

WIRELESS WEEKLY

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9 DEC 1927
SYDNEY

Broadcast Programmes a Week in Advance

VOLUME 11

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NUMBER 7



Friday, December 9, 1927.

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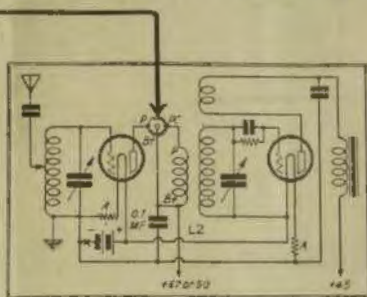
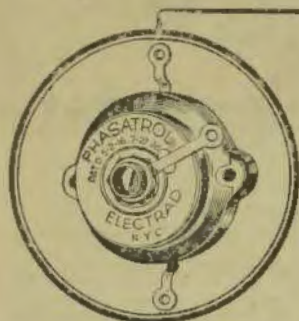
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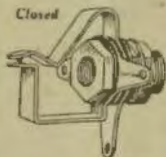
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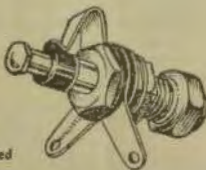
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WIRELESS WEEKLY

VOL. 11, No. 7.

FRIDAY, 9th DECEMBER, 1937.

Will Spark Transmitters be Abolished?

A VERY interesting subject discussed at the Washington Conference is the type of transmitting equipment used on wireless installations on ships. It has been reported in the press that the Conference discussed a proposal to force shipping companies to abandon the spark type of transmitters, but after considerable discussion it was agreed to allow the existing spark transmitters to continue until 1940, but no new spark sets could be installed after 1939.

This information is of considerable interest to broadcast listeners. The interference caused by spark transmitters of the type used on ships is well known. The effect is not very noticeable at places well removed from the coast line, but in and near the capital cities and in towns along the coast near capital cities when ships are working to the coast stations in the capital cities interference is very objectionable.

The interference with broadcast reception is due to the fact that spark transmitters are incapable of being tuned sharply.

There are very sound reasons why spark transmitters should not be summarily abolished from ships. Their replacement by modern equipment would be a very expensive matter as it is estimated that there are about 12,000 commercial ships using spark transmitters, throughout the world to-day. A perhaps more important reason is the technical consideration that it is undesirable, and in some instances unsafe, for a ship to be required to transmit on one wavelength or a very narrow band of wavelengths. Such a restriction is not

serious, when it comes to ordinary commercial ship wireless traffic, but when it is necessary to set out the "SOS" call, it is of the utmost importance that every facility should be available for coast stations and ships to hear the "SOS" message.

On some ships, of course, sharply tuned transmitters, that is, C.W. or continuous wave transmitters, are used, but these transmitters are used as auxiliaries to the ordinary equipment upon which the ship relies for its most important message, the "S.O.S." message. A compromise between spark transmitters and C.W. transmitters is the system known as I.C.W. transmission, that is interrupted continuous wave transmission. Such a system is now installed in most of the Australian coast stations with considerable benefit to listeners nearby, as ILO listeners know who remember the conditions of a few years ago.

One method of overcoming broadcast interference from coast stations working by more signals to ships is the removal of the coast station to a locality distant from the populous suburbs. Such a removal, of course, would involve considerable expense, and as the broadcast companies are not likely to pay for the removal, presumably we must put up with the condition that now obtains.

We should, however, in justice to the authorities who run coast stations, admit that the transmitters now used in the capital cities in Australia are better equipped than those in similar stations in other countries. The fact of the Washington Conference decision will no doubt force other countries into line.

Catching Up with the Wireless World.

By R. E. CORDER.



ARRANGEMENTS have just been completed between Captain Eckersley, Chief Engineer of the British Broadcasting Company, and the National Broadcasting Company of America, for the immediate development of an interchange of broadcasting between the two countries.

IT HAS BEEN agreed that powerful short wave relay stations will be erected for the purpose at once, and it is hoped that these will be sufficiently advanced to permit the working out of programmes and administrative details, for which the British Company's manager, Sir John Reith, is coming to the United States in the near future.

POISONED PILLS STOPPED BY RADIO: A chemist in London, who discovered too late that the pills he had made up for a woman were poisonous, broadcast a frantic appeal by means of the local station, and as a result the pills were traced and returned to him immediately.

A COOL REQUEST: "I think the coolest request ever made," stated a radio official in London, "was that of a woman who called us the night of a fancy dress ball and asked us to broadcast a request for a dancing partner because her partner had fallen and twisted his knee!"

3LO, THE MATCHMAKER: An interesting romance has developed from the recent broadcasting by 3LO of the Sunday School Anniversary Service from the Pleasant Street Methodist Church, Ballarat. During the sermon the preacher referred to the presence of one of the senior members of the church. Away in Mordialloc an old sweetheart heard the name and entered into correspondence with the lady mentioned, with the result that they have been quietly married at Ballarat, where they have made their home.

A Tribute to the Announcers of 3LO.

(by a Poet too famous to name).

*There's a voice upon the Wireless,
And it lures me to the 'Set'.
As the Sirens did the Sailors
It's a voice I can't forget.*

*It can whisper words of passion,
In a simple Roundelay,
It can croak with age and weakness,
In an old-man one not play.*

*It can draw upon my pity,
For the poor, and sick a-bed,
It can quote the price of onions,
Like a bad cold in the head.*

*It can laugh and make me merry,
It can weep and make me mourn,
For the man up in the Mallee,
For the sheep just newly shorn.*

*It can make one feel a friendship,
For the folk I'll never meet,
It can make me wish to look out,
For the lost from Russell Street.*

*And the other! Oh, he's jolly
Ev'rybody says he's nice,
And to ev'rything he tells us,
I could eas'ly listen twice.*

*He seems never bored, nor bothered,
Seems he's always 'smilin' thro'
And he makes me seem less tired,
When I've had a lot to do.*

*'Tis his greeting—it's so cheery,
Debonair, and good to hear,
Making me in lonely distance,
Feel a friend is really near.*

*And I loved him one Old-Time night,
When he—what was it he sang?
Surely now, I've not forgotten,
Why! "When you and I were young."*

*We've a pair of fine Announcers,
On the Air—at 3LO
They're the best of all the stations,
And—WHAT HARM TO LET
THEM KNOW.*

OUR COVER PICTURE this week depicts Mr. Maurice Dudley and Miss Hazel Maude ("Miss Kookolurra") broadcasting during a Children's Session at 3LO. Mr. Dudley is taking the part of the wicked uncle.

COMPLETES 100 TALKS ON DECEMBER 11: Mr. P. H. Nicolls, who speaks from 5CL every Sunday evening, will give his 100th talk on the evening of December 11th. A special talk will be given.

2GB TO USE CRYSTAL CONTROL: "Next week-end," announces Mr. Saunders, of 2GB, "our station will return to the Crystal Controlled Transmitter." This method of control has many advantages, chief among them being stabilization of wave length.

CAN YOU GUESS? Not many radio enthusiasts are aware of the identity of the man who discovered the principles of regenerative, super-regenerative, and superheterodyne sets. It was Edwin H. Armstrong, an American, who made these important discoveries.

MR. A. J. WEST, 33 Silverdale Road, Eastbourne, Sussex, England, writes to 2FC as follows:—"Your transmission from 2FC yesterday (Sunday evening, 16th October) was heard perfectly by me on a 2-valve set—designed by me for ordinary broadcasting, and not specially designed for short waves. My position is badly screened by high buildings and by the Downs, 600 feet high.

"I picked up your carrier wave before 6 p.m. and held you right through until you closed down at 7.10 p.m.

"It was very exciting and thrilling to hear birds (Mr. West refers to the kookolurra) singing, piano music, and addresses—one by Sir Joseph Cook to his successor, as High Commissioner in England—from the other side of the world. I was too engrossed and thrilled to write down all the items, so am only trusting to memory. The grand finale of singing the National Anthem was truly inspiring.

"The whole programme was perfectly delightful, and I look forward with pleasurable anticipation to hearing you again. My wife also listened to it, and joins with me in offering our heartiest congratulations."

Hurley used Burgess in New Guinea.

Simplified Receiving Sets.

FOR some time the tendency in the design of wireless receiving sets has been towards greater simplicity. Apparatus in use but a few years ago bristled with knobs—the writer has known over 20 controls in a five-valve set—and had many visible leads. We have advanced from this stage, though there is still much to be done before the perfect set makes its appearance. The ideal that designers have before them is a set efficient enough to enable its owner to enjoy a considerable choice of programmes at full loud-speaker strength, and yet so simple that it is operated as easily as the gramophone. The receiving set of the near future will have but one genuine tuning control; only one knob, that is to say, which affects the wavelength. There will be also a reaction control, but this will alter the volume only and not the actual tuning. Batteries will not be required, both high and low tension current and grid-biasing potentials being supplied direct from the lighting mains by means of a plug-and-socket attachment.

The recent development of the logarithmic variable condenser has made single-knob tuning a practical possibility. To obtain both sensitiveness and a fair measure of selectivity one or more high-frequency stages are required, which means that a receiving set must contain at least two tuned circuits, such consisting of an inductance and a variable condenser. By means of gearing or by mounting two or more sets of moving vanes upon the same shaft, the simultaneous tuning of two, or even three, circuits was accomplished some time ago; but it was not by any means a complete success. No matter how carefully matched were the coils, or how symmetrical the lay-out of the circuits, complete efficiency could not be obtained over the whole tuning range with any existing type of variable condenser. The logarithmic condenser entirely removes this difficulty, making it possible to obtain perfectly sharp tuning in a number of circuits by moving a single dial. We may, therefore, expect to see in the very near future receiving sets equipped with single-control tuning.

Stabilized Circuits.

The perfection of simultaneous tuning does not, however, entirely solve all the problems in connection with receiving apparatus containing stages of high-frequency amplification, for, unless measures are taken to prevent it, oscillation is liable to occur when

such circuits are sharply tuned. The best way of making these circuits completely stable is to use one of the many methods of neutralization, by means of which the capacity between the grid and plate of the valve itself is balanced out and a feed-back or regenerative effect is prevented. Though neutralizing is no new thing, it is a remarkable fact that at last year's Wireless Exhibition less than 10 per cent. of the sets shown were equipped with any kind of balancing device on the high-frequency side. The great advantage of neutralizing is that, though it produces complete stability, it does not in any way impair the efficiency of the circuits in which it is used by introducing damping. There can be no doubt that its employment will become almost universal in the near future. This has already taken place in America, where the set that cannot howl is the rule rather than the exception.

Reaction has always been something of a difficulty. In order to hear a weak and distant transmission the receiving set must be brought into a sensitive condition by counteracting the effects of resistance and other forms of damping. The earliest reaction system, which is still very widely used, is that in which energy from the plate circuit of a valve is fed back into its grid circuit by means of variably coupled coils. This form of reaction, the magnetic, has several serious disadvantages. Alterations in the coupling between the plate and grid coils are liable to affect not merely the volume of sound, but also the wavelength to which the set is tuned. This kind of reaction is apt also to be somewhat "fierce," it being difficult to hold the set just below the point of oscillation without allowing it actually to oscillate. Increased smoothness in reaction control is made possible by the use of feed-back methods, which depend not upon magnetic but upon capacity effects. Many such circuits have been developed, and it is more than probable that they, or modifications of them, will be adopted in the design of the receiving set of the immediate future. With them tuning is immensely simplified, since the reaction control is delightfully smooth and the turning of the knob varies only the volume of sound and not the wavelength. Ideally it should be possible to eliminate altogether variable reaction control, and to substitute a fixed adjustment of reaction, which will give good results over the whole range of the coils in use. It is, perhaps, rather too early to say that this has been achieved, though remarkable progress has been made recently

in the ingenious Loftin-White circuit. In any event, we may look forward to the advent in a comparatively short time of the set in which reaction control closely approaches perfection.

The Use of Mains.

The elimination of batteries is by no means an easy business in this country, since there is at present no standardized form of current supply from the lighting mains. In one district the current may be direct; in another alternating. Where direct current is supplied the voltage may be anything between 100 and 250. In places where alternating current is supplied not only the voltages but also the frequencies differ widely. These difficulties will disappear under the standardization scheme contained in the Electricity (Supply) Act; but as matters are they not great difficulties in the way of the designers of receiving sets intended to work directly off the mains.

Despite the present chaotic state of affairs, however, a great deal of progress has been made. There are two systems to-day which appear to have great possibilities. In the first, valves of standard pattern are used in conjunction with converters or rectifiers which deliver current smoothed, filtered, and at pressures suitable for wireless purposes. The second, which is applicable only to alternating current supplies, makes use of special valves in which the filament is replaced by a cathode brought, by a heating device, to a temperature favourable for the emission of electrons. The cathode heating current is obtainable from the mains simply by the use of a transformer; for plate current a rectifying device is necessary. Excellent results in ordinary broadcast reception are obtainable by either method. Valves have also been designed experimentally to work directly from the mains without intermediate transformers, but at present their use would appear to be forbidden by the Board of Trade regulations.

While we are still awaiting standardization in the matter of supply from the mains, the most satisfactory method of obtaining the current required for the operation of wireless sets is probably to use accumulator batteries and to employ what is known as a trickle charger, a device which is likely to become very widely used in the near future. This instrument comes into use when the set is not being worked; its function being to recharge the battery.

Philcos are Aristocrats among Batteries.

It's All in the Air

Coming Features in the Broadcasting Programs

ROSE E. BALL, a young elocutionist from 4QG, who is at present in Sydney, will appear at 2FC Studio on Tuesday afternoon, 13th December.

ANTON VINCENTO, a pianist noted for his remarkable versatility, will be heard in a programme of operatic gems from 2FC on Thursday, 8th December.

THE MASCOTS, a new duo of clever instrumentalists, has come to 2FC. They will combine classical and jazz numbers in an act full of sparkle and pep, on Monday night, 12th December.

GWEN SELVA, whose recent costume recital was so favorably received, will continue her series at 2FC Studio on Friday night, 9th December. Her voice is well suited to broadcasting and her items are always happily chosen.

CHRISTIAN HELLEMAN, one of Sydney's leading organists, has arranged a recital from Christ Church, St. Laurence (where he has recently been appointed organist), on Thursday afternoon, 8th December. These recitals, which are always anticipated with pleasure by listeners, are a regular feature in 2FC's programmes.



Miss Esther McAlpine, contralto, now appearing regularly at 2UW. Miss McAlpine is a pupil of Professor C. Souer.

(Photo by Monte Luke.)

"CASTLES IN THE AIR" will be "built" for the benefit of 2FC listeners on Friday, 9th December. In the studio, that night, Peggy Peat will reappear, after a short absence.

STORIES OF THE OPERA: "Uncle George," of 2GB, is an authority on opera, and he guarantees to answer any questions without reference to books. Every Sunday night he will give talks on "Stories of the Opera," which will be illustrated by H.M.V. records.

MARIST BROTHERS' SCHOOL CHOIR: 2FC have arranged to broadcast the concert by this choir of fifty boys on Monday night, 12th December. The lads love their work, and under the able guidance of Brother Barnabas, their performance will be well worth listening to. The entertainment will commence at 8.15 p.m.

AUBURN DOMESTIC SCHOOL CHOIR, under the direction of Miss Elsie Mass, will give a choral programme from 2FC on Thursday, 8th December. It is a generally accepted fact that choral music is a successful air item, and the fresh young voices of these girls should prove more than ordinarily attractive.

JEAN GERRARD plays an instrument little known to listeners—the melo piano. It has the tone of a melo piano, and is not nearly as easy to manipulate as it is to listen to. Miss Gerrard beguiled what might have been weary hours last Saturday afternoon, when Sydney, rain swept and desolate, turned to 2FC for comfort. Her item, "Go Wash an Elephant," was singularly apt. She will be heard again on Saturday 10th December.

ROYAL SYDNEY APOLLO CLUB, of which the genial George Portus is secretary, will be broadcast from the Conservatorium of Music on Tuesday evening, 13th December. Choral items will be interspersed with solos by Muriel Barton, contralto, and Rene Birkett, violinist. A special programme of Christmas Carols will be given by Choristers from the Canterbury Boys' High School.



Matron McMillan, Director of Australian Mothercraft Society (Plunket System), who is giving a series of maternity lectures from 2UW.

ABORIGINAL LECTURER: Under the auspices of the Aborigines' Protection League, Mr. David Unaipon will speak from 5CL on the evening of December 5th. Mr. Unaipon is a full-blooded Aboriginal of Australia of extraordinary education. On a number of occasions he has addressed learned and scientific bodies on different subjects, and his talk from 5CL is sure to be of interest.

"**FLOTSAM AND JETSAM**" will again argue the topics of the day on Tuesday, 13th December. "Mike" has a really remarkable influence on these irascible gentlemen, such bent on converting the other to his way of thinking. So far, they have not come to blows, but the little marble "referee," who takes it all in and says nothing, keeps a wary ear open for too heated argument.

DAVID CRAVEN, a young Australian baritone, who is rapidly coming to the fore in the musical life of Sydney, is devoting special attention to compositions by writers of his native land. The first of his series of Australian recitals will include, "The Sun God," by William James, "Evening" (O'Connor), "Tangri" (Alfred Hill), "Port o' Sydney" (James Brash).

Denominational Broadcasting a Myth

Both the Roman Catholic authorities and the Protestant Federation deny the recent assertion that they will shortly open rival broadcasting stations.

THE statement in a morning newspaper that the Roman Catholic Church has decided to establish a broadcasting station in each State has been emphatically denied by the Rev. Father Meany, chief officer of the Eucharistic Congress.

"The statements are incorrect," he said, "and could not have originated from the headquarters of the Roman Catholic Church, for the matter has not been discussed officially. The Roman Catholic Church has no intention of establishing a broadcasting station."

The newspaper article which stated that the first of the R.C. stations would be erected in Sydney in time for the Eucharistic Congress of 1928, also mentioned that until that time an existing station would be rented for publicity purposes. The suggestion that this station was ZGB, and that the recent transfer of Mr. George Saunders from 2BL to ZGB was actuated by these reasons, however, is without foundation. Mr. Saunders states that "ZGB is in no way connected with the Roman Catholic Authorities."

As a matter of fact, the Roman Catholic authorities, who have made use of 2BL for publicity purposes in the past, have now changed over to 2UE, and it is this move and the consequent changes at that station which have probably given rise to the rumour.

"A number of new arrangements have been made necessary as a result of this decision," states Mr. C. V. Stevenson, manager of 2UE. "It will be two or three weeks before we are in full swing. A studio will be installed in the city and a land line connected direct to the transmitting station at Randwick. We will probably broadcast publicity propaganda for the Roman Catholic authorities three times a week, though the hours are not yet arranged."

An interesting development suggested in the newspaper article as the outcome of the increased activity of the Roman Catholic authorities was the erection of rival stations by the Protestant Churches combined. However, Mr. H. H. Small, secretary of the N.S.W. Protestant Federation, questioned regarding the intentions of his authorities, said:

"This is the first intimation I have had regarding the matter other than the newspaper article referred to."



The Mariet Brothers School Choir of 50 boys assists whose performance will be broadcast from 2FC on December 12.

ST. FRANCIS CHURCH: On Sunday, 11th December, the St. Francis Choir, under the direction of Rev. G. Ellis Heulthy, 2FC will render a programme of sacred music from St. Francis Church. They will sing Rheinberger's "Credo," by special re-

quest. They will also include the "Kyrie" by Tallis, "Tu es Petrus" (Sannazzaro), Verdi's "Jerusalem," and "Ecce sacerdos magnus" (Gruber). The associate artists are Gladstone Bell, Oliver King, Kathleen Rheinberger's "Credo," by special re-



The Safety Valve

Readers are urged to express their opinion on matters pertaining to broadcasting. If you have some grievance, if you have some constructive criticism to offer, here is your chance for expression—your safety valve. The editor assumes no responsibility for statements made by readers and published on this page, as opinions of correspondents do not represent our editorial policies or beliefs. Anonymous letters are not considered.

RADIO BOOKLET.

Dear Sir,—In "Wireless Weekly," of November 11, you inserted a short paragraph on page 19, inviting readers to write to us for a copy of the Burgess Engineering circular, entitled "High Frequency Radio Receiver." As you know this circular deals with a very modern and efficient type of short wave receiver primarily designed for purity or reproduction of international short wave broadcasting.

The particular issue of "Wireless Weekly" referred to is dated November 11th, and by November 15 we had received over 500 letters from people anxious to obtain a copy of the circular, and this figure has been considerably augmented since. The important point is that these letters originated from towns, both large and small, all over New South Wales and Queensland, which seems to us to indicate not only the undoubted interest which is now being taken in short wave broadcasting, but is also unquestionable evidence of the widespread distribution of your journal. The supply of the circulars referred to was rapidly exhausted, and we are pleased for that reason that you intend to publish particulars of the Burgess Receiver in an early issue of "Wireless Weekly."

Yours faithfully,
NEW SYSTEM TELEPHONES
PTY. LTD.
J. I. Carroll, Manager.

SATURDAY PROGRAMMES.

Dear Sir,—For the first time since I have held a broadcast listeners' licence I enjoyed a Saturday afternoon's programme last Saturday, during the wet weather. Fortunately for me, might I also say that many other kindred spirits, there were no race results broadcast, simply because the inclemency of the weather precluded any races from being run.

While not wishing to appear a spoilt sport, nor asking to be classed in the category of wowers, I did certainly then realise that it is an ill wind that blows nobody good. I assuredly did sympathise with the

great number of race-going people who were disappointed in not being able to attend the racecourse during that afternoon, but at the same time I did feel quite gloating over my good luck in being able to listen to a really sensible programme for once.

Both Sydney "A" class stations excelled themselves, particularly did 2FC, and the studio managers of both stations, are to be congratulated on the excellent impromptu programme served up on that afternoon to while away the long dreary hours. That the task must have been one of great magnitude, was born out by the excellence of the programme to which I listened. Especially did I enjoy that versatile pair, Win and Winkle, who rendered so many splendid items in their usual humorous manner. The other items from both stations were certainly worth listening to, far better to listen to than the usual monotonous drawl announcing that certain horses with most unpronounceable names were playing up at the barrier or coming into the straight, or skidding around the bends or doing such other silly things as are associated with horse races.

To me, it seems absurd that the public should have wished on them during the greater part of Saturday afternoon, such a flat and uninteresting type of programme, as is the case at present. To my mind, people who are sufficiently interested in horse racing, should be found on the course; those who are not there, should not be catered for at the expense of other members of the public. Where is all this leading to? Do the broadcasting stations themselves realise that they are encouraging one of the greatest curses on the community, has it ever dawned on them just what a service they are rendering to the illegal starting price bookmaker, who accepts the hard-earned wages of the average working man? It is quite likely that I may be accused of being a prude, and more concerned with other people's affairs, than those of my own. To this, I will give a flat denial. The law will not countenance illegal starting-price bookmakers on account of the influence which they have over weaker

minded members of the public, in their sorry schemes of get-rich-quick, that mere phantom which becomes so horrible in reality. The sufferers are those innocent children, who rely on their parents to provide them with the necessities of life, and unfortunately, just the bare necessities at that.

How happy would be the Australian homes without the curse of gambling, and in its place substituted a real elevating entertainment such as was delivered on Saturday afternoon, the 26th ult.

The views expressed above are certainly mine, yet I feel sure that there are many others who will join me in hoping that the Saturday afternoon entertainment in the broadcasting stations be raised to a much higher plane, thus dispensing with race results, and their kindred evils, and allowing the average man with a family to take with them to the beaches a little portable set and thereby be able to enjoy broadcast entertainment in the open air.

Sincerely yours,
J. A. BELL.

Barwood (27/11/27).

CLASSICAL MUSIC.

Dear Sir,—In reference to a suggestion published recently in the Press with view to submitting once every week a programme of classical music, I beg to state that, for several months past 2UW, Sydney, has featured twice weekly, on Monday and Thursday, classical programmes, including vocal and instrumental works of eminent masters. Station 2UW has maintained the standard of artistry and versatility in musical development, a policy which it is strictly adhering to. Our artists number for one single night up to 15.

I would appreciate very much if you would kindly publish above statement for the benefit of your many enthusiasts.

Yours faithfully,
C. SAUER,
Musical Director, Station 2UW.

There is no "just-as-good" as Burgess.

What's Doing Down South

CHAMPION CHILD SINGERS: The winners of the recent 3LO children's Radio Song Competition will face the microphone for broadcasting on Thursday evening, December 8th.

OPPERMAN: Australia's wonder cyclist—Hubert Opperman—winner of the Dunlop Grand Prix and breaker of many records, will have something interesting to say to the children on Thursday evening, December 8th.

INTERNATIONAL TENNIS: During the afternoon of Friday, December 9th, Mr. Alf Dunlop will describe for broadcasting by 3LO, Melbourne, the tennis match to be played between the visiting French team and the Australian team at the Kooyong Tennis Courts.

FREE TRIP TO TASMANIA: The drawing for the 3LO, Melbourne, Free Trip to Tasmania will take place at the Studio on Saturday, December 10th. Envelopes containing the name, address and number of licence for the set upon which the Applicant listens, must be marked "Spend Xmas in Tasmania," and lodged with 3LO, Melbourne, by 12 noon on that date.

CHARACTER FROM HANDWRITING: "Caligra," the famous graphologist, is arriving at 3LO, Melbourne, on December 17th, under special engagement to give character delineation from listeners' handwriting for a small charge which is to go to the Melbourne Hospital Birthday League. Listeners must send along to 3LO a few lines of ordinary handwriting, together with 2/6, and say if they have reached the age of 18 years—indicating if they are to be members of the Junior or Senior Hospital League.

"CAVALLERIA RUSTICANA": Mascagni's beautiful opera, "Cavalleria Rusticana," with full chorus and orchestra, will be produced for broadcasting by 3LO, under the direction of Mr. W. G. James, on Sunday evening, December 11th. The Melbourne Choral Union of 60 voices has been specially engaged for this production, whilst Mr. Reginald Bradley will be the leader of an augmented orchestra. The following are the principals in the cast:—Santuzza, Saffo Arnau; Turiddu, Horace White; Lucia and Lola, Gertrude Hutton; Alfio, J. Alexander Browne.



Miss Jessie Irwin, the popular soprano, who will broadcast from 3LO shortly.

DIVERSIFIED BROADCASTING: In addition to the usual regular transmissions from 3LO Melbourne's own magnificent studios, the management never rest content unless outside performances are also broadcast each week. During the first week in December a concert was broadcast from Kyneton, and by way of contrast a special programme was broadcast to Stawell, where, by means of the Public Address System, special items were transmitted by 3LO Melbourne, and those present in the Hall danced to the music played by Joe Aronson's Band at 3LO Melbourne.

WORLD BROADCASTING: Every Monday morning from 4.30 and 6.30, Melbourne time (corresponding to 18.30 to 20.30 Greenwich mean time), 3LO, Melbourne, broadcasts a special programme on a wave length of 36 metres for world-wide reception. Most encouraging reports have already been received from various parts of England, Alaska, Canada, U.S.A., Japan, India, the Philippines, China, Java, Siam and other places, all pointing to the fact that by continuing transmitting and receiving experiments at regular intervals improved reception is assured of the short-wave service from 3LO, Melbourne, which is the first big station in the Empire to establish a regular short-wave broadcasting service for world-wide reception.

POPULAR ACTOR: A dressing-room talk by Frank Webster, now appearing in "The Student Prince," will be broadcast by 3LO from His Majesty's Theatre on Thursday evening, December 8th.

CHILDREN'S XMAS PARTY: The great annual 3LO Children's Xmas Party is to be held at the Auditorium on Saturday afternoon, December 10th. Many surprises are in store for the children at this party, and some of the items will be broadcast.

"MA MIE ROSETTE": The charming romantic opera in two acts, "Ma Mie Rosette," from the French of MM. Preval and Liorat will be produced at the Studio of 3LO, Melbourne, on Saturday, December 10th, by the pupils of Madame Ethel Ashton, assisted by Alfred Andrews as director, and Maurice Dudley, both of whom are in the cast. Specially augmented orchestral accompaniments will be rendered under the direction of Reginald Bradley.

CHRISTMAS CAROLS: Before we have had time to thoroughly realise the fact, Christmas Eve will be upon us, and listeners will be reminded of this fact if they tune in to 3LO, Melbourne, and listen to the broadcasting of the Christmas Carols, the singing of which has now become an annual feature of the studio. A special programme has already been drawn up, and all the favorites included—"The First Nowell" and "Christians, Awake"—without which—no matter which side of the ocean one happens to be—no Christmas would be really complete.

3LO CHILDREN'S XMAS PARTIES: There are so many children to be entertained by 3LO, Melbourne, this year that it has become necessary to extend the great children's annual Xmas treat over two days. The first party will be held at The Auditorium on Saturday, 10th December, and the second on the following Saturday. This year's parties will include many novel features and surprises, and the thousands of children to be entertained by 3LO are looking forward with delight and excitement to a rare treat.

You can Recharge a Philco for a few pence.

OLD TIMES COME AGAIN: The Old Time Nights of 3LO Melbourne are always a great success, and bring pleasure of a very special character not only to those not so young, but also to others not so very old. This is doubtless due to the special care devoted to securing a verisimilitude that can be arrived at only by close attention to details. It is not enough merely to play Old Time tunes and songs, 3LO Melbourne also arranges for a real old-fashioned M.C. and at the next Old Time Night to be held on December 19th, yet another novelty is to be introduced, namely, an Old Time "Hop" with real live dancers on the floor, not one of whom will be a novice at the waltzes, quadrilles, lancers and what not to be broadcast on that auspicious occasion.

YETTY LANDAU'S LAMBS! The dainty and sparkling pantomimic playlets produced by Yetty Landau and her clever little troupe of girls are met with continued applause from 3LO Melbourne's audience during the Children's Hour. Recently the playlet "Little Red Riding Hood," specially written for the occasion by Mr. J. Pearson, excited most favorable comment, and is being demanded again. On Xmas Eve another great success, "Lost Hearts," that aroused quite a furore when first produced several months ago, is again to be put over. None of the clever children who take part in these playlets is over school age, the eldest only recently having celebrated her twelfth birthday. The music for these pretty lyrics is adapted by Yetty Landau herself, and she is to be congratulated on having hit upon an apparently inexhaustible source of children's entertainment.

JOE ARONSON AND SYNCOPATING SYMPHONISTS: There was much consternation among listeners when Joe Aronson and his Syncopating Symphonists were left out of the programmes at 3LO Melbourne, for one whole week recently. Many hundreds of letters arrived at the studio and the telephone was ringing continuously enquiring the reason. However, Joe and his boys are back again before the microphone. They were only out on loan for a while—so to speak—to the Tivoli Theatre, where they delighted enthusiastic audiences for eight days with a wonderful vaudeville turn bearing some similarity to that staged by them at their big Ballarat concert early in November.

A PLEASING SOPRANO.

Miss Jessie Irwin is to commence a broadcasting season at 3LO Melbourne, on December 12th. Miss Irwin, who has been in the limelight as a competition winner since she was 9 years of age, was the winner of the 3LO Radio Voice Competition a couple of years ago in which there were nearly 750 entries. She has been right through the Trinity College course and holds an Associate Diploma. She has a beautiful rich soprano voice, and listeners will welcome her at 3LO, especially as she has an extensive and well-selected repertoire.

NHILL TO BROADCAST: On December 21st both town and country musicians will be represented on the programme broadcast from studio 3LO Melbourne, for, in the early part of the night session, we are to have an hour's broadcasting from Nhill, where a very fine concert is being held. The increasing popularity of this country broadcasting more than repays any additional work of organisation that has to be undertaken—for, to date—there has been no more direct step in the uniting of the smaller towns with the metropolis, than the inauguration of these country concerts which have been broadcast by station 3LO Melbourne.

POPULAR TENOR FOR 3LO:

Among the coming arrivals to studio 3LO Melbourne, is Bernard Thomas, tenor, who during his long career has filled many important engagements, and played many parts. For many years he was a member of the famous Jubilee Singers, and includes in his repertoire many of the old time Jubilee melodies, the prime favorite being "Sally Horner," which has been sung hundreds of times. In fact, as Mr. Thomas says, if he had as many pound notes as times he had sung "Sally Horner" he'd retire to-morrow! Possessing a perfectly balanced and well-trained voice, Mr. Thomas has not confined his activities to ballad vocalism, but has distinguished himself in many operas—his favorite being "La Boheme"—and, at one of the great choral festivals in Sydney, sustained the exacting role of Hiawatha, in "Hiawatha's Wedding Feast" (Coleridge Taylor), in a masterly and artistic manner, which called forth enthusiastic praise from both press and public.

NEW COMEDIANS AT 3LO:

With the passing of the whimsical Joe Brennan and his dainty partner, Ida Newton, two new fun makers have come to studio 3LO to fill the vacancies in the persons of Vaude and Verne, two popular artists who are making a successful vaudeville tour of Australia broadcasting at the principal stations en route. These two versatile artists are not only distinctly funny, but have the redeeming feature of being original—and when wit is hand in hand with originality—well, it is all the more diverting. One of the duo—I'm not sure which one it is—has the happy knack of being able to make a joke out of anything—for him the funny side is always uppermost—especially when his partner treads on a banana skin!

