
 9.10.—B.L.O. Melody Masters.
 9.20.—Pat McLean, humorist.
 9.24.—B.L.O. Melody Masters.
 9.34.—Archie Clarke.
 9.38.—B.L.O. Melody Masters.
 9.42.—"Argus" News Service; British Official Wireless News; Announcements; Meteorological information.
 9.57.—B.L.O. Melody Masters.
 10.7.—Bob Molynoux, baritone.
 10.11.—B.L.O. Melody Masters.
 10.21.—Elsie Day, soprano.
 10.25.—B.L.O. Melody Masters.
 10.35.—Pat McLean.
 10.39.—B.L.O. Melody Masters.
 10.49.—Bob Molynoux, baritone.
 10.55.—B.L.O. Melody Masters.
 11.—Our Great Thought for To-night is—"Humor has justly been regarded as the finest perfection of poetic genius,"—Carlyle.
 11.1.—B.L.O. Melody Masters.
 11.45.—God Save the King.

3 AR

MORNING SESSION.

- 11.50.—British Official Wireless Press, received from Rugby Super Wireless Station, England, by 3AR's Operator; Events of the Day; Express Train Information; "Argus" News Bulletin.
 12.—Time Signal Chime from G.P.O.; Studio Harmonium and Outdoor Thermometer Readings; First Weather Forecast; Sporting News.
 12.7.—Musical Selections relayed from Hoy's De-Luxe, Bourke Street, Mr. T. I. Campbell at the Wurlitzer.
 12.30.—Stock Exchange News; Market Reports.
 12.40.—National Securities.
 12.55.—Shipping Movements; Mail Notices.
 1.—Close Down.

AFTERNOON SESSION.

- Bendigo Racing Club Meeting; 2nd day, results immediately after each race and at half-hourly intervals.
 2.30.—Hoy's Premier Orchestra, under direction of Cecil W. Fraser.
 3.—Musical Items from the Studio by the Eric's Trio.
 4.—Time Signal Chimes; 2nd Weather Forecast; Hoy's Orchestra.
 4.55.—Evening Announcements.
 5.—Time Signal Chimes; Studio Harmonium Readings; Close Down.

EARLY EVENING SESSION.

- 5.45.—Children's Corner, by Uncle Steve.

EVENING SESSION.

- 7.45.—British Official Wireless Press; Studio Harmonium and Outdoor Thermometer Readings; Special Tiv and Calf Report, supplied by courtesy of Messrs. McPhail, Anderson and Co. Pty. Ltd.; Fat Sheep and Cattle Report, supplied by courtesy of Messrs. John McManus & Co.
 8.—Time Signal Chime from G.P.O.; The Troubadours' Quartette Party.

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From

SWAINS

119-123 PITT STREET

- 8.14—Mr. Harold Stevens, pianist.
 8.31—Mr. Stephen McDouald, talk on Voice Production.
 9.36—Miss Victoria Graham, soprano.
 8.43—Miss Irene Hussey, violinist.
 8.50—Mr. Russell Gordon, baritone.
 8.57—The Troubadours.
 9.3—Dr. Philpotts, president of the Food Education Society of Victoria, and Editor of "The National Magazine of Health," will lecture on "The Ear."
 9.16—Mr. Harold Stevens, pianist.
 9.22—Miss Margaret Emmie, contralto.
 9.35—Miss Irene Hussey, violinist.
 9.46—Mr. Geo. Arbutnot, tenor.
 9.47—Miss Victoria Graham, soprano.
 9.54—The Troubadours.
 10.45—Femo Signal Chimes; Studio Barometer Readings; "Ace" News Bulletin exclusive to BAR; Tourist and Road information supplied by courtesy of Pioneer Tourist Coaches Pty. Ltd.
 10.15—Hoyt's Premier Orchestra.
 10.40—Close down.

4 QG

MIDDAY SESSION.

- 12.35—Tune in.
 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.

- 2.30—A programme of Music from the Studio.
 3.13—"The Telegraph" news.
 4.35—Close down.

EARLY EVENING SESSION.

- 6—"Daily Standard" News; Weather information; Announcements.
 6.05—The Children's Session. Stories by Samba and Pete.
 7—From the Council of Agriculture, Studios Market Reports; Lecture: "Evolution," Mr. J. R. A. McMillan, Plant Breeder, Queensland Agricultural High School and College.
 7.30—From the Studio: Stock Reports; Announcements.

NIGHT SESSION.

- 7.45—Lecturette: "A Talk on Books," Mr. W. A. Braiden.
 8—Concert provided by the Lyric Entertainers, arranged by Messrs. R. J. Robinson and J. P. Curwood.
 9—Metropolitan Weather Forecast; Concert, continued.
 10—From the Studio: "The Daily Mail" news Announcements; close down.

5 CL

MORNING SESSION.

- 11.30—G.P.O. Chimes.
 11.31—Featuring a Stock Duo Art number.
 11.40—"Advertiser" News Service.
 11.53—"Vocalion" Number.
 12—G.P.O. Chimes.
 12.1—"Advertiser" News Service.
 12.15—Featuring a Stock Duo Art number.
 12.30—5CL Studio Orchestra.
 1.05—Ward & Co's. Stock Exchange Intelligence; Official Weather Synopses and Station Announcements.
 2—G.P.O. Chimes.

AFTERNOON SESSION.

- 3—G.P.O. Chimes.
 4.1—Relay from "Maple Leaf" Cafe—Orchestral Numbers.
 4.45—From the Studio—Stock-Duo Art numbers.
 4—G.P.O. Chimes.
 4.1—Relay from Arcadia Cafe—Orchestral numbers.
 5—G.P.O. Chimes.

EVENING SESSION.

- 6.30—G.P.O. Chimes.



"CAVEAT EMPTOR"

LET THE BUYER BEWARE!

It used to be the purchaser's fault if he got the worst of a bargain. Now it is the seller who watches his step if he's wise!

Back in the time when Ben Hur won his famous chariot race horse-power meant exactly what the words imply. Ben Hur never heard of a Philco Battery, but his chariot was the best equipped in the city of Rome. It brought home the bacon. But Ben would have been an easy mark if there had been any Battery Service Stations near the Colosseum. For those were the good old days when the phrase "Caveat Emptor"—or "Let the Buyer Beware"—was the Golden Rule of Business.

Ben, however, was a bright young lad who knew a thing or two about horseflesh. He knew that an underfed horse hasn't the kick. You can't steal out from a race horse and really save money (and you can't cheapen the parts of a battery without courting trouble!). When it came to selecting his four-footed "batteries," the boy was there. When he re-equipped his chariot he didn't take the seller's word for the merits of

the pulling power. If he had, the fault would have been his own.

When a noble Roman senator, who was a political crook on the side, wanted to dispose of a nag that had outlived its usefulness, he had the beast all dolled up and took it down to the market place in search of an easy mark. Spotting a gullible chariot-chauffeur, he would begin to recite the praises of his prancing "battery." His advertising methods were usually more glamorous than truthful. He would name the highest price he thought the traffic would stand, and trust to luck that the horse wouldn't go lame or drop dead before the purchaser got it home. Bargaining, plain lying and trickery were the principles on which all business was founded. Service as we know it, was unheard of. The seller got his money as quickly as he could. Then he moved off promptly to some more healthful climate. Nobody cared about satisfied customers and repeat sales. They took the cash and let the credit go. Guarantees were unknown.