FAMOUS COMEDY COMPANY:

On Monday, December 19th, the new English Musical Comedy Company, under the direction of Humphrey Bishop, will commence their broadcasting season at studio 3LO Melbourne, after a very successful tour of New Zealand. The repertoire of the company is extensive, and consists of bright, breezy sketches, with and without music—tuneful concerted numbers, and some very fine individual items, since each member of the company is a talented artist. Listeners have already been introduced to this class of entertainment through the popular Huxham Serenaders and the Futurists—and the contributions to the programme by the New English Musical Comedy Company are certain to be highly appreciated by every listener.

AUSTRALIAN COMPOSER:

The recent Australian Authors' Week, which was given so much publicity, both over the air and through the press, has had a wonderful effect, and every mail brings heavy correspondence from listeners asking that more of the work of our own writers and musicians be broadcast. With this fact in view, a special programme has been arranged for December 20th, when the Regent Theatre Orchestra, under the capable baton of Mr. Ern Mitchell, will give an entertainment consisting solely of works from the pen of the Australian composer, Mr. Frederick Hall. Most musical listeners are already familiar with the work of their distinguished countryman, but, for the benefit of our country cousins who have not the same advantages as we who live in the city, this programme has been arranged, and a careful selection made from the composer's works.

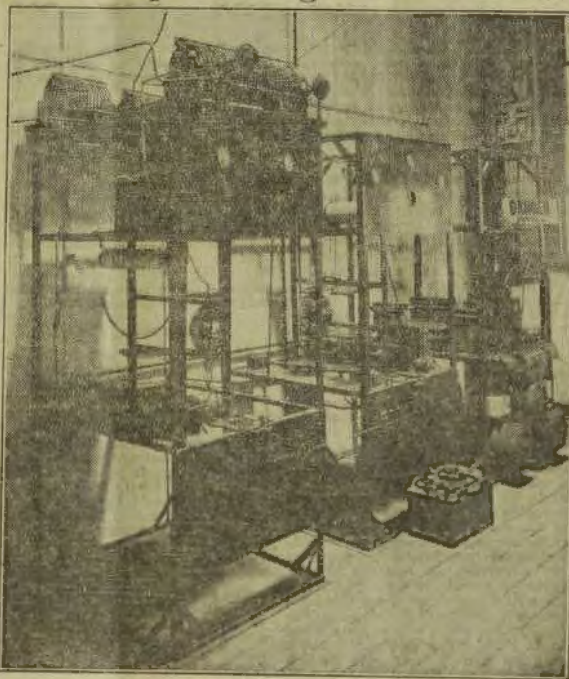
2UW Claims Leadership Among "B" Stations

An Interview with
Mr. R. M. J. Tweed
Studio Manager

NOT the least important of the recent movements in the N.S.W. broadcasting field is the decision of 2UW to devote itself exclusively to rendering broadcasting programmes on the toll or indirect advertising system, and to discontinue trading in wireless goods.

"There have been vague rumours concerning this station in the air for some time past," said Mr. R. M. J. Tweed, studio manager, recently, "and I would like publicly to refute them by a clear-cut statement of this station's policy and future movements.

"It is our intention to improve our programmes, and although we cannot obtain an 'A' class licence, we hope to give our listeners an 'A' programme. Great steps have already been taken in this line; some of our talented artists being Prof. C. Sauer,



The transmitter at 2UW.



Mr. R. M. J. Tweed, studio manager 2UW.



Mr. Walsford, new announcer at 2UW.

pianist, organist, violinist and musical director of this station; Miss Esther McAlpine, contralto; Miss Amy Wilson, soprano; Mr. Bagnall, of Preference to Australian-Made League; Marston McMillan, of Australian Mothercraft Society; Mr. Mudge, professional whistler; Miss Boswell, cello solo. Madame Arline Sauer is our official accompanist.

"We intend specialising in educational talks and lectures, and to this end we have engaged the services of several prominent men who will deal with various subjects of educational interest. Among them, named at random, we have Mr. Norman Goode, who was the only Australian with Charles Lawrence (The Uncrowned King of Arabia) during the war. Then Mr. W. W. Thorpe, Ethnologist of the Australian Museum, has some interesting talks on Natives of the Solomon Islands.

"We are discontinuing our dealing in wireless apparatus and receivers, and by devoting the whole of our energies to the station and the studio hope to raise 2UW to undisputed leadership among the B class stations of Australia."

Canada Chose Burgess for her Outpost.

Overhauling the Old Storage Battery

ORDINARILY the job of overhauling and recharging a storage battery should be handed over to a service station which is outfitted for the work. However, the radio fan is a resourceful person, and if a thing can be done at home, he prefers to do it there.

Overcharging Lead Cell Harmful.

The lead battery itself, while more sturdy, usually larger in size and built for harder service than the storage B battery, will not withstand the ignorant handling and thoughtless treatment of its smaller brother. The nickel-iron cell is not harmed by overcharging, overdischarge, or a too rapid rate of discharge. Low temperature is its principal bug-a-boo. The lead plate storage battery, on the other hand, will not stand a very great overcharge; it is harmed if discharged beyond a certain point, and the plates may be ruined by a too sudden discharge, such, for example, as a short circuit.

To the ordinary radio experimenter unequipped with special instruments, a failing storage A battery indicates itself by the need for too frequent charging or the inability on the part of the user to charge it fully. Sometimes even the electrolyte shows normal specific gravity, yet when put on actual service the capacity of the battery is seen to be but a fraction of its normal capacity. When this happens and is checked as not being the fault of the radio set the first thing to do, if the owner desires to investigate for himself, is to open the top of the battery. This gives access to the plates and gives a chance to see whether the plates are sulphated, whether an accumulation of sediment in the bottom of the cells is causing trouble or whether any of the plates or separators have been damaged unknown to the user.

Very few radio enthusiasts know the construction of a storage battery, and least of all how to disassemble one. First it is necessary to remove the cover. This is ordinarily done either with a small gas flame or a putty knife heated in a flame. The heat melts the sealing compound and allows the cover to be pried from the container. This accomplished, the whole battery may be lifted from its wooden or rubber box. The separate cells must now be opened and the plates withdrawn from the electrolyte. This also requires a flame in most cases. Because there are so many different types of storage batteries each with its preferred method of attaching lugs and connectors from one cell to another, the user should apply to the maker of his own brand

of battery for printed instructions. These are invariably available, and when obtained should be followed to the letter.

In general, however, some form of heat is needed to remove the lead connectors, although in a few instances a bolt-and-nut construction simplifies the task. In at least one make of battery the connectors are removed from the terminal posts by boring away the material comprising the post itself. As stated before, it is essential that the construction of the unit be understood before this portion of the work is carried to completion. Space does not permit each variation to be discussed here.

Determining Plates.

Finally when the battery has been disassembled to the point where the three cells have been removed as units the cell-covers themselves must be removed, a proceeding that parallels closely that of the removal of the top cover. With the cell-covers off and the electrolyte drained away, the repairman sees before him a combination of plates and separators. The latter should be removed carefully in order not to harm the negative and positive plates. Broken or cracked separators need to be replaced but otherwise they should be laid aside until the cells are reassembled.

The condition of a lead type storage battery can be determined in various ways. The positive plates of a battery in good condition should be a very dark brown when they are first removed from their cells, that is, assuming that the plates are charged at the time. As the charge is less and less, the color changes to a lighter brown, which tinges slightly on the reddish. If the plates are dried before they are examined the color will be considerably lighter than specified above.

Sometimes a coating of a color foreign to those mentioned above is noticed on the positive plates. Scrape away this coating with a dull tool or a stick. If the brown coating shows up underneath, the plates are still satisfactory. If the live substance on the plates has been flaked away new plates should be secured to take their place. A plate with the composition partly stripped off should never be replaced in the battery.

By this time it is probable that the cells themselves have been thoroughly rinsed out and the sediment removed ready for the plates and the new electrolyte. The separators are slid back into place between each pair of positive and negative plates, and the cell cover fastened back into place. If

the cell is the type made to be sealed in any way it may be necessary to purchase a small quantity of sealing compound from a battery repair shop. A flame is used to soften it, and to run it into the grooves it is supposed to fill. The three cells are replaced and the connectors bolted or "burned" into place. Lead-burning is a job that requires a certain amount of skill and some caution lest the rubber or wood case be also burned. But if the experimenter has access to gas and owns a bunsen burner the work may be carried through.

After the battery has been assembled and all connectors fastened securely to their proper lugs, some of the sealing compound should be run around the edges to make the cells doubly air tight and to protect the case if some of the electrolyte spills over the top. Then comes the final act, that of mixing and pouring in the new, fresh electrolyte.

Electrolyte Needed.

Storage battery electrolyte, as most people know through knowledge, inquisitiveness or sad experience, is a sulphuric acid solution. If the mixing is done at home, secure a glass vessel of a size large enough to hold as much liquid as was removed from the battery when the take-down was in process. Go to a chemical supply house and buy chemically pure sulphuric acid in volume equal to about one-third of the volume of the old electrolyte. Have a good hydrometer near at hand. Pour a quart of pure distilled water into the glass container, then add about one-third as much sulphuric acid. Stir with a glass rod for several minutes, and then test with the hydrometer. The reading should be approximately 1.280 to be correct. If the reading is below that figure add more sulphuric acid until the reading is standard. Under no circumstances add water to the acid solution. The sputtering and boiling which is certain to take place will cause burns and perhaps permanent disfigurements. If not enough water was added at first, mix another batch of the water-then-acid solution outside the first container, but with a greater percentage of water, and then mix the two solutions.

Finally pour the acid solution into the vent holes and place the battery on slow charge for the required number of hours, the total time depending, of course, on the manufacturer's label. If the work has been done carefully and none of the plates were found to be too badly sulphated, the owner will have a practically new battery to work with.

3LO News and Notes :: By... H. ELLO

Children's Songs.

THE Children's Song Competitions at 3LO, Melbourne, have become an established annual event and are now the most important children's singing competitions in Australia. When it is considered that nearly 1000 entries were received for this year's contests some idea can be formed of the considerable interest they create among a large section of the community and the immense amount of preparation involved.

The competitions in their various sections had of necessity to be conducted in several sessions, and the judge—Mr. A. B. Lane—had a difficult task in selecting the candidates for the final tests. The judge's awards were as follows:—

SECTION 1.—Over 11 and under 14 years.

- 1st. Miss Pat Jackson, 199 Denmark St., Kow.
- 2nd. Miss Lois O'Grady, 452 Dryburgh St., N. Melbourne.
- 3rd. Miss Joyce Mundy, 8 Herbert St., Northcote.

SECTION 2.—Over 8 and under 11 years.

- 1st. Miss Peggy Shea, c/o Fire Station, N. Melbourne.
- 2nd. Miss Joy Durstan, 2 Bennett St., N. Fitzroy.
- 3rd. Miss Eileen Maher, 6 Molenworth St., Coburg.

SECTION 3.—Under 8 years.

- 1st. Miss Evelyn Maude Monneroy, 46 Macpherson Street, Footscray West.
- 2nd. Miss Dorothy C. Smith, 51 Barkly Av., Malvern.
- 3rd. Miss Margaret Williams, 8 Georgianna St., Sandringham, and Miss Beryl Hunter, 63 Cubitt St., Richmond (equal).

Mr. Lane, in announcing the awards, congratulated the competitors upon the general excellence of their efforts, and said that the quality of the singing at this year's contests showed a marked improvement upon that of last year. This, no doubt, was due to the special efforts made by tutors and competitors alike. It was evident that these competitions conducted by 3LO were an important factor in raising the standard of singing among children to such a marked degree that they are now regarded as an annual event of great significance.

The excellent services as accompanist, patiently rendered by Miss Elsie Bradshaw throughout the competitions, were greatly appreciated.

A Million Listeners.

THERE are now over a million and a quarter listeners-in to wireless in Australia. This number is computed upon a most conservative basis by taking the estimated total number of receiving sets in operation and multiplying it by five—a basis which statisticians long ago adopted as the average number of listeners to each receiving set.

More than one half of the licences in Australia have been issued in Victoria, and it is estimated that over 50 per cent. of the listeners in other States listen in regularly to 3LO, Melbourne.

It may therefore be assumed with certainty that 3LO has a daily audience of about one million listeners throughout Australia. In a country having a population of less than six million people this shows not only a remarkable development in wireless broadcasting but the widespread popularity of 3LO.

An official of the Postmaster General's Department, in discussing the matter recently, expressed the opinion that the inventive facilities of the youth of Australia had been stirred by wireless to a far greater degree perhaps than in any other part of the world.

A remarkable feature in the phenomenal growth of wireless in Victoria is the fact that in the big industrial suburbs of the Metropolis almost every house has its aerial, and there are many streets in which every house boasts of a wireless set, and most of them "home-made."

Chain Broadcasting.

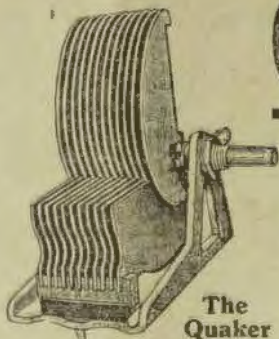
THE Sunny Northern State was not originally included in the new field for 3LO's extended operations, and many listeners in Queensland are much perturbed in consequence. One of Brisbane's leading radio traders has written to 3LO as follows:—

"In connection with the intention of 3LO to establish broadcasting stations in South Australia, West Australia, and Tasmania, I would urge that a station under the control of 3LO in Queensland is a necessity in order that we may have the same variety of programmes as are given by 3LO, Melbourne. Such an enterprise by 3LO would receive the support of Queenslanders' generally."

This is only one of many similar letters received by 3LO from listeners in Queensland, and is worthy of special consideration by the directors of the big southern station.

"Newbury," who is now well-known as one of 3LO's Roving announcers.





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| The PCJJ, Plug-in Tuner, tunes 25 to 30 metres; complete with Stand .. | 1 | 5 | 0 | B.M.S. Double Circuit Fantail Connection Jacks | 0 | 2 | 2 |
| Advance S-Plate Centralign Condensers (Special S.W. Condensers) .. | 0 | 9 | 0 | Fixed Grid Leaks, "Phillmore," various sizes | 0 | 1 | 0 |
| Karas Micrometric 66 to 1 Vernier Dials (small stocks only) | 0 | 17 | 6 | Grid Condensers, with Clips; Wetless, 1/9; Sangamo | 0 | 3 | 3 |
| Kurtz Kasch, 22 to 1 Vernier Dials .. | 0 | 9 | 6 | Wetless-Mica Condensers, sizes .0001, .001, .0005, .002 | 0 | 1 | 0 |
| Emmenc Bakelite Vernier Dials | 0 | 7 | 6 | Karas Harmonic Super Audio Transformers | 1 | 14 | 9 |
| B.M.S. Ornamental Bakelite Vernier Dials | 0 | 7 | 9 | Karas Orthometric Super Lowloss Condensers, .00025 | 1 | 12 | 9 |
| Electrad 100,000 ohm Variable Resistors | 0 | 10 | 0 | Karas Orthometric Super Lowloss Condensers, .00037 | 1 | 13 | 6 |
| B.M.S. Single Circuit Fantail Connection Jacks | 0 | 1 | 7 | Crescent Guaranteed Audio Transformers | 0 | 13 | 0 |

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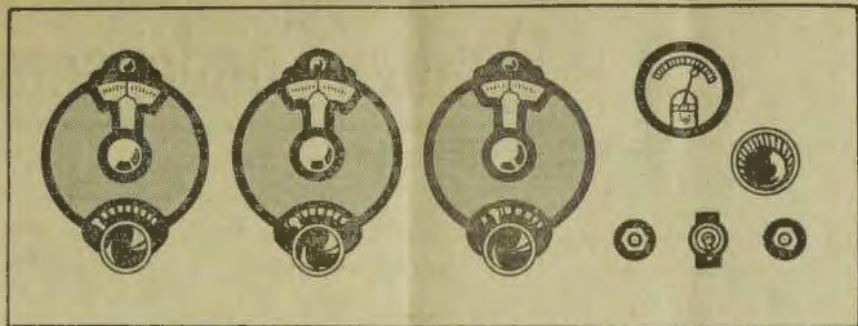
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Phone: New. 1522.



De Luxe Short Wave Receiver

By D. H. MIX, Engineer Burgess Battery Company*

ONE of the most outstanding recent developments in radio communication has been the application of quartz crystals in controlling the emitted frequency or wavelength of a radio transmitter. This development has proved especially important at wavelengths below one hundred metres where, previous to the use of the quartz crystal, difficulty has always been present in maintaining a steady frequency adjustment. The use of the quartz crystal also permits the transmission of an extremely well defined or sharp wave.

These two properties of a signal emitted by a crystal controlled transmitter have disclosed several de-

*Probably no concern specializes more in the development of short wave low power battery Company, which retains the services of transmitters and receivers than the Burgess a number of radio engineers, including E. H. Schnell, who visited Australia with the American Fleet a couple of years ago. The company has constructed and supplied special short wave outfits, which have been used on several occasions, such as the MacMillan Expedition to the North Pole, and claim to have the most complete data on this branch of wireless in the world. Mr. Burgess himself is located at Burgess Island, Florida, where there is a laboratory from which daily tests are conducted with headquarters' engineers at Madison, Wisconsin. With Schnell is associated such well-known radio men as Mix (author of this article), Hoffman, Zorian, Donald, etc.

Although the radio parts actually incorporated in the receiver described were specified, they have had to be replaced by other parts, which may be obtained locally.

LIST OF PARTS REQUIRED:

While a list of parts is given here, it does not mean that equivalent parts of other manufacturers cannot be used. This choice of parts remains with the individual constructor.

*1 Secondary Tuning Condenser (2 plates).

*1 Variable Variable Condenser (Advance or Pilot, 2 plates).

1 100,000 ohm Variable Resistance (Centralab).

1 Set Volt D.C. Voltmeter (5-inch) Jewell or Weston (this item optional).

1 10-ohm Rheostat.

1 Single Circuit Telephone Jack.

1 Double Circuit Telephone Jack.

1 "A" Battery Switch.

3 Sockets.

1 Grid Condenser with Clips for Leak (1,000,000 mfd.).

1 600 Ohm Leak (7 to 10 megohms).

1 Bypass Condenser (.0005 mfd.).

2 Bypass Condenser (.02 to 1 mfd.).

1 Coil Plug Jack.

20 Coil Plugs.

2 Vernier Dials.

1 Vernier Dial (#220) Scale for Oscillation Central.

Binding Posts.

7/16-in. 2-58 R.H. Brass Machine Screws and 2-58 Hex. Nuts.

1/4-in. 6-32 R.H. Brass Machine Screws and 3/32 Hex. Nuts.

Flexable Wire.

Number 12 Enamelled Aerial Wire.

Diodes or Radios (1/16-in. thick).

Aluminum Sheet.

Brass Angle Stock.

1/4-in. Wood Strip for Baseboard.

Bottom of the two following groups of items:

1 Audio Transformer (1 to 6 Ratio).

1 Audio Transformer (1 to 2 Ratio).

OR

2 Audio Transformers.

2 1-mfd. Fixed Condensers.

2 Resistance Mountings.

2 Metallized Resistance Units (0.5 megohms).

iciencies in the average type of short wave receiver in use at the present time.

The fact that most receivers in use are not capable of conveniently handling a sharply defined wave transmission has been generally recognized. As a result, constructors of short wave transmitters have endeavored, by the use of alternating or partially rectified alternating current supply and other means to make the emitted wave as broad as possible and, in this way, reduce the difficulties of reception. Meanwhile very few attempts have been made to reduce these difficulties by receiver improvement.

A brief outline of the points in the average receiver which may be improved will be given here.

Most receivers use but three inductance coils to cover an overlapping wavelength range of from 15 to 100 metres. This practice necessitates a comparatively small inductance and a large tuning capacity. The result is that, even with a good vernier dial it is extremely difficult to locate and hold any signal except one of broad wave characteristics. It is much more difficult to slightly readjust the tuning of the receiver to compensate for creepage and other slight changes in transmitter and receiver.

Further inconveniences are to be found in the tuning effects of the oscillation control system. In the two most common methods of oscilla-

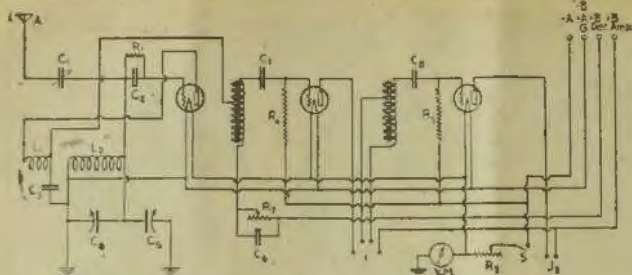


Fig. 4.

tion control, namely, the variable by-pass method and the variable tickler coupling method, this tuning effect is usually very pronounced. Any appreciable variation in oscillation control causes undesirable frequency changes in the tuned circuit.

In most cases, sufficient protection against "body capacity" effects is not provided. Other slight changes in the conditions within the receiver cause sufficient changes in the incoming signal to render it necessary to make all units and wiring of an improved receiver as rigid as possible.

To overcome, as nearly as possible, the difficulties outlined, the receiver, which we designate as 9EK-9XH Receiver Number VI, has been designed.

Two models of this receiver are to be described, either of which, or a combination of both, should fit one of several classes of requirements. While popular interest in short wave work is at present confined chiefly to amateur telegraphic activities, interest in short wave long distance broadcasting is constantly increasing. There are, at this time, at least two stations of high power broadcasting regularly on wavelengths below eighty metres. For those who are interested in this phase of short wave work, a model incorporating auto-transformer coupled audio amplifiers is described. Another model is described considering economy and lack of facilities.

According to the purpose for which the receiver is to be used and the personal desires of the builder, features of one model may, of course, be incorporated in the other.

Antenna Coupling.

Coupling between the antenna and the tuned circuit is secured by means of a small variable capacity. This form of coupling is easy to construct, and does not interfere with the changing of coils.

Tuned Circuit: Inductances.

A wavelength range of sixteen to ninety metres is secured by means of a system of changeable inductance coils. These coils are made of heavy wire for the purpose of securing low high-frequency resistance and

mechanical rigidity. Five coils are necessary to cover this range. If it is desired to cover only the three amateur bands and not the frequencies between bands, only one coil for each band is required.

Tuning Control.

To facilitate the tuning of a sharp wave signal, a comparatively small tuning capacity is used (0.000075 mfd.). In parallel with this main tuning capacity is a very small vernier capacity with which compensation may be made for creepage and other small unavoidable changes in trans-



Fig. 5.

mitter or receiver. When the signal has been tuned in by means of the main tuning capacity, the note of the incoming signal may be easily adjusted to the desired pitch by means of this auxiliary vernier.

Oscillation Control.

A variable resistance in the plate circuit is used to control oscillation. This method of control causes only a very slight change in the tuning of the tuned circuit and is therefore to be preferred over other methods.

Shielding.

While complete shielding by means of a metal case is not necessary for satisfactory operation under normal conditions, such shielding will reduce interference from local sources such as lighting and power lines. Such a case also prevents collection of undesirable dust on the various units and adds materially to the appearance of the receiver. A metal panel or metal backed hard rubber or bakelite panel is necessary, however, if body capacity effects are to be reduced to a minimum.

Amplifiers.

As has been stated, models using both auto-transformer, and transformer coupled audio amplifiers are described. The use of the auto-transformers reduces the volume, somewhat, from that secured by transformer coupled amplification, but this form of amplification permits the passage of a wider band of audio frequencies and thus improves the quality of the output and is to be recommended in case the receiver is to be used for broadcast reception.

Wiring.

All wiring is made as rigid and immovable as possible. All low potential leads are of flexible wire bound together in cable form, while high potential leads are of heavy bus wire well spaced.

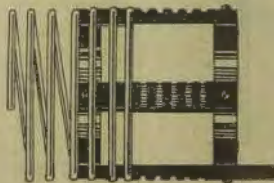
DETAILS OF CONSTRUCTION.

(Open Model.)

The accompanying photographs and drawings are sufficient to show the general arrangement and assembly of the various units of the receiver. A suggested outline of the procedure to follow in constructing the receiver is as follows:

Panel.

Figure 1 gives the dimensions of the panel and the location of the centres of the various panel units. Other details are not given, as these vary with the different makes of apparatus. In most cases the manufacturer furnishes templates by means of which all of the mounting holes are easily located. It will be noticed that the panel for the open model is one-half inch wider than that of the case model, or seven and one-half inches wide. This is to allow sufficient space for mounting the panel to the baseboard. The panel for the open model should be made of aluminium sheet about one-eighth inch thick, as it is self-supporting. Clearance holes of about one inch in diameter should be made at the oscillation control and telephone jack centres and the high resistance unit and jacks should be insulated from the metal panel by means of fibre washers or strips of hard rubber. If the "A" battery switch is of the Cutler-Hammer type, it will be unnecessary to insulate the switch from the panel,



Method of Coil Assembly.

as this is an insulated switch. All panel units should be mounted before mounting the panel on the baseboard. The auxiliary variable condenser is made from a General Radio type 368 Micro-condenser. The shaft is cut off, leaving only the first rotary plate. The stationary unit is removed from the hard rubber end plate, and all stationary plates removed except the third plate from mounting end. The condenser is then reassembled and the distance between the rotary and stationary plates is set at 5-32 inch.

Baseboard.

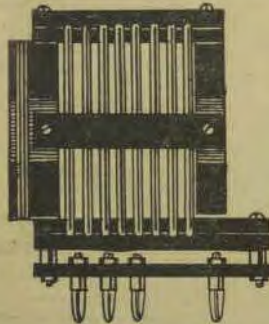
The baseboard should be made of oak or similar dry hard wood, 20in. x 7in. x $\frac{1}{2}$ in. It is mounted on strips of hard wood $\frac{1}{2}$ in. x $\frac{1}{2}$ in. This allows sub-base wiring of the low potential leads. Two or three coats of shellac sand-papered between each coat will improve the appearance and moisture resistance of the baseboard.

Special Parts.

Figure 2, A, B and C, gives the details of the Coil Plug Base, Antenna Coupling Condenser Base and Terminal Strip respectively. These strips are mounted up off the baseboard by means of hard rubber posts about three-eighths of an inch high. Figure 3 gives details of coupling condenser mounting and assembly. The general arrangement of the apparatus on the baseboard may be obtained from the photographs.

Inductances.

Most of the plug-in receiving inductances now available commercially are of rather frail construction. As frequent handling of the coils is necessary, a coil of weak construction soon becomes loose at the joints and the spacing between turns does not remain constant, with the result that the coil has very uncertain characteristics. The illustrations in this article show a set of inductances of sturdy construction which, while of low loss



A rigidly constructed Inductance Coil.

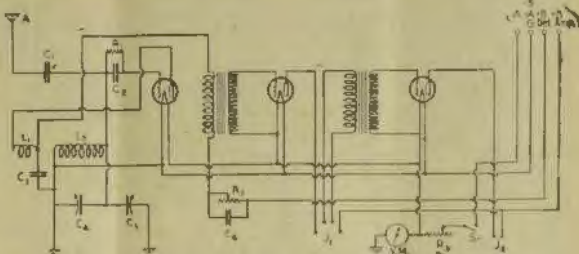


Fig. 6a.

merit, may be roughly handled without danger of weakening.

A general sketch of the coils is given in Figure 4. All dimensions which remain fixed throughout all of the five coils are given in numbers, while the dimensions which vary with the different sizes of coils are lettered and their corresponding values given in Table "A." All coils are wound with number twelve enamelled wire with turns spaced five thirty-seconds of an inch. Table "B" gives the required number of turns for each coil.

First, cut the end supports from a

INDUCTANCE SPECIFICATIONS.

TABLE A.

| Coil | No. | A. | B. | C. | D. | E. | F. | G. | H. |
|------|-----|-------|-------|----|----|----|----|----|----|
| 1 | .. | 1 1/2 | 1 1/2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 2 | .. | 2 1/2 | 2 1/2 | 3 | 3 | 3 | 3 | 3 | 3 |
| 3 | .. | 3 1/2 | 3 1/2 | 4 | 4 | 4 | 4 | 4 | 4 |
| 4 | .. | 4 1/2 | 4 1/2 | 5 | 5 | 5 | 5 | 5 | 5 |
| 5 | .. | 5 1/2 | 5 1/2 | 6 | 6 | 6 | 6 | 6 | 6 |

TABLE B.

| Coil No. | Secondary Tickler | | Min. | Max. | |
|----------|-------------------|-------|------|------|----|
| | Turns | Turns | | | |
| 1 | | 1 | 2 | 14 | 24 |
| 2 | | 2 | 3 | 23 | 33 |
| 3 | | 3 | 4 | 31 | 41 |
| 4 | | 4 | 5 | 44 | 54 |
| 5 | | 5 | 6 | 53 | 63 |

section of bakelite tubing and finish off the edges with sandpaper. A mitre box will facilitate the cutting of this tubing as well as the supporting strips which follow. Divide the circumference of the end supports into four equal segments and locate and drill the holes for the supporting strips. Then cut the supporting strips to the required dimensions. The pairs of strips are then matched up and clamped in a vice, the screw holes drilled, and screws inserted to hold the pairs together.

The pairs should then be numbered from one to four, the bottom pair (1), the back pair (2), the top pair (3), and the front pair (4). The numbers or other designating marks should be plainly marked on each strip, otherwise it is difficult to determine the identity of the various strips should they become mixed.

Inductance Specifications.

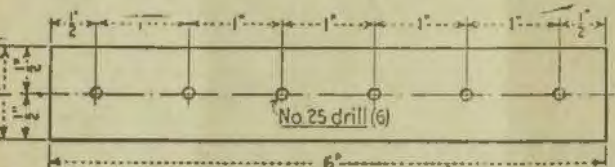
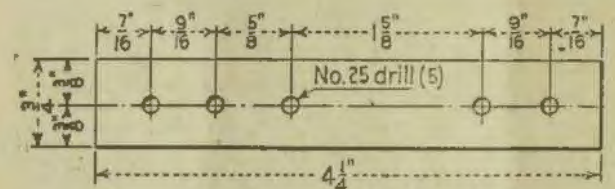
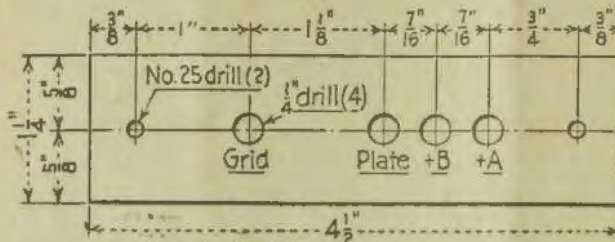
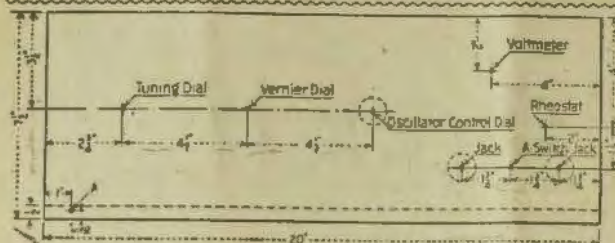
Clamp No. 1 in a vice, locate the first wire hole by a prick-punch mark three-eighths of an inch from the left-hand end. With a pair of dividers set at five thirty-seconds of an inch mark off a total number of wire holes equal to the number of turns in the coil, plus one. Arrange the remaining pairs as in Figure 5 and, by means of a square, locate the wire holes. It should be remembered that the number of wire holes necessary in the three remaining strips is equal to the number of turns in the end, the bottom pair, or pair No. 1, having an extra hole at the right-hand end.

When the holes have been located, replace the end screws and clamp the strips, pair by pair, in a vice and drill the wire holes with a No. 42 drill. The form parts are now ready for assembly.

Referring to the photograph, assemble the inside strips only to the end supporting tubes.

The wire for Coils 1, 2 and 3 should be wound on a form 2 1/2-inch diameter and the wire for Coils 4 and 5 on a form 3 1/2-inch diameter. These forms may be made by winding paper strip on 2-inch and 2 1/2-inch tubing respectively. After the wire is wound on the form, it may be taken off and slid or turned over the inductance form and the outside strips fastened in place.

The plug strip is then made and the coil mounted on this strip. The tickler may now be wound on the projection of the left-hand end supporting tube, referring to Table "B" for the correct number of turns. Notice that the tickler must be wound in the same direction as the turns in the secondary inductance. Referring to Figure 4, plug No. 1 should be connected to the tickler end of the secondary winding, No. 2 to the outside end of the tickler winding, No. 3 to the inside end of the tickler winding, and No. 4 to the remaining end of the secondary winding.



Top: Internal assembly of shielded model. Below in order: Figs. 1, 2a, 2b, 2c

wire and bound together by heavy thread into a cable form well spaced from all high potential leads. All high potential leads are of heavy bus wire and as short and well spaced from each other as possible.

"B" Battery.

A "B" battery voltage of from 20 to 60 volts may be used, depending upon the type of valves used, etc. 45 volts is the normal voltage for type 201A valves. A terminal is furnished for separate detector and amplifier "B" battery voltages, if this is found desirable.

Special Notes on Case Models.

If the case model is to be made, a few of the dimensions and details vary slightly from those given for the open model.

Panel.

The panel for the case model is 30 inches x 7 inches, all other dimensions remaining the same.

Baseboard.

The dimensions of the baseboard are somewhat smaller, being 63 inches x 19 1/2 inches. The baseboard for this model is not mounted on hardwood strips, but is fastened directly to the bottom of the case, instead of to the panel.

Wiring.

While sub-base wiring may be possible in this model, the difficulty of tracing wiring without removing the case makes it advisable to run all leads above the baseboard, keeping the low potential leads, however, in cable form.

Table for Fig. 6a.

| | |
|-------|---|
| C-1 | Antenna Coupling Condenser (Special). |
| C-2 | Grid Condenser (0.00025 mfd.). |
| C-3 | By-pass Condenser (0.0005 mfd.). |
| C-4 | Secondary Tuning Condenser (3 plates). |
| C-5 | Auxiliary Vernier Condenser. |
| C-6 | By-pass Condenser (0.25 to 1 mfd.). |
| C-7 | C-8 Blocking Condensers (1 mfd.). |
| L-1 | Tielder Inductance. |
| L-2 | Secondary Inductance. |
| R-1 | Grid Leak (7 to 10 megohms). |
| R-2 | Oscillation Control Resistance (Centralab 100,000 ohms). |
| R-3 | Filament Rheostat. |
| R-4-5 | Grid Leak (0.5 megohms). |
| S | Filament Switch. |
| VM | Filament Voltmeter (Jewell or Weston 0-7 or 8 D.C. volts, 2-inch case). |
| J-1 | Double Circuit Phone Jack. |
| J-2 | Single Circuit Phone Jack. |

If audio transformers are used these are not required.

Terminals.

In this model the terminals are mounted in the rear of the case. All terminals, except the positive fila-

As conditions within the receiver vary slightly with construction, it may be necessary to increase the tickler winding by one turn if the circuit does not oscillate, or to decrease it by one turn if oscillation is not controllable over the entire tuning condenser range.

Special Notes on 80 Metre Coil.

In the strips for Coil No. 3 the fourteenth wire hole from the left end is omitted. This allows space for additional clamping screws between the two sections of the coil.

Wiring.

Care in the wiring of any receiver cannot be over-emphasized. Firmness

of wiring leads and soundness of connections between the various units is of prime importance. The same care applies to the mounting of the units. All pieces of apparatus should be mounted securely so as to eliminate changes in frequency from vibration or shifting. Tubes should not be mounted in cushion sockets as a movement of the tube causes fluctuations in the incoming signal. This applies particularly to the detector tube. If it is desired to eliminate possible microphonic noises, the entire receiver should be mounted on rubber sponge or other shock absorbing material. In this receiver all low potential leads have been run in flexible insulated

ment terminal, which is grounded to the case, are insulated from the case by one-inch clearance holes in the case and a strip of hard rubber or fibre washers.

Case Construction.

The metal case is made up of heavy sheet aluminium (about 0.060-inch thick) over a frame of 1-16-inch by 1/2-inch angle brass. The inside dimensions are 20 inches x 7 inches x 7 inches. The case is held together by means of 1/4-inch 6-32 brass machine screws. The holes in the angle brass are tapped for these screws. The cover is fastened to the case by means of four hasps, which permits the cover to be hinged or removed entirely.

Ready-Made Coils.

If it is desired to use Aero ready-made coils in this receiver, the following table gives us the wavelength ranges covered by the three standard coils without alteration.

COIL NO. 1—17 to 26 metres.

COIL NO. 2—35 to 54 metres.

COIL NO. 3—64 to approximately 100 metres.

Operation.

For those who are not familiar with the operation of a receiver of this type, a few notes on the method of tuning are given.

After battery and antenna connections are made and telephones plugged in, the filaments of the valves should be lighted by snapping the filament switch to "ON" position and the filament voltage adjusted to the correct value by means of the filament rheostat. Adjust oscillation control dial until oscillation is secured, and turn main tuning dial slowly until signal is picked up. Adjust oscillation control to point as near as possible to point where oscillation ceases. Adjust pitch of incoming signal to that desired by means of the auxiliary vernier dial.

Precautions.

Do not couple antenna to receiver so tightly that smooth oscillation control is not secured over the entire tuning range.

Keep all external leads as short and rigid as possible and all connections to batteries clean and sound.

Keep receiver as far as possible from movable metallic bodies and power and lighting circuits.

If howling occurs near the point where oscillation ceases, try different values of grid leak and adjust detector "B" voltage.

The wiring diagram for this receiver overleaf.

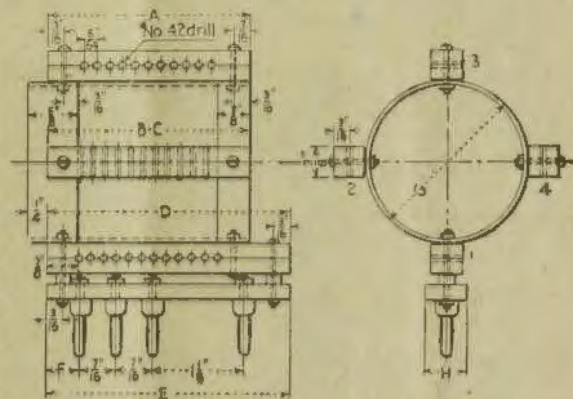
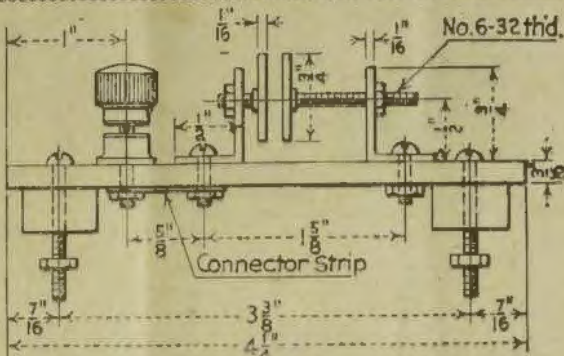


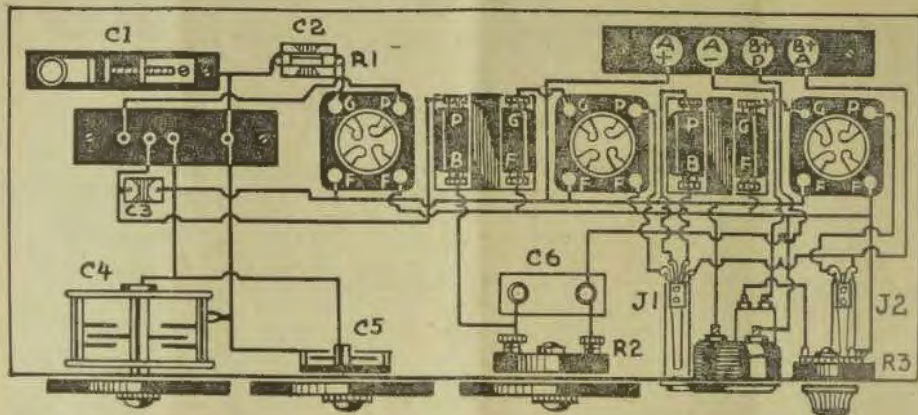
Fig. 3, Method of assembly of open model. Draw in order, Fig. 3 and 4.

Thousands Hear Story of Race.

THE phenomenal advance of broadcasting in Australia has never been more strikingly illustrated than during the progress of the Dunlop Grand Prix cycle race through Victoria. Within a few seconds of the arrival of the leaders at every stage along the route, the fortunes of the race had been flashed on the air to the furthest corners of the Commonwealth and New Zealand, and tens of thousands of listeners were enabled to follow the progress of the riders in what proved to be one of the most popular events in the history of athletics in Australia.

Such a result was made possible only by elaborate and efficient organization on the part of B.L.O. Melbourne. To follow the race throughout every yard of the 600 miles covered by the riders, was one of the most ambitious enterprises yet attempted by any broadcasting company in Australia, but the result was entirely satisfactory.

In the final reckoning, however, according to a statement issued by B.L.O. Melbourne, much of the credit must go to the Postmaster General's Department, and to individual Postmasters along the route. Never at any stage of the race were the B.L.O.



men kept waiting for more than a few seconds, when, a minute or so in advance of the leaders, they dashed into a township to flash to the studio the progress result or to relay descriptions of the race for broadcasting.

3LO commenced to describe the race shortly after 4.30 a.m., on the morning of the start of the race, when the contestants were assembling in the Melbourne Exhibition grounds preparatory to commencing their long journey. Thereafter, at three-quarter intervals, the announcer in the studio was telling eager listeners in every corner of Australasia how their State representatives were faring in the greatest cycle race ever staged in the Commonwealth.

During the early stages of the race it was a comparatively easy matter for the 3LO men to flash in the studio a comprehensive indication of the positions of the main body of riders, but as the race progressed, and as Hubert Opperman daily increased in his lead, the



Jessie Ella Bishop, 3LO's November Bride.

3LO car encountered a strenuous period. Racing ahead of "the tin hare," as Opperman came to be known, the radio men would be waiting at the local Post Office for the riders to clock in.

By the time the other leaders had entered the town, however, "Oppy" frequently was far on his way to the next stopping-place, and it then would be necessary for the 3LO car to catch him before he reached the end of next stage. And to catch "Oppy" was no easy matter. He pedalled on and on, with the miles flashing behind him.

The experience of the 3LO men, however, was not without its lighter side, and they are not likely to forget a little incident which occurred about five miles from Melbourne, on the final day of the race. The car punctured, and as "Oppy" passed them, they were struggling with the spare tyre.

"Why don't you ride a bike?" he called as he went by. "It's safer."

Home-made Static and How to Produce —or Avoid—It.

Through the courtesy of the Radio Manufacturers' Association of U.S.A., we publish herewith a copy of their manual entitled "Better Radio Reception." This manual is the result of a nation-wide survey, at great expense, in an effort to give the listening public an opportunity to get most out of their radio equipment, and has been adapted for Australian conditions.

By ROBERT J. CASEY

IT is part of the credo of the radio public that all queer little buzzes and hums inside the receiving set come from two causes:

Item: Static.

Item: A leak in that doggone transformer out there on the post in the alley.

Fair enough: No stickler for simplicity could demand a more simple disposition of a difficult problem. No classification of trouble could be more nearly all-embracing. No other solution could appeal so strongly to such a variety of minds. It springs squarely from the genius of the race; somebody told it to the first radio fan and that great love of truth which characterizes all receiving set owners has fostered it in record and tradition until it is the most widely quoted axiom in all this so-called science. It is magnificent in its broad generality.

And like so many other beautiful but broad generalities, it isn't so.

About four hundred harried interests have made a study of the important subject of interference during the past few years. Far-sighted gentlemen in laboratories long ago took time off from the problem of radiating heat from rheostats, peaking intermediate transformers, mortising cabinets and keeping condenser plates from scraping, and turned their attention to noise—domestic and imported. They realized that no other circumstance or combination of circumstances could affect the future of radio so vitally.

It was discovered that rumors of crackles, rumbles and roars in radio sets were true. There were such annoyances.

It was likewise discovered that Old Man Static had been blamed for many a disastrous attempt at reception when, as a matter of fact, he was nowhere in the picture.

It became evident when the first tabulation of statistics was made that most of the complaints regarding loud and painful noises might be placed in the same category as that of the dog that sat on his own tail and howled, but was too lazy to move.

It was the consensus that with the home-brew-noise industry proceeding so blithely natural static might be dismissed from consideration. A man with the hives is not likely to complain much about a mosquito bite.

Home-Made Static Our Theme.

So in the present survey of this sprightly topic static that really is static will be ignored. Nobody knows much about what it actually is, but there is a growing fund of information on how it can be overcome and at present writing it ought to be the least of the set owner's worries.

As for the other brand of static it had best be considered after the plan of the Scotch preacher who took as his text: "The devil goeth about as a roaring lion" and announced:

"I shall discuss this text under three heads:

"First—Who the devil he is.

"Second—How the devil he goeth.

"And third—What the devil he is roaring about."

Item No. 1 is easy. If you hear a roaring in headphones or loudspeaker or a sound suggestive of eggs being fried in butter that is eliminable interference.

There is, of course, another brand of interference—a curse quite noticeable and persistent in large cities—the interference of one spirited broadcasting station with another. Nothing can cure this sort of dynamite or activity on the part of the recent commission, so it will not be treated here. Crackles, hums, moans, roars and sputters are something else again and their source may be sought right close to home.

Item No. 2 is somewhat less easy. But the answer will be supplied. Weary engineers have learned a lot about how interference is transmitted and they have learned also how such transmission may be stopped.

Item No. 3 is an outgrowth and corollary of No. 2. Power plant executives are just as much concerned as radio listeners in finding out if and why their equipment is wasting enough current to put the broadcast soprano out of business. They are interested in learning not only what "that doggone transformer out on the post is roaring about," but also what the public is roaring about. And they have found out. They thank heaven for it.

Sources of Home-Made Interference.

Sources of home-made interference are so numerous that one blushes to enumerate them. But, oddly enough, though they are legion and generally unsuspected, most of them may be eliminated in a few seconds, with no great demand for skill or knowledge of electricity, and at a few cents cost. A concerted drive by the interested public would put all of these nuisances out of business over night.

It probably should be stated in this preliminary observation that "that doggone transformer out on the post in the alley" is quite likely to have nothing at all to do with the disturbance. In thousands of cases investigated it was found that transformers generally were about as prolific a source of noise as the mummy of the late King Tut. Power line engineers, despite the general belief, are strictly against any continuation of leakages. To the radio public it may seem logical enough that power companies should burn coal at present prices just for the fun of pumping current through holes in the line to the ground. But they don't. They'd much rather sell electricity than broadcast it.

The real offenders in the manufacture of parasitical noises are the handy electrical devices so widely used in office and home. Not all of these are static makers, but all of them have the power to be if not properly safeguarded. And so they might as well be listed at once and completely:

Arc lights
Electric heaters
Electric irons
Electric pads
Automatic railway signals
Electric curlers
Marcelling outfits
Soldering irons
Waffle irons
Shaving mug heaters
Percolators
Vibratory rectifiers
Mercury arc rectifiers
Flash signs
Elevator controls
Small motors
Victrol ray machines
X-ray machines
Electric vibrators
Electric meters
Telephone dialers
Telephone magnets
Electric cigar lighters
Street car switches
Breaks in third rails
Leaky transformers
Dancehalls and buzzers
Annunciators
Dishwashers
Dough mixers
Soda mixers
Electric typewriters
Electric addressing machines
Electric photographs
Electric dictating machines
Electric computers
Printing presses
Dust precipitators
Hair clippers
Automotive towels
Oil burning devices
Refrigerators
Vacuum cleaners
Motor brushes
Starting commutators
Leaky cables
Farm lighting systems
Defective light sockets
Bad connections in home lighting systems

Classification of Interference.

An analysis resulting from this survey tends to show that interference from such devices may be placed on one of four classes:

Motor noises
Thermostatic controls
Bad contacts
Leaks

All such interference may be further classified according to the method used in its elimination:

Simple condensers
Centre tapped condensers
Condenser and choke

The crackling emanations from most of the electrical household devices come from the little motors required to operate them. The bulk of them are really nothing but a small motor put to various uses. What will silence one of them will silence nearly all.

Thermostatic controls have a certain reluctance about getting down to business. They are prompted by some sort of a heat-responsive device and are supposed to make or break a connection when a given temperature is reached. Thus they may maintain a refrigerator at freezing point or a hot water heating plant at 300 degrees Fahrenheit. But when they hesitate they cause a good deal of sputtering and each sputter is registered in the loud speaker—"with volume enough to dance by—hear it all over the house."

Bad contacts in fuse boxes, light sockets or in the interior mechanism of electrical devices, are much the same as thermostats except that the action is wholly voluntary and for no good purpose. Such defects call for repair (generally simple) instead of exterior appliances.

Leaks are only another manifestation of bad contacts with this difference—the contacts are wholly unintentional. Generally they spring from broken insulation bridged to the ground by moisture.

On the whole, in analyzing these four classifications of noise production, one is struck by the fact that there is actually only one cause—a vagrant spark. The motor that is shielded electrostatically causes no disturbance even when sensitive radio apparatus is quite close to it. The thermostatic control that is properly bridged by condensers is similarly silent. A bad contact becomes increasingly objectionable as its sparking becomes greater. And it is not so much the increase in the monthly light bill as the static effect of the power-line leak that makes it worthy of attention.

Noise-Makers Out of the Kitchen.

Of course all interferences that put the curse on one's radio set is not to be located in one's own kitchen. There is a care-free omnipresence about interference that for a time almost baffled the distracted engineers assigned to discover the "How-Gone" of it. We may as well pause here to consider this phenomenon under the heading: "How the Devil He Goeth."

There might be no appreciable difficulty with such crash-makers as victrol ray machines and power line leaks were it not for the antenna effect of

the wires leading to and from the point of disturbance.

It is this feature of the case that in the past has made life so much of a burden for the noise detectives. If, for example, there is a serious leak in a trolley line equipment a radio compass might indicate its presence in a north and south street, whereas after laborious searching it might be discovered a mile away on an east and west portion of the line.

Every power line is surrounded by its own electromagnetic and electrostatic fields, variations in which may cause similar variations in wires placed near them. Under normal conditions where lines are carrying alternating current there are variations at a rate of from twenty-five to sixty pulsations (or cycles) per second. Such variations, contrary to general belief are of small importance to radio listeners. They do not travel very far from the line and unless the aerial equipment is parallel and close to the power carrier will seldom get through to the loud speaker with any volume.

However, sudden changes in the line current result in an electrical surge—sometimes at a high frequency—and the output from such surges is thrown far from the source of trouble and far from the line itself.

It seems silly to repeat here that old chestnut about keeping the antenna as far as possible from the power lines. For years that suggestion was the stock answer of the "radio expert" to all inquiries regarding interference. Half the time—perhaps ninety per cent. of the time—the interference arose from causes quite remote from this diagnosis. However, the advice is not without its merit in certain cases and so we mention it—well aware while doing so that the status of probably not one aerial will be changed as a result.

Well, let us get on with this lecture.

We have seen that spark discharges may result:

First—from defective apparatus or from devices improperly guarded against such activity.

Disturbance may be caused with equal effect and no greater malice when the propagation is part of the legitimate function of the apparatus such as:

Second—from circuit breakers, vibratory rectifiers, and rotary inter-rupers.

In these discharges there will result not only a direct radiation from the point of propagation but a broadcasting of high frequency currents along the wires leading from that point. The effect of this form of interference is quite the same as that of the spark transmit-

for which in the early days of radio was such a sprightly nuisance.

Power currents are alternating at a low frequency which as a general rule will not be picked up by the R. F. end of the receiving set. However, all radio sets have in them an audio frequency amplifier which takes a great interest in the moan of the sixty-cycle line.

This leads to the consideration of magnetic coupling between power lines and apparatus and the A. F. amplifier. . . . Merely another manifestation of the truth of the weeze, "Keep your aerial away from the power lines."

Possibly in a lesser degree interference arises from a broadcasting of low frequency energy quite aside from that brought to the set by induction as is brought about when power circuits are brought into oscillation. Oscillating circuits radiate. . . . It seems that somebody has mentioned this before.

That probably covers all of the story of how the good old power line electron leaves the dynamo with a certificate of character and develops lamentable qualities in transit. It virtually exhausts the subject of How the Devil He Goeth and brings us to the subhead of What the Devil He Is Researing About.

Nela's Classification of Interference. The National Electric Light Association of U.S.A., which investigated the problems of radio interference at considerable effort and expense, roughly classified its worries as follows:—

POWER CIRCUITS.

1. Lines.
2. Insulators.
3. Lightning arresters.
4. Transformers.
5. Generators and motors.
6. Induction voltage regulators.

INDUSTRIAL APPLICATIONS.

1. Arc light circuits.
2. Telephone and telegraph lines.
3. Pole changes and converters.
4. Tram cars and electric railways.
5. Smoke and dust precipitators.
6. Motors.
7. Sign flashers.

HOUSEHOLD APPLIANCES.

1. Electric pads.
2. Violet ray machines.
3. Flat irons.
4. Door bells, light switches and motors.

(This list is manifestly much shorter than the one which appears near the beginning of the present survey, but an analysis will show that it very nearly covers the field inasmuch as with electric pads may be classified all thermostatic control devices; with the violet ray machine any other form of high frequency generator; with flat irons, all types of resistance wire heaters—such as

cutting irons, percolators, soldering irons, waffle griddles, etc.; and with door bells, light switches and motors, all of the loose contact disturbances and the emanations from apparatus with moving parts, such as fans, vacuum cleaners, washing machines, etc.)

MISCELLANEOUS.

1. X-Ray machines.
2. Storage battery chargers.
3. Annunciator systems.
4. Stock tickers.
5. Ignition systems.
6. Electric elevators.
7. Electric furnaces.
8. Moving picture equipment.
9. High voltage testing equipment.

Coping With Interference Causes.

Fortunately, plans for coping with these manifold trouble-makers began when radio was young and continued in pace with the new industry. So complete is the knowledge on the subject at the present date that it is far more simple to choke off a trolley line than to perform a tonsillotomy on an obnoxious tenor. All of these secrets will be revealed in due time—plus a lot of rare old Rembrandts with crosses marking the spot where the body was found.

The old time solution—the harling of dynamite with a time fuse—is now frowned upon as too elementary and crude. With all that is now known of this important and interesting topic one would as soon try to get music out of a one-tube single circuit set as blow up a power plant.

Briefly, let us consider the cause of howling, humming, and all the rest of the volunteer symphony. We may summarise what the National Electric Light Association discovered in its survey.

POWER CIRCUITS.

1. Lines.—In this connection it is pointed out that lines generally consist of a primary network of from 220 to 220,000 volts stepped down for practical uses through a transformer to 200 to 240 volts. Admittedly the disturbance from radio frequency generation in the high voltage lines is serious on account of the amount of energy they carry. Disturbance from secondary lines is less because the energy is less, but none the less must be considered because it is carried close to the receiving set. Engineers investigating line emanations reported their conclusion that no trouble is caused unless there is a discharged or partial ground—in other words, when some abnormal condition develops. Arcing, through defective insulation, partial contact with trees or other conductors or the shunting of conductors, are advanced as typical causes of trouble.

2. Insulators.—Insulators defective in themselves or coated with ice or sleep make possible an arcing discharge with a highly damped effect

that is transmitted for long distances along the line and radiated to a degree dependent on the extent of the leak. Light association engineers reported that the arcing of a 85,000 volt insulator obliterated radio reception within a radius of six miles.

3. Lightning Arresters.—Difficulties from these devices are of sporadic occurrence, and may be left among the worries of the engineers.

4. Transformers.—While a leaky transformer capable of doing all the damage accredited to it by the average radio listener would undoubtedly blow up early in its career, it has been found that its core hum may be picked up by an audio amplifier. If, in addition to a core hum, it has also had insulation or corroded connections, it will sing sufficiently to make all the radio listeners in any one neighborhood buy phonographs.

5. Motors.—Again the problem is arcing, and the broadening of high frequency energy along the power line. Sparking of the brushes of a rotary converter was heard by the noise finders at a point on the line five miles away. However, a super-heterodyne receiver 150 feet from the line did not seem to be aware of the disturbance.

6. Induction Voltage Regulators.—These appliances are used in lines which otherwise might be subject to severe drops and jumps in voltage. They consist of a contact-making voltmeter, relay switch, line drop compensator, and some transformers. All of these elements, the engineers reported, are capable of creating weird noises if contacts are bad or windings or leads are grounded. Arcing of relay switch contacts produces customary results.

Normally, there is no activity in the regulator, but if there is a jump or a drop in voltage the meter moves to close a contact and starts the motor of the control device.

All in all the ills of the gadget seem to be the concern of the company that owns it. The National Electric Light Association recommends that in testing the device, the best method is to take it out of the line and see if the noise stops. Elimination of its various components then follows, step by step. All of this work, of course, has to be done by power company electricians if the fire department is to be saved the trouble of picking corpses off of electric light poles.

If we are about to forget the voltage control business forever we may append the finding of the engineers to the effect that regulator interference may be eliminated by connecting two one microfarad condensers in series between the outgoing feeders and grounding their common connection.

(This article will be continued in our next issue.)

The Story of a Great British House

Though Broadcasting as popularly known is only a few years old, it will no doubt come as a shock to hear that the first telephonic loud speaker was successfully demonstrated by the inventor, Mr. Alfred Graham, as far back as 1887. He visualised the instrument as a means of disseminating news from conveniently situated news exchanges, but in his wildest flights of fancy never imagined such a world



Alfred Graham, the Pioneer of the Loud Speaking Telephone Industry.



Junior Swan-Neck Amplion, Type A.R. 3A.

wide use of the loud speaker as in the case to-day. The new appliance received but scant appreciation, and Mr. Graham turned to a more profitable venture, viz.: the production of an efficient loud speaking telephone service for ships, and in similar places where the noise precludes the advantageous use of the ordinary telephone. This, the prototype of the purely naval telephone and incidentally also of the present day loud speaker, quickly established itself, and was standardised by the British Admiralty, foreign naval powers and subsequently by leading shipping companies throughout the world.

During the period 1898-1912 ideas on ships' telephony underwent considerable changes, whilst the actual apparatus used was undergoing continual improvement, following the unremitting research work carried out by the House of Graham. The net result was that the efficiency and reliability of the new system were fully realised and the system almost universally adopted. Up to 1919 more than 12,000 ship installations had been effected. It will be appreciated, therefore, that when Broadcasting materialised, the House of Graham with its wide experience in the production of loud speaking telephones, was in a very advantageous position. The need of a good loud speaker was very

the Radiolux Amplion was brought out in 1925. This model, one of the mirrors partly because of its appearance first to depart from the conventional shape, found a large number of admirers, and also because of the volume given by the new speaker, which, if anything, is greater than that of a horn type instrument. The Radiolux is made in two sizes, and several different cabinets, including crumpled steel, oak, mahogany, Queensland maple, and blackwood.

Appreciating the fact that not all radio enthusiasts are overblessed with this world's goods, the "Cabinette" next appeared. This model in oak or mahogany, is claimed to be the

evident, and it is not surprising, therefore, to find that the first Amplion placed on the market in 1920 met with extraordinary success—a success which has been maintained, and even surpassed as ever improving designs were produced.

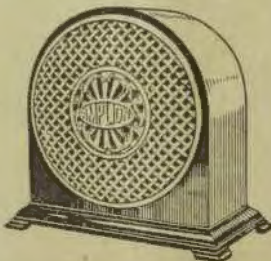
Two types of horn speakers were marketed, the famous "Dragon" series and a "Swan-Neck" series. The Dragon series comprised various models varying in size from the tiny "Dragonfly" to the magnificent "Concert Grand." Of the series, the "Standard" or A.R.19 as it is familiarly known, achieved an extraordinary success, and despite the many fashions and vogues in speakers, is by far the most popular model to-day.

Differing in general appearance, and of an entirely different design, yet incorporating all those essential features which mean so much to the quality of the resultant reproduction,



The famous Standard "Dragon" Amplion, Type A.R. 19.

finest possible value for the prices asked. Of quite recent introduction, the Amplion Cone speaker fully sustains the Amplion reputation for quality of reproduction. Two varieties are available—the Amplion Cone (in two tone mahogany finish), and the Radiolux Cone, which is enclosed in oak or mahogany cabinets. A point not fully appreciated by cone speaker users is the necessity of a filter circuit between the power valve and the speaker. The Amplion Siftron, of correct electrical design, is specially suitable for this, and every other type of speaker. The Amplion Company claim that they have a speaker for every purpose, and every purse.



The Radiolux Amplion, Type R.S.I.M. "The Natural Tone Loud Speaker."

Emmco Battery Charger.

The latest addition to the well-known Emmco family of quality radio parts is the Emmco Battery Charger, which employs the Raytheon Cartidge and dispenses with the usual valve. This charger, which is supplied complete with cord and adaptor, is made in two capacities, but an important point is that both chargers have tappings for either 4 or 6 volt batteries, and will handle any capacity of 4 or 6 volt accumulator. It is an engineering achievement of no mean order and incorporates an attractive aluminium base, a Bakelite top and the internal robust construction usual with the products turned out by this big factory. All the live elements are enclosed in a strong insulated case. The instrument is compact and durable, and on test proved to be silent in operation and most efficient.

The Emmco Battery Charger is obtainable in either 2½-amp. or 5-amp. capacity and is made for either 220-240 volts and 200-230 volts. Each instrument is supplied with complete operating instructions.

Our sample from Manufacturers' Products Pty., Ltd., sales agent to the trade for Emmco parts.

New Batteries.

We have received samples from the Amalgamated Wireless (A'sia), Ltd., of two new low tension accumulators, which should certainly find favour with the radio enthusiast. They are manufactured by the well-known British battery firm—the "Three Star Accumulators, Ltd.," of Tottenham, England, who have already established an enviable reputation in Australia through the medium of their high tension battery, the HTX20. The new types are available in two sizes, respectively possessing intermittent capacities of 20 and 45 ampere hours.

In appearance they are exceptionally sturdy, with containers made of stout moulded glass, and glass separators as part of the container, lasting, of course, for practically, all time.

They are fitted with two non-corrosive terminals with Bakelite tops, clearly distinguishable, in so far as polarity is concerned, by means of red and black discs mounted under the terminals. The container is also clearly marked with both the acid level and the polarity of the plates as visible through the container. The top is filled in with moisture-proof and acid-proof pitch with venthole for addition of electrolyte, and supplied with a celluloid stopper, pierced with a small hole for allowing gas to escape. The plates themselves are exceptionally

thick, and in the case of the larger type cell the positive is of greater size than the negative so that due allowance is made for the action on the



positive plate. Briefly outlined the following particulars are supplied in connection with these filament cells:—

Type DE—2 volts.

Normal charging rate, 1 amp.

Maximum discharging rate, 1 amp.

Capacity (intermittent), 20 ampere hours.

Type DE45—2 volts.

Normal charging rate, 1 amp.

Capacity (intermittent), 45 ampere hours.

These cells are supplied in a charged condition and only need the addition of pure sulphuric acid, 1.250 Sp.G. After filling, the cell should be allowed to stand for about twenty-four hours, and it will then be ready for use. It will retain its charge for six months, and needs re-charging only when the Sp.G. falls to 1.100. Directions, which are simple and easily understood, are attached to every cell.

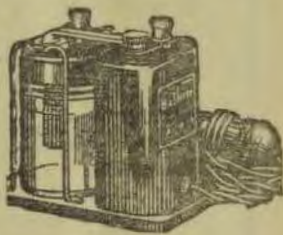
Balkite Trickle Charger.

(Extract of letter received from Mr. E. J. T. Moore, New York, dated 21/10/27.)

It is claimed that one out of every ten radio receivers in the United States is Balkite equipped, and, judging by the appearance and performance of the Balkite Trickle Charger, we would say that this claim is justified. Although very compact and small it performs man-size work, and by virtue of the fact that it operates continuously at a low rate instead of intermittently at high rate, automatically keeps the battery at full power. It is quite noiseless in operation so that in most instances it can be used during reception. The current con-

sumption is extremely low; the cost of operation being approximately 1d to 1d per hour of radio reception. Model K may be used as a Trickle Charger with any six volt A battery, while with a four volt battery it can be used as an intermittent charger of the usual type. The charging rate is approximately 5 amps.

Model J combines a low rate for Trickle Charging and a high rate for rapid charging, so that this charger may be used either for Trickle or intermittent charging and combines the advantages of both methods. It is recommended for heavy duty sets, large sets, or sets in constant use. This large capacity makes the addition of water necessary only at infrequent intervals. The charging rates are as follows:—To 6-volt battery 2½ amps. high rate, 5 amps. low rate; to 4-volt battery 8 amps. high rate, 2 amps. low rate, which can also be used to charge motor car batteries.



THEY SAW THE JOKE: When we hear the hearty laugh of our native kookaburra, the thought often flashes through our mind as to whether they can see a joke—they seem to be entering into the spirit of something so keenly—that we are almost tempted to fancy they are laughing amongst themselves at the feeble efforts of the poor humans. At least, this is what Mr. Bearup—the popular studio manager of station 3LO, Melbourne—thought recently. When one morning he rose with the sun and prepared to conduct a British Empire test. Naturally, on these great occasions—things cannot always be calculated by rule of three—and he had to adjust his thinking cap firmly. Just as concentration reached its highest point, a great burst of laughter made him look up, and there right in the heart of the city were 100 "jackies" seated on the window sill, laughing—as he said—"at to kill themselves."

Summer-time is Portable-time.

Build the simple three valve portable radio receiver described in the November issue of "Radio" to take with you when you go holidaying this Xmas. Complete in case with loud-speaker, frame aerial, and battery compartment, it can be built at little expense.

Other Features Include:

- Short-Wave Research Work. By A. S. McDonald, A.I.M.E., in Collaboration with F. W. Larkins.
- What I Would Do if I Had My Studio. By Jack Win.
- What Chances Has Broadcasting of Influencing Language? By Joan Mackaness.
- Prominent Personalities at 2FC and 3LO in Caricature.
- Digest of World-Wide Radio News.
- An 8-Valve Super-Heterodyne.
- The Browning-Drake Four-Valve Receiver. By H. Lewis.
- The Gomez Super-Reflex.
- Your Choice of a Loud Speaker.
- What's New in Radio and Where to Buy It.
- Latest Radio News from London.
- New Short-Wave Receiver and Transmitter.
- A Cheap and Efficient Magneto Pickup.
- Amateur Experimenters' Section.