There was no use kicking about it either. It was the law that if a man got the short end of a bargain he had no one but himself to blame. There was no comeback except a stab in the ribs; and if a fellow got gay with his dagger, they sent him to the galleys. It was a great life! But they weakened.

To-day the wise seller of Batteries knows that it doesn't pay to deceive his customers. He doesn't have to. He knows there are a lot of curious contraptions that masquerade under the name of batteries. It would take a magician to find out what is in them. But it doesn't take long to find out what they won't do. Price isn't half so important as performance. Philco profit depends on performance. Battery performance cannot be built down to a price. It must be built up to a standard. Radio owners know that. They know what the name Philco means on a Battery. Philco National Advertising and the praise of thousands of satisfied users are driving the story home. Radio users know what the name Philco means. They know that Philco Batteries are the most economical in the long run because they last longer, deliver more and are always dependable. Hitch up your Radio chariot to Philco motive power because Philco's dependable and economical.

If you want to be in on the money when the race is run, hitch your Radio to Philco—the one best battery bet.

A Philco Battery is your guarantee of quality and service. Philco has eliminated the competition of unknown quality, unsound price arguments, and the uncertainty of unstandardized black boxes.



MR. J. J. HIGGS.

DEPICTED here is Mr. J. J. Higgs, one of the best known personalities in the radio trade in Australia to-day. Twenty-two years ago, long before the radio industry was even thought of, Mr. Higgs joined United Distributors Limited when that organization was engaged in the specialty trade.

In 1924, when the Company added radio to its other activities, he was attached to the radio department, and in the same year was transferred to Adelaide, where he opened a branch of the Company. In Adelaide, he spent two years, where he succeeded in building up the branch into a large business, which does an extensive trade in radio and in other lines.

Recalled to the head office in Sydney in September this year, Mr. Higgs is now acting in a managerial capacity during the absence of Mr. Hopkins on a combined business and holiday trip to New Zealand, and predicts big business for radio in the future.

LEN GIBSON'S MANDOLIN AND GUITAR PARTY.

Listeners-in have frequently heard this novel combination from 3LO Melbourne during the past, and judging by the numerous complimentary letters received from all parts the items rendered by this company are greatly appreciated by listeners generally.

THE SUPREME WIRELESS VALUE



THE "D.J. STANDARD 4"

For £2/10/0 Deposit

Under DAVID JONES' easy system of Deferred Payments you may have the convenience and enjoyment of the "D. J. Standard 4" at once—without any delay. £2/10/- deposit secures immediate delivery of this Wireless Set—full payment to be completed within 12 months at the rate of 9/6 per week. We invite you to take full advantage of this additional convenience.

The "D. J. STANDARD 4" is a powerful, highly selective set, which stands alone for simplicity of reception. This set has but two dials, and will receive, equally well, all Interstate Broadcasting Stations at Loud Speaker strength (with the exception of Perth working on a high wave-length). Being powerful and highly selective, there is no difficulty in picking up whichever station you want—merely by tuning two dials. Once you have tuned in the "D. J. STANDARD 4" remains stable; there is no variance for a whole evening's entertainment.

Here is what you get complete in polished Maple Cabinet—4 B406 Philip Valves, 4 Volt 33 amp Peto-Radford Accumulator, 2 "Volton" "D" Batteries, Trimm Entertainer Loud Speaker, Pair Trimm Dependable Phones, 2 Phone Plugs, 100 feet Aerial Wire, 30 feet Lead-in Wire, 6 feet Flex for connecting batteries, Lightning Arrester. CASH PRICE, £25.

DAVID JONES'

For Service ——— SYDNEY

Important Announcement TO Mullard Valve Users

Owing to the wonderful success of the Mullard P.M. series, it has been decided to substitute P.M.3 and P.M.4 in place of D.06 valves.

They consume only one-tenth ampere.

They have longer life.

They have up to five and a half times greater emission surface.

They are practically unbreakable.

Mullard

THE · MASTER · VALVE

Advertisement of MULLARD WIRELESS SERVICE CO. LTD., "Mullard House," Denmark Street, London, W.C.2, England.

**NEW RADIO VALVES THAT
ENABLE WIRELESS H.T. SUPPLY
TO BE TAKEN FROM A.C.
ELECTRIC LIGHTING MAINS**

The old method of supplying the H.T. requirements of a wireless receiver by means of an H.T. battery (a heavy unit composed of many dry cells bonded together) was so consistently expensive to maintain, and low in efficiency after short use that radio engineers turned their attention to the problem of securing the necessary H.T. supply direct from the electric lighting mains.

The satisfactory achievement of this object would result in an efficient, inexpensive and lasting supply for the utmost requirements of any wireless receiver.

If the electric mains supply is alternating current, as is usual, then steps must first be taken to obtain direct current from this and the most convenient methods are those that utilise what are known as "rectifying" valves.

These "rectifying" valves have only a filament and an anode, there being no necessity to influence the flow of electrons from the filament by means of a grid.

Naturally, these "rectifying" valves call for special design, but the advantages of economical running is secured in the same manner as for receiving valves by using a dull emitting filament.

The Mullard Company have now produced a new valve, the D.U./5, that should be of particular interest to those who wish to construct an H.T. unit to work direct from their house mains.

The D.U./5 (2.7 volts) is suitable for all receiving sets and can be safely run up to 4 volts with corresponding increase in emission.

It may be mentioned that this rectifying valve can be readily used by owners of H.T. accumulators for recharging at home.



FARMER'S Standard 2-Valve Receiver

in Cabinet of Tasmanian Blackwood

*Complete with Aerial Equipment
and All Accessories*

Farmer's Standard Two-Valve Receiver has definitely established its superiority, for reception of Broadcast Programmes, over all Two-valve sets now being manufactured in Australia. Reception is clear and distinct, and its selectivity is remarkable—there is absolutely no interference from other stations.

The cabinet in which it is fitted is of Tasmanian Blackwood, and is a very fine piece of workmanship.

Included among the accessories supplied is a complete set of Aerial Equipment, comprising 100 feet of Aerial Wire, 4 Insulators, Lead-in Wire, and Lightning Arrester.

Other accessories include the following:—

- 2 UX100 "Radiotron" Valves.
- 3 1.5 "Columbia" Cells.
- 1 60 Volt "Ever-Ready" B Battery.
- 1 Pair "Murlock" Headphones.

Price of the Receiver, ready for operation, is £14/10/-

*Call and see it in operation in the
Wireless Department*

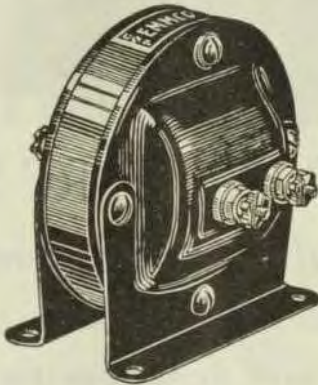
FARMER'S, SYDNEY

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RADIO SUPPLIES GROUND FLOOR

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

With this
Transformer



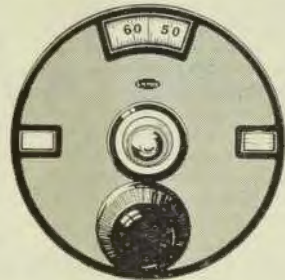
you get perfect amplification

Emeco has finally developed an all-frequency amplifier—an instrument, capable of fully amplifying all notes audible to the human ear.