ON SALE NOW:

RADIO

1/-

BROADCASTING PROGRAMMES

for the COMING WEEK

Friday, Dec. 9

2FC, SYDNEY.

Farmer's Broadcasting Service.

Wave Length, 442 Metres.

EARLY MORNING SESSION—7 to 8 a.m.

MORNING SESSION.

- 10 a.m.—"Big Ben" and announcements.
10.5 a.m.—Studio music.
10.55 a.m.—"Sydney Morning Herald" news service.
10.58 a.m.—Studio music.
10.58 a.m.—A Reading.
10.58 a.m.—Studio music.
11 a.m.—"Big Ben."
11 a.m.—Marching music for school children.
11.5 a.m.—A.F.A. and Reuter's Cable Service.
11.10 a.m.—Studio music.
11.20 a.m.—A talk on Home Cooking and Recipes by Miss Ruth Furst.

MIDDAY SESSION.

- 12 Noon—"Big Ben" and announcements.
12.2 a.m.—Stock Exchange, first call.
12.3 a.m.—Official weather forecast, rainfall.
12.4 a.m.—Studio music.
12.45 a.m.—Summary of "Sydney Morning Herald" news service.
Rugby wireless news.
12.55 a.m.—Studio music.
1.25 p.m.—Marching music for school children.
1.35 p.m.—Annie Sedger, mezzo:
"The Flower Song" ("Faint") (Gounod).
1.45 p.m.—The Oak Hall Instrumental Trio (Leader, Mr. Horace Keats).
1.55 p.m.—Studio music.
2 p.m.—"Big Ben." Weather Intelligence.
2.5 p.m.—"Evening News" midday news service.
2.55 p.m.—The Oak Hall Instrumental Trio.
3 a.m.—Stock Exchange, second call.
3.05 p.m.—Marching music for school children.
3.10 p.m.—Annie Sedger, mezzo:
"The Messenger" (Clarke).
3.15 p.m.—Studio music.
3.50 a.m.—The Oak Hall Instrumental Trio.
3.55 a.m.—"Big Ben." Close down.

AFTERNOON SESSION.

- 3 p.m.—"Big Ben" and announcements.
3.5 p.m.—Jessie Rooney, contralto:
"How many a lonely Caravan" (Finlay).
3.55 p.m.—Nella Larkin, violinist:
"Serenade" (Drigo).
3.58 p.m.—A Reading.
3.59 p.m.—Marching music for school children.
4 a.m.—From the Studio:
Fosse Brakel, contralto:
"Sweet and Low."
4.15 p.m.—The Oak Hall Instrumental Trio (Leader, Mr. Horace Keats); from Farmer's Service.
4.40 p.m.—From the Studio:
Kathleen Horne, soprano:
"Believe me it all" (Moeret).

- 4 p.m.—Nella Larkin, violinist:
"Annie Laurie" (Miller).
"Serenade" (Braga).
4.5 a.m.—From the Tea Room:
The Oak Hall Instrumental Trio. (Leader, Mr. Horace Keats).
4.15 p.m.—From the Studio:
Muriel Watt, contralto:
"Down Here" (Brake).
4.20 p.m.—Kathleen Horne, soprano:
"Dreams of the Duck" (D'Harcourt).
4.25 p.m.—The Oak Hall Instrumental Trio (Leader, Mr. Horace Keats).
4.35 p.m.—From the Studio:
Jessie Rooney, contralto:
"Quiet" (Bauderhan).
4.40 p.m.—Fosse Brakel, contralto:
"The Field Gold" (Holstern).
4.45 p.m.—Stock Exchange, third call.
4.47 a.m.—Nella Larkin, violinist:
"Silver threads amongst the gold" (Beaford).
4.55 p.m.—Muriel Watt, contralto:
"For Music Request" (Frans).
4.58 p.m.—Studio music.
5 p.m.—"Big Ben." Close down.

EARLY EVENING SESSION.

- 5.45 p.m.—The Chimes of 2FC.
5.45 p.m.—The "Hello Man" talks to the children.
5.55 p.m.—Story time for the young folk.
6.0 a.m.—From Farmer's Oak Dining Hall:
The Oak Hall Instrumental Trio (Leader, Mr. Horace Keats).
6.45 p.m.—Wilfrid Thomas, bass:
"Drinking Song" (from "Martha" (Flotau).
6.45 p.m.—The Oak Hall Instrumental Trio.
6.50 p.m.—Barbara Bruce, contralto:
"Streaming of Hares" (Dunlop).
7 p.m.—"Big Ben."
Late racing information by the 2FC Commissioner.
7.10 p.m.—Dalgety's market reports (wheat, wheat and stock).
7.15 p.m.—Fruit and vegetable markets.
7.20 p.m.—Weather and shipping news.
7.25 p.m.—"Evening News" late news service.

NEW SOUTH WALES "A" AND "B" CLASS BROADCASTING STATIONS.

2FC—Farmer's Broadcasting Station, Ltd., Sydney, wavelength 442 metres, power 5000 watts.

2BL—Broadcasters' Ltd., Sydney, wavelength 353 metres, power 3000 watts.

2GB—Theosophical Broadcasting Station, Ltd., Sydney, wavelength 315 metres, power 3000 watts.

JKY—Trades and Labor Council, Sydney, wavelength 291 metres, power 1500 watts.

2LW—Otis Sandel, Sydney, wavelength 287 metres, power 500 watts.

2MK—Mackler Bros., Bathurst, wavelength 275 metres, power 250 watts.

2LW—Electric Station Supply Co., Sydney, wavelength 262 metres, power 250 watts.

2BC—Bargin Electric Co., Sydney, wavelength 215 metres, 100 watts.

2BD—H. J. Douglas, Newcastle, wavelength 238 metres, 100 watts.

NIGHT SESSION.

- 1.40 p.m.—Programme announcements.
1.45 p.m.—Crickie reminiscence, prepared by Mr. Frederick Harpen.
2 p.m.—"Big Ben."
Lionel Lawson, violinist.
2.5 p.m.—Gwen Selva, soprano.
3.14 p.m.—"How to Listen to," by Mr. S. K. Bowden.
3.20 p.m.—Cec Morrison and his "Gloom-chasers."
3.24 p.m.—Fragy Post, ambrette.
3.32 p.m.—Lionel Lawson, violinist.
3.40 p.m.—Gwen Selva, soprano.
3.45 p.m.—"Big Ben." Late weather forecast.
3.5 p.m.—Gladiolus Bell, cello solo.
3.6 p.m.—Fragy Post, ambrette.
3.14 p.m.—Cec Morrison and his "Gloom-chasers."
3.20 a.m.—From Her Majesty's Theatre, Pitt Street, Sydney.

At 2 a.m. "CASTLES IN THE AIR" (by permission of Messrs. J. C. Williamson, Ltd.) (next night of this performance).
Musical Numbers:
Opening the Home.
Lillian Danis, Leo Frantzi, Chorus and Ballet.

Song, "Hello," Gus Hurst and Chorus.
Song, "My Lullaby," Roy Russell and Pup Chorus.

Song, "Land of Romance," Beatrice Ronald, Duet, "You never can tell," Gus Hurst and Floe Allan.

Duet, "Was a wonderful day," Rowena Ronald and Roy Russell.

The Lullaby Chant, Pup Chorus.
Duet, Floe Allan.

Finlay, Penelope and Ensemble.
Scene, Courtyard of a Lullaby Castle.

10.20 p.m.—From the Studio:
Cec Morrison and his "Gloom-chasers."

10.50 p.m.—Shirley Cooke, soloist.
10.40 p.m.—Cec Morrison and his "Gloom-chasers." Popular dance numbers.

10.55 p.m.—Shirley Cooke, soloist.
10.55 p.m.—Late news and announcements.

11 p.m.—"Big Ben."
Cec Morrison and his "Gloom-chasers" in popular numbers until 11.35 p.m.

11.30 p.m.—National Anthem.
Close down.

2BL, SYDNEY.

Broadcaster's Ltd.

Wave Length, 353 Metres.

Friday

EARLY MORNING SESSION.

7 a.m. to 8 a.m.

MORNING SESSION.

- 10.30 a.m.—L.P.O. Clock and chimes.
Musical programme from Studio.
10.40 a.m.—News from "Daily Telegraph" (Pictorial).
10.50 a.m.—Musical programme from the studio.
11 a.m.—L.P.O. Clock and chimes.
Announcements.

"Burgess" spells "Quality; Life; service."

11.5 a.m.—Musical programme from the studio
 11.15 a.m.—Women's Session. Talk on "Eyes-quet" by Miss Gwen Varley, Broadcasters Women's Sports Authority.
 Social Notes—Replies to correspondents by Mrs. Jordan.
 Talk on "Christmas Cooking, Misses Pies" by Mrs. Jordan.
 12 noon.—G.P.O. Clock and chimes.
 Special Ocean Forecast and weather report.
 12.3 p.m.—Musical programme from the studio
 12.8 p.m.—Information. Mails, Shipping and port directors.
 12.13 p.m.—Results in call by wireless.
 12.15 p.m.—Fruit Market report.
 12.16 p.m.—Vegetable Market report.
 12.17 p.m.—London Metal report.
 12.19 p.m.—Dairy and Farm produce Market report.
 12.22 p.m.—Forage Market report.
 12.24 p.m.—Fish Market report.
 12.26 p.m.—Bullion Market report.
 12.28 p.m.—Stock Exchange report.
 12.30 p.m.—H.M.V. Gramophone recital.
 1.27 p.m.—Stock Exchange report.
 1.30 p.m.—G.P.O. Clock and chimes. Talk to children and special entertainment for children in hospital.
 2 p.m.—G.P.O. Clock and Chimes. Close down.

AFTERNOON SESSION.

Racing information broadcast immediately after each race by courtesy of the "Sun."
 3 p.m.—G.P.O. Clock and chimes.
 News from the "Sun."
 3.16 p.m.—Civil Service Storms Trio, direction Miss de Courcy Bremer.
 3.30 p.m.—G.P.O. Clock and chimes.
 News from the "Sun."
 3.40 p.m.—Talk on "Homecrafts" by Priscilla.
 4 p.m.—G.P.O. Clock and chimes.
 Civil Service Storms Trio.
 4.15 p.m.—Serial Story.
 4.15 p.m.—Musical programme from the studio
 4.30 p.m.—News from the "Sun."
 4.35 p.m.—Resume of night's programme.
 4.57 p.m.—Razling resume.
 4.59 p.m.—Special ocean forecast.
 5 p.m.—G.P.O. Clock and chimes. Close down.

EARLY EVENING SESSION.

6.45 p.m.—G.P.O. Clock and chimes.
 Children's Session
 6.50 p.m.—Musical programme from the studio

SPECIAL COUNTRY SESSION.

9 p.m.—G.P.O. Clock and chimes.
 Australian Mercantile Land and Finance Co's report.
 Weather report and forecast by courtesy of Govt. Meteorologist.
 Producers Distributing Society's Fruit and Vegetable Market report.
 Stock Exchange reports.
 Grain and Fodder report ("Sun.")
 Dairy Produce report ("Sun.")
 Eucharistic Conference Notes.
 11.15 p.m.—Country News from the "Sun."
 11.25 p.m.—Talk by Mr. Gregory of the N.H.M.A.
 11.30 p.m.—Talk on "Gardening Science" by Mr. Cooper, Park Superintendent City Council.
 6 p.m.—G.P.O. Clock and chimes.
 Broadcasters' Topical Chorus.
 8.3 p.m.—From the Kings Hall, Hunter Street. The Choralists under the direction of Mrs. Bennett White. The occasion is the celebration of the sixteenth anniversary of this well known and popular concert party. The proceeds of the concert will be given towards providing a Christmas tree and comforts for the patients in the Randwick military hospital.
 Artists: Una Wilson, Rose Ross, Aileen Moran, Clirice Morgan, Mavis Raynor, Edith Jackson, Constance Paradise, Edith Angel, Norah Mack, Mervyn Fletcher, Yvonne Falvey, Edith Barrall, Marjorie Bagroff and Gertrude Bennett White.
 9 p.m.—G.P.O. Clock and chimes.
 From the Stadium, A description by Mr. Basil Kirke of the Champion boxing contest.

9.45 p.m.—From the studio. Weather reports and forecast by courtesy of Mr. G. J. Moran, Govt. Meteorologist.
 9.45 p.m.—Broadcasters all sports expert will talk on "Trickett."
 10 p.m.—G.P.O. Clock and chimes.
 10.1 p.m.—The Sporting editor of the "Sun" will talk on the prospects of Saturday's racing.
 10.23 p.m.—From the ballroom of the Bondi Casino. Dance music by Danny Hogan's Prisco Six. During the intervals between the dances news items by courtesy of the "Sun" newspapers will be read from the studio.
 11 p.m.—G.P.O. Clock and chimes.
 National Anthem.

7.15 p.m.—Studio Selections
 7.45 p.m.—Mrs. A. Pearce, Violin Solo:
 Solo.
 7.50 p.m.—Studio Selections.
 8.0 p.m.—Studio Chimes.
 8.2 p.m.—Miss Doris Fitzmaurice, Elocutionist: "The Knight's Tomb."
 8.5 p.m.—Mrs. A. Pearce, Violinist: Selected.
 8.10 p.m.—Studio Selections.
 8.30 p.m.—Miss Jeanette Paterson, Pianoforte Solo:
 "Waldesrauschen" (Liszt).
 8.35 p.m.—Studio Selections.
 8.45 p.m.—Miss Doris Fitzmaurice, Elocutionist: "He Fell Amongst Thieves."
 8.55 p.m.—George F. Manuel, Tenor: "Sylvain."
 8.62 p.m.—Miss Jeanette Paterson, Pianoforte Solo:
 "Fantasie Impromptu" (Chopin).
 8.67 p.m.—News Item.
 9.0 p.m.—Studio Chimes.
 9.2 p.m.—Weather Forecast and News Bulletin.
 9.10 p.m.—George F. Manuel, Tenor: "I Know of Two Bright Eyes."
 9.15 p.m.—Studio Selection.
 9.20 p.m.—Miss Jeanette Paterson, Pianoforte Solo:
 "Nocturne in B" (Chopin).
 9.24 p.m.—Studio Selection.
 9.25 p.m.—Resume of Forward Programme.
 9.30 p.m.—God Save the King.

2 UW, SYDNEY

Sandel Radio, Ltd.

Wave Length, 267 Metres.

Friday.

MORNING SESSION.

9.0 a.m.—News, Shipping, Mails, Studio Items
 9.45 a.m.—Women's Session
 9.50 a.m.—Resume of Forward Programme
 10.0 a.m.—Close Down.
 12.15 p.m.—Special Employees' Luncheon Session.
 12.45 p.m.—Close Down.

AFTERNOON SESSION.

2.0 p.m.—Studio Selections.
 2.30 p.m.—Resume of Forward Programme.
 3.0 p.m.—Close Down.

EVENING SESSION.

5.0 p.m.—Studio Items.
 5.30 p.m.—Resume of Forward Programme.
 6.0 p.m.—Close Down.

NIGHT SESSION.

7.0 p.m.—Studio Chimes
 7.2 p.m.—Where to Go.
 7.10 p.m.—Pianoforte/Solo Selected.

INTERSTATE "A" AND "B" CLASS BROADCASTING STATIONS.

31.0.—Broadcasting Company of Australia, Ltd., Melbourne, wavelength 311 metres, power 5000 watts.
 32.0.—Associated Radio Co., Ltd., Melbourne, wavelength 344 metres, power 6000 watts.
 40.0.—Queensland Radio Service, Brisbane, wavelength 255 metres, power 5000 watts.
 41.1.—Central Broadcasters' Ltd., Adelaide, wavelength 305 metres, power 5000 watts.
 41.7.—Western Farmers, Ltd., Perth, wavelength 1250 metres, power 6000 watts.
 72.1.—Isamman Broadcasters, Ltd., Hobart, wavelength 315 metres, 3000 watts.
 110.0.—The JDB Broadcasting Co. Pty., Ltd., Capital House, Melbourne, wavelength 255 metres, power 500 watts.
 117.2.—O. J. Nilcoe & Co., Melbourne, wavelength 219 metres, power 100 watts.
 400.—old Radio Electric Service, Toowoomba, Queensland, wavelength 234 metres, power 1000 watts.
 404.—Agart Radio Broadcasting Station, Adelaide, wavelength 250 metres, power 1000 watts.
 50N.—50N Pty., Ltd., Adelaide, wavelength 213 metres, 300 watts.

3LO, MELBOURNE.

Broadcasting Co. of Aust.

Wave Length, 371 Metres.

Friday

MIDDAY SESSION.

12 noon.—Melbourne Observatory Time Signal.
 Metal Plates Received by the Australian Mines and Metals Association from the London Stock Exchange Ltd and Reuters' and the Australian Press Association Galley; British Official Wireless News from Right; "Aegus" News Service.
 12.20 p.m.—HOYT'S GARDINER REGENT ORCHESTRA: "Schubert's Song."
 12.52 p.m.—ANNA BURKE, Soprano, in voice Charming Irish Melodies: "Avaraghagh" (Jonny Lambie), "Avaraghagh" (Wilson King).
 12.58 p.m.—Stock Exchange Information.
 1.15 p.m.—HOYT'S GARDINER REGENT ORCHESTRA: "Song of India" (Rimsky-Korsakoff).
 1.24 p.m.—CY PEIR, The Ukulele Troubadour: "Hello Swanses" (Coslow-Britt), "O What a Pal Was Whistle" (Kahn-Burke).
 1.25 p.m.—HOYT'S GARDINER REGENT ORCHESTRA: "The Dollar Princess" (Falls).
 1.0 p.m.—Melbourne Observatory Time Signal. "That sum of money Fortune tossed into your lap—have you given thanks to her?" Be something for the children—the Hospitals—the Orphanages or the Kindergarten. He who gives quickly gives twice."
 "The Prisoner's Picnic" (Muller).
 "Everything is Made for Love" (Johnson).
 11.0 p.m.—OUR GREAT THOUGHT: "Is not anger a cursed vice? Yes, Curran. Alas! It taketh away from man his wit and reason, and all his debase his life spiritual, that should keep his soul."
 —Chasler.
 11.1 p.m.—JOE ARONSON AND HIS SYM-COPATING SYM-PHONISTS.
 11.40 p.m.—GOD SAVE THE KING.

1.1 p.m.—Meteorological Information; Weather Forecast and Rainfall for Victoria, Tasmania, South Australia, and New South Wales; Ocean Forecasts; River Reports.

1.5 p.m.—SYD. PANE, the Singing Comedian.
"By Gingo."
Selected.

1.10 p.m.—HOYT'S GARDINER REGENT ORCHESTRA:
"Frelude" (Rachmaninoff).

1.12 p.m.—MAGGIE FOSTER, Violin:
"Broken Melody" (Van Bielen).
"At Sundown" (Schubert).

1.13 p.m.—ANNA BURKE, Soprano:
Irish Melodias.
"Beautiful Echo" (Nero).
"Mulligan" (J. Mannia).

1.16 p.m.—HOYT'S GARDINER REGENT ORCHESTRA:
Selection, "Lacis & Lammernoor" (Donizetti).

1.18 p.m.—CAPTAIN DONALD MACLEAN:
"Pirates and More Pirates."

1.20 p.m.—MR. H. WEBB, of the Tasmanian Tourist Bureau, Melbourne, will give a chat about:
"Tasmania."

1.22 p.m.—During the afternoon, descriptions will be given by Mr. Alf Dunlop, of the Tennis matches—French team against Australasia—at the Kooyong Courts, Melbourne.

1.24 p.m.—Close Down.

AFTERNOON SESSION

2.0 p.m.—Melbourne Observatory Time Signal.
HALF-AN-HOUR SING-SONG from (see children at TOURAN STATE SCHOOL, under the direction of Mr. Alfred S. Lane.

FROM THE STUDIO:

2.10 p.m.—MISS FRANCES FRASER:
English Shrine, "Paul's Cathedral."

2.14 p.m.—STUDIO QUARTETTE:
"Suite Melodique" (Primal).

2.16 p.m.—SYD. PANE, the Singing Comedian.
"Mary Anne."
Selected.

2.19 p.m.—STATION TRIO:
"Kiss Suzanna."

2.20 p.m.—LILLIAN M. PATON, Contralto:
"I Wonder if Love is a Dream."
"Viva."

2.21 p.m.—DOROTHY ROXBURGH, violin:
"Chatter."
"Sweet Meeting" (Gabel Main).

2.23 p.m.—LILLIAN M. PATON, Contralto:
"Good Morning, Brother Sunshine."
1) Passed by Your Window."

2.25 p.m.—MRS. M. CALLAWAY MAHOOD:
"The Study and Use of Color—Red."
1) p.m.—"Herald" News Service; Stock Exchange Information.

2.30 p.m.—MR. A. E. WILLIAMS, of the Government Tourist Bureau, Melbourne, will speak on "Fuchsia Cavea and the Upper Reaches of the Snowy River."
During the afternoon, descriptions will be given by Mr. Alf Dunlop, of the Tennis matches—French team against Australasia—at the Kooyong Tennis courts, Melbourne.

2.32 p.m.—Close Down.

EVENING SESSION

8.0 p.m.—Answers to Letters and Birthdays (Geselling by "BILLY BUNNY").

8.10 p.m.—STUDIO QUARTETTE:
"Dance Exotique" (Smith).

8.11 p.m.—CAPTAIN DONALD MACLEAN:
"Pirates and More Pirates."

8.12 p.m.—STUDIO QUARTETTE:
"Hava" (Maurice).
"Spanish Gypsy Dance" (Mowrey).

8.16 p.m.—"BILLY BUNNY"
"More About the Treasure Seekers."

8.18 p.m.—Official Report of Newmarket Stock Sales by the Associated Stock and Station Agents, Bourke Street, Melbourne, Number of Sheep and Cattle drawn for week's sales.

8.25 p.m.—"Herald" News Service; Weather Synopsis; Shipping Movements.

8.32 p.m.—Stock Exchange Information.

8.35 p.m.—Fish Market Reports, by J. R. Barrett, Ltd., Rabbit Ponds.
6.50 p.m.—River Reports.

7.5 p.m.—Market Reports by the Victorian Co-operative Co., Ltd.; Faculty, Grain, Hay, Straw, Jute, Dalry Produce, Potatoes and Onions; Market Reports of Fruit by the Victorian Fruitgrowers' As-

sociation; Retail prices; Wholesale prices of Fruit by the Wholesale Fruit Merchants' Association; Citrus Fruits.

NIGHT SESSION

7.15 p.m.—Under the auspices of the DEPARTMENT OF AGRICULTURE, MR. D. B. ADAM, Vegetable Pathologist, will speak on:
"Tomato Diseases."

7.30 p.m.—COLLINGWOOD CITIZENS' BAND:
Waltz, "The Maid of the Mountains."
Novelty, "The Ragtime Bass Player."
7.40 p.m.—MR. H. K. LOVE:
"Technicalities."

Mr. Love will be glad to attend to your wireless difficulties, and we ask you to write to him for any advice that you may require.

7.50 p.m.—Songs by the Winners of the Second Place in each three grades of the I.O. Melbourne Child Radio Song Competition.

8.0 p.m.—COLLINGWOOD CITIZENS' BAND:
Overture, "Sensitride."
March, "The National Emblem."

8.10 p.m.—CY FRIZ, the Ukulele Troubadour:
"T'm the Guy Who Guards the Haron"
"Berlin).
"Lonsome Ray's Letter Back Home" (Friend).

8.17 p.m.—MAGGIE FOSTER, Violin:
"Romance d'Automne" (Adela Gerard).
"Kovaniak" (Wisniewski).

8.23 p.m.—COLLINGWOOD CITIZENS' BAND:
Intermezzo, "White Lilies."

8.32 p.m.—ANNA BURKE, Soprano in More Sweet Melodias from Old Ireland.
"I Know My Love" (Irish Folk Song).
"I Now Where I'm Going" (Irish Folk Song).

8.39 p.m.—AGNES FORTUNE, Piano:
"Mauve in E Flat," by reconst (Berthoven).

8.49 p.m.—COLLINGWOOD CITIZENS' BAND:
March, "Heron of the Flag."
Overture, "Victorian Cross."

8.56 p.m.—Announcements.
The Royal Automobile Club of Victoria's SAFETY MESSAGE for to-day is for CHILDREN:

"Be sure to use your eyes and ears, and I think a little, too, and you will catch an accident before it catches you."
9.0 p.m.—CAPTAIN DONALD MACLEAN:
"Pirates and More Pirates."

9.20 p.m.—COLLINGWOOD CITIZENS' BAND:
"Frelude and Mazurka from Capella."

9.30 p.m.—FRENCH BROS., Banjoists:
"Dance Oriental."
"Porpoise."

9.37 p.m.—T. E. WHIDBURN, Baritone:
"The Old Rustic Bridge by the Mill" (Shelley).
"The Rocky Road to Dublin" (Yeung).

9.40 p.m.—MAGGIE FOSTER, Violin:
"Because I Love You" (Berlin).
"My Ain Folk" (Berlin).

9.50 p.m.—"CARDIGAN" (Mr. H. A. Wolfe, sporting editor of the "Argus" and "Australasian"), will speak on to-morrow's race.

10.0 p.m.—COLLINGWOOD CITIZENS' BAND:
"Tandol Awakes."
10.5 p.m.—CY FRIZ, the Ukulele Troubadour:
"So Blue" (de S. Brown).
"A Cup of Coffee, a Sandwich, and You" (Reno).

10.12 p.m.—"Argus" News Service; Meteorological Information; British Official Wireless News; Island Steamer Movements.

10.18 p.m.—ANNA BURKE, Soprano:
"In an Old-fashioned Town" (Giblet).
"Hame O'Mine" (McKenzie Murdoch).

10.26 p.m.—French Bros., Banjoists:
"Fountain Air."
"O Sola Mio."

10.33 p.m.—T. E. WHIDBURN, baritone:
"The Good Ship Bonahine" (Reed).
"Boon's Leap" (Ryan).

10.40 p.m.—Road Notes: Island Steamer Movements.

10.45 p.m.—JOE ARONSON and HIS SYN. COLLEGE STYMPIONISTS:
"I Wander Who's With You" (Diana).
"This is Juns" (Leander).
"What Does It Matter" (Berlin).

For any Set
you build or buy



ACME
Socket Power

E1 for use with 1 to 12 valve sets and to operate from alternating Current.

E3 for sets with 1 to 6 valves and operating from alternating current.

Both will supply up to 180 volts, and separate tappings are supplied for Audio frequency, Radio frequency and detector voltages.

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dealer's.

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New System
Telephones Pty. Ltd.,
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4QG, BRISBANE

Queensland Radio Service

Wave Length, 385 Metres.

Friday.

MIDDAY SESSION.

1 p.m.—Market reports; weather information; "The Daily Mail" and "The Daily Standard" news.

1.30 p.m.—Lunch hour music.

1.58 p.m.—Standard time signal.

2 p.m.—Close down.

AFTERNOON SESSION.

3.30 p.m.—A programme of music by the Studio Orchestra including:—
Overture: "The Black Rose" (Brockton).
Valse: "Valse Parisienne" (Lee S. Roberts).
Characteristic: "Two Guitars" (Hayck).
Nocturne: "Nocturne" (Schubert).
Ballet Chorus from "William Tell" (Rossini).

Fox track: "What are we waiting for" (Little).

March: "The Starbuck" (Allen).

4.15 p.m.—"The Telegraph" News, Weather news.

4.30 p.m.—Close down.

EARLY-EVENING SESSION.

6 p.m.—"Daily Standard" news; weather information; announcements.

6.10 p.m.—Lecture: "A Law Talk, 'The Foundation of Property Law' by Mr. C. E. Stewart (barrister-at-law).

6.30 p.m.—Bedtime stories by "The Sandman."

7 p.m.—Market reports; stock reports.

7.30 p.m.—Weather news; announcements; "Daily Standard" news.

7.45 p.m.—Standard time signal.

7.45 p.m.—A review of to-morrow's racing.

NIGHT SESSION.

The first portion of tonight's programme will comprise the relaying of the Matildon Woods Memorial Concert from St. Mary's Kangaroo Point.

8 p.m.—FROM ST. MARY'S:
"Nature's Adoration" (Beethoven).

Double Quartet.

Duet: "O wert thou in the cold blast" (Mendelssohn).

Miss Audrey Bell, contralto, and Mr. Jack Lord, tenor.

Contralto solo:

"O Love from thy Power" (Saint Saens), (from the opera: "Samson and Delilah").
Miss Mildred Bell.

Pianoforte solo:

"Eleventh Rhapsodie" (Liszt).
Mr. Erich Juhn."Fugaleus Chorus" (from the opera: "William Tell" Rossini).
Double Quartette.

Ragtime solo: Selected.

Duet: "How Lovely is the Face" (Handel).
Misses Mabel Palmer and Mildred Bell.Tenor solo: "Two Harps" (Schubert).
Mr. Geo. Williamson.Monologue: "The Mirror" (Morrison).
Mr. J. Morrison.Soprano solo: "Aldio del piovato" (Vardi).
From the opera: "La Traviata".
Miss Mary Hughes.

Ruso solo:

"On wings of Song" (Mendelssohn).
Mr. Tom Ryan.

"The Carnival" (Rossini).

Double Quartet.

The second portion of the programme will comprise a pianoforte and vocal recital by Miss Gladys Frost and Miss Lena Hammond.

9 p.m.—FROM THE STUDIO:

Contralto solo:

(a) "Les Berceux" (Faure).

(b) "J'ai pleure en veux" (Hux).

(c) "La Girandola" (Lilbeta).

(d) "The Song of the Indian Woman" (Century)—English version by Dornia Taylor.
Miss Lena Hammond.

Pianoforte solo:

(a) "Venetian Gondola Song" (Mendelssohn).

(b) "Hunting Song" (Mendelssohn).

(c) "Fairy Song" (Mendelssohn).

(d) "Adagio non Troppo" (Mendelssohn).

(e) "Ben" Wending (Mendelssohn).
Miss Gladys Frost.

Contralto solo:

(a) "Pipes of Gordon Moir" (Mammond).

(b) "Yesterday and Today" (Bross).

(c) "The Song of the Indian Woman" (from the Opera "Samson's" (Gaisman).
Miss Lena Hammond.

Pianoforte solo:

(a) "Raindrop Prelude" (Chopin).

(b) "Berceuse" (Chopin).

(c) "Black Note Study" (Chopin).
Miss Gladys Frost.

Contralto solo:

(a) "Don't Come In Sir Please" (Czard Rossini).

(b) "Wards from the Chinese".

(c) "This is the House that Jack Built" (Hummer).

(d) "The Four Maries" (Traditional Scotch).

(e) "Lullaby Alone" (Huntington Terry).

(f) "An Open Secret" (Huntington Terry).
Miss Lena Hammond.

Pianoforte solo:

(a) "Nocturne in F" (Tschaiowsky).

(b) "Musical Moments" (Schubert).

(c) "Mopus" (Falmgren).

(d) "Swedish" (Albman).
Miss Gladys Frost.

10 p.m.—FROM THE STUDIO:

Weather News.

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Close down.

5CL, ADELAIDE

Central Broadcasters, Ltd.

Wave Length, 395 Metres.

Friday.

MORNING SESSION.

12 noon to 2 p.m.

AFTERNOON SESSION.

3 p.m.—G.P.O. Chimes.

3.1 p.m.—Orchestral selections from the Maple Leaf Cafe.

3.45 p.m.—Musical numbers on the "Sonora."

4 p.m.—G.P.O. Chimes.

4.1 p.m.—Orchestral selections from the Ardena Cafe.

4.55 p.m.—S. C. Ward and Co's Stock Exchange Intelligence.

5 p.m.—Chimes and close down.

EVENING SESSION.

6 p.m.—G.P.O. Chimes.

6.1 p.m.—Dinner music by the Covent Garden Orchestra.

6.10 p.m.—Children's time. Greetings and Children's Correspondence.

6.15 p.m.—Market reports by S. C. Ward and Co., A. E. Hall and Co., A. W. Sandford and Co., Daigley and Co., S. A. Farmers Cooperative Union, Taylor Bros., Inter-state Fruit and Produce Marties Co., Ltd.

7.30 p.m.—"Windbag's" Sporting review.

7.45 p.m.—"Willow" will talk on Cricket.

8 p.m.—Chimes.

8.1 p.m.—Orchestral selections by Malcolm Reid and Co's Orchestra relayed from Waverley house.

8.20 p.m.—Choral Selections by Mr. F. L. Grattiers' Choir.

8.40 p.m.—Selections. Malcolm Reid and Co's Orchestra.

9 p.m.—Chimes.

9.1 p.m.—Meteorological information.

9.2 p.m.—Dalry's wheat report.

9.5 p.m.—Selection by Mr. F. L. Grattiers' Boys' Choir.

9.50 p.m.—Viola solo.

"O Traveller" (Harley Williams).

9.55 p.m.—Sung. "Mavis" Jas Riley.

9.57 p.m.—Violin solo. "Toccata" Harley Williams.

9.59 p.m.—Mr. R. Hill (District Agricultural Instructor) Talk on:

"Possibilities of Eyre's Peninsula."

9.45 p.m.—Tenor solo, "Fetis" Jas. Riley.

9.18 p.m.—Violin solo. "Rondo" Harley Williams.

9.21 p.m.—Tenor solo, Selected, Jas. Riley.

9.25 p.m.—Basso solo, "Poppies and Wheat" (Seth Smith).

9.28 p.m.—Basso solo, Selected, Arthur Bartie.

9.31 p.m.—G.P.O. Chimes.

9.34 p.m.—"Advertiser" news service.

9.37 p.m.—Basso solo, "The Dolls Parade" Seth Smith.

9.40 p.m.—Basso solo, Selected, Arthur Bartie.

9.43 p.m.—Basso solo, "Strum," Seth Smith.

9.46 p.m.—Basso solo, "Fisherman of England," Arthur Bartie.

9.50 p.m.—Relay from the Malpas De Dance. General—Dance Selections.

9.55 p.m.—Saturday's programme and Meteorological information.

10.15 p.m.—National Anthem and close down.

6WF, PERTH

Westralian Farmer's.

Wave Length, 1250 Metres.

Friday.

12.30 p.m.—Tune in.

12.35 p.m.—Market, news and cables.

1 p.m.—Time signal from Perth Observatory.

1.1 p.m.—Weather notes supplied by the meteorological Bureau.

NEW ZEALAND STATIONS:

(Concised List).

1YA, Auckland, The Radio Broadcasting Co. of New Zealand, Ltd.

Power 500 Watts; Wave-length, 353 Metres. Silent Night, Monday.

2YA, Wellington, The Radio Broadcasting Co. of New Zealand, Ltd.

Power 3000 Watts; Wave-length, 425 Metres.

3YA, Christchurch, The Radio Broadcasting Co. of New Zealand, Ltd.

Power 500 Watts; Wave-length, 306 Metres. Silent Night, Thursday.

4YA, Dunedin, The Radio Broadcasting Co. of New Zealand, Ltd.

Power 750 Watts; Wave-length, 463 Metres.

1.3 p.m.—Quietest Orchestra.
 2 p.m.—Close down.
 2.30 p.m.—Tune in.
 3.35 p.m.—Organ music relayed from the Grand Theatre.
 Vocal numbers from the Studio.
 4.30 p.m.—Close down.
 4.45 p.m.—Tune in.
 The evening transmission is broadcast on 104.5 metres, as well as the usual wave-length.
 6.10 p.m.—Musical evening for the kiddies.
 7.20 p.m.—Society, news and misc. etc.
 7.45 p.m.—"Radio Talk," by the sporting editor of the "Truth" Newspaper Co.
 8 p.m.—Time signal from Perth Observatory.
 8.1 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.

POPULAR NIGHT.

8.1 p.m.—Vocal and instrumental numbers from the Studio.
 Mr. R. E. Parsons, baritone.
 Misses Hawtice-Minns Duo.
 8.30 p.m.—Boxing match described in detail by the sporting editor of the "Truth" Newspaper Co. relayed from the Unity Stadium, Fremantle, Messrs. Keys and Lewis.
 10 p.m.—Late news, weather notes.
 Shibe withie range announcement.
 10.30 p.m.—Close down.

104.5 Metre Transmission.

Simultaneous broadcast on 104.5 metre of programme given on 1250 metres, commencing at 9.45 p.m.

7ZL, HOBART

Tasmanian Broadcasters, Ltd.
 Wave Length, 516 Metres.

Friday

MORNING SESSION.

11 a.m. to 12 noon.

AFTERNOON SESSION.

2 p.m.—G.P.O. Clock Chimes the Hour.
 2.1 p.m.—Tune in selection.
 2.3 p.m.—Hobart Stock Exchange quotations.
 Weather information.
 Items of Interest: Announcements.
 2.15 p.m.—Selection by 7ZL Studio Trio: "Ma Belle Charentaise" (Roberta).
 "Dreams of Yesterday" (Humphries).
 Overture, "Frolics of Cupid" (Gruenewaldt).
 Violin solo, "Barcarolle," Mr. E. J. McCann.
 Selection, "Russian Melodies" (Tetra).
 1.15 p.m.—Educational talk.
 4.50 p.m.—Close down.

EARLY EVENING SESSION.

4.30 p.m.—Children's Corner with the "Radio Lady."
 4.15 p.m.—Young Folks' Gardening Chat, by Mr. George Nation.

NIGHT SESSION.

7.30 p.m.—Fruit, Poultry and Produce Reports, through the courtesy of Roberts and Co., Hobart.
 7.55 p.m.—Gardening Talk by Mr. George Nation, Glen Nurseries Cascade.
 8.10 p.m.—"Mercury" special Tasmanian news service.
 Railway Auction Produce Sales.
 Weather forecasts.
 Hobart Stock Exchange Quotations.
 8 p.m.—G.P.O. Clock Chimes the Hour.
 8.1 p.m.—Studio Concert.
 Miss Mona McFaulk (soprano).
 Miss Dulcie Tate (soprano).
 Miss Ruby Pissie (pianist).
 Miss Nora Frenzy (soprano).
 Mr. P. Treen (baritone).
 Mr. Victor Pharoah (tenor solo).
 Mr. George Hook (comedian).
 Mr. Harry Bates (tenor).
 Mr. Vincent Webb (comedian).

8.30 p.m.—Chat on Cricket by "Mid-Off."
 9.40 p.m.—British Official Wireless News.
 9.50 p.m.—"Mercury" special Interstate news service.
 Shibe withie wireless range.
 Tasmanian District Weather Reports.
 Weather forecasts.
 Travellers' week-end information.
 National Anthem.



Saturday, Dec. 10

2FC, SYDNEY.

EARLY EVENING SESSION.

5.40 p.m.—The Chimes of 2FC.
 5.45 p.m.—The "Hello Man" talks to the children.
 6.30 p.m.—Story time for the young folk.
 6.40 p.m.—Studio music.
 7 p.m.—"Big Ben." Weather intelligence.
 7.8 p.m.—Late sporting news.
 7.15 p.m.—"Evening News" late news service.
 7.25 p.m.—Studio music.

NIGHT SESSION.

7.50 p.m.—Programme announcements.
 7.55 p.m.—Win and Windie, English entertainers.
 7.55 p.m.—Studio item.
 8 p.m.—"Big Ben." Announcer's forecast.
 8.5 p.m.—From the Sydney Town Hall—broadcast for the first time—a complete performance of Handel's Immortal Oratorio.

"THE MESSIAH."

Rendered by the Welsh Choral Society, with augmented Choir of 750 voices, conducted by E. H. Jones.
 8.10 p.m.—Interval and late weather forecast from the Studio.
 Win and Windie, English entertainers.
 8.20 p.m.—From the Sydney Town Hall:
 Concluding item of the performance of Handel's immortal oratorio, "The Messiah," rendered by the Welsh Choral Society, with augmented Choir of 750 voices. Conductor, E. H. Jones.
 10.20 p.m.—From the Studio.
 Latest weather forecast.
 10.25 p.m.—From the Ambassadors:
 The Ambassadors' Orchestra, conducted by Mr. Al Hammett.
 10.55 p.m.—Late news and announcements.
 11 p.m.—"Big Ben."
 The Ambassadors' Orchestra in dance (ends until 11.45 p.m.).
 News: Interval at the Ambassadors will be followed by usual items from the Studio.
 11.45 p.m.—National Anthem.
 Close down.

2BL, SYDNEY

Saturday.

EARLY MORNING SESSION.

7 a.m. to 8 a.m.

MORNING SESSION.

11 a.m.—G.P.O. Clock and chimes.
 Musical programme from Studio.
 11.15 a.m.—Women's Seminar, Social Notes.
 Replies to correspondence by Mrs. Jordan.
 Talk on "Xmas Cooking for Children" by Mrs. Jordan.

AFTERNOON SESSION.

Race results broadcast immediately after each race by courtesy of the "Sun" newspaper.

Tom's Reformation

Have you ever watched a young horse lashing out and then galloping off in pig-rooting defiance—not vicious but just full of life and spirits?

It was just that way with Tom! He kicked hard at good advice, and made the pace all over the home "paddock." When his mother warned him that some day he would bring his father's grey hairs in sorrow to the "grave"—and similar prophecies—Tom grinned and went off to play two-up.

One Christmas a wise uncle presented him with a four-valve wireless set, with Burgess Batteries, and a year's subscription to the "Wireless Weekly." That night, Tom heard news from all over Australia, and next day he was studying the Morse code to read off signals on the air.

Now Tom is building his own set, and as a first step he has ordered a new Burgess "B" Battery.

You will find parallels to Tom's case in every country town—and every city—in Australia. Wireless is making men out of restless colts and giving them ever-fresh interest.

But if you have a Tom of your own, don't spoil the whole thing for him by putting a bad battery into a good set. No sensible boy wants his interest killed by crackles and hum. And, in any case, he will soon follow the lead of young Australia and demand the "black and white stripes."

What better Christmas gift can you give your boy or any boy than the battery which has the slogan, "Half the cost, because double the life!"—a Burgess?

2 UW, SYDNEY

- 12 noon.—G.P.O. Clock and chimes.
Special Ocean forecast and weather report.
- 12.30 p.m.—Musical programme from the studio.
- 12.50 p.m.—News from the "Sun."
- 12.55 p.m.—Sporting and athletic features.
- 1.00 p.m.—Whats on at the Pictures and Theatres.
- 12.30 p.m.—Musical programme from the studio.
- 1.40 p.m.—News from the "Sun."
- 1.50 p.m.—Racing resume.
- 12.30 p.m.—Musical programme from the studio.
- 1 p.m.—G.P.O. Clock and chimes.
Musical programme from studio.
- 1.10 p.m.—Sporting talk and athletic features for the day.
- 2.30 p.m.—Musical programme from the studio.
- 1.30 p.m.—G.P.O. Clock and chimes.
Talk of children, and special entertainment for Children in Hospital.
- 2 p.m.—G.P.O. Clock and chimes. Racing resume.
- 2.5 p.m.—Serial Story.
- 2.55 p.m.—Musical programme from studio.
- 3.00 p.m.—G.P.O. Clock and chimes.
News from the "Sun."
- 3.40 p.m.—Musical programme from the studio.
- 3.50 p.m.—News from the "Sun."
- 4 p.m.—G.P.O. Clock and chimes.
Racing Resume.
- 4.5 p.m.—Musical programme from studio.
- 4.55 p.m.—News from the "Sun."
- 5.00 p.m.—Musical programme from studio.
- 5.25 p.m.—Dunowen Dance Band, broadcast from the Dunowen Cabaret.
- 4 p.m.—G.P.O. Clock and chimes.
Racing resume.
- 4.5 p.m.—News from the "Sun."
- 4.55 p.m.—Musical programme from studio.
- 4.50 p.m.—News from the "Sun."
- 4.55 p.m.—Musical programme from studio.
- 5 p.m.—G.P.O. Clock and Chimes. Racing Resume.
- 4.50 p.m.—Close down.

EARLY EVENING SESSION

- 6.15 p.m.—G.P.O. Clock and chimes.
Children's Session.
- 6.50 p.m.—Musical programme from the studio.
- 7.00 p.m.—Result of all sporting held during the day.
- 7.30 p.m.—Country News from the "Sun."
- 8 p.m.—G.P.O. Clock and chimes.
Broadcaster's Tropical Charms.
- 8.1 p.m.—King's Mandolin Orchestra under the direction of Mr. C. C. King.
- 8.10 p.m.—Mr. Roger Jones, baritone song.
- 8.15 p.m.—Miss Belle Scott, soprano and child accompanist.
- 8.24 p.m.—Mr. Kylie Sweeney, dramatic recital.
- 8.31 p.m.—Dance music by Cyril Kaye and the Westworth Cafe Orchestra, starting from the ballroom of the Westworth.
- 8.41 p.m.—Miss Pauline Harford Factor, soprano songs.
- 8.45 p.m.—Mr. C. C. King, mando-cello solos.
- 8.55 p.m.—Mr. Roger Jones.
- 9.2 p.m.—Dance music by Cyril Kaye and the Westworth Cafe Orchestra.
- 9.10 p.m.—King's Mandolin Orchestra.
- 9.10 p.m.—Dance music by Cyril Kaye and the Westworth Cafe Orchestra.
- 9.30 p.m.—Results of the Racing events, Greyhound coursing, Epping.
- 9.40 p.m.—Mr. C. C. King, mando-cello solos.
- 9.45 p.m.—Dance music by Cyril Kaye and the Westworth Cafe Orchestra.
- 9.50 p.m.—Miss Pauline Harford Factor.
- 9.55 p.m.—Results of following day's programme.
- 10 p.m.—G.P.O. Clock and chimes.
- 10.1 p.m.—Miss Belle Scott, solo M. Kylie Sweeney present a harmonica sketch.
- 10.11 p.m.—Another resume of the racing events, Greyhound coursing, Epping.
- 10.15 p.m.—Dance music by Cyril Kaye and the Westworth Cafe Orchestra, transmitting from the ballroom of the Westworth during intervals between dances "Sun" news will be read from the studio.
- 12 midnight.—G.P.O. Clock and chimes.
National Anthem.

Saturday.

EVENING SESSION.

- 7.0 p.m.—Studio Chimes.
- 7.2 p.m.—Where to Go.
- 7.10 p.m.—Dance Selections from the Studio.
- 8.5 p.m.—Studio Chimes.
- 8.2 p.m.—Selections from the Studio.
- 9.0 p.m.—Studio Chimes.
- 9.2 p.m.—Weather Forecast and News Bulletin.
- 9.10 p.m.—Studio Selections.
- 9.50 p.m.—Boatmen of Forward Programme.
- 10.30 p.m.—God Save the King.

3LO, MELBOURNE.

SUNDAY.

MORNING SESSION.

- 11 a.m.—JOHNSTON'S STUDIO BOYS.
Selection, "The Women of the Guard."
- 11.15 a.m.—C. Y. Foster, The Duxton Troubadour.
"It's Too Late Now to Be Sorry" (Verse-Then-Rhyme).
- 11.20 a.m.—"Helen" (Dance-Handicap).
- 11.27 a.m.—JOHNSTON'S STUDIO BOYS.
Cornet Duet, "Forest Walkers."
- Soloists, W. Home, L. Burnett.
Fox Trot, "A Late in Spain."
- 11.47 a.m.—SYD. FANE, The Singing Comedian.
"Freckles."
Selected.
- 11.51 a.m.—JOHNSTON'S STUDIO BOYS.
Waltz, "Vanity Fair."
- 11.55 a.m.—ANNA ALBREK, Soprano.
"Glimp of Kyalerya."
"The Girl with a Bit of a Drogue" (F. Monks).
- 11.57 a.m.—JOHNSTON'S STUDIO BOYS.
"Overture," "Solentide."
- 12 noon.—Melbourne Observatory Time Signal.
- 12.10 noon.—In the rush for enjoyment—remember Safety First. This is a free country, but nobody has a right to be careless, common sense never takes the place of a perfectly good limb.
- 12.15 noon.—Metal prices received by the Australian Mines and Metals Association from the London Stock Exchange. This day's British official wireless news from Rugby Rowers and the Australian Press Association cables. "Argy" news service.

FOREIGN BROADCASTERS

- JOCX—Nagoya Radio Broadcasting Co., Nagoya, JAPAN; 900 metres, 1000 watts. (Announcement in English and Japanese).
- JOBX—Osaka Central Broadcasting Co., Osaka, JAPAN; 265 metres, 1000 watts. (Announcement in English and Japanese).
- JOAK—Yokyo Broadcasting Co., Tokyo, JAPAN; 372 metres, 1000 watts. (Announcement in English and Japanese).
- JFC—Batavia'sche Radio Vereeniging, BATAVIA, 529 metres, 40 watts.
- KZBM—Manila, PHILIPPINE ISLANDS; 413 metres, 1000 watts. (Announcement in English and Philippine).
- KGU—"Honolulu Advertiser," Honolulu, HAWAII, 270 metres, 100 watts.
- KIO—Oakland, CALIFORNIA; 361.2 metres, 5000 watts.
- KPL—Los Angeles, CALIFORNIA, 167 metres, 5000 watts.
- KOA—Denver, COLORADO; 322.4 metres, 5000 watts.

- 12.20 p.m.—STUDIO QUARTET.
Selection, "Madame Pompadour."
- 12.30 p.m.—MAJOR H. C. ROUSE, Veterans.
"There's An Old Fashioned College."
"Where the River Shannon Flows."
- 12.45 p.m.—Stock Exchange reports.
- 12.46 p.m.—AGNES FORTUNE, Piano.
"A Basket of Roses."
- 12.47 p.m.—JOHNSTON'S STUDIO BOYS.
Selection, "Scenes of Beauty."
"Waltz Lyphana."
- 12.57 p.m.—MAJOR H. C. R. ROUSE, Veterans.
"Mother Macrae."
"A Perfect Day."
- 1.4 p.m.—Meteorological information, Shipping Information, Weather Forecast and rainfall for Victoria, Tasmania, South Australia, and New South Wales. Ocean forecast. River reports.
- 1.11 p.m.—STUDIO QUARTET, Selection:
"The Student Prince."
- 1.18 p.m.—CY. PEB, The Bluebell Troubadour, Room 212.
"Anononous Kiss Her for Me" (Oliver Wood).
- 1.25 p.m.—MAGGIE FOSTER, Violin.
"An Old-English Air."
"Waltz in Blue Lips."
- 1.32 p.m.—ANNA ALBREK, Soprano in voice (with melode).
"Bright Op'ns" (Hobert King).
"Glimp of Donegal" (A. O'Falloy).
- 1.39 p.m.—STUDIO QUARTET.
Selection, "The Cinema Star."
- 1.46 p.m.—JOHNSTON'S STUDIO BOYS.
Novelty, "Slide" (and) the Ray" (request).
March, "Scots Song."
Foxrot, "A Late in Spain."
- 2 p.m.—Description of Cricket Match, St. Kilda v. Collingwood at St. Kilda, by Mr. Rod McGregor.
- 2.10 p.m.—Close down.
- 2.15 p.m.—Description of Two-Year-Old Handicap, five furlongs, MENTONE RACES, by "Musket," of the "Sporting Globe."
- 2.40 p.m.—Description of Open Handicap, six furlongs, MENTONE RACES, by "Musket," of the "Sporting Globe."
- 2.50 p.m.—Close down.
- Programs after noon: descriptions will be given by Mr. A.H. Dunlop of the Tennis Matches—French team against Australians—at the Roynong Tennis Courts, Melbourne.

AFTERNOON SESSION.

- 3 p.m.—Melbourne Observatory time signal.
- 3.1 p.m.—Transmission from Auditorium—H.O. Melbourne's Children's Xmas Party.
- 3.10 p.m.—Progress report of Victorian tests for Australian and New Zealand track and field games championships at Amateur Sports Ground.
- 3.15 p.m.—Description of Brush Steeplechase, 3 miles 48 chains, MENTONE RACES, by "Musket," of the "Sporting Globe."
- 3.20 p.m.—Transmission from Auditorium—H.O. Melbourne's Children's Xmas Party.
- 3.45 p.m.—Description of Cricket Match, St. Kilda v. Collingwood, at St. Kilda, by Mr. Rod McGregor.
- 3.50 p.m.—Transmission from Auditorium—H.O. Melbourne's Children's Xmas Party.
- 3.55 p.m.—Description of Mentone Handicap, 1 mile, MENTONE RACES, by "Musket," of the "Sporting Globe."
- 3.59 p.m.—Transmission from Auditorium—H.O. Melbourne's Children's Xmas Party.
- 4.0 p.m.—Description of Cricket Match, St. Kilda v. Collingwood, at St. Kilda, by Mr. Rod McGregor.
- 4.10 p.m.—Description of Trial Plate, six furlongs, MENTONE RACES, by "Musket," of the "Sporting Globe."
- 4.20 p.m.—Progress report of Victorian tests for Australian and New Zealand track and field games championships, at Amateur Sports Ground.
- 4.25 p.m.—Transmission from Auditorium—H.O. Melbourne's Children's Xmas Party.
- 4.45 p.m.—Description of Farwell Handicap, six furlongs, MENTONE RACES, by "Musket," of the "Sporting Globe."
- 4.50 p.m.—Progress report of Victorian tests for Australian and New Zealand track and field games championships at Amateur Sports Ground.
- 5 p.m.—Description of Cricket Match, St. Kilda v. Collingwood, at St. Kilda, by Mr. Rod McGregor.

8.30 a.m.—Close down.

During the afternoon descriptions will be given of the champion tennis matches, French team against Australia, from the Kooragang courts, Melbourne, by Mr. Alf Daniels.
During the afternoon results will also be given at intervals of the Hamilton races.

EVENING SESSION.

8.30 p.m.—Sporting results.

8.40 p.m.—Answers to Letters and Birthdays Greetings by "LITTLE MISS KOOKA."
Herald.

8.50 p.m.—STUDIO QUARTETTE.

"Fraschubum" (Lorenzelli).
8.55 p.m.—"LITTLE MISS KOOKABURRA".

A Story for the title song.
9.05 p.m.—STUDIO QUARTETTE.

"The Middle-Bell String Quartette."
9.10 p.m.—"LITTLE MISS KOOKABURRA".

More about the Flaxby Fair.
9.40 p.m.—Sporting results.

9.45 p.m.—Herald news service. Weather synopsis. Shipping movements.

9.50 p.m.—Stock Exchange information.
9.57 p.m.—River reports.

9.58 p.m.—Market reports by the Victorian Producers' Co-operative Co., Ltd., JUDITH, grain, hay, straw, jute, dairy produce, and other goods. Market reports of Fruit by the Victorian Fruitgrowers' Association—retail prices. Wholesale prices of Fruit by the Wholesale Fruit Merchants' Association. Citrus Fruits.

NIGHT SESSION.

9.15 p.m.—Under the Auspices of the Royal Life Saving Society, Victoria Head Centre, Mr. A. P. NEWBY, will speak on:

"Necessitation of the Apparently Drowned."

9.30 p.m.—Mr. F. CHAPMAN, National Mission, will speak on:
"Eighteen Fishes."

9.45 p.m.—Dr. J. A. LEACH will speak on:
"Freshwater Ducks."

9.55 p.m.—An Angler's Paradise.

The Royal Automobile Club of Victoria's SAFETY MESSAGE for Today is:

"Encourage all others and particularly children, to avoid insuring unnecessary risks to themselves or to others."

9.58 p.m.—Bible Presentation of the Opera:

"MA MIE ROSSETTE."

A Romantic Opera in Two Acts,
From the French of MM. Prevel and Linant.
The English Version written by George Daines.

The Music by PAUL LACOME and

IVAN CARYLL.

Characters in the order of their Speaking:
Moustajon (Rosette's Father).

ALFRED ANDREW

Cochette (a Village Girl)

IVY CARLILE

Martha (Moustajon's Sister)

MERLE GRIFFIN

Arlette (a Village Girl)

LUCY WASHINGTON

Vincent (Detracted to Rosette)

T. JAMES LLOYD

Rosette

FLORINCE BLITT

Bouillon (Wait in The King)

ALAN BELL

Henri (King of Navarre), JOHN DONOVAN

Corsicane (a Lady of King Henri's Court)

JEAN KELLY

Colonel Cognac (an Old Soldier)

MAURICE DUDLEY

Arger (A Young Nobleman)

IVY CARLILE

Therese (A Lady of the Court)

LUCY WASHINGTON

Meagan, Cleantez, Solifere, Pages, Lords

and Ladies.

The Opera prepared for broadcasting purposes

by ALFRED ANDREW.

Augmented Orchestra under the Direction of

REGINALD BRADLEY.

With the exception of two parts, namely:

Moustajon—played by Alfred Andrew, and

Colonel Cognac, played by Maurice Dudley,
The Opera will be performed in its entirety
by the Popes of MADAME ETHEL
ASPTON.

SYNOPSIS OF SCENES.

ACT I.

A Picturesque Farmyard near the Chateau de Nerac—the latter being seen on the hill in the distance. Moustajon's Cottage in the foreground.

ACT II.

Scene I.

The Reception Hall at the Chateau de Nerac.

Scene II.

Same as Act I.

MUSICAL NUMBERS.

Overture.

ACT I.

Chorus of Peupliers: "Work with Spirit"
Duet (Rosette and Vincent): "To-morrow Morning."
Romance (Rosette): "He was a Garib-
headed Boy."

Intermezzo.

Chorus: "Long Live the King," with
Song (Henri): "I am a Man of Fashion."
Duet (Rosette and Henri): "Noise Sure!"
Duet (Martha and Bouillon): "Twiddle-
de-woo."

Song (Henri): "Ma Mlle Rosette."
Duet (Rosette and Vincent): "Why So Sad?"
Ballad (Vincent): "Frank No."

Finale: (Rosette, Martha, Corsicane, Vin-
cent, Henri, Bouillon, and Chorus):
"When I, My Love, am Far Away."

Act II.

Chorus (with solos for Therese and Segur):
"Lucky the Maiden."
Song (Rosette):
"I Was Dreaming."

Ballad (Henri):
"Why Throbs This Longing Heart?"
Duet (Martha and Bouillon):
"There's an Instance, Providence"

Chorus:
"See La Belle Rosette."
Duet (Henri and Rosette):
"Frithe, Pretty Maiden."

Vocal Solo (Rosette, Corsicane and
Henri):
Recit (Henri) and Chorus:
"Good-night."

Duet (Rosette and Henri):
"Hushed in the Busy World."
Chorus:
"What is this Clatter?"

Finale:
"Rosette, Ma mie Rosette."

10.15 p.m.—Miss MAGGIE FOSTER sings,
"Chapman" (Friml).

10.30 p.m.—The Wedding March by special
request of listeners at Canterbury.

10.35 p.m.—CY. PEIR, the Ukulele Trou-
badour:
"My Bundle of Love" (Poles-Silver).
"If You Hadn't Gone Away" (Brown-
Rap-Bendroon).

10.35 p.m.—JOE ARONSON AND HIS SYN-
COPATING-SMPHONISTS:
"Moonlit Waters" (Friend).

"Everything's Peaches" (Squire).
10.45 p.m.—Late sporting results. Island
cleaner movements.

10.52 p.m.—MR. NORMAN McCAINE will
give a resume of to-night's Stadium event.

11 p.m.—OUR GREAT THOUGHT:
"Never does the human soul appear as
strong as when it forgoes revenge and
dares to forgive an injury"—Chapin.

11.15 p.m.—JOE ARONSON AND HIS SYN-
COPATING-SYMPHONISTS:
21.40 p.m.—GOD SAVE THE KING.

4QG, BRISBANE.

Saturday.

MORNING SESSION.

CHURCH SERVICE.

The complete Morning Service will be relayed
from the Seventh Day Adventist Church, S.
Brisbane.

11 a.m.—FROM THE SEVENTH DAY

ADVENTIST CHURCH.

Morning Service.

12 noon—Close down.

Don't Waste Money!

Why continue buying ordinary dry batteries which quickly run down and must be thrown out?

PHILCO
CONVERTIBLE SURFACE
BATTERIES

saves pounds in a year.
They may be used for two hours every night for two to four months and then be recharged for a few pence. By installing a Philco you combine economy with more power, pure reception with long life and perfect service.

ASK ANY HIGH CLASS DEALER

NEW SYSTEM
TELEPHONES PTY. LTD.

280 CASTLEREAGH STREET, SYDNEY

MELBOURNE

ADELDAID



AFTERNOON SESSION.

Q.T.C. RACES.

The Q.T.C. meeting will be described direct from Ascot Racecourse. Between these musical selections will be broadcast from the Studio.

2 p.m.—FROM ASCOT.
A description of the races.
4 p.m.—Close down.

EARLY EVENING SESSION.

6.30 p.m.—Bedtime Stories by "Uncle Bob."
7.10 p.m.—Racing results.
7.50 p.m.—Today's sporting news described.
8.20 p.m.—Sailing Notes by Mr. Fred Smith.
8.45 p.m.—Gardening Talk by "Tocoma."
"Laws and their Uplifters."

NIGHT SESSION.

TIVOLI THEATRE.

8 p.m.—FROM THE TIVOLI THEATRE:
Orchestral music.

SPEEDWAY.

8.30 p.m.—FROM THE SPEEDWAY.
Motor Cycle racing.
8.50 p.m.—FROM LENNON'S BALLROOM:
Dance music.
10.00 p.m.—FROM THE STUDIO:
"The Sunday Mail" news.
Weather news.
Close down.

5CL, ADELAIDE.

Saturday.

MORNING SESSION.

11 a.m.—G.P.O. Chimes.
11.15 a.m.—"Advertorial" General News Service.
11.30 a.m.—Musical numbers on the "Sphinx."
12 noon.—Close and close down.

AFTERNOON SESSION.

1.45 p.m.—Relay from the Gawler Racecourse.
A running description of the events by Mr. Arnold Trickett, interspersed with literature.
Racing results and musical numbers from the studio.
3 p.m. (approx.)—Close down.

EVENING SESSION.

8 p.m.—G.P.O. Chimes.
8.15 p.m.—Dinner music by Covent Garden Orchestra.
8.30 p.m.—Children's Time. Greetings and correspondence. Songs, stories and nursery rhymes.
8.55 p.m.—Market reports by R. C. Ward and Co., A. R. Hall and Co., A. W. Sandford and Co., Balfour and Co., B. A. Farnson and Co-operative Union, Taylor Bros., Retail Grocer's Association, J. H. Young's special report on the tonnage market. Interstate Fruit and Produce Market, Co., Ltd.
9.35 p.m.—Sporting results (Interstate and Local).
9 p.m.—G.P.O. Chimes.
9.15 p.m.—Band concert from the Henley Beach Rotunda by Hadden Silver Band interspersed with vocal and instrumental numbers from the studio.
9.45 p.m.—Talk by the Rev. G. E. Hale B.A. "The Hopes of Eynesbury."
9 p.m.—G.P.O. Chimes.
9.15 p.m.—Instrumental and vocal concert continued.
10 p.m.—G.P.O. Chimes.
10.15 p.m.—Sporting results.
10.35 p.m.—Relay from the Maison De Danse Glendy—Dance selections.
11.15 p.m.—Sunday's programme and station announcements.
11.45 p.m.—National Anthem and close down.

6WF, PERTH.

Saturday.

12 noon.—Tune in.
12.15 p.m.—Musical programme, including piano-forte solos by Miss Evelyn Willis, A.R.C.M.
12.45 p.m.—Markets, news and cables.
1 p.m.—Time signal from Perth Observatory.
1.15 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.
1.45 p.m.—Close down.
2.15 p.m.—Tune in.

SPORTING SESSION.

Racing results and progressive cricket scores given during the session.
Vocal and instrumental numbers from the Studio.
4.30 p.m.—Close down.
4.45 p.m.—Tune in.
10.15 Voice Transmission.
The evening transmission is broadcast on 204.5 metres, as well as the usual wavelength.
4.50 p.m.—Stories for the kiddies by Uncle Henry, Bag and Duffy.
5.10 p.m.—Sporting results.
5.30 p.m.—Stocks, markets and news.
7.45 p.m.—Talk.
8 p.m.—Time signal from Perth Observatory.
8.1 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.

MUSICAL EVENING.

8.5 p.m.—Musical numbers from the Studio.
10 p.m.—Late news by courtesy of "The Daily News" Newspaper Co.
Ships within range announcement.
Weather report and forecast.
10.30 p.m.—Close down.
10.45 Metro Transmission.
Simultaneous broadcast on 204.5 metres of programme given on 1250 metres, commencing at 9.45 p.m.

7ZL, HOBART.

Saturday

MORNING SESSION.

11 a.m. to 12 noon.

AFTERNOON SESSION.

3 p.m.—G.P.O. Clock Chimes the Hour.

Short Wave Broadcasters

Schedules and Wavelengths Subject to Change.

| |
|---|
| 2NM, Gerald Mercuso, Catterham, England, 23 and 28 metres (D.B.C. Programme). |
| PCJJ, Pathum's Experimental Station, Eidenbosch, Holland, 20.3 metres (D.B.C. Programme). |
| 2XAF, General Electric Co., Schenectady, New York State, U.S.A., 32.7 metres (W.G.Y. Programme). |
| 2XAF, General Electric Co., Schenectady, New York State, 14, 26 and 52 metres (W.G.Y. Programme). |
| KDKA, Westinghouse Electric Co., Pittsburgh, Penn., U.S.A., 35.5, 14 and 42 metres. |
| W.W., Grand Radio Corporation, Cincinnati, Ohio, U.S.A., 32 metres. |
| 2XAL, "Radio News," New York City, U.S.A., 50.91 metres (WRNY Programme). |
| JB, Johannesburg Broadcasting Company, South Africa, 20 and 25 metres. |
| ASW, Marconi Company, Chelmsford, England, 24 metres. |
| RFN, Moscow, U.S.S.R., 20 metres. |

8.1 p.m.—Broadcast by direct wire from the T.C.A. Grand eye-witness description by "Mid-air" of Cricket match, South versus Sandy Bay. Progress of Racing and Sporting results announced during session.
Close down.