Thus the deepest bass notes and the shrill, high notes are brought in as clearly and naturally as the middle registers of the musical scale. No slurring . . . no distortion. Improved distance reception and better volume control are further advantages.

Price 21/-

With this
Vernier Dial



YOU control the tuning

What a difference in the tuning of your set when you replace your plain dial with an Emeco Vernier. Hearing—and feeling, is believing. Velvety smooth action and positive hair-line adjustment, enables you to control the reduction ratio by the merest touch. And re-tuning is so easy. Just dot down the call-signs in the special logging window and you can get them back at any time in a couple of minutes.

Obtainable with clock-wise or anti clock-wise movement.

Bakelite Frame. 9/6
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In mahogany or maroon finish.

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Manufactured by
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SYDNEY, N.S.W.

The ROMANTIC STORY of MARCONI

(Continued from Page 8.)

his early experiments. These two advantages assisted him to obtain sufficient outside financial backing for the further development of his work, and in 1901 he startled the world and demonstrated the extraordinary effectiveness of his recent invention by sending the first wireless signals across the Atlantic from Poldhu in Cornwall to St. Johns, Newfoundland. This was the most astonishing triumph ever recorded in the realm of communication. Forty years earlier the first cable signal had been sent from Ireland to Newfoundland and nine years later the first aeroplane crossed that same stretch of ocean.

Marconi's success was particularly interesting, because well-known men of science had declared that a wireless signal could never cross the Atlantic Ocean because it would be screened by the curvature of the earth and the consequent enormous wall of water dividing the English and American coasts. This sounds strange to-day in the light of our popular familiarity with Transatlantic broadcasting, and with our experimenters talking between England and Australia; but 25 years ago, Marconi's discoveries and achievements were the only things known about wireless, and they were received with doubt in many directions and, but for the indomitable faith and the pioneering spirit of Marconi and his associates, the progress of this great science might have been delayed for many years.

Our road is now clearly defined as the highway of wireless or radio communication. As we proceed we may observe other names appearing on one side or the other, together with that of Marconi, at frequent intervals as the numerous ancillary steps were accomplished in the work stimulated by Marconi's example.

Some distance along we meet the name of Dr. J. A. Fleming, Professor of Electrical Engineering at the University of London, who had become associated with Marconi's work in the capacity of scientific adviser to the Marconi Company. In Fleming we meet the originator, the first inventor of that now famous wireless instrument the "valve." Unfortunately, the world has not yet adopted

a standard name for this wonderful piece of apparatus. In England it is known as "valve" or "triode," and by other names, and in America it is widely spoken and written of as a "tube" and sometimes as an "audion." Fleming's great discovery opened the way for other remarkable improvements and applications, notably those of De Forest, who introduced the famous and revolutionary "grid" between plate and filament of the original Fleming valve, and thus made it a much more efficient amplifier, and rendered possible the subsequent invention of the "reaction" principle by Meissner in Germany, and by Armstrong and Langmuir in America. The three electrode valve of Fleming and De Forest is to-day used at every broadcasting station in the world, in all wireless telephone stations, at the majority of wireless telegraph stations and in the majority of receiving sets, whether for official use or for broadcast listening in the home. It has also found a new and important field in connection with the overland wire telephone. Every valve transmitter and most valve receivers employ also the reaction circuit. These two discoveries are undoubtedly the greatest advances since those famous inventions made by Marconi in 1896 and 1900, but Marconi's earlier inventions still remain fundamental, and are in use to-day even more universally than the valve and the reaction circuit.

We now come to the latest, but by no means the least, triumph in the development of this wonderful science. In the same sense, although not in quite the same degree that mankind dreamed of and desired an effective method of wireless communication, we have also dreamed of an ideal sys-

tem in which the energy would be concentrated in one direction instead of being sent out in all directions. The present method by which a message sent for instance from England and intended for Australia has to be spread over practically the entire earth, with the same strength, is decidedly wasteful, and with the rapidly increasing number of wireless stations in all parts of the world and the consequent occupancy of most available wavelengths, it is producing a world wide condition of ether congestion and tending to limit any extension of the benefits to be derived from this great science.

Marconi attempted a solution of this problem in some of his earliest experiments and other workers have from time to time since attempted to find a successful method of concentrating the wireless energy in one desired direction and avoiding the waste and confusion that arise from sending it in all directions. All these attempts were abandoned owing to their non success on any useful scale, and the subject was dropped for a number of years.

Marconi, however, had always believed this problem capable of solution and looked upon it as one of the most important steps required for the future progress of wireless.

In 1916 he took up the problem afresh in connection with some naval work in the Mediterranean and detailed one of his principal assistants, C. S. Franklin, an able research worker trained by Marconi himself, to work under his direction. Marconi and Franklin succeeded, in 1917, in communicating across a distance of 40 miles with a new wireless beam. The experiments were subsequently removed to the Marconi station in Wales, and a long series of careful investigations was carried out, and much new and valuable knowledge was acquired.

The next step consisted in the erection of experimental stations at Hendon near London, and at Birmingham, to test the effect of a beam across land over a considerable distance, and also to experiment with beam telephony. Later an experimental beam station was set up at Marconi's famous experimental station, Poldhu,



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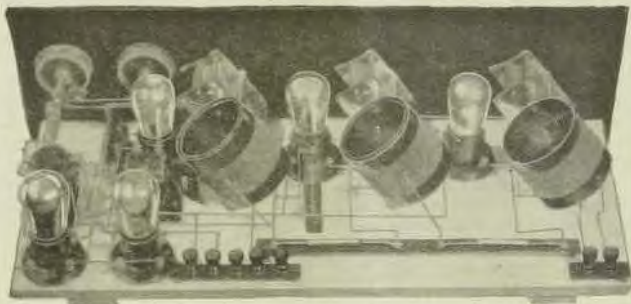


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An R. D. A. Receiver which is a guaranteed product and which embodies every modern factor essential to perfect radio reproduction, may be had for a very small deposit—the balance to be paid on our well-known easy payment system.

An R. D. A. Receiver is not only a highly efficient Broadcast Receiver, but as will be seen from the illustration on this page, it is an article of furniture that enhances the beauty of the home.



The R. D. A. Standard Neutrodyne

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Cornwall, and highly successful results were obtained between Poldhu and Marconi's yacht, "Elettra," cruising in the Atlantic and in the Mediterranean.

In the course of these experiments Marconi had found it necessary to devise transmitting equipment of a new type, which could be used with or without a beam reflector. While testing this new transmitter, Marconi learned with pleasurable surprise that his signals had been clearly received in Australia and he followed up his new development with a long and successful series of organized experiments between England and Australia. Using this same transmitter for telephony, he also succeeded, in May, 1924, in making his voice plainly heard at Sydney, thus achieving for the first time in history the wonderful feat of sending the human voice direct from England to Australia.

The directing and reflecting aerials invented by Marconi and Franklin for concentrating the wireless waves into a beam were not available for the Australian experiments. The new and powerful short-wave transmitters designed for use with their beam directing and reflecting equipment was used and the energy was broadcast in all directions. When this energy is concentrated into a beam and projected in the required direction, Marconi estimates that the energy receivable in Australia will be at least 100 times greater than with the non-directional experiments, and the resultant effectiveness will, therefore, be far greater than that of any existing super station using ten times the power of the beam.

Marconi's experiments have been continued between Australia and, again for the first time in history, he has succeeded in sending messages direct to Australia 24 hours daily.