EARLY EVENING SESSION.

6.30 p.m.—Children's Corner, by "Uncle Hoo-loc."
7 p.m.—"Uncle Peter's" half-hour.

NIGHT SESSION.

6.30 p.m.—Musical selection.
7.15 p.m.—Nature's Lesson Book, opened by Mr. F. G. Hobson.
8.00 p.m.—"Mercury" special Tasmanian news service.

Railway Abolition Produce Sales.
Weather Forecasts.
Hobart Stock Exchange Quotations.
8 p.m.—G.P.O. Clock Chimes the Hour.
8.15 p.m.—Dance numbers by Pavilion Bands Band from City Hall, Hobart, interspersed with musical items from the Studio.
10.30 p.m.—British Official Wireless News.
Weather Information.
Station announcements.
To-morrow's programme.
Close down.

Sunday, Dec. 11

2FC, SYDNEY.

MORNING SESSION.

10.50 a.m.—Programme Announcements.
11.05 a.m.—"The Bells of St. Mark's."
11.15 a.m.—From St. Mark's Church of England, Darling Point: The Morning Service.
12.15 p.m.—From the Studio: News Service.
12.30 p.m.—Close down.

AFTERNOON SESSION.

2.40 p.m.—Programme Announcements.
2.45 p.m.—From the Lyceum Hall, Pitt Street, Sydney: A Complete Presentation of Handel's Immortal Oratorio, "The Messiah," rendered by the Central Methodist Mission Big Augmented Choir.

PRINCIPALS.

| | |
|------------------|-----------|
| Elvir Findlay | Soprano |
| Heather Hinward | Contralto |
| Kenneth Hunt | Tenore |
| Harman Traversay | Basso |

Overture, First Movement.
Vocal: Recit., "Comfort, Ye My People."
Aria, "Ev'ry Valley Shall be Exalted."
Chorus, "And the Glory of the Lord."
Basso: Recit., "Thus Saith the Lord."
Aria, "But Who May Abide."
Contralto: Recit., "Behold a Virgin Shall Conceive."
Aria, "O Thou That Talkest Good Things."
Chorus: "O Thou That Talkest Good Things."
Basso: Recit., "For Behold, Darkness."
Aria, "The People That Walked in Darkness."
Chorus, "For Unto Us a Child is Born."

OFFERTOIRE.

Organ Solo, Miss Constance Handley.
Pastoral Symphony.
Soprano:
Recit., "There Were Shepherds."
Recit., "And Lo! The Angel of the Lord."
Recit., "And the Angel Said Unto Them."
Recit., "And Suddenly There Was."
Chorus, "Glory to God in the Highest."
Soprano:
Aria, "Rejoice Greatly."
Contralto:
Recit., "Thou Shall Feed the Eyes of the Blind."
Aria, "He Shall Feed His Flock."

- Soprano: "Come Into Him."
 Chorus: "Behold the Lamb of God."
 Contralto: Aria, "He Was Despairing."
 Tenor: "Handy He Hath Borne Our Sorrows," "All We, Like Sheep."
 Tenor: "Thy Habitus Hath Broken My Heart."
 Aria: "Behold and See," "Behold, He Was Out Girt."
 Aria: "But Thou Darest not Leave."
 Tenor: "Why Do The Nations?"
 Tenor: "He That Dwelleth in Secret," "Thou Shalt Break."
 Chorus: "Halleluia."
 Soprano: Aria, "I Know That My Redeemer Liveth."
 Chorus: "Worthy is the Lamb."
 6.00 p.m.—From the Studio: A Social Antiphona by Miss Suzanne McEwan.
 7. Gounod's Egge, Soprano: "Ave Maria" (Gounod).
 7. Regional Laria, Bass: "Waltz of the Swan" (Solman).
 8. Edie Eckford Martin, Soprano: "Dob Vieni Non Tardar" (Mozart).
 9. Jeanette Rooney, Contralto: "Ljubavret" ("True Love") (Brahms).
 8. Duet, Miss Eckford-Martin (Soprano), and Jeanette Rooney (Contralto).
 9. Venetian Ball, Song.
 8.0 p.m.—"Big Ben", Close Down.

EVENING SESSION.

- 6.0 p.m.—"Big Ben": PROGRAMME ANNOUNCEMENTS.
 6.5 p.m.—Daisy Mangan, Soprano: (a) "Tutti Amore" (Turandot), (Puccini), (b) "Prayer to Our Lady" (Ford).
 6.11 p.m.—Houston Gibb tells the "Story of the Rehearsal."
 6.12 p.m.—Barbara Brisbane, Contralto: (a) "Invention in the Nile" (Hautbois), (b) "Trust in God" (Hahn).
 6.13 p.m.—Daisy Mangan, Soprano: "Soprano, Thy Demonsure Song" (Brown).
 6.24 p.m.—From the Pitt Street Congregational Church, Sydney, An Organ Recital by Mr. E. J. Robinson: Prelude and Fugue in D Major (Bach).
 6.44 p.m.—From the Studio: Daisy Mangan, Soprano: "A Welcome" (Maas).
 6.18 p.m.—Barbara Brisbane, Contralto: "Ye Powers Who Rule Below" (Gluck).
 6.25 p.m.—From the Pitt Street Congregational Church, Sydney: Organ Solos by Mr. E. J. Robinson: 7. "Inferno" (Dubois). 8. "Finale," from "First Sonata" (Mendelssohn).
 7.0 p.m.—The Evening Service from the Pitt Street Congregational Church. Preacher, Rev. T. D. Ruth.
 7.20 p.m.—From St. Francis Church, Albion Street: Overture, Organ. Miss Marie Tooley.
 7.25 p.m.—Chorus: (a) "Reverie" (Dukker). (b) "Cello Solo: 'Reverie'" (Dukker).
 7.44 p.m.—Chorus: "Si Veste Glitter" (Chapman).
 7.45 p.m.—St. Francis' Juvenile Choir.
 7.45 p.m.—Pianoforte Solo: (a) "Inferno, E Flat Major, Op. 117" (Brahms). (b) "Inferno, C Major" Op. 110 (Brahms).
 7.5 p.m.—Chorus: "Jerusalem" (Verdi).
 7.10 p.m.—Vocal Solo: (a) "Thou Shalt Lead the Lord." (b) "But Who Shall Abide?"
 7.11 p.m.—Chorus: "Ecce sacerdos magnus" (Gounod).
 St. Francis' Choir.

INTERVAL.

- 8.4 p.m.—From the Studio: Announcements and News.

- 8.54 p.m.—From St. Francis' Church, Albion Street, Sydney: The Second Partion of the Programme by the St. Francis' Church Choir: Overture: Organ. Miss Marie Tooley.
 9.42 p.m.—Chorus (by special request): "Credo" (Rheubergner). St. Francis' Choir.
 9.48 p.m.—"Cello Solo: 'Reverie'" (Dukker). Mr. Gladstone Bell.
 9.53 p.m.—Chorus: (a) "Joni, Rex Admirabile" (Votieria). (b) "Mysterium Ecclesiae" (Peroni). St. Francis' Choir.
 10.0 p.m.—Vocal Solo: "Why Do the Nations" Alfred Cunningham, Baritone.
 10.5 p.m.—Chorus: (a) "Lasciatu Genti" (Gounod). St. Francis' Choir.
 10.10 p.m.—Pianoforte Solo: "Ballade" A Flat Major (Chopin). Miss Katherine Fitzgerald.
 10.18 p.m.—Chorus: "Inno Popolare" St. Francis' Choir.
 10.20 p.m.—National Anthem; Close Down.

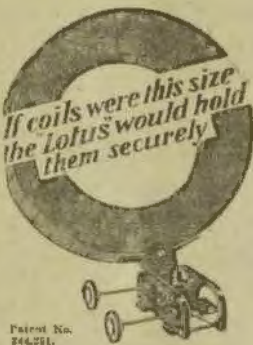
2BL, SYDNEY

Sunday.

- 10.45 p.m.—Special news bulletin.
 11 a.m.—Service broadcast from St. Jude's Church of England Handwick. Address by Rev. Canon Cokerwood. Organist and Choirmaster Mr. Arnold E. Mote.
 11.15 p.m.—Close down.
 2.0 p.m.—G.P.O. Clock and chimes.
 2.1 p.m.—Session for Children in Hospital.
 2.18 p.m.—Recital by courtesy of the I.L.M.V. Gramophone Company.
 2.24 p.m.—Information service.
 2.3 p.m.—G.P.O. Clock and chimes. Close down.
 2.30 p.m.—G.P.O. Clock and chimes. Bible class conducted by Mr. W. "Clare" Bealby.
 4.2 p.m.—From the Methodist Church, Leichhardt. A pleasant hour with the Central Methodist Mission, Leichhardt.
 5 p.m.—G.P.O. Clock and chimes. Close down.
 5.48 p.m.—G.P.O. Clock and chimes.
 5.46 p.m.—Children's service from the studio.
 7 p.m.—Service broadcast from Chalmers Presbyterian Church.
 8.30 p.m.—From the Manresa Hall, North Sydney. A band recital by the North Sydney Tramway Band. (Bandmaster Mr. W. Barnett).
 9.15 p.m.—Weather report and forecast by courtesy of Mr. C. J. Marx, Govt. Meteorologist.
 9.18 p.m.—Broadcasters Instrumental Trio: Dulcis Clair, violin; Bryce Carter, cello; G. Vern Barnett, piano.
 9.24 p.m.—"Wind Flowers" A song cycle composed by Arthur Somervell. Presented under the direction of Mr. G. Vern Barnett. Helena Stewart, soprano. Amy Oatling, contralto. Lance Jeffrey, tenor. Peter Rutherford, bass. Quartette: "Twist me a crown of Wind Flowers." Quartette: "High over the breakers." Contralto solo, "The Wind has such a rarer sound." Quartette: "Hope is like a harebell." Tenor: "Two doves on the tall some branch." Quartette: "When soft voices die." Tenor solo and Quartette: "When the morning sky-lark sings." Quartette: "Glad to be led." Bass solo and Quartette: "Windy Night." Female: "All around the house is the jet black night."
 10 p.m.—G.P.O. Clock and chimes.
 10.1 p.m.—Resume of following day's programme.
 10.5 p.m.—Broadcasters Instrumental Trio.
 10.11 p.m.—G.P.O. Clock and chimes. National Anthem.

The Moving Block Cannot Fall

The vernier movement comprises three sets of enclosed precision machine-cut gears, and reduces the speed of the moving block by eight times. Slide plates, coil blocks, and knobs in artistic bakelite mouldings. All metal parts heavily nickel plated. Made for left as well as right hand.



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- With 6in. Central Handle, 18/6 each
- 3-Way Coil Holder 10/6 each
- With 6in. Central Handle, 11/6 each

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2GB, SYDNEY

Theosophical Broadcasting Service.

Wave Length, 316 Metres.

Sunday.

- 10.25 a.m.—Music from St. Alban's Liberal Catholic Church.
 10.30 a.m.—Morning Service from St. Alban's Cathedral.
 12 noon.—Close down.
 0.45 p.m.—Music from Studio.
 7 p.m.—Lecture from Admiralty Hall.
 8 p.m.—Songs by Miss E. M. Daniels.
 8.15 p.m.—Piano solo Ada Brook.
 8.30 p.m.—Violin solo L. Brewer.
 8.35 p.m.—Songs by Miss K. M. Daniels.
 9.40 p.m.—Address.
 9 p.m.—Close down.

2UW, SYDNEY

Sunday

MORNING SESSION.

- 10.30 a.m.—Cello solo:
 "Minuet"—Beethoven (Sharpe).
 10.34 a.m.—Soprano solo:
 "La Tosca"—Love and Music, these have I lived for (Focini).
 10.38 a.m.—Studio selection.
 10.43 a.m.—Organ solo:
 "Breathing the Walls Away."
 10.47 a.m.—Orchestral selection:
 "No, my Lord," Act 2. "Otello" (Verdi).
 10.52 a.m.—Violin solos:
 "Love's Joy" (Krieger).
 11.3 a.m.—Studio selections.
 11.10 a.m.—Band selections.
 "Mikado" (Sullivan).
 11.21 a.m.—Studio selections.
 11.25 a.m.—Tenor solo:
 "I heard you singing" (Coste).
 11.30 a.m.—Soprano solo:
 "Love will like a wild birdling fly" (Carmen Bizet).
 11.34 a.m.—Studio selection.
 11.39 a.m.—Organ solo:
 "Lay My Head Beneath a Rose."
 11.45 a.m.—Orchestral number:
 "And now for ever, farewell." Act 2 (Otello) (Verdi).
 11.48 a.m.—Tenor solo:
 "Nightfall at Sea" (Coste).
 11.55 a.m.—Studio selections.
 12.5 p.m.—Cello solo:
 "Serenade" (Pierrot).
 12.8 p.m.—Studio selections.
 12.10 p.m.—Violin solo: "Love's Sorrow" (Krieger).
 12.14 p.m.—Studio selections.
 12.22 p.m.—Resume of forward programme.
 12.30 p.m.—Close down.

EVENING SESSION.

- 7 p.m.—Studio chimes.
 7.2 p.m.—Orchestral music from the Studio.
 8 p.m.—Studio chimes.
 8.2 p.m.—Selections from the Studio.
 9 p.m.—Studio chimes.
 9.2 p.m.—Dance items from Studio.
 9.45 p.m.—Resume of forward programme.
 9.50 p.m.—"God Save the King."

3LO, MELBOURNE

Sunday.

MORNING SESSION.

- 10.30 a.m.—Bells from St. Paul's Cathedral.
 10.45 a.m.—Express train information.
 British official wireless news from Rugby.
 News from Yesterday's papers.
 11 a.m.—MORNING SERVICE FROM THE AUSTRALIAN CHURCH, Russell Street, Melbourne.
 Preacher, DR. CHARLES STRONG.
 Hymn (Supplement), "Worship and Life."

Prayer at Morning Worship (Supplement 7).
 Chant (Church Worship), 14. "Song of the Son and Daughter of God."

First Lesson.
 Anthem 22. "Thy Way is to the Sea."
 Second Lesson.

Prayer.
 Hymn 46 (Supplement), "Princess of Love."
 Pause.

ADDRESS. "Inspiration, Ancient and Modern."

Hymn 25 (Supplement), "Ood be with You."

Announcements.
 Offertory. "Slow Movement, 1st Sonata" (Mendelssohn).

Anthem. "Light in Darkness"
 Benediction and Responses.

Concluding Voluntary: "Offertoire" (Gall-mast).

12.15 p.m.—Close down.

AFTERNOON SESSION.

9 p.m.—PLEASANT SUNDAY AFTERNOON SERVICE, CENTRAL MISSION, WESLEY CHURCH.

Chairman, Rev. S. J. HOSAN.

Hymn, "Jesu Lover of My Soul."

Prayer, Rev. J. H. Cain.

Orchestral Selection, Mr. G. M. Williams.

Conductor: Mr. G. M. Williams.

Hymn, "When the Roll is Called up Yonder."

Soloist.

Orchestra.

Soloist.

Mission.

Offering.

Orchestra.

ADDRESS: SIE HENRY COWAN, M.P.

"ENGLAND AS I KNOW IT."

National Anthem.

Benediction.

Orchestra.

4.30 p.m.—Close down.

EVENING SESSION.

6.50 p.m.—Thank you for letters and "Many Happy Returns of the Day, Children," by "MILLY BUNNY"

6 p.m.—"THE FIVE PIPERS";

Organ and solo, "Andante"

Hymn, "There was a Gentle Shepherd Boy"

Solo, "The Throne of Grace"

Chorus, "The Wind in the Trees"

Violin solo, "Serenade" (Della)

Solo and chorus, "The Robin and the Rose"

Solo, "The Song of the Clock"

Good-night song, "The Sunset Hymn"

6.25 p.m.—"BROTHER BILL";

"How's That, Umpire?"

6.45 p.m.—Bells from St. Paul's Cathedral.

NIGHT SESSION.

7 p.m.—Evening Service from THE FIRST CHURCH OF CHRIST, SCIENTIST, St. Kilda Road, Melbourne.

Voluntary (organ), "Andantino" (Novello).

Hymn No. 55, "He that has God His Guardian Made."

Scriptural reading, Ex. 22; Ps. 33; Joshua 1: 1-4.

Reading: Romans 15: 4.

Silent Prayer, followed by the audible repetition of the Lord's Prayer, with its scriptural interpretation from page 16 of the Christian Science Text Book, "Science and Health with Key to the Scriptures," by Mary Baker Eddy.

Hymn No. 178, "O'er Waiting Harp-strings of the mind" (words by Mary Baker Eddy).

Announcements.

Solo, "Come, ye Children" (Frodingal Son), by Arthur Sullivan (Bossy and Co.).

Lesson.

SERMON, "God, the Preserver of Man,"

Offertory (organ), "Moderato" (Steinhardt), (Novello).

Hymn No. 148, "God Comes with Sopor Sopor"

Reading the Scientific Statement of Being, from page 465 of the Christian Science Text Book and the correlative Scriptures:

According to I John 8, 1-3.

Benediction, II Thess., 2: 2.

Postlude (organ), "Andante" (Steinhardt), (Novello).

FROM THE STUDIO.

8.30 p.m.—CONCERT PERFORMANCE OF MASAGANA.

"CAVALLERIA RUSTICANA."

(With full chorus and orchestra).

Under the Direction and Conductorship of

WILLIAM JAMES.

Leader of Orchestra, REGINALD BRADLEY.

Special Engagement of MELBOURNE CHORAL UNION (Sixty Voices).

Conductor, WILLIAM G. JAMES.

CHARACTERS.

Santuzza (soprano), A young peasant girl.

SAFFO ARNAV.

Turiddu (tenor), A young peasant. IROBAE BROWNS.

Lucia (contralto), His mother, GERTRUDE HUTTON.

Alfo (baritone), A carrier, J. ALEXANDER BROWNS.

Lola (mezzo-soprano), His wife, GERTRUDE HUTTON.

Chorus of Peasants, Children, etc.

THE ORCHESTRA INTRODUCTION:

Siciliana, Turiddu, Lucia—Alfo and Chorus.

Opening Chorus, "Sweetly the Birds."

Scena Santuzza and Lucia.

Alfo's Song, "Ially go my Horses"

"O, the Jolly Life Boys"

Santo and Prayer, Lucia—Alfo and Chorus.

Grand Chorus, with Solo, "O Rejoice!"

Romance and Scena, Santuzza and Lucia.

Scena, Santuzza and Turiddu.

Lola's Song, "O, Gentle Flower of Gold."

Solo, Santuzza and Turiddu.

Duet, Santuzza and Alfio.

INTERMEZZO, THE ORCHESTRA

Chorus, "Now Homeward!"

Scena, Lola and Turiddu.

Drinking Song, Turiddu.

Chorus, "See the Merry Wine"

Finale, Santuzza, Lucia, Turiddu, Alfio and Chorus.

9.50 p.m.—Announcement: Island steamship information.

The Royal Automobile Club of Victoria's

Safety Message for today is for

MOTORISTS: "Better be safe than sorry."

When it rains put on chains. Drive safely,

or not at all!

OUR GREAT THOUGHT:

It is the glory of a woman that she was

MOTHER: "Better be safe than sorry."

than for herself; and therefore I shall say

let her smallest rights be respected, her

smallest wrongs redressed.—Kingsley.

10 p.m.—"GOD SAVE THE KING."

4QG, BRISBANE.

Sunday.

MORNING SESSION.

ST. STEPHEN'S CATHEDRAL.

The complete Morning Service will be

relayed from St. Stephen's Roman Catholic

Cathedral.

11 a.m.—FROM ST. STEPHEN'S

CATHEDRAL:

Morning Service.

12.30 p.m.—Close down.

AFTERNOON SESSION

BAND CONCERT.

The Band Concert will be relayed from the

Brisbane Botanic Gardens.

3.15 p.m.—FROM THE BOTANIC GARDENS.

Band Concert.

4.30 p.m.—Close down.

NIGHT SESSION.

ST. STEPHEN'S CATHEDRAL.

The complete Evening Service will be

relayed from St. Stephen's Cathedral.

7.30 p.m.—FROM ST. STEPHEN'S

CATHEDRAL:

Evening Service.

8.30 p.m.—Benediction.

BAND CONCERT.

At the conclusion of the Church Service the

Concert by the Brisbane Municipal Concert

Band will be relayed from Wickham Park.

8.30 p.m.—Band Concert.

9.30 p.m.—Close down.

6WF, PERTH.

Sunday.

10.45 a.m.—Tune in.

11 a.m.—Morning service relayed from St. George's Cathedral.

12.10 p.m.—Close down.

1.30 p.m.—Tune in.

FROM THE STUDIO.

Musical programme, including vocal and instrumental artists.

4.30 p.m.—Close down.

7 p.m.—Tune in.

7.7 p.m.—Children's bedtime stories by Mr. Robert Edmundson.

7.30 p.m.—Zevator service relayed from St. Andrew's Presbyterian Church, St. George's Terrace, Perth.

8.45 p.m.—Concert by the Perth City Band, conducted by Mr. L. M. Price, relayed from the Government Gardens.

Assisting vocal artists.

10 p.m.—Close down.

1st 5 Mertz Transmission.

Simultaneous broadcast on 104.8 metres of programme given on 1250 metres, commencing at 9.45 p.m.

7ZL, HOBART

Sunday.

MORNING SESSION.

11 a.m. to 12.15 p.m.

11 a.m.—Church Service from Memorial Congregational Church Hobart.
Preacher, Rev. Arthur U. Nelson.
Close down.**AFTERNOON SESSION.**

1.30 p.m.—G.P.O. Clock Chimes.

2.31 p.m.—Pleasant Sunday Afternoon Concert from the Studio.

4.30 p.m.—Close down.

EARLY EVENING SESSION.

6.30 p.m.—Children's Corner with the "Sunday Lady."

NIGHT SESSION.

7 p.m.—Church Service from Methodist Church, Hayville Street, Hobart.

Preacher, Rev. Robert Williams.

At conclusion of Church Service, Band Concert from St. David's Park, or Studio Concert.

8.40 p.m.—"Mercury" special intimate news service.

British Official Wireless News.

Songs within wireless range.

Station announcements: To-morrow's programme.

National Anthem.

Monday, Dec. 12**2FC, SYDNEY.****EARLY MORNING SESSION.**

7 a.m. to 8 a.m.

MORNING SESSION.

10 a.m.—"Big Ben" and announcements.

10.5 a.m.—Studio music.

10.15 a.m.—"Sydney Morning Herald" news service.

10.30 a.m.—Studio music.

10.35 a.m.—Last minute sporting information by the 2FC racing commissioner.

10.45 a.m.—Studio music.

11 a.m.—"Big Ben" Marching music for school children.

11.5 a.m.—A.P.A. and Reuter's cable services.

11.55 a.m.—A reading.

11.50 a.m.—Close down.

Adventurers All!**Captain Kingsford Smith**

BYRD, Wilkins, Hurley, MacMillan, Hinton, Rice, Kingsford Smith — Adventurers All!—And radio is many times the life line, with Burgess Batteries the never failing source of power.

In his great Pacific Flight to Sydney, Captain Kingsford Smith will carry a magnificent £300 sending and receiving set (equipped with Burgess Batteries), the gift of New System Telephones Pty. Ltd. to the heroic Australian aviators.

These Batteries will be similar to those used by Byrd on his flight to France and sold by every high-class radio dealer.

Every Australian boy will enjoy the thrilling Adventure Booklet (No. 100), with its typical Hurley preface. Sent free on request.

WHOLESALE:**New System Telephones Pty. Ltd.**

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25 Queen's Bridge St., S. Melbourne

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Q'land Agency, Canada Cycle & Motor Agency (Q.) Ltd.

Creek and Adelaide Streets, Brisbane.



MIDDAY SESSION.

- 12 noon.—"Big Ben" and announcements.
 12.3 p.m.—Stock Exchange first call.
 12.5 p.m.—Official weather forecast rainfall.
 12.5 p.m.—Studio music.
 12.10 p.m.—Summary of "Sydney Morning Herald" news service.
 12.20 p.m.—Burry wireless news.
 12.30 p.m.—Marching music for school children.
 12.40 p.m.—Annie Payne, mezzo:
 "When Daisies Bloom" (Aral).
 12.45 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horace Keala).
 12.55 p.m.—Studio music.
 1 p.m.—"Big Ben." Weather intelligence.
 1.3 p.m.—"Evening News" missing news service.
 1.30 p.m.—Studio music.
 1.35 p.m.—Stock Exchange second call.
 1.50 p.m.—Marching music for school children.
 1.40 p.m.—Annie Payne, mezzo:
 "Whirl by me Lovelace" (German).
 1.45 p.m.—Studio music.
 1.50 p.m.—THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horace Keala).
 2 p.m.—"Big Ben." Close down.

AFTERNOON SESSION.

- 2 p.m.—"Big Ben" and announcements.
 2.5 p.m.—Harry Jackson, baritone:
 "Red Devon by the Sea" (Clarke).
 3.7 p.m.—Irene Dunnet, soprano:
 "Thank God for a Garden" (Del Negro).
 3.11 p.m.—The "Crackerjack" Trio, popular dance numbers.
 3.15 p.m.—A reading.
 3.27 p.m.—Percis Butler, soprano:
 "While you're away" (Carey).
 3.30 p.m.—Marching music for school children.
 3.40 p.m.—Rose Ball, alto/soprano from IQG:
 "The Muffet."
 3.45 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horace Keala).
 3.55 p.m.—Irene Dunnet, soprano:
 "Laugh and Sing" (Dunsmuir).
 4 p.m.—"Big Ben." Harry Jackson, baritone:
 "Broadway" (Leby).
 4.5 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horace Keala).
 4.15 p.m.—From the Studio: The "Crackerjack" Dance Trio. Popular numbers.
 4.25 p.m.—Percis Butler, soprano:
 "At night" (Rachmaninoff).
 4.30 p.m.—Rose Ball, alto/soprano from IQG:
 "The Fly" (Denise).
 4.35 p.m.—The "Crackerjack" Dance Trio: Popular numbers.
 4.45 p.m.—Stock Exchange third call.
 4.47 p.m.—Studio music.
 4.50 p.m.—The "Crackerjack" Dance Trio.
 5 p.m.—"Big Ben." Close down.

EARLY EVENING SESSION.

- 6.40 p.m.—The chimes of 2FC.
 6.45 p.m.—The "Hello Man" talks to the children.
 6.50 p.m.—Story time for the young folk.
 6.55 p.m.—Studio music.
 7 p.m.—"Big Ben." Late sporting news.
 7.10 p.m.—Bulger's market reports (wheat, wheat and stock).
 7.15 p.m.—Fruit and vegetable markets.
 7.20 p.m.—Weather and shipping news.
 7.25 p.m.—"Evening News" late news service.

NIGHT SESSION.

- 7.40 p.m.—Programme announcements.
 7.45 p.m.—A book review by Mr. Grafton Smith.

- 7 p.m.—"Big Ben." From the Haymarket Theatre, George-street, Sydney's songs to the orchestra, conducted by Mr. Stanley Porter.
 7.15 p.m.—From Maria Brothers' School. Musical programme by the Maria Brothers' School Chorus.
 7.20 p.m.—"The Indigo" (2 parts) (Koeckel).
 (a) "Barnstable" (2 parts) (Tosti).
 (b) "When Butterflies Return" (2 parts) (Koeckel).
 (c) "Evening" (2 parts) (Mendelssohn).
 7.25 p.m.—"Lull to the Golden Bell" (Rinkler). Masters Joseph Johnson and Keara Hannagan.
 7.30 p.m.—From the Studio: Coleman and Harris, instrumentalists.
 7.40 p.m.—Marie O'Malley, contralto.
 7.45 p.m.—From the Maria Brothers' School. Musical programme by the Maria Brothers' School Chorus:
 (a) "The Ray Morning" (3 parts) (Koeckel).
 (b) "A Song of Summer" (2 parts) (Marchand).
 (c) "Merry Lip-Bells" (2 parts) (Koeckel).
 7.50 p.m.—"The Wind and the Harp" (Glorce). Masters Joseph Johnson and Keara Hannagan.
 7.55 p.m.—From the Studio: Latest weather forecast.
 8 p.m.—Selwyn Seymour, English alto/soprano:
 "Two men" (Charles Swindler). An episode on the President Roosevelt.
 8.11 p.m.—Marie O'Malley, contralto.
 8.15 p.m.—Coleman and Harris, instrumentalists.
 8.22 p.m.—From the Maria Brothers' School. Musical programme consisting of the programmes by the Maria Brothers' School Chorus:
 (a) "The Captain's Last Sleep" (3 parts) (Koeckel).
 (b) "The Carnival" (2 parts) (Molloy).
 (c) "Who will ever the Downs so Free" (Pearshall).
 (d) "The Night Bell" (2 parts) (Viviani).
 8.25 p.m.—From the Studio: Cec Morrison and his "Gloomchasers."
 8.35 p.m.—Marie O'Malley, contralto:
 8.40 p.m.—From the Haymarket Theatre, George-street, Sydney: The Haymarket Operatic Orchestra.
 10.14 p.m.—From the Studio: Marie O'Malley, contralto.
 10.18 p.m.—From the Haymarket Theatre, George-street, Sydney. Orchestral numbers.
 10.30 p.m.—From the Studio: Latest weather forecast.
 10.41 p.m.—Selwyn Seymour, English alto/soprano:
 10.55 p.m.—Cec Morrison and his "Gloomchasers."
 10.57 p.m.—Late news and announcements.
 11 p.m.—"Big Ben."
 Cec Morrison and his "Gloomchasers."
 11.30 p.m.—National Anthem.
 Close down.

2BL, SYDNEY

Monday.

EARLY MORNING SESSION.

7 a.m. to 8 a.m.

MORNING SESSION.

- 10.20 a.m.—G.P.O. clock and chimes.
 Musical programme from the Studio.
 10.45 a.m.—News from the "Daily Telegraph" Special.
 10.55 a.m.—Musical programme from the Studio.

- 11 a.m.—G.P.O. clock and chimes.
 Announcements.
 11.5 a.m.—Musical programme from the Studio.
 11.55 a.m.—Women's session. Talk on "Trousers" by Miss Varley. Bradenstons' women's sports authority.
 Social notes—answers to correspondents by Mrs. Jordan.
 Talk on "Holiday Friends" by Beanie Derlington.
 12 noon.—G.P.O. clock and chimes.
 Special ocean forecast and weather report.
 12.3 p.m.—Musical programme from the Studio.
 12.5 p.m.—Information. Mails, shipping and port directory.
 12.12 p.m.—Boats in call by wireless.
 12.14 p.m.—Fruit market report.
 12.15 p.m.—Vegetable market report.
 12.16 p.m.—Dairy and farm produce market report.
 12.22 p.m.—Foreign market report.
 12.23 p.m.—Fish market report.
 12.28 p.m.—Habitat market report.
 12.28 p.m.—Stock Exchange report.
 12.30 p.m.—H.M.V. gramophone recital.
 1.27 p.m.—Stock Exchange report.
 1.30 p.m.—G.P.O. clock and chimes.
 Talk to children and special entertainment for children in hospital.
 2 p.m.—G.P.O. clock and chimes.
 Close down.

AFTERNOON SESSION.

- Racing information broadcast immediately after each race by courtesy of the "Sun" Newspapers.
 2 p.m.—G.P.O. clock and chimes.
 Musical programme from the Studio.
 2.10 p.m.—News from the "Sun."
 2.20 p.m.—Musical programme from the Studio.
 2.30 p.m.—News from the "Sun."
 2.40 p.m.—Dungwean Dance Band, broadcast from the Dungwean Cabaret.
 4 p.m.—G.P.O. clock and chimes.
 News from the "Sun."
 4.15 p.m.—Musical programme from the Studio.
 4.16 p.m.—Serial story.
 4.20 p.m.—Dungwean Dance Band.
 4.25 p.m.—News from the "Sun."
 4.55 p.m.—Resume of night's programme.
 4.57 p.m.—Hearing resume.
 4.59 p.m.—Special ocean forecast.
 5 p.m.—G.P.O. clock and chimes.
 Close down.

EARLY EVENING SESSION.

- 5.45 p.m.—G.P.O. clock and chimes.
 Children's session.
 6.20 p.m.—Musical programme from the Studio.

SPECIAL COUNTRY SESSION.

- 7 p.m.—G.P.O. clock and chimes.
 Australian Maritime, Land and Finance Co.'s report.
 Weather report and forecast by courtesy of Government Meteorologists.
 Producers' Distributing Society's fruit and vegetable market report.
 Stock Exchange reports.
 Grain and fodder report ("Sun").
 Dairy produce report ("Sun").
 Eucharistic Congress Notes.
 7.15 p.m.—Country news from the "Sun."
 7.30 p.m.—Talk on "The Motor Car" by Mr. Martin.
 8 p.m.—G.P.O. clock and chimes.
 Broadcasters' Topical Chorus.
 An hour's programme presented by Lindeman's Wines.
 8.5 p.m.—Mr. Henri de Lisle, violin solo.
 8.10 p.m.—Miss Hasty Stuart, Scottish contralto.

- 8.17 p.m.—A talk about wines.
 8.23 p.m.—From the Industrial Hall, Newtown: The Newtown Band, popular and classical selections.
 8.42 p.m.—From the Stadium: A description, by Mr. Walter E. Withrow, of the wrestling match.
 9.45 p.m.—From the Studio: Mr. Henri de Liza.
 9.52 p.m.—Miss Buby Stuart.
 10 p.m.—G.P.O. clock and chimes.
 10.1 p.m.—Broadcasters' all sports expert will talk on general sporting news.
 10.14 p.m.—Resume of following day's programme.
 10.20 p.m.—Dance music by Danny Hogan's Frisco Six, transmitted from the ballroom of the Bondi Casino. During intervals between dances, "Sun" news will be broadcast.
 11 p.m.—G.P.O. clock and chimes.
 National Anthem.

2GB, SYDNEY

Monday.

- 8 a.m.—Music.
 9.5 a.m.—Good Cheer Talk.
 10.5 a.m.—Music.
 11.0 a.m.—Psychological Class.
 11.40 a.m.—Music.
 12.45 p.m.—Health and Diet.
 1 p.m.—Class down.

MORNING SESSION.

AFTERNOON SESSION.

- 2.30 p.m.—Music.
 3.37 p.m.—Address.
 3.52 p.m.—Music.
 4 p.m.—Address.
 4.25 p.m.—Music.
 4.35 p.m.—Class down.

EVENING SESSION.

- 7 p.m.—Music.
 7.5 p.m.—Address.
 7.15 p.m.—Music.
 7.30 p.m.—Address.
 7.35 p.m.—Music.
 7.40 p.m.—Address.
 7.53 p.m.—Instrumental Trio. Dan Scully, Ada Brook, Murielle Lang.
 8.5 p.m.—Address by Dr. F. K. Rossi.
 8.10 p.m.—Songs by ELSIE BROWN.
 1. "Should he upbraid."
 2. "Kinsdo Song."
 3. 8.15 p.m.—Gillian Selas, F. Lina, Murielle Lang, Ada Brook.
 8.30 p.m.—Instrumental Trio, J. Brewer.
 8.40 p.m.—Address by Rev. R. B. S. Hammond.
 8.16 p.m.—Songs by Elsie Brown.
 1. "Whisper."
 2. "Arise, O Sun."
 9.25 p.m.—Instrumental Quartette, Dan Scully, L. Brewer, Murielle Lang, Ada Brook.
 9.40 p.m.—Musical Hoaxing.
 1. "The Month of May" (Schumann).
 2. "Love's Tears" (Schumann).
 3. "The Rose and the Lily."
 4. "Wandering" (Schubert).
 9.55 p.m.—Talk.
 10 p.m.—Class down.

2 UW, SYDNEY

Monday.

MORNING SESSION.

- 8 a.m.—News, shipping, mails, studio news.
 9.45 a.m.—Women's Session.
 9.55 a.m.—Resume of forward programme.
 10 a.m.—Class down.
 10.15 p.m.—Special Employees' Luncheon Session.
 12.45 p.m.—Class down.

AFTERNOON SESSION.

- 2 p.m.—Studio selections.
 2.50 p.m.—Resume of forward programme.
 3 p.m.—Class down.



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FARMER'S

Pitt, Market and George Streets.

EVENING SESSION.

- 5 p.m.—Studio items.
5.55 p.m.—Resumé of forward programme.
6 p.m.—Close down.

NIGHT SESSION.

- 7 p.m.—Studio chimes.
7.2 p.m.—White to Ga.
7.10 p.m.—Professor G. Bauer, pianoforte solo; Selected.
7.15 p.m.—Miss Rae O'Brien, soprano:
"Softly Awake My Heart" (Simsen and DeLaha).
7.19 p.m.—Miss Lily Mewen, contralto; Selected.
7.23 p.m.—Herbert Wilson, tenor; Selected.
7.27 p.m.—Miss Florence Crocker, mezzo-contralto; Selected.
7.31 p.m.—Harry Afflick, jazz interlude.
7.43 p.m.—Lillian Joyce, contralto:
"A Dream Half Singing"—Wood.
7.46 p.m.—Professor G. Bauer, violin solo; Selected.
7.53 p.m.—Amy Wilson, soprano:
"The Beauty" (Nival).
7.54 p.m.—Robert Meadows, Tophamian solo:
"Under the Double Eagle."
7.59 p.m.—Jazz duo.
8 p.m.—Studio chimes.
8.1 p.m.—Photographic charts; Messrs. Harrington's.
8.4 p.m.—Professor G. Bauer, violin solo; Selected.
8.6 p.m.—Jean Edwards, soprano:
"Villanelle" (Acqua).
8.11 p.m.—Madame Arline Bauer, pianoforte solo; Selected.
8.17 p.m.—Miss Lily Mewen, contralto; Selected.
8.21 p.m.—Herbert Wilson, tenor; Selected.
8.25 p.m.—Lillian Joyce, contralto:
"Song My Mother Taught Me" (Dvorak).
8.30 p.m.—Harry Afflick, jazz interlude.
8.46 p.m.—Amy Wilson, soprano:
"My Ain Faink" (Latham).
8.44 p.m.—Rae O'Brien, contralto:
"The Lass with the Delicate Air."
8.49 p.m.—Professor G. Bauer, violin solo; Selected.
8.53 p.m.—Florence Crocker, mezzo-contralto; Selected.
8.57 p.m.—Robert Meadows, Tophamian solo:
"Love Time" (Caulling-Godfrey).
9 p.m.—Studio chimes.
9.1 p.m.—Jean Edwards, soprano:
"Hold Thou the Morn" (Arandell).
9.3 p.m.—Norman Goode: "My First Impression of Colonel T. E. Lawrence, the Unconquered King of Arabia."
9.29 p.m.—Studio selections.
9.32 p.m.—Resumé of forward programme.
9.40 p.m.—God Save the King.

3LO, MELBOURNE.

Monday

MORNING SESSION.

- 12 noon.—Melbourne Observatory time signal.
12.1 p.m.—British Official Wireless News from Rugby, Reuters and the Australian Press Association cables. (Argus) news service.
12.25 p.m.—JOE ARONSON AND HIS SYNGO-SYMPHONISTS:
"Sonny Boy" (Stamper).
"Swinging Along" (Hay).
"The Love Walk" (Jagout).
12.29 p.m.—We now have pleasure in asking you to listen to the well-known operatic entertainers.
BELLE POLLARD AND WALTER WILLY.
Belle Pollard, soprano:
"O Bacio" (Arditi).
Walter Willy, tenor:
"My Sweetheart when a Boy" (Matzan).
Duet. "Sympathy" (Frim).
12.41 p.m.—Stock Exchange information.
12.44 p.m.—MAGGIE FOSTER, violin:
"In Happy Moments" (Goussard).
"Boulevard" (Drize).

- 12.50 p.m.—JOE ARONSON AND HIS SYNGO-SYMPHONISTS:
"Lorely Acres in the West" (Rebisch).
"Honey" (Bainford).
"Two Little Bluebirds" (Kava).
1 p.m.—Melbourne Observatory time signal.
"You and yourself refrained by the presence of cheerful people! Why not make earnest effort to confer that pleasure on others? Start the week well—make the best of life and make the most of it."
1.1 p.m.—ESSIE IRWIN, soprano:
"Live, Laugh and Love" (Kliffen).
"Happy Sons" (del Rio).
1.4 p.m.—Meteorological information. Weather forecast and rainfall for Victoria, Tasmania, South Australia, and New South Wales. Ocean forecasts. River reports.
1.14 p.m.—And now, here is the very gentleman to help you bear in mind the value of that cheerfulness that fetches away one's little ill—ERN TROTMAN, entertainer, a past-master, as you already know, in the art of joke-making.
"How Do You Do?" (F. N. de Val).
"The Announcements" (Aner).
1.22 p.m.—JOE ARONSON AND HIS SYNGO-SYMPHONISTS:
"Who" (Leslie).
"My Tumble-down Cottage of Dreams" (Miller).
"Wattle You Have With Me" (Langa).
1.31 p.m.—MAGGIE FOSTER, violin:
"Popular Chorus."
1.39 p.m.—JOE ARONSON AND HIS SYNGO-SYMPHONISTS:
"Whipped Cream," piano solo (Woods).
"Take in the Sun" (Dennis).
"Nim" (Newman's Law).
1.47 p.m.—ESSIE IRWIN, soprano:
"There are Fairies at the Bottom of the Garden" (Lehmann).
"The Birth of Morn" (Loom).
1.54 p.m.—JOE ARONSON AND HIS SYNGO-SYMPHONISTS:
"Cherie Beeie Bee from Sunny Isle" (Lewis).
"Lo Down" (Kaba).
"Oh, What a Faj was Whosin" (Kaba).
2 p.m.—Close down.

AFTERNOON SESSION.

- 2.1 p.m.—Melbourne Observatory Time Signal.
2.1 p.m.—ERNEST G. MITCHELL AND THE REGENT CONCERT ORCHESTRA:
Overture, "Coriolanus" (Beechoven).
"Pigrin's Chorus" (Wagner).
"Home crafts."
2.15 p.m.—ERNEST G. MITCHELL AND THE REGENT CONCERT ORCHESTRA:
"The Prize Song from the Melisvengers" (Wagner).
2.22 p.m.—We now have much pleasure in announcing the re-appearance of EILEEN CASTLES, the well-known soprano, in "Lovely Spring" (Cosset).
"Maiden's Wish" (Clapin).
2.35 p.m.—MAGGIE FOSTER, violin:
"Serenata" (Tovelli).
"Remember I Love You" (Irving Berlin).
2.45 p.m.—ERNEST G. MITCHELL AND THE REGENT CONCERT ORCHESTRA:
"None but the Weary Heart" (Tichakowsky).
"Baccarelle" (Tichakowsky).
2.52 p.m.—JOSEPH HOLM, tenor. Now appearing in "The Student Prince." (By permission of J. C. Williamson, Ltd.):
"Ombra Ma Fu" (Handel).
"The Curtain Falls" (Harsdell).
4.3 p.m.—MAGGIE FOSTER, violin:
"Lohmel" (Kreidler).
4.8 p.m.—EILEEN CASTLES, soprano:
"One Spring Morning" (Nevin).
"Go Down, Moses"—Negro Spiritual (Burleigh).
4.15 p.m.—ERNEST G. MITCHELL AND THE REGENT CONCERT ORCHESTRA:
"Valse Trieste" (Sibelius).
"Lucia de Figaro" (Mozart).
4.25 p.m.—JOSEPH HOLM, tenor:
"Dear Dreaming Eyes" (Holiday).
"Auld Scotch Mither" (Traditional).

- 4.41 p.m.—ERNEST G. MITCHELL AND THE REGENT CONCERT ORCHESTRA:
Selection, "Lohmel" (Wagner).
4.43 p.m.—MISS FLORA FELL, Inspector of Schools:
"Domestic Science."
4.48 p.m.—"Herald" News Service.
Stock Exchange information.
4.53 p.m.—Close down.
During the afternoon results of the Richmond Trots will be given at intervals.

EVENING SESSION.

- 5.30 p.m.—Acceptances for Wednesday's race at Kyneton.
5.35 p.m.—Answers to Letters and Birthday Greetings by "LITTLE MISS KOOKA-BURRA."
6 p.m.—STUDIO QUARTET:
"Morning in Noah's Ark." (Rollinson).
6.7 p.m.—CAPTAIN DONALD McLEAN:
"Pirates and More Pirates."
6.25 p.m.—STUDIO QUARTET:
"Bunting of the Shark."
6.30 p.m.—"LITTLE MISS KOOKA-BURRA":
"More about the Plicky Patter."
6.48 p.m.—Official report of Newmarket Stock Sales by the Associated Stock and Station Agents, Stock Street, Melbourne. Number of sheep and cattle drawn for week's sale.
6.45 p.m.—"Herald" News Service. Weather synopsis. Shipping movement.
6.55 p.m.—Stock Exchange information.
6.57 p.m.—Fish market reports by J. R. Bonnett, Ltd. Rabbit prices.
6.59 p.m.—River reports.
7.20 p.m.—Market reports by the Victorian Producers Co-operative Co., Ltd. Flour, grain, hay, straw, tulle, dairy produce, potatoes and onions. Market reports of fruit by the Victorian Fruitgrowers' Association—relative to the Victorian Association of fruit by the Wholesale Fruit Merchants' Association. Citrus fruits.

NIGHT SESSION.

- 7.10 p.m.—Under the auspices of the Boy Scouts' Association of Australia; Commissioner C. Gordon McAdam will speak on Scout Camp Hygiene.
7.20 p.m.—MR. E. G. TAYLOR will speak to young Australia on
"School Life and School Sport."
7.45 p.m.—Under the auspices of the Department of Agriculture, MR. P. RYAN, Inspector of Agriculture, will speak on
"Summer Folders."
8 p.m.—CAROL SERVICE TRANSMITTED FROM GERLOND GRAMMAR SCHOOL, CIOHO:
Mrs. B. Allen, organ voluntary; Selected.
Choir and congregation: Hymn, "O, Come All Ye Faithful."
Solo, recited, "God Rest You, Merry Gentlemen" (Traditional).
Tributes alone: Carol, "The Manger Tree" (Stegall).
Messrs. Harbour, Lowe, Marshall and Anderson, quartette: "A Day, Day of Gloom" (tune, an old French Carol).
Choir and Congregation: Carol, "The First Noel" (Traditional).
The Choir: "See Amid the Winter Snow" (Goss).
Mr. A. H. Lowe: Solo, "Nativity" (Gounod).
The Choir: Carol, "Is Szezelsa Gloria" (Brenan).
Messrs. R. P. Barbour and A. S. Macchall, Duet, "Ad Cantum Letici" (a Latin Carol of the 13th Century).
F. I. Taylor and D. M. Kelly: Carol, "Good King Wenceslas" (Traditional).
Choir and congregation: Hymn, "Bark the Herald Angels Sing."
Mrs. J. H. Allen:
Concluding Voluntary, "Agnus Fideles," FROM THE STABLE.
8.45 p.m.—Description of to-night's events at the Stadium, by Mr. Norman McCance.
9 p.m.—ORCHESTRAL CONCERT BY THE UNIVERSITY SYMPHONY ORCHESTRA.

(Conductor, Professor Bernard Heuze):
Overture, "Lorraine" (Maurit).
Dorothy Haight, Song, "Hail 'Em" (Co-
quard).

Speeches by G. Wilson (1st movement)
(Greece).

Roma Driver, Song, (a) "The Old Song"
(Grieg); (b) "To Music" (Schubert).

Elena Taylor, "Concerto for Piano and
Orchestra" (1st movement) (Grieg);
Sonia Marzetti, soprano, "Nenia" from
"Mefistofele" (Busto).

Orchestra (a) "Musical Impromptu" (Schu-
bert); (b) "Missa in D" (Böhmert).

Ethel Perryman, soprano, "Naught to my
Heart Can Bring Relief" (Dvorak).
Constantine Ziebell, Prelude for violin and
Orchestra, "The Deluge" (Saint-Saens).

Dorothy Bealby, Song, (a) "Le Mariage
de Figaro" (Lasser Franck); (b) "Sheep-
fold Song" (Landon Ronald).

Tone Poem, "Le Chasseur Maudit" (Franck)
Sonia Mayarotti, soprano, "Vival d'Art, from
"Tosca" (Puccini).

Two Hungarian Dances (Brahms).
Roma Driver, Song, "Laughing" (Schubert-
Liszt).

Ethel Perryman, soprano, Aria "Gloria Thou
Mighty Menestrel" from "Oberon"
(Weber).

Wagnerian (Wagner).

12.30 p.m.—"Arpa" news service. Meteorolo-
gical information. British official wireless
news from Rugby. Island summer move-
ments.

The Royal Automobile Club of Victoria's
Safety Message for London is the MOTOR
1928.

Always use low oil second gear when
ascending very steep hills. Never adopt the
dangerous practice of coasting with the
gear lever in neutral.

12.45 p.m.—Final notes on to-night's Evening
event by Mr. Norman McCaus.

1 p.m.—OUR GREAT THOUGHT:
"The sacred books of the ancient Persians
say 'If you would be holy, instruct your
children, because all the good acts they per-
form will be imputed to you.'"
Montaigne.

1.15 p.m.—JOE ARONSON AND HIS
HYPOKRYPHONISTS.

1.16 p.m.—"GOD SAVE THE KING."

4QG, BRISBANE

Monday.

MIDDAY SESSION.

1 p.m.—Market reports, weather information
supplied by the Commonwealth Weather
Bureau news service, supplied by "The
Daily Mail" and "The Daily Standard."

1.30 p.m.—Lunch hour music.

1.50 p.m.—Standard time signal.

2 p.m.—Close down.

AFTERNOON SESSION.

2.30 p.m.—A programme of music by the
MUSIC DIRECTOR, including—

Overture, "Diana" (Boettger).
Vals, "Jules Wals" (Forn).

Irish Selection, "The Isle of Dreams" (Ball).
Comraic solo, "Eaglais" (Bomerl).

Miss Jessie McDonald.
Nocturne, "Liebestraum" (Liszt).

Spanish Characteristic, "Cachucha Andalus"
(Hannay).

Contralto solo, "Softly Wakes My Heart"
(Saint-Saens).

Miss Jessie McDonald.
Intermezzo, "Grotto" (Marini).

March, "Florentiner" (Fuchs).

4.15 p.m.—"The Telegraph" news.

4.30 p.m.—Close down.

EARLY EVENING SESSION.

8 p.m.—News service supplied by "The Daily
Standard."

8.30 p.m.—The children's amusements by
"The Rudman."

9 p.m.—Market reports, stock reports.

9.30 p.m.—Weather news; "Daily Standard"
news.

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7.43 p.m.—Standard time signals.
7.46 p.m.—A review of the Queensland Pig Club Movement by Mr. E. J. Stetson (Instructor in Pig Raising).

NIGHT SESSION.

The first portion of to-night's programme will be relayed from Messrs. Olsen and Goodship's "White House," Woolloongabba.
8 p.m.—FROM THE WHITE HOUSE:
Octette, "Gypsy" Laughing Chorus" (Glover).

The Bohemians

Tenor solo, "My Dreams" (Wood).
Mr. E. W. Muller.
Duet, "Your Girl and My Girl" (Wells).
Messrs H. Gilroy and F. Crane.
Soprano solo, "The Slave Song" (Dei Belco).
Miss Phyllis Verner.
Monologue: "The Game of Life" (Nell B. Spurr).

Mr. T. L. Muller.

Contralto solo, "Hindoo Sobs" (Bemcherz).
Miss Marie Driley.
Octette, "Simple Simon" (Macy).

The Bohemians.

Baritone solo:
"The Company Sergeant Major" (Sanderson).
Mr. Fred Crane.

Soprano solo:

"Down in the Forest" (Woodford Finden).
Miss F. Verner.
Duet: "Love and War" (Cook).

Mr. G. Williamson and Mr. J. P. Cornwell.

Contralto solo: "Love's Valley" (Forster).
Miss M. Driley.
Octette: "Rest Dearst Rest" (Kloster).
The Bohemians.

PART II.

The second part of the programme will be provided by Mrs. Sampson's Party.
8.15 p.m.—FROM THE STUDIO:
"Cello solo: "Javotte" (Fopper).
Miss Otilie Cloake.

Baritone solo:

"On Wings of Song" (Mendelesohn).
Mr. Fred Homer.

Tenor solo:

"You in a Godeola" (Coningly Clark).

Mr. John Steels.

Pianoforte solo:
"Water Wagtail" (Cyril Scott).
Mrs. Amy Sampson.

Cello solo:

"Ave Maria" (Schubert).
Miss Otilie Cloake.

Duet (tenor and baritone):

"The Moon Hath Raised Her Lamp Above" (Julia Kennell).
Messrs. John Steels and Fred Homer.

Baritone solo:

"Open Thy Eyes" (Massenet).
Mr. Fred Homer.

Pianoforte solo:

"Doctor Gradus Ad Parnassum" (De Busy).
Mrs. Amy Sampson.

Cello solo:

"Elegie" (Waldo Warner).
Miss Otilie Cloake.

Tenor solo:

"The Song Three Kings of Araby" (Clay).
Mr. John Steels.

Baritone Solo:

"Vagabond Song" (Eric Campbell).
Mr. Fred Homer.

Cello solo:

"Contract in G" (Darb).
Miss Otilie Cloake.

Tenor solo:

"Nightfall at Ben" (Maigne F. Phillips).
Mr. John Steels.

Pianoforte solo:

"Marche Grottesque" (Ums Bourne).
Mrs. Amy Sampson.

10 p.m.—"The Daily Mail" news; weather news. Close down.

6WF, PERTH.

Monday.

12.30 p.m.—Time in.
12.35 p.m.—Market, news and cables.
1 p.m.—Time signal from Perth Observatory.
1.1 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.

1.2 p.m.—Quintette Drebebars.

2.0 p.m.—Close down.

2.0 p.m.—Time in.

2.25 p.m.—Afternoon Tea Concert relayed from the Carlton Tea Rooms.

Vocal numbers from the Studio.

4.30 p.m.—Close down.

4.45 p.m.—Time in.

The evening transmissions are broadcast on 104.5 metres, as well as the usual wavelength.

6.50 p.m.—Stories for the children by Uncle Dicky and Henry.
7.20 p.m.—Stocks, Australia and news.
7.45 p.m.—Talk.

8 p.m.—Time signal from Perth Observatory.
8.15 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.

BAND NIGHT.

8.3 p.m.—Concert from the R.S.L. Institute by the R.S.L. Band, Conductor, Mr. W. A. Halverson.

Vocal numbers from the Studio.
10 p.m.—Late news items by courtesy of "The Daily News" Newspaper Co. Ships within range announcement.

Weather notes.

10.20 p.m.—Close down.
10.45 Metre Transmissions. Simultaneous programme broadcast on 104.5 metres, commencing at 6.45 p.m.

7ZL, HOBART

Monday.

MORNING SESSION.

11 a.m. to 12 noon.

AFTERNOON SESSION.

2 p.m.—G.P.O. Clock Chimes the Hour.
3.1 p.m.—Time in selection.
3.5 p.m.—Hobart Stock Exchange Quotations. Weather information.

Items of Interest: Announcements.
3.15 p.m.—Selections by 7ZL Studio Trio: Overture, "The Arab Bravado" (Greenwald).

"The Sea" (Schubert).
"Elegia Serenada" (Hanssch).
Viola solo, Selected, Mr. E. J. McEwan.

Valen, "Reverie" (Schutz).
4.15 p.m.—Fashion Talk by "Aunt Edna," of Brownells Ltd, Hobart.

4.30 p.m.—Close down.

EARLY EVENING SESSION.

6.50 p.m.—Children's Corner, with "Uncle Hector".
7 p.m.—"Uncle Peter's" half-hour.

NIGHT SESSION.

7.50 p.m.—Musical selection.
7.58 p.m.—Physical Culture Talk, by Lieutenant McKissock.

7.58 p.m.—"Mercury" special Transmission news service.
Kaituma Auction Produce Sales.

Weather forecasts.
Hobart Stock Exchange Quotations.
8 p.m.—G.P.O. Clock Chimes the Hour.

8.1 p.m.—Vocal and Instrumental Numbers from Findlay's Music Shoproom, Elizabeth Street, Hobart.

9 p.m.—Talk on Tasmania's Beauty Spots: "The Hastings Coast," by Mr. R. T. Bennett.

9.40 p.m.—British Official Wireless News.
9.55 p.m.—"Mercury" special Interstate news service.

Tasmania District Weather Reports.
9 p.m. Weather Forecasts.
Station announcements: Tomorrow's programme.

National Anthem.

Tuesday, Dec. 13
2FC, SYDNEY.

EARLY MORNING SESSION.

7 a.m. to 8 a.m.

MORNING SESSION.

10 a.m.—"Big Ben" and announcements.
10.5 a.m.—Studio music.
10.45 a.m.—"Sydney Morning Herald" news service.

10.50 a.m.—Studio music.
10.55 a.m.—Late sporting news by the RFC Racing Commissioner.

10.45 a.m.—Studio music.
11 a.m.—"Big Ben." Marching music for school children.

11.5 a.m.—A.P.A. and Kauter's Cable Service.
11.10 a.m.—Studio music.
11.15 a.m.—A sale on home cooking and recipes by Miss Ruth Furst.

11.30 a.m.—Close down.

MIDDAY SESSION.

12 noon—"Big Ben" and announcements.
12.2 p.m.—Stock Exchange first call.
12.3 p.m.—Official weather forecast, rainfall.

12.5 p.m.—Studio music.
12.45 p.m.—Summary of "Sydney Morning Herald" news service. Ragby wireless news.

12.25 p.m.—Studio music.
12.40 p.m.—Marching music for school children.

12.40 n.m.—Ivy Dunstone, mezzo.
12.45 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horne Keast).

12.50 p.m.—Studio music.
1 p.m.—"Big Ben." Weather intelligence.

1.2 p.m.—"Evening News" midday news service. Producers Distributing Society's report.

1.30 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horne Keast).

1.25 p.m.—Stock Exchange, second call.
1.30 p.m.—Marching music for school children.

1.40 p.m.—Ivy Dunstone, mezzo.
1.45 p.m.—Studio music.
1.50 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horne Keast).

2 p.m.—"Big Ben." Close down.

AFTERNOON SESSION.

2 p.m.—"Big Ben" and announcements.
2.2 p.m.—Joyce Gillespie, soprano: "Yale of Dawn" (Wood).

2.5 p.m.—Studio music, some popular records.
3.15 p.m.—A Talk.
3.25 p.m.—Anna Luciano, soprano.

3.30 p.m.—Marching for school children.
3.40 p.m.—Hilda Kolosa, soprano: "For you alone" (Gosh).

3.45 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horne Keast).

3.55 p.m.—From The Studio, Thelma Ladd-down, mezzo: "Dearst I love the morning" (Wood).

4 p.m.—"Big Ben." Dorothy Bestow, contralto: "Carol" (Freise).

4.5 p.m.—From Farmer's Tea Rooms: THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horne Keast).

4.15 p.m.—From The Studio, Joyce Gillespie, soprano: "Tara's Dancin' Song" (James).

4.3 p.m.—Foster records.
4.28 p.m.—From Farmer's Tea Rooms, THE OAK HALL INSTRUMENTAL TRIO. (Leader, Mr. Horne Keast).

4.35 p.m.—From The Studio: Anna Luciano, soprano.
4.40 p.m.—Thelma Ladd-down, mezzo: "That's all" (Erlah).
4.45 p.m.—Stock Exchange, third call.

11.17 p.m.—Dorothy Benbow, contralto:
"Dreaming of Home" (Hickler).
11.20 p.m.—Hilda Nelson, soprano:
"The Little Son" (Taitton).
11.23 p.m.—Popular records.
11.25 p.m.—"Big Ben." Close down.

EARLY EVENING SESSION

11.27 p.m.—The chimes of EFT.
11.31 p.m.—The "Hello Man" talks to the children.
11.35 p.m.—Start time for the young folk.
11.40 p.m.—Studio music.
11.45 p.m.—"Big Ben." Late sporting news.
11.50 p.m.—Daily's Market reports (wool, wheat and stock).
11.53 p.m.—Fruit and vegetable markets.
P.D.S. Poultry markets.
11.57 p.m.—Weather and shipping news.
12.00 p.m.—"Evening News" late news service.

NIGHT SESSION.

12.05 p.m.—Programme announcements.
12.10 p.m.—Floie Allen, soprano:
(by permission of J. C. Williamson Ltd.)
12.15 p.m.—"Flotam and Jotam."
12.20 p.m.—"Big Ben" Floie Allen, soprano.
12.25 p.m.—From the Conservatorium Hall, Sydney.
The Final Concert of the Season by the Royal Sydney Apollo Club. Conductor, Mr. Arnold Mole.
The Royal Sydney Apollo Club, Choral numbers.
Rene Burkett, violinist.
Canterbury Boys' School Choir, Christmas Carols.
Muriel Barlow, contralto.
The Royal Sydney Apollo Club, Choral numbers.
12.35 p.m.—From the Studio. Late weather forecast.
12.40 p.m.—J. Carlton Fay, Pianoforte solos.
12.45 p.m.—From The Conservatorium Hall, Sydney. The second portion of the programme by The Royal Sydney Apollo Club. Conductor, Mr. Arnold Mole.
The Royal Sydney Apollo Club, choral numbers.
Rene Burkett, violinist.
Canterbury Boys' School Choir, Christmas Carols.
Muriel Barlow, contralto.
The Royal Sydney Apollo Club, Choral numbers.
12.50 p.m.—From The Studio:
Wine and Widdle, English Entertainment.
12.55 p.m.—J. Carlton Fay, pianoforte solos.
1.00 p.m.—Late weather forecast.
1.05 p.m.—From The Ambassadors': The Ambassadors' Dance Orchestra. Conductor, Mr. Al Kanner.
1.10 p.m.—Late news and announcements.
1.15 p.m.—"Big Ben." The Ambassadors' Dance Orchestra.
Intervals at the Ambassadors' will be filled with musical items from the studio.
1.20 p.m.—National Anthem.
Close down.

2BL, SYDNEY.

Tuesday.

EARLY MORNING SESSION.

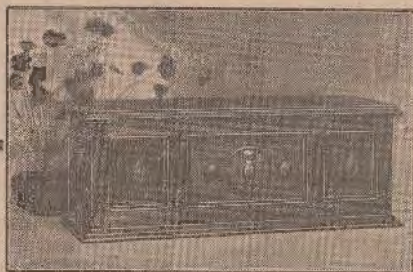
7.0 a.m. to 8.0 a.m.

MORNING SESSION.

10.30 a.m.—G.P.O. Clock and Chimes: Musical Programme from the Studio.
10.40 a.m.—News from the "Daily Telegraph Pictorial."
10.50 a.m.—Musical Programme from the Studio.
11.0 a.m.—G.P.O. Clock and Chimes: Announcements.
11.15 a.m.—Women's Session: Social Notes: Replies to Correspondents, by Mrs. Jordan. Talk on "Aids to Beauty" by Mrs. Jordan.

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Challis House :: 4 Martin Place, Sydney.

12.4 noon.—G.P.O. Clock and Chimes; Special Ocean Forecast and Weather Report.
 12.5 p.m.—Musical Programme from the Studio.
 12.5 p.m.—Information; Mails, Shipping, and Post Directory.
 12.11 p.m.—Boats in Call by Wireless.
 12.15 p.m.—Fruit Market Report.
 12.16 p.m.—Vegetable Market Report.
 12.17 p.m.—London Metal Market Report.
 12.19 p.m.—Dairy and Farm Produce Market Report.
 12.22 p.m.—Furage Market Report.
 12.24 p.m.—Fish Market Report.
 12.28 p.m.—Rabbit Market Report.
 12.28 p.m.—Stock Exchange Report.
 12.30 p.m.—I.L.M.V. Gramophone Recital.
 1.07 p.m.—Stock Exchange Report.
 1.06 p.m.—G.P.O. Clock and Chimes; Talk to Children and Special Entertainment for Children in Hospital.
 2.0 p.m.—G.P.O. Clock and Chimes; Close Down.

AFTERNOON SESSION.

Racing Information Broadcast immediately after each Race by courtesy of the S.B.S.
 3.0 p.m.—G.P.O. Clock and Chimes; News from the "Sun."
 3.15 p.m.—Civil Service Stores Trio; Direction, Miss de Courcy.
 3.20 p.m.—G.P.O. Clock and Chimes; News from the "Sun."
 3.40 p.m.—Musical Programme from the Studio.
 3.50 p.m.—News from the "Sun."
 4.0 p.m.—G.P.O. Clock and Chimes; Civil Service Stores Trio.
 4.15 p.m.—Talk on "Women of the Orient of all Ages."
 4.35 p.m.—Musical Programme from the Studio.
 4.50 p.m.—News from the "Sun."
 4.55 p.m.—Resume of Night's Programme.
 4.57 p.m.—Racing Resume.
 4.59 p.m.—Special Ocean Forecast.
 5.00 p.m.—G.P.O. Clock and Chimes; Close Down.

EARLY EVENING SESSION.

5.45 p.m.—G.P.O. Clock and Chimes; Children's Session.
 6.30 p.m.—Musical Programme from the Studio.

SPECIAL COUNTRY SESSION.