The successful development of a wireless system capable of concentrating the energy from a powerful station in one direction is the most important step taken in the world of wireless during the past 25 years. Other nations and research workers have been stimulated by Marconi's latest success, and are endeavouring to follow this new achievement just as they did in the days of his early

triumphs. The most spectacular feature of the new beam wireless system will be its uses between countries separated by great distances, but another important application has appeared in its use to supplement the work of lighthouses on the sea coast. The ordinary lighthouse is most ineffective when it is most needed. When the coastline and danger spots are obscured by fog, navigators grope their way in great danger, listening for the uncertain sound of a fog-

being extended continually by the activity of devoted workers all over the world. To what it will ultimately lead one can scarcely prophesy, because we are dealing with a subject of infinite variety and a medium of infinite extent.

The first great practical achievement of wireless communication was the destruction of the isolation of ships at sea. It immediately provided a means of communication between ship and shore and between ship and ship. Had that been its only achievement it could be recorded as one of the greatest scientific discoveries of our time. No one has calculated the number of human lives and ships, and the valuable cargoes that have been saved from destruction through the perils of the sea, but the record would be extensive and a glorious achievement for any branch of applied science.

Yet that now seems the least of the benefits conferred on mankind by wireless communication. To-day giant wireless telegraph stations flash their messages from one end of the earth to the other with the speed of light across thousands of miles of land and water with no physical link, and tomorrow this service will be more effectively carried on by wireless beams crossing and recrossing on their paths between one country and another. Anyone who has witnessed a grand searchlight display from a fleet of warships can visualise the results of these giant wireless beams in a few years' time; they will, of course, be invisible to the eye, but their paths will stretch from England to Australia; from Norway to Brazil; from Yokohama to New York, and so to and from all parts of the world, carrying telegrams for the masses at high speed and low cost, linking the telephone network of London with those of Melbourne and Sydney, and carrying the best in vocal and instrumental art, and the important public statements to and from the local broadcasting networks of the various countries.

Broadcasting, as it is generally known, is the use of wireless telephone stations for transmitting the voice and music simultaneously to thousands, and even millions of private receivers. In less than five years



It is a far cry from the experiments of Dr. Gilboa, Queen Elizabeth's physician, to Marconi. It has taken us centuries to reach the present stage of radio development. However, during the next fifty years, we are likely to double our knowledge of the ether. Mr. Fisk will deal with future developments in an article in a forthcoming issue.

horn, the distance and direction of which are always doubtful and the foghorn is frequently inaudible when a ship is quite near the rocks. Marconi's new wireless beam is certain in action, gives an accurate direction and passes through fog and storm with ease. It is not visible to the eye but it can be picked up by any vessel with the simplest form of wireless receiver. One of these new wireless lighthouses has been established at Inchkeith, in the Firth of Forth, and another at South Foreland in Kent; and it will probably be only a matter of a few years before this valuable equipment is added to lighthouses all over the world.

This brings us to the end of the road as it exists to-day, but it is

it has destroyed the isolation previously imposed on those who live in remote country districts, and it has provided a means by which one speaker or singer, or one orchestra, can be simultaneously heard by millions in their own homes. This, although only one of the many marvels of wireless, is the greatest social development since the invention of the printing press and the phonograph, and it is rapidly becoming world-wide in its scope.

Added to all these great triumphs wireless has recently succeeded in transmitting a photograph between England and America in 20 minutes, and yet it is believed to be in its infancy.

Mankind owes an incalculable debt of gratitude to those who have patiently unravelled the mysteries of nature, and whose courage and foresight have blazed the trail, laid the foundations, and built the existing super-structure of this great agent of civilisation and humanity. Gilbert, the Elizabethan physician; Galvani, the Italian surgeon; Volta, of France; Michael Faraday, of England; Oersted, the Dane; and Henry of America, these men made those early discoveries which have rendered all our applied electricity and magnetism possible. Kelvin and Clerk Maxwell, the British scientists, and Hertz the brilliant German physicist, opened unknowingly the track leading to wireless communication. All this great work crowned and brought to fruition, taken from the laboratory and the realm of academics and presented to the world as a practical utility by the genius of Guglielmo Marconi, the brilliant Italian inventor, who, from the beginning has made and developed it as a British system with the aid of British capital and British engineers. With all his great foresight, Marconi himself could scarcely have visualised the astonishing development that his work would lead to in less than 30 years.

After Marconi, we owe much to Dr. Fleming, the London professor of electrical engineering; to De Forest the American inventor, Meissner and Arco of Germany, Armstrong and Langmuir in America, and a host of others in those countries and else-

where who have contributed and are still contributing to the practical development of the world's greatest peacemaker and the only antithesis to the tower of Babel.

The End

THE 3LO GIRL

Following the success of the 3LO September bride competition, 3LO are in quest of "The 3LO Girl." Candidates must be over 16 years of age, and will be chosen for their beauty of form and face, intellect and personality, skill in sports, domestic accomplishments, and ability to entertain—so in this case, beauty which is, after all only skin deep, will not be sufficient in itself.

The only condition imposed by 3LO is that each prospective candidate must be a listener to their programmes, and consent to have her photograph published. The chief prize will be a six weeks' trip to New Zealand, during which all the principal beauty spots will be visited by rail and motor.

RADIO FOR MOTORISTS

Portable radio sets are becoming fashionable. It is now part of the equipment of many motorists who are enabled to enjoy broadcast music and speech when in the country or at the seaside. There is no need to worry over aerials of the type which require high masts and careful insulation. Many portable sets now have all the components and accessories, including the aerial, contained in a case of quite small dimensions and weighing only 30 or 40 lb. The motor party can use the set while the car is travelling and of course when they stop for meals or to camp.

FUTURE features from 2FC include:—Welsh programme from the Lyceum Theatre, Sunday afternoon, November 21; Travelgraphologue by Major Sandford Morgan, D.C.M., Monday, November 29; first performance in Australia of Arthur Penn's "Marcelle Taps," on December 6. "The Messiah," from the Lyceum, Sunday afternoon, December 5; boys' choir of 100 voices from the Marist's Brothers' School, Mosman, on Tuesday, December 7; choir of 100 male voices on November 29.

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(H. J. HAPGOOD)

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Ajax phone plugs, 1/8. Black
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Special sizes cut to order, 3/4d.
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Country Dealers supplied.

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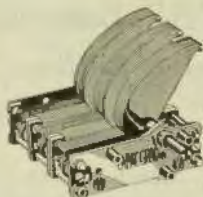
Because Pilot parts are so carefully made and so beautifully finished that they assure perfection in performance and appearance. Because the noiseless, perfect control of Pilot Parts has never been surpassed. Because Pilot Parts mean genuine satisfaction.



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.002	0 3 0
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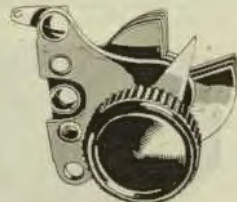
Here is a new and improved vernier dial (ratio 10-1) which makes fine tuning not only possible but **positive!** Indicates both degrees and kilocycles. A fine dial in genuine bakelite, with friction control, **without** back-lash and only 7/6



STRAIGHT LINE FREQUENCY BRASS PLATE.

A triple condenser mounted for one dial control. Built with precision for work.

No. 8113, 13 plate	£0 14 0
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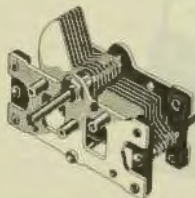
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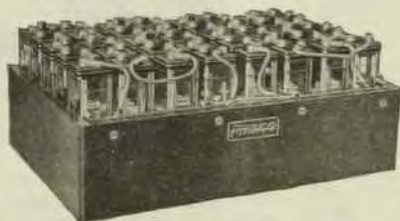
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Static cannot be blamed for all those crackles. Your dry "B" battery with its imperfect continuity causes a lot of them.

Radio experimenters and listeners-in who use Philco Rechargeable "B" Batteries know what it is to get PURE MUSIC always.



Type 83X, £8/15/-. Replaces 90 volt "B" dry Battery.

ECONOMY.

These batteries will give trouble free service for years with only a minimum of attention.

When dry batteries run down, they are USELESS and are THROWN AWAY. The average listener-in will spend in dry batteries over a period more than the cost of Philco. Philco Rechargeable "B" Batteries CAN BE CHARGED FOR A FEW PENCE.

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With new noiseless chargers—just a throw of a switch—a plug in the socket. Impossible to overcharge. Costs only 2½d. to 5d.

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Melbourne. Adelaide.

Broadcasting Costs Money

FEW people realise what a costly business broadcasting is. In the early days—those very few years ago really look very distant at times, the changes have been so frequent and so great—when the novelty of listening to radio concerts people overlooked imperfections. The mystery of hearing music "over the air" was a sufficiently satisfying thrill and faithful reproduction was not expected. Nowadays imperfections are not only noticed but very much criticised. And, of course, the critic always blames the broadcasting stations; he never thinks of the inability of some receiving sets and loud speakers to reproduce faithfully the complex wave forms of energy sent out by the transmitter.

This critical attitude, reasonable in some persons, has led to the search for better transmitting methods. Stations like 3LO and 2FC have installed these newer methods which frequently mean increased cost in maintaining the station. But the greatest increase in cost has not been on the technical side. The improvement of the programme service, search for more talent, novelty transmissions, clerical work incidental to the growing volume of correspondence—have all naturally swelled the cost of producing and maintaining the service. And the charges paid out in copyright and patent royalties increased with improved programmes.

The high cost of providing a high grade broadcasting service is apparently unavoidable. It is not peculiar to any type of management, although of course careful and experienced management enables the cost to be kept within certain limits. In England, many references have been made to the cost of upkeep of the stations and their services. The Broadcasting Company there, however, was in a much better position than any Australian company could expect to find itself in; the large population brought in many more licenses and the unified control of all the stations

Does Broadcasting Pay? The cost of maintaining a station and methods of receiving revenue are discussed in this article. The writer makes some interesting comments on the American and English system.

naturally led to desirable economies being effected.

In America, the cost has resulted in many stations being closed down. And those that remained have cost, and are costing, their owners very large sums. It was reported recently that one of the larger stations, WJZ, cost the Radio Corporation of America as much as 1,500,000 dollars a year—over £100,000. Of course, that station is unique in the fact that it has two large studios in the City of New York and a broadcasting station several miles out of the city operating on very high power.

One naturally wonders what the Corporation gets in return for this huge expenditure. It certainly does not get revenue direct or indirect every year that would compensate for the outlay, and there will probably be some change before long. Some of the stations can afford to stand a reasonably high annual outlay on broadcasting. Their owners get some return or some compensation.

There are three principal ways in which an attempt is made to balance the expenditure—by selling time, by making or maintaining business goodwill among the customers of the company that runs the station as an auxiliary to its other business, and by creating and sustaining the demand for wireless receiving equipment. The Radio Corporation is included in the companies that operate in the last-named way.

One group of stations obtains a fair return from the selling of time; but this means of revenue is of limited value in the majority of cases and

thus it is by far the largest number of stations are run at a loss. The loss is written off against publicity, propaganda or advertising. Department stores, hotels, and newspapers can be included in this class. For instance, the Chicago "Tribune" maintains an expensive station WGN, which incidentally the paper rejoices in claiming that the letters mean "World's Greatest Newspaper."

There are other groups of concerns running broadcasting stations. These owners include Universities, Colleges, Churches, etc., and apparently the cost of maintaining their services is considered a reasonable price to pay for the educative influence they desire to exert, or the propaganda they wish to spread. They would be classed by us among the stations known as Class B stations.

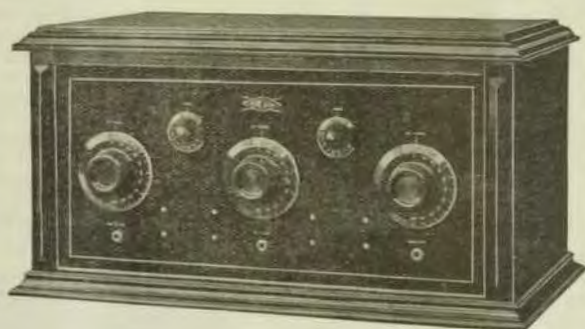
The selling of time must be a good means of obtaining revenue—if the time available for sale is all taken up. The charges made by some stations are very high. Prices vary from 100 dollars an hour to 600 dollars per hour. There is also a difference in price according to the length of time of the contract and also according to the hour of day or night when the time is sold or leased. There is a difference of opinion as to which is the most valuable hour—when most people are listening. The dinner hour seems to be most popular in New York. Some authorities contend that after 8 p.m. the audience diminishes as people leave home for the shows or go out visiting.

One large station WEAF operated by the American Telephone and Telegraph Company charges in day time half the rates of evening. Its evening rates are 600 dollars per hour. This company controls directly or indirectly several stations in other States which are joined up by telephone lines for special programmes. The leasing costs for the use of the time of the stations is 480 dollars for WEAF and 225 dollars for each other station simultaneously broadcasting. Another station, WOCP,

COLMOVOX SUPER MODELS 1926

Five
Valve
£49/10/0

Nothing more
to buy



Four
Valve
£37/10/0

Nothing more
to buy

FULFILS YOUR UTMOST DESIRE IN BEAUTY AND PERFORMANCE

THE 1926 SUPER COLMOVOX is beautiful to look at—lends an atmosphere of dignity and worth to Library or Drawing Room. Naturally you expect unusual performance from so beautiful a Radio Set and unusual performance is exactly what you get. Tuning, for example, is controlled by three dials only—so perfectly adjusted that each station comes in always at the same dial settings. It never varies. Powerful locals may be on full blast, yet you can tune them out completely and bring in distant stations. Tone reproduction is always clear and true, the volume always adequate. Non regenerative and extremely silent in operation, this Receiver comprises two stages of tuned Radio Frequency Amplification, Detector and Two stages of Distortionless Audio Amplification. Before you choose the receiving set to occupy the place of honour in your home, be sure to see and try the COLMOVOX. Its beauty you will recognise at a glance. Its extraordinary capabilities we will be always glad to demonstrate.

DEFERRED PAYMENTS :

Five Valve, Deposit £8/5/-, 18/- Weekly
Four " " " £6/5/-, 13/6 "

COLVILLE MOORE WIRELESS SUPPLIES LIMITED

10 ROWE ST., Near Hotel Australia, SYDNEY

charges 150 dollars between 6 and 7 p.m.; 175 dollars between 7 and 8 p.m. and 225 dollars between 8 and 10 p.m. After 10 p.m. the price decreases considerably.

The method of selling the time or rather leasing it, is to allow the applicant who desires the publicity to arrange the programme for the hour. For instance, a well-known firm of manufacturers of wireless receivers, the Atwater Kent Company, arranges for—and pays—prominent artists for the selected hour. The hour is advertised and announced as the Atwater Kent Hour. Before each item it is announced that the item has been provided by the Atwater Kent Company, manufacturers of radio receivers. The broadcasting company ensures that the programme is up to the standard of its station, and the radio company gets a good advertisement. People listening-in are constantly, but not blatantly, reminded of the Atwater Kent name of radio goods, and doubtless bear the name in mind when buying sets or parts.

Similarly a hotel dinner orchestra is broadcasted during the dinner hour and the name of the hotel dining room is announced. This is a cheaper form of advertisement than arranging for and paying artists to sing at the studio, and no doubt the broadcasting of good orchestral music induces people to visit the dining-room of the hotel mentioned.

In this way do some American stations find revenue to offset the cost of maintaining the service. But its application is not without some objection and would very probably be resented if continued to great lengths. A little of it would not be objectionable, but it is certain that listeners would object if advertising in this way were to be unrestricted. One could safely say it would not be successful in Australia. First, because there are not many concerns who would pay high fees; and high fees would be necessary if the broadcasting company had to depend on revenue of that character. Second, the listeners would object to it if it were extended over lengthy periods. There are many things that go well in New York that Australia would not stand for.

The existing Australian method whereby a limited extent of advertising is permitted, is the best method. When carefully prepared a broadcast advertisement here and there is not objectionable.

Do You Get Interference from 2GB

ALLEGED interference between 2GB and 2FC has been the subject of many controversies between listeners-in at Mosman. Mr. Norman D. Hale, president of the Mosman Radio Research Laboratories has investigated the trouble, and writes as follows:—

"We have been told by the designer of 2GB that the station would be selective to a high degree, and I think most of us have proved, without much technical research, that such is the case. However, there is always to be found a fly in the good ointment. According to many disgruntled listeners in Mosman, 2GB is the fly without a doubt, but let me try and explain to these people just exactly where the troublesome fly really is.

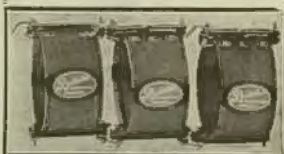
"I say emphatically, and speak from a good deal of experience, that Interstate reception can be received in Mosman on an ordinary tuning circuit without the slightest background from 2GB. The Mosman Radio Research Laboratories have proved this beyond a doubt.

"The club possesses a common single coil, single valve set, which tunes out 2GB within 10 degrees, on the dial and receives Interstate broadcasting quite well. (The distance from 2GB is just under the mile, air line). Why? Because there is no fly in it; in other words, care has been exercised to see that the set has been properly wired, has a good aerial and ground connection, and certainly is subjected to proper tuning. This is no fantastic circuit and no freak tuning is necessary to produce these fine results. We also have an ordinary 3 coil tuner with the same tuning or selective qualities. Why, then, all this controversy? The answer is simply this, look to your set; there is either something wrong with it or with the user.

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

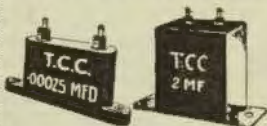
Metropolitan Electric Co., Ltd.

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Ltd.

Keith Stokes Pty., Ltd.

T.C.C. CONDENSERS



T.C.C. Condensers are quality products from first to last. They are permanent, accurate, calibrated, and fully guaranteed against break down. Duplex terminals allow for perfect electrical contacts being made either with or without soldering.

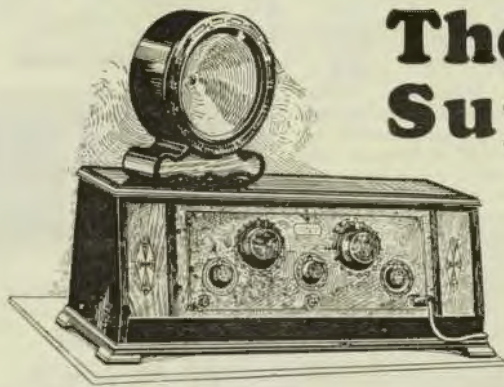
Full range of sizes from .6001 to 2 m.f., also 4 m.f., 5 m.f., and 8 m.f. Condensers for battery eliminators.

FREE! T.C.C. Broadcasting Log, giving wavelengths of principal A and B class stations in Australia, and of the principal overseas broadcasting stations. Invaluable to listeners-in. Obtainable from radio dealers or.

Lawrence & Hanson
Electrical Co. Ltd.

Sole Agents, N.S.W. & Queensland:
33 YORK STREET, SYDNEY.

*America's Latest 6-Valve Receiver—and undoubtedly
the finest proposition in the Radio world to-day*



The "Eclipse Super-Six"

Here is the most exclusive, the most powerful and selective of all Sets, a Super Six-valve, within reach of the man of moderate means.

at the unequalled price of £18/18/-
without accessories

or complete with first
quality accessories . £37/10/-

THE COMPLETE SET INCLUDES — Latest Magnavox Cone Speaker
Clyde Guaranteed Accumulator 6 201A Valves (Radiotron)
3 Large Capacity Winchester B Batteries Aerial Equipment.
Complete with cheaper quality accessories . . . £30

Cash or Terms

To those who are desirous of possessing a Set embodying only the most advanced attainments in Radio, the "ECLIPSE" can be bought with the absolute assurance that it will give the finest possible results in Broadcast receiving.

3 Salient Points of the "Eclipse"

1. The latest method of amplification used ensures the most wonderful tonal quality, as well as a maximum of volume.
2. Simplified tuning—Two dials only used.
3. Exclusive and distinctive cabinet design.

Hear the "ECLIPSE" demonstrated in our Audition Room or in your own home, and be convinced of the superlative qualities of this remarkably low-priced Receiver.

A Special Purchase!

Cutler-Hammer 30 and 6 ohm Rheostats and Potentiometers.	Usual Price 6/9
Special Price	2/6
Cutler-Hammer Variable Grid Leaks.	Usual Price 6/9
Special Price	2/6

A SUPREME OFFER IN LOUD SPEAKERS

The "MANHATTAN Junior Adjustable"
Height 22 in., 10 in. Bell
Usually priced at 75/-, a Special Big Purchase enables us to offer this efficient speaker at the astounding price of 32/6. (Post free anywhere in Australia).

Mick Simmons Ltd.

"The World's Greatest Sports Store"

Headquarters: 720 G HAYMARKET, SYDNEY
And at BRISBANE

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.

Aerial (Kinross).—

Q: I intend building the Bennett in "Wireless Weekly," 10/19/26, but I desire three valves instead of two valves. What size post and baseboard is suitable?

A: Panel 18" x 7" x 3/16" and baseboard 18" x 9" x 3/8".

J. B. (Granville).—

I can't make up my mind which set to build, the Harkness Reflex or the Extraordinary One Valve. I have heard such good reports of each that I am in doubt. Q: If I built the Extraordinary One Valve would the 3000 variable condenser be suitable for the Harkness Reflex if I finally decide to build this?

A: The Harkness Reflex is essentially a loud speaker set whereas the one valve is a phone receiver. The 3000 condenser may be used in both circuits.

Q: What batteries would I want for these sets. Mention voltage, dry or accumulator type?

A: The batteries depend on the valves used. If a 201A type valve is used each taking one quarter of an ampere a 5 volt accumulator is necessary for an A battery. If a valve drawing 30c of an ampere is desired, dry cells will suffice for an A battery. Many valves today use 1 of an ampere. If two of these valves are used an accumulator is necessary. Don't ask a dry battery to yield more than 1 of an ampere. It is unwise and as dry batteries cannot be recharged they must be discarded when worn out. See page 52 of "W.W." 9/16/26.

B Batteries are another matter altogether. Larger capacity B Batteries of 80 volts will give 12 months' use with the Harkness, provided, of course, the set is not roting all day long, but only in the evenings. Again, wet B Batteries are rechargeable, which is an advantage. See the article on making one in this issue.

H. J. M. (Urbos). Q:—

I have built a 6-Valve Neutrodyne and I can only get 20G on 'phones at night. Previously I had a four-valve Pentodyne but could only get the same results. My A battery consists of a 6 Volt Red Seal marker, also I have 4-1.5 volt dry cells, and I use 2400 valves. Can you assist me to locate the fault?

A: It appears that your main source of trouble lies in the valves. The 2400 is designed for 4 volts, NOT 6 volts. If 6 volts are applied, the valves will lose their emission. Only use 4 volts, i.e., three dry cells in series and your results should be better, provided you have not damaged the valves.

C. B. (Walland).—

I am experiencing an annoying crackling sound which doesn't sound like static. At times it comes in like the marinated sound of dripping water; at other times it is a crackling and buzzing sound. Others in the neighbourhood experience this.

A: The trouble may be due to outside interference from a generator set or motor or electric light mains most probably. Try running your aerial at right angles to high tension mains. Perhaps your B Batteries are old. Test them.

Q: I have built the Harkness Reflex but the coils do not tune down low enough to pick up the amateur stations. Could a Grodan Spider-web former be used?

A: The receiver as described is only to cover the broadcast wave band. Experiment

with the spider-webs and let us know how you get on. Best wishes.

T. B. S. (Linnfolk).—

Q: I find that when I remove the carbonium detector from my "W.W." Single Valve Reflex the signals come in twice as loud. Can you tell me why this is so?

A: 1: Evidently your carbonium is defective. Take it back to your dealer who will replace it.

Q: 2: I am using a 6-ohm rheostat with a UV199 valve. Would this make any difference in reception?

A: 2: Yes; insofar as the lack of control of your valve is concerned. Use 50 ohms.

Q: 3: Could I use a variac coupler instead of the three plug-in coils?

A: 3: Yes; but watch the coupling between the primary and secondary.

Benoni (Oriskany).—

I find my B batteries are run down and I would be glad if you would answer the following questions:—

(a) Should I get another set of dry B batteries?

(b) Or set rechargeable B batteries?

(c) A B battery eliminator?

A: This is a matter you will have to decide for yourself. Perhaps the eliminator would suit you, but you will have to lay out between £10 and £20. The writer has been on a well-known make costing £14 last night. Results, excellent.

C. J. H. S. (Leichhardt) tells us that he cannot speak too highly of the Harkness Reflex. He looked it up a short time ago and he claims it is as good as the standard three-valve on an outdoor aerial. But he cannot receive Intermediate, and asks is it possible?

A: 1: Yes; from the writer's own experience. But practice is necessary. Stick to it. It's worth it. Don't interfere with your coils but use 00000 condensers.

Q: 2: Should the receiver be hard on A batteries?

A: 2: No. The valves only consume their rated amperage. Thanks for suggestion. Welcome.

W. J. L. (Cooroooy, Q.).—

Q: 1: Would the Neutrodyne of "W.W." of 22/10/26, constructed exactly as shown be selective in my location?

A: 1: Yes; I should. We know of Neutrodyne in Traralgon, West End, Indoropolly, and New Farm working splendidly.

Q: 2: Why are the two stages of audio not controlled by a rheostat?

A: 2: The audio are on the same rheostat as the arc valves. Try separating them.

Q: 3: Are 0003 variable condensers absolutely necessary or would 0005 S.L.F. be good design do as well?

A: 3: Yes, 0003 S.L.F. are quite O.K.

Q: 4: For working the local station, could a switch be incorporated to cut out the radio frequency valves without impairing efficiency?

A: 4: We don't recommend switches on radio frequency.

L. H. N. (Campute).—

Q: 1: I have two 00025 mfd. variable condensers. Would they be suitable for the Harkness Reflex?

A: 1: Yes. We can't explain the loss of A battery current.

T. S. (Aburath).—

Q: 1: What are the dimensions of the different coils in the Browning-Drake kit?

A: 1: Secondary, 77 turns 24 D.C.C. on

3 inch diameter former; primary, 24 turns 30 enamelled wire wound on a 1/8th inch slot in a wooden or ebonite former just big enough to fit into the secondary tightly so that the grounded wire container is opposite the last turn in the secondary. Reaction, 50 turns of 20 D.C.C. wire on a 2 1/2 inch rotor filling on the top of the secondary. Neutralizing tap at the 10th turn from the bottom of the secondary.

C. B. F. (Hazelbrook).—

Q: Please forward me a complete list of amateur stations.

A: This has been posted to you.

J. G. (Hamilton).—

Q: In my set the stations come in on the slide reader from left to right, in the following order: 2FC, 2EA, 5CL, 44G, 5LD, and 2HL. I would like to know the cause?

A: Procure a dial reading in the opposite direction.

Q: I can turn in the above stations, and still have more room on my condenser for 2GB, but I have sound larger coils since 2FC reduced its wavelength. If I make smaller coils, will I get these stations?

A: 2: Yes; change over to smaller coils when you desire to hear these stations. The potentiometer makes no difference to wavelength.

P. R. G. (Mossman).—

Q: 1: If I put two aerials up, would I have to pay two rates?

A: 1: No, provided both are on the same premises.

Q: 2: Would the Reistofek receiver of "W.W." Vol. 6, No. 1, still receive 2HL, 2KY, and 2FC?

A: 2: Yes; but why not build a more up-to-date receiver?

S. W. T. (Newtown).—

Q: 1: Would UV 199 valves be suitable for the Harkness Reflex?

A: 1: Yes.

Q: 2: Do 201A valves need a dry or wet "A" Battery? Will they fit UV199 sockets?

A: 2: 201A valves need a wet accumulator, but they won't fit UV199 sockets.

W. L. W. (Marsborough, Q.).—

Q: 1: I have erected an aerial 120 feet long with 41 feet down lead (160 feet overall), and it is only 10 feet above an iron roof over a hall. I only get 2FC; but when I take my set to its original location, I receive all stations. Why?

A: Your aerial is too long. Chop off 60 feet and connect the iron roof to the earth. This will cure it.

Hard to Please? (Kawteke) submits a panel layout of the Browning-Drake, and asks:—

Q: 1: Would the different layout affect the results?

A: 1: No, so ahead.

Q: 2: Would my two Acme low loss condensers be suited to the Browning-Drake?

A: 2: Yes.

Q: 3: Would 2 Jefferson Star A.F. transformers be suitable?

A: 3: Yes, eminently.

Q: 4: Would the latest type of Headlystat be suitable for UV199 valves, without adding extra resistance?

A: 4: Certainly. No resistance to required.

W. J. (Iparwich).—

Glod to hear of your success with the Extraordinary One-Valve. The wave trap is quite O.K., the centre connection is for the mercuric plates.

BRITISH MADE

**CLARKE'S
ATLAS**

BRITISH MADE

High Tension Battery Eliminator

WITH

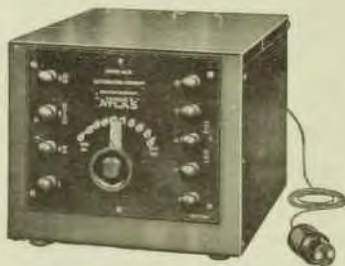
VARIABLE HIGH TENSION VOLTAGES
and GRID BIAS TAPPINGS

MODEL AC2

For Alternating Current Only

THE FINEST
ELIMINATOR ON
THE MARKET

For value and
efficiency.



ELIMINATES "B"
AND "C"
BATTERIES

Price Complete
£14 each.

Eminently Suitable for Multi-Valve Sets

The removal of the bug-bear of the high tension battery with its continual and expensive replacements is at last an accomplished fact, whether your current is alternating or direct.

Voltages can be regulated from minimum to maximum, i.e., 20-150 volts for H.T. in stages of 20 volts per stud. Fixed voltages of 60 and 120 are also provided. "Grid Bias" of 4, 8, 12, or 16 volts can be obtained from terminals marked "Grid Bias."

Ask your Dealer—If he cannot demonstrate it to you get in touch with us direct.

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"Wingello House," Angel Place (Near Martin Place), SYDNEY

Telephones : BW 6938, or B 4917

SOLE AUSTRALIAN DISTRIBUTORS

A Test of the Clarke's Atlas High Tension Eliminator

The other evening at Marrickville a most interesting hour or so was spent on testing out the Clarke's Atlas B and C Battery Eliminator.

The appearance of the eliminator is very pleasing to the eye. Ranged along the bottom are four terminals, one the B— and one marked 60 volts for radio frequency valves. The audio frequency valves are catered for by a terminal reading 120 volts. The detector on the other hand has a variable voltage of between 20 and 150 volts, controlled by a switch-arm in the centre of the panel. This switch-arm plays on several contact studs, each of which gives a rise of approximately 20 volts.

The grid voltage rises in steps of 4 volts to 16 volts, the terminals for this voltage being found along the one side.

Special Mullard Valves are used for rectifying the A.C. current, and this is done quite thoroughly.

The Eliminator was connected to a five-valve Neutrodyne, the radio frequency tapping of 60 volts proving a boon.

The volume was surprisingly loud, but remarkably clear, absolutely no sign of A.C. hum being discernible. This latter fact was very pleasing indeed, considering the Atlas Eliminator was barely two feet away from the receiver.

Later in the evening, a three-valve and a one-valve receiver was linked up to the Eliminator, and excellent results were achieved.

Certainly a Clarke's Atlas High Tension Eliminator lives up to its name, and is to be highly recommended to those seeking an article of this type.

Simplicity is its keynote, just connect to the receiver as shown and plug into the power point, and there is a constant supply of high tension without worrying about "B" batteries. The valves are rugged, and should last for years.

BURGESS BATTERIES

will add to the effective-
ness of any radio receiving
set. They are famous

FOR

their uniform quality and
absence of internal noises—
important factors in

CLEAR RECEIVING

"ASK ANY RADIO ENGINEER"



Obtainable only from High-class Dealers.

If your local Dealer cannot supply, write us,
giving his name. We will fulfil your order and
we pay carriage.

Wholesale Distributors:

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Columbia 22½ Volt "B" Battery No. 4766



ESPECIALLY adapted for use with soft detector tubes. Large size cells make it the most economical. Six Fahnestock spring clip connectors with a range of 16½ to 22½ volts.

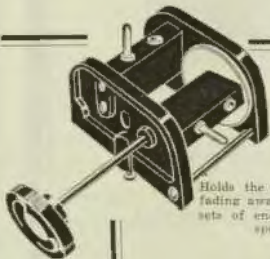
Factory Representatives:
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Columbia Radio Batteries

Made by the manufacturers of the Famous Columbia Dry Cell

141



Bakelite mouldings for the side plates, coil blocks and knobs; heavy nickel plating for the metal parts.

Tuning is Accurate, because the
Moving block cannot fall

Holds the heaviest coil securely in position and prevents the fading away of volume. The vernier movement consists of three sets of enclosed precision machine cut gears and reduces the speed of the moving coil block by eight times.

From all Radio Dealers.

LOTIUS

VERNIER

COIL HOLDERS

GARNETT, WHITELEY & Co., Ltd.,

Lotus Works, Broadgreen Road . . . LIVERPOOL.

Makers of the new Lotus Buoyancy Valve Holder.

Manufacturers' Representative:

John Arnold, G.P.O. Box 871, DeGraves Bldgs., DeGraves St., Melbourne; and 35 Taranaki St., Wellington, New Zealand.

Two Types:
For outside panel mounting
Two-way .. 11/-
Three-way .. 16/-
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Three-way .. 18/-

SLINGSBY & COLES Limited

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482 PITT STREET.

OUR WONDERFUL 5-VALVE
SUPERTONE TOROIDAL
COIL SET.

Complete with Batteries, Valves,
and Speaker.

PRICE £31/10/-



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for the New
Feature.

Every week a Set will be on view,
which is described in "Wireless
Weekly" for home assembly.
Easy Terms for Sets and Parts.

Subscription Form

The demand for copies of "Wireless Weekly" has so far exceeded the supply from the printing presses, despite increased output each week, that many listeners-in have complained that news-dealers were sold out before they could obtain their copy. In order to insure delivery, fill in this subscription form and forward to the Editor, "Wireless Weekly," 51 Castlereagh Street, Sydney.

Please forward "Wireless Weekly" for a period of

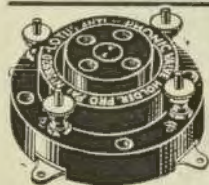
for which I enclose for (add exchange to country cheques).

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Valve sockets and springs are locked together by a mechanical process, making a definite and permanent connection. It is a like like mouldings, nickel silver springs and phosphor bronze valve sockets, nickel plated.

With Terminals,
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You know it's good because of the name "LOTUS"

Don't have your valves spoiled by shock. The Lotus Valve Holder has been specially designed to counteract the microphonic elements that are so injurious to the delicate valve filaments.

The unique and original springs of the Lotus Valve Holder absorb any shock and eliminate all microphonic noises. Protect YOUR valves by fitting the Lotus Holder.



From all Reliable Radio Dealers
GARNETT, WHITELEY & Co., Ltd.,
Broadgreen Road, Liverpool
Makers of the famous LOTUS Coil Holder



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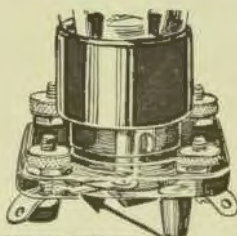
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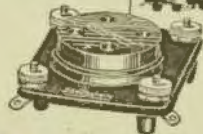
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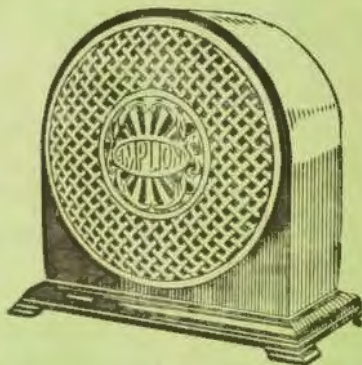
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