7.0 a.m.—G.P.O. Clock and Chimes; Australian Mercantile Land and Finance Co's Report; Weather Report and Forecast by courtesy of Government Meteorologist; Producers' Distributing Society's Fruit and Vegetable Market Report; Stock Exchange Reports; Grain and Poultry Reports ("Sun"); Dairy Produce Report ("Sun"); N.R.M.A. Talk.
 7.15 p.m.—Country News from the "Sun."
 7.25 p.m.—Talk by a Member of the Linenew's League.
 7.40 p.m.—Talk by a Member of the St. John Ambulance Association.
 8.0 p.m.—G.P.O. Clock and Chimes; Broadcasters' Topical Chorus.
 8.3 p.m.—Broadcasters' Light Orchestra, under the Direction of Mr. J. Knight Barnett.
 9.11 p.m.—Mr. Alfred Wilmore (Tenor).
 9.18 p.m.—Mr. J. M. Post (Voice Solos).
 9.25 p.m.—The Welsh Male Voice Choir (Part Seven).
 9.32 p.m.—Mr. Haagen Holtenbergh (Piano Solos).
 9.42 p.m.—Miss Leonora Gelash (Soprano), in German Lieder.
 9.49 p.m.—Broadcasters' Light Orchestra.
 9.59 p.m.—Weather Report and Forecast by courtesy of Mr. C. J. Marz, Government Meteorologist.
 10.0 p.m.—G.P.O. Clock and Chimes.
 10.1 p.m.—Mr. Bruce Carter (Cello Solos).
 9.5 p.m.—Mr. Alfred Wilmore.
 9.15 p.m.—Mr. J. M. Post.
 9.25 p.m.—The Welsh Male Voice Choir.
 9.32 p.m.—Broadcasters' Light Orchestra.
 9.42 p.m.—Miss Leonora Gelash.
 9.46 p.m.—Mr. Haagen Holtenbergh.

9.58 p.m.—Resume of Following Day's Programme.
 10.0 p.m.—G.P.O. Clock and Chimes.
 10.1 p.m.—Mr. Bruce Carter.
 10.4 p.m.—Broadcasters' Light Orchestra.
 10.15 p.m.—Dance Music by Cyril Kaye and The Wentworth Cafe Orchestra, transmitting from the Ballroom of the Wentworth.
 During Intervals between Dances, "Sun" News will be broadcast.
 12.0 midnight.—G.P.O. Clock and Chimes; National Anthem.

2 UW, SYDNEY

Tuesday.

MORNING SESSION.

9.45 a.m.—News, shopping, mails, studio items.
 9.55 a.m.—Women's Session.
 9.55 a.m.—Resume of forward programme.
 10 a.m.—Close down.
 12.15 p.m.—Special Employers' Luncheon Session.
 12.45 p.m.—Close down.

AFTERNOON SESSION.

2.0 p.m.—Studio selections.
 2.50 p.m.—Resume of forward programme.
 3 a.m.—Close down.

EVENING SESSION.

8 p.m.—Studio Items.
 8.50 p.m.—Resume of forward programme.
 9 p.m.—Close down.

NIGHT SESSION.

7 a.m.—Studio Chimes.
 7.2 p.m.—Where to Go.
 7.30 p.m.—Studio Selections.
 7.15 p.m.—Professor C. Sauer, pianoforte solo; Selected.
 7.20 p.m.—Dorothy Slacy, mezzo-soprano; "Little Brown Cottage" (Dulcan).
 7.24 p.m.—May Croft, soprano; Selected.
 7.28 p.m.—Nellie Scouler, violin solo; Selected.
 7.34 p.m.—Miss Florrie Jones, contralto; Selected.
 7.38 p.m.—James Jackson, baritone; Selected.
 7.42 p.m.—Mr. Mudge, Whistler; Selected.
 7.46 p.m.—Miss Eva Jones, soprano; Selected.
 7.50 p.m.—Nellie Scouler, violin solo; Selected.
 7.54 p.m.—Dorothy Slacy, mezzo-soprano; "In an Old Fashioned Town" (Squire).
 7.58 p.m.—News Items.
 8 p.m.—Studio items.
 8.2 p.m.—Professor C. Sauer, pianoforte solo; Selected.
 8.4 p.m.—Vocal duet, Miss Flo Jones, contralto, Miss Eva Jones, soprano; Selected.
 8.6 p.m.—Miss May Croft, soprano; Selected.
 8.14 p.m.—Mr. Mudge, Whistler; Selected.
 8.18 p.m.—James Jackson, baritone; Selected.
 8.23 p.m.—Eva Jones, soprano; Selected.
 8.27 p.m.—Nellie Scouler, violin solo; Selected.
 8.31 p.m.—Miss Flo Jones, contralto; Selected.
 8.35 p.m.—Miss Dorothy Slacy, mezzo-soprano; "Roses of Hilarity" (Wood).
 8.40 p.m.—Vocal duet, Miss Flo Jones, contralto; Miss Eva Jones, soprano; Selected.
 8.45 p.m.—Gemma of the Opera, No. 16, by G. P. Mannel; "Marion Lesant" (Puccini).
 9 a.m.—Studio chimes.
 9.2 p.m.—Gems of the Opera (Continued).
 9.15 p.m.—Weather forecast and news bulletin.
 9.24 p.m.—Studio selection.
 9.28 p.m.—Resume of forward programme.
 9.38 p.m.—God Save the King.

3LO, MELBOURNE

Tuesday.

MIDDAY SESSION.

12 noon.—Melbourne Observatory time signal.
 12.01 p.m.—Metal prices received by the Australasian Metals and Metals Association from the London Stock Exchange this day.
 British Official wireless news from Rugby, Rector's and The Australian Press Association Cables. "Argus" news service.
 12.10 p.m.—Studio, Quartets.
 "Woodland Sketches," Part I. (McDowell).
 12.30 p.m.—EILEEN CASTLES, soprano; "Mary Magdalen" (Edith Harrity); "The Young Rose" (Edith Harrity).
 12.31 p.m.—Stock Exchange information.
 12.40 p.m.—STATION TRIO!
 "Traumer" (McDowell).
 12.50 p.m.—ALBERT CARLISLE, tenor (by permission J. E. Williamson, L.A.); "Dolcezza" (Phillips).
 "Mother in Ireland" (Griffin).
 12.57 p.m.—AGNES POMTUN, pianist; "Nautique" (McDowell).
 1 p.m.—Melbourne Observatory time signal. 'Tis one of the clock. Time's glory is to calm contending kings; to unmask Falshood and bring Truth to light. What are YOU doing to help make this old world a happy place for all?
 1.1 p.m.—Meteorological information. Weather forecast and rainfall for Victoria, Tasmania, South Australia, and New South Wales. Ocean forecasts. River reports.
 1.8 p.m.—STUDIO QUARTETTE.
 "Woodland Sketches," Part II. (McDowell).
 1.18 p.m.—EILEEN CASTLES, soprano; "Neremady's Blue Hills" (Troeter).
 "Robin Adair" (Scott).
 1.35 p.m.—REGINAL BRADLEY, violin; "To a Wild Rose" (McDowell).
 1.29 p.m.—ALBERT CARLISLE, tenor; "Quinta Quella" (Rigoletto).
 "Kashish" (Drummond).
 1.36 p.m.—TAMARA BIRMAN, cello; "Franziskus Lied" (Moffat).
 1.41 p.m.—STUDIO QUARTETTE.
 Largo from Sonata Tragic (McDowell).
 1.50 p.m.—MR. G. H. GIBBS, NUTTALL; "Happiness at a Price."
 2.5 p.m.—Close down.

AFTERNOON SESSION.

3 p.m.—Melbourne Observatory Time signal.
 3.1 p.m.—Special transmission for the benefit of the Children's Convalescent Home, Beach Road, Hamptons, in aid of the S.B.S.
 SONGS, SURPRISES AND SUNBEAMS FOR THE SICK ONCE.
 JOE ARONSON and HIS SYNCOPATING SYMPHONISTS.
 "The Old Man Works John" (March).
 "When the Whole World's Laughing at Me" (Gardner).
 3.9 p.m.—BETTY BEVAN, Soprano; "I Don't Want to Play in Your Yard" (Feire).
 "Hi Telephone to Santa Claus" (Elliot).
 "Mr. Dour" (Billet).
 3.15 p.m.—MRS. LACHLAN MACKINNON will speak to the children.
 3.21 p.m.—JOE ARONSON and HIS SYNCOPATING SYMPHONISTS.
 "Come a Doonle, I'm O' Mr. Noodie."
 "My Baby's Back" (Brown).
 "Thanks for the Burgery Ride."
 3.28 p.m.—CAPTAIN DONALD McLEAN has a Special Story for the Children; "The Tale of the Sheep."
 3.43 p.m.—BETTY BEVAN, Soprano; "There are Fairies at the Bottom of Our Garden" (Lehmann).
 "Hush, Her Comes the Dream Man" (Wak-kno).
 "I Wish I Were a Possum."
 3.50 p.m.—MISS GUTHRIE has a little message for the children.
 3.55 p.m.—JOE ARONSON and HIS SYNCOPATING SYMPHONISTS.
 "The Doll Dance," Piano Solo (Brown).
 "The Annual Fair" (La Fayette).
 "A Kind of Children's Serenade."
 4 p.m.—"AU FAIT!"
 "Frocks, Frills and Frizzles."

- 6.15 p.m.—BELLE POLLARD AND WALTER WEYTE, Operatic Entertainers, Soprano and Tenor.
Soprano, "The Gracioso Wish" (Dei Regio).
Tenor, "I Know of Two Bright Eyes" (Christman).
- 6.20 p.m.—"A Wonderful Time" (Slater).
- 6.25 p.m.—JOE ARONSON AND HIS SYMPHONIZING SYMPHONISTS:
"The Toy Town Parade" (Marsella).
"Just Once Again" (Ash).
- 6.31 p.m.—ERVY TROTSMAN, Entertainer.
Solo, "James Low, revised E. Trotman."
- 6.35 p.m.—JOE ARONSON AND HIS SYMPHONIZING SYMPHONISTS:
"Rolling Down the Rio" (Brings).
"When Lights are Low in Cairo" (Merkl).
Selected.
- 6.45 p.m.—"Herald" news service.
Final Exchange information.
8 p.m.—Class down.

EVENING SESSION.

- 8.30 p.m.—Congratulations to all on to-day's Birthday Honours List by "Mary Goudal."
- 9 p.m.—STUDIO QUARTETTE—
"La Boutique Fantastique" or
"The Eccentric Toy Shop" (Hessini-Brosch).
9.15 p.m.—FRAMMIE BY THE LUPULS OF MISS FREDA NORTHCOCK.
Songs by GLADYS POPPINS, GLORIA SMITH, ALFRED BROOKS.
Recitation: EILEEN O'LEARY.
Song: RUBY DEANS.
Duet: AMY SCHWEPPEL and FREDA NORTHCOCK.
FINAL CHORUS.
- 9.27 p.m.—Presentation of Wireless Set to St. Agnes' Girls' Home, Geelong (Cannon Lambell) by St. Stephen's League, Transmission from Studio.
- 9.41 p.m.—Official Report of Newmarket Stock Sale, by the Associated Stock and Station Agents, Bourke-street, Melbourne. Number of Sheep and Cattle drawn for week's sales.
- 9.52 p.m.—Stock Exchange information.
- 9.58 p.m.—"Herald" news service. Weather synopsis. Shipping movements.
- 9.59 p.m.—Fish Market reports by J. A. Borrett, L&L—Rabbit prices.
- 9.59 p.m.—River reports.
- 9.59 p.m.—SENATOR GUTHRIE will give a resume of the Geelong Wool Sales from his office in Geelong.
- 9.59 p.m.—Market reports by the Victorian Producers' Co-operative Co., Ltd.—Poultry, Grain, Hay, Straw, Jute, Dairy Produce, Potatoes and Onions. Market reports of Fruit by the Victorian Producers' Association—Retail prices. Wholesale prices of Fruit by the Wholesale Fruit Merchants' Association. Citrus Fruits. Ballarat Sheep Market reports.

NIGHT SESSION.

- 9.55 p.m.—MR. C. J. MILLER, the Croquet Champion of Victoria will speak on: "Tent match between England and Australia."
- 9.56 p.m.—Under the auspices of the University of Melbourne Extension Board, Mr. W. M. HALL, B.A., Lecturer of Psychology to the University Extension Board, will speak on "The Psychology of Anger."
- 9.58 p.m.—MR. E. M. PASCOE will speak on "Ye Ancient Game of Bowls."
- 9.59 p.m.—MR. HERBERT SMITH:
"Why we should support the Sutherland Homes Appeal."
- 9.59 p.m.—Songs by the Third Prize winners in each grade of the Children's Radio Song Competition.
- CYMRU AM BYDD.
- 9.59 p.m.—THE GWALIA MALE CHOIR:
"The Generators" (Proffers).
"Mifawny" (Dr. Barry).
- 9.59 p.m.—DOYDCHA MAMFRANK, Piano.
Act of Finale (Caesar Franck).
Croco Dance (Chazninde).
Witches Dance (MacDowell).
Wagner Dance (Cyril Scott).
- 9.59 p.m.—SCOTS CHURCH CHOIR, transmitted from Scots Church, Collins-street, Melbourne. Organist and Director: Mr. Maxey Green.



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CHRISTMAS MUSIC.

- Harred (Cantata - "Christmas Eve" (Gade).
- Soloist: Madeline Greer Wood.
- Cantata:
 - (a) "The Manger Theme" (Dr. Stenall).
 - (b) "God Rest You, Merry Gentlemen" (Traditional).
 - (c) Christmas Balls (Sir Frederick Bridge)

Organ Solo. Offerings on Two Christmas Themes (Gould).

MIL MANDLEY GREENE.

- Cantata:
 - (a) Child Divine (Sir Frederick Bridge)
 - (b) Seven Holy Days (Gade)
 - (c) Good King Wenceslas (Traditional)

FROM THE STUDIO.

- 7.30 p.m.—SOUTH MELBOURNE BAND:
 - March "Viscount Devoise" (Zak).
- 8.0 p.m.—SWALLA MALE CHORUS:
 - "Song of the Northmen" (Mancini).
 - "Khanaka" (Old Welsh)
- 8.15 p.m.—MAGGIE FOSTER, soloist:
 - "Sweet Moments" (Friedman).
 - "Gardias" (Monti)
- 8.34 p.m.—EILEEN CASTLES, soprano:
 - "Serenade" (Tchaikovsky).
 - "Grandma's Prayer" (Homer).
- 8.41 p.m.—Announcements. British Gaiety Wireless news from Perth.

THE ROYAL AUTOMOBILE CLUB OF VICTORIA'S SAFETY MESSAGE OF THE DAY IS FOR MOTORISTS:

"Four wheel brakes are useless without foresighted drivers. Stop and think but don't stop them stopping."

- 10.7 p.m.—SOUTH MELBOURNE BAND:
 - Intermezzo, "White Lilies" (Homer)
- 10.15 p.m.—ERN TROTTMAN, Entertainer:
 - "Fate of a Foolish Tune" (Original)
 - "The Walker" (Le Brown)
- 10.34 p.m.—MAGGIE FOSTER, soloist:
 - "An Old English Air" (Monti)
 - "Broken Melody" (Van Brien)
- 10.51 p.m.—"Arcia" news service. Meteorological information, sporting notes, by "Orpheus" island steamer movements.
- 10.58 p.m.—SOUTH MELBOURNE BAND:
 - Selections, "Recollections of the Masters" (Hilmar)
- 10.47 p.m.—EILEEN CASTLES, soprano:
 - "Solitaire's Song" (Grise)
 - "Will o' the Wisp"
- 10.54 p.m.—SOUTH MELBOURNE BAND:
 - Grouch Selection, "Rainbow Town" (Smith)
- 11 p.m.—OUR GREAT THOUGHT:
 - "The essence of all things is kindness, its exercise requiring the least possible trouble and self-sacrifice. With hearts, said Burke to Queen Elizabeth, and you have all men's hearts and souls."—Stallie.
- 11.1 p.m.—JOE ARONOFF AND HIS SYN-COPATING SYMPHONISTS:
 - 11.49 p.m.—GOD SAVE THE KING.

4QG, BRISBANE.

Tuesday. MIDDAY SESSION.

- 3 p.m.—Market reports, weather information, "The Daily Mail" and "The Daily Standard" news.
- 3.30 p.m.—Lunch music.
- 3.54 p.m.—Standard time signal.
- 4 p.m.—Close down.

AFTERNOON SESSION.

- 4.30 p.m.—Afternoon tea music.
- 4.45 p.m.—"The Telegraph" news.
- 6.30 p.m.—Close down.

EARLY EVENING SESSION.

- 6 p.m.—"Daily Standard" news; announcements.
- 6.10 p.m.—Lecturette, "Annals of Some Great Star Clusters" — by Mr. A. R. Chapman.
- 7 p.m.—Special news service, market reports, stock reports.
- 7.30 p.m.—Weather news; announcements.
- 7.45 p.m.—Standard time signal.
- 7.54 p.m.—A talk on "Photography" by Mr. F. L. South (Manager Kodak Ltd.).

NIGHT SESSION.

HIXO CONCERT.

Tenth's programme will comprise a concert organized and arranged by Aunt Hixie & Co., Ltd., and will be relayed from the company's premises, George Street, Brisbane, 8.30 p.m.—JOHN HIXE & CO., LTD., (readings from the Mahoning Intercon. Overlays).

- "Mystery in the Underland" (offenback).
- "The Hixie Instrumentalists."
- Baritone solo: "Foggy" (Lover).
- Mr. Reg. Best.
- Contralto solo: "The Gentle Lark" (Rabon).
- With Soloists by Mr. & F. Kelly.
- Miss Nancy McArthur.
- Quartette:
 - (a) "Serenade" (Wesington).
 - (b) "New Picture" (Wesington).
- Flute solo: "Fountain" (Robert).
- Mr. B. F. Kelly.
- Contralto solo: "Mimosa" (Hanssens).
- Miss Claret Cox.
- Soprano solo:
 - "Banks of Allan Water" (Old English)
 - Miss L. Shephard.
- Cornet solo:
 - "Star of Bethlehem" (Adams)—accompanied by the Hixie Instrumentalists.
 - Mr. Jack French.
- Tenor solo:
 - "Mansha" (MacMurray).
 - Mr. John Steele.
- Flapionette items:
 - (a) "The Plain Dog" (Harvard).
 - (b) "Frolics" (Chappel).
- Mr. Philip O'Leary-singer.

Vocal solo: "Good Luck and Bad" (Gigue).

Miss Nancy Smith and Mr. Reg. Best.

Soprano solo: "Dance of the" (Mandelst).

Miss Nancy King.

Soloist: "The Mornal Dance" (Alden).

The Hixie Instrumentalists.

Contralto solo: "Spring" (Rosen).

Miss Nancy Smith.

Duet: "Snowdrops" (Hanssens).

Miss Nancy King and Mr. John Steele.

Soprano solo: "Pretty Mocking Bird" (Hilmar).

Miss Nancy King.

Selection: Popular Numbers.

The Hixie Instrumentalists.

Christmas Hymn: Aloste, Fiddle.

10 p.m.—"The Daily Mail" news; weather news. Close down.

6WF, PERTH.

Tuesday.

- 12.30 p.m.—Time in.
- 12.40 p.m.—Market news and cables.
- 1 p.m.—Time signal from Perth Observatory.
- 1.1 p.m.—Weather notes supplied to the Meteorological Bureau of Western Australia.
- 1.2 p.m.—Quintette Orchestra.
- 1.30 p.m.—Close down.
- 2.30 p.m.—Time in.
- 3.30 p.m.—Lunch music relayed from the Great Western.
- Vocal numbers from the studio.
- 4.40 p.m.—Close down.

4.45 p.m.—Time in. The ordinary transmission to broadcast on 104.5 waves, as well as the usual wavelength.

6.30 p.m.—Stories for the kiddies by the Uncle and Auntie.

7.20 p.m.—Stock, market, and news.

7.45 p.m.—Talk: "Books of the Month" by Mr. Beilgrave.

8 p.m.—Time signal from Perth Observatory.

8.1 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.

RELAY.

8.3 p.m.—"Mascha" relayed from Queen's Hall.

Close of 170 male and female voters.

10 p.m.—Lates news by courtesy of "The Daily News" Newspaper Co.

Slips within range. Weather report and forecast.

10.40 p.m.—Close down.

10.5 Minutes Transmission. Simultaneous broadcast on 104.5 metres of programme given on 120 metre, commencing at 4.45 p.m.

7ZL, HOBART

Tuesday.

MORNING SESSION.

11 a.m. to 12 noon.

AFTERNOON SESSION.

- 3 p.m.—G.P.O. Clock Chimes the Hour.
- 3.1 p.m.—Fare in selection.
- 3.5 p.m.—Hobart Stock Exchange Quotations. Weather information.
- 4.15 p.m.—Selections by 7ZL Studio Trio:
 - March, "Majestic" (Alden).
 - Overture, "Guide Tullini" (Zerol).
 - "Serenade" (Schubert).
 - Suite, "The Merchant of Venice" (Rosen).
 - "The Rosary".
- 4.45 p.m.—Cooking Talk by "Reggie".
- 4.50 p.m.—Close down.

EARLY EVENING SESSION.

6.50 p.m.—"Uncle Hector" talks to the children.

NIGHT SESSION.

- 7.30 p.m.—Musical selection.
- 7.55 p.m.—Library Loans and Library Lists by Mr. W. E. Fuller.
- 7.50 p.m.—"Mercury" special Tasmanian news service.
- Railway Auction Produce Sales.
- Weather forecasts.
- Hobart Stock Exchange Quotations.
- 8 p.m.—G.P.O. Clock Chimes the Hour.
- 8.1 p.m.—Broadcast by direct wire from Imperial Hotel, Hobart:
 - Dance numbers by Mrs. Sheppard's Dance Trio, interspersed with items from the Studio by the following:
 - Miss Alice Briggs (soprano).
 - Miss Edith Terry (contralto).
 - Mr. Joseph Hight (new soloist)
- 9 p.m.—Radio Question Corner, by "Annule".
- 9.40 p.m.—British Official Wireless News.
- 9.40 p.m.—"Mercury" special interstate news service.
- Ships within wireless range.
- 9.50 p.m.—Weather forecast.
- Station announcements: Tomorrow's programme.
- National Anthem.

Wednes., Dec. 14

2FC, SYDNEY

EARLY MORNING SESSION.

7.0 a.m. to 8.0 a.m.

MORNING SESSION.

7.00 a.m.—"Big Ben" and Announcements.
7.15 a.m.—Studio Music.
7.25 a.m.—"Sydney Morning Herald" News Service.
7.50 a.m.—Studio Music.
8.00 a.m.—A Reading.
8.10 a.m.—Studio Music.
8.20 a.m.—"Big Ben"; Marching Music for School Children.
8.35 a.m.—A.P.A. and Beuter's Cable Service.
8.45 a.m.—Studio Music.
8.55 a.m.—A Talk on Home Cooking and Recipes by Miss Ruth Ford.
9.30 a.m.—Class Down.

MIDDAY SESSION.

12 noon—"Big Ben" and Announcements.
12.2 p.m.—Stock Exchange, first call.
12.4 p.m.—Official Weather Forecast; Rainfall.
12.5 p.m.—Studio Music.
1.0 p.m.—Summary of "Sydney Morning Herald" News Service; Rugby Wireless News.
1.15 p.m.—Studio Music.
1.25 p.m.—Marching Music for School Children.
1.40 p.m.—Kathleen Stobley, Mezzo.
1.45 p.m.—Studio Music.
1.50 p.m.—The Oak Hall Instrumental Trio; From Farmer's Tea Rooms (Lester, Mr. Horne Kent).
1.55 p.m.—Studio Music.
2.0 p.m.—"Big Ben"; Weather Intelligence.
2.15 p.m.—"Radio News"; Midday Services; Producers Distributing Company's Report.
2.30 p.m.—From Farmer's Tea Rooms; The Oak Hall Instrumental Trio.
2.40 p.m.—Stock Exchange, second call.
2.50 p.m.—Marching Music for School Children.
3.0 p.m.—Kathleen Stobley, Mezzo.
3.15 p.m.—Studio Music.
3.20 p.m.—FROM FARMER'S TEA ROOMS; The Oak Hall Instrumental Trio.
3.30 p.m.—"Big Ben"; Class Down.

AFTERNOON SESSION.

3.45 p.m.—"Big Ben" and Announcements.
3.55 p.m.—William Bowyer, Bass:
"Cordelia Song" (Edmonds).
4.10 p.m.—Florence Grant, Soprano.
4.15 p.m.—Lewin Berrill, Baritone:
"O'Neill" (Henderson).
4.25 p.m.—A Reading.
4.35 p.m.—Joie Freeman, Contralto
"Idis Wards" (Adams).
4.45 p.m.—Marching Music for School Children.
4.55 p.m.—Nina Halbert, Soloist.
5.0 p.m.—FROM FARMER'S TEA ROOMS; The Oak Hall Instrumental Trio; (Lester, Mr. Horne Kent).
5.15 p.m.—From the Studio; William Bowyer, Bass:
"Kyria" (Speaks).
5.25 p.m.—"Big Ben"; Clyde Thorpe, Violinist:
"Moby on the Stave" (Irish Reel) (Grainner-Krieger).
5.35 p.m.—FROM FARMER'S TEA ROOMS; The Oak Hall Instrumental Trio.
5.45 p.m.—From the Studio; Florence Grant, Soprano.
5.55 p.m.—Clyde Thorpe, Violinist:
"Dance Espagnole" (Grainner-Krieger).
6.05 p.m.—From the Tea Rooms; The Oak Hall Instrumental Trio.
6.15 p.m.—From the Studio; Lewin Berrill, Baritone:
"The Garden of Your Heart" (Dorel).
6.25 p.m.—Joie Freeman, Contralto:
"Oh, Western Wind" (Brabe).
6.45 p.m.—Stock Exchange, third call.

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4.47 p.m.—Clyde Thomas, Violinist.
 (a) "Sousouille" (G. Manno) (Arenberg).
 (b) "Fasciolo" (Bellini-Eloisa).
 4.44 p.m.—Solo Harpist, Sankelma.
 5.0 p.m.—"Big Ben", Close Down.

EARLY EVENING SESSION.

8.40 p.m.—The Chimes of 2 P.C.
 8.45 p.m.—The "Hello Man" Talks to the Children.
 8.45 p.m.—Uncle Sam and Jerry.
 8.50 p.m.—Story "Tula for the Young Folk."
 9.00 p.m.—Studio Music.
 9.05 p.m.—"Big Ben", Late Sporting News.
 9.10 p.m.—Dunstan's Market Reports (Wood, Wheat and Stock).
 9.15 p.m.—Fruit and Vegetable Markets.
 9.20 p.m.—Weather and Shipping News.
 9.25 p.m.—"Evening News" Late News Service.

NIGHT SESSION.

7.45 p.m.—Programme Announcements.
 7.49 p.m.—Scott Alexander, Radio Play.
 8.0 p.m.—"Big Ben", From the Spillay Town Hall: Drama from the Annual Concert of the Metropolitan Business College. The following artists will appear—
 Virginia Bassett, Contralto;
 (a) "Romance," Voice di donna (A. Ponchielli).
 (b) "A Sheep for a Hog" (Luzava Ronald).
 Robert Harper, Tenor;
 (a) "The Old Day" (Lorenzovalli).
 (b) "God's Garden" (Lambert).
 (c) "My Queen" (Blumenhail).
 Alfred Cunningham, Baritone;
 (a) "Dorinda's Song" ("Caruso") (Bliss).
 (b) "The Merry Monk" (Brown).
 (c) "The Yeoman's Wedding" (Fornalense).
 (d) "Long Live the King" (Adama).
 Jamesworth Hall, vocal solos;
 (a) "Tombourin Chorus" (Kreider).
 (b) "Ave Maria" (Schubert-Wibeling).
 Emerton Gibb, electrician.
 (a) Cantata takes "The New Food" (Stephen Leacock).
 "The Motor Car Bug" (Aron).
 (b) Character roles of "The Bachelor" (Rutherford).
 Late weather forecast at approx. 9 p.m.
 Note—During the evening the following Studio items will be given:
 Scott Alexander will present a merry little farce by Colington Hall, entitled, "He Never Meant to Marry—But" The scene is laid in a countryside inn during a fierce storm.

Oliver King, bassist

(a) "The Vainest Song" (Gouard).
 (b) "Victoria, Victoria" (Carlistari).
 (c) "Hittin' Thinkin'" (Flaher).
 (d) "Ho, Jolly Junkin' from "Javobos" (Sullivan).
 (e) "O, for a breath of the Moccandis" (Woolf).
 (f) "The Road to the Isles" (Vrazer).

Edward Chappell, pianoforte solos:

(a) "Horage" (Bandel-Gratner).
 (b) "Country Goodness" (Gratner).
 (c) "Nocturne" (Faderwaki).

B. A. Bartleman, baritone:

(a) "The Skewball Black" (Lehmann).
 (b) "The Old Toby Jug" (Arundale).
 (c) "The Bells of Bides" (Dunsmund).
 (d) "The Standard on the Brass of Mar" (Lind).

10.15 p.m.—Cec Morrison and his "Gloom-chasers."
 10.20 p.m.—Late weather forecast.
 10.21 p.m.—Leo Maurice, popular numbers.
 10.24 p.m.—Cec Morrison and his "Gloom-chasers."
 10.59 p.m.—Len Maurice, baritone.
 10.57 p.m.—Late news and announcements.
 11.0 p.m.—"Big Ben", Cec Morrison and his "Gloom-chasers."
 11.10 p.m.—Leo Maurice, popular berrios.
 11.17 p.m.—Cec Morrison, and his "Gloom-chasers."
 11.20 p.m.—National Anthem.
 Close down.

2BL, SYDNEY.

Wednesday.

EARLY MORNING SESSION.

7 a.m. to 8 a.m.

MORNING SESSION.

11 a.m.—G.P.O. Clock and chimes.
 Musical programme from Studio.
 11.15 a.m.—Women's Session. Talk on "Swimming" by Miss Gwen Varley, Broadcaster. Woman's Sports Authority Social Notes—Written to correspondents by Mrs. Jordan. Talk on "Dental Hygiene" by a member of Dental Board.

AFTERNOON SESSION.

Racing information broadcast immediately after each race by courtesy of the "Sun" Newspaper.
 12 noon—G.P.O. Clock and chimes.
 Special Ocean forecast and weather report.
 12.15 p.m.—Musical programme from the studio.
 12.2 p.m.—Information, Mail, Shipping and port directors.
 12.25 p.m.—Boats in call by wireless.
 12.25 p.m.—Fruit market report.
 12.30 p.m.—Vegetable Market report.
 12.37 p.m.—London Metal Market report.
 12.45 p.m.—Dairy and Farm Produce Market report.
 12.52 p.m.—Furage Market report.
 12.54 p.m.—Fish Market report.
 12.55 p.m.—Rabbit Market report.
 12.55 p.m.—Stock Exchange report.
 12.56 p.m.—H.M.V. Gramophone recital.
 1.07 p.m.—Stock Exchange report.
 1.08 p.m.—G.P.O. Clock and chimes. Talk to children and special entertainment for Children in Hospital.
 2 p.m.—G.P.O. Clock and chimes. Racing Resumé.
 2.15 p.m.—Musical programme from the studio.
 2.20 p.m.—News from the "Sun."
 2.30 p.m.—Musical programme from studio.
 2.40 p.m.—Talk on "Celtic Mythology."
 3 p.m.—G.P.O. Clock and chimes. Racing Resumé.
 3.15 p.m.—News from the "Sun."
 3.20 p.m.—Pianoforte recital from the studio.
 3.30 p.m.—News from "Sun."
 3.30 p.m.—Musical programme from the studio.
 3.40 p.m.—Dungowan Dance Band. Broadcast from the Dungowan cabaret.
 4 p.m.—G.P.O. Clock and chimes. Racing Resumé.
 4.15 p.m.—Musical programme from the studio.
 4.25 p.m.—Talk on "Women of the Orient of All Ages."
 4.30 p.m.—Dungowan Dance Band.
 4.35 p.m.—News from the "Sun."
 4.40 p.m.—Resumé of night's programme.
 4.45 p.m.—Special Ocean forecast.
 5 p.m.—G.P.O. Clock and chimes. Close down.

EARLY EVENING SESSION.

8.45 p.m.—G.P.O. Clock and Chimes.
 Children's Session.
 8.50 p.m.—Musical programme from the studio

SPECIAL COUNTRY SESSION.

7 p.m.—G.P.O. Clock and chimes.
 Australian Mercantile Land and Finance Club's report.
 Weather report and forecast by courtesy of Govt. Meteorologist.
 Producers Distributing Society's Fruit and Vegetable Market report.
 Stock Exchange reports.
 Grain and Fodder report ("Sun").
 Dairy Produce report ("Sun").
 N.B.M. Talk.
 7.15 p.m.—Country news from the "Sun."
 7.30 p.m.—Talk on "Tennis" by Dr. McElhonna.
 8 p.m.—G.P.O. Clock and chimes.
 Broadcasters' Topical Clans.
 8.3 p.m.—The Abad Duo, steel guitars.

8.10 p.m.—From Baker's Hall, Campaign: The Canterbury District Band, (bandmaster) Mr. Stan Nicholls.

8.30 p.m.—Madame Goussens Victor, soprano, in selection from her repertoire.
 8.40 p.m.—Mr. Stanley R. Cattet, tenor.
 8.47 p.m.—Madame Goussens Victor.
 8.57 p.m.—Broadcasters all Sports experts will talk on boxing, golf and general sporting.
 9.12 p.m.—Weather report and forecast by courtesy of Mr. C. J. Marrs, Govt. Meteorologist.
 9.15 p.m.—Archie Graham and Wattle, comedians, in song and humor.
 9.25 p.m.—The Canterbury District Band.
 9.40 p.m.—A humorous sketch by Miss May Nancarrow.
 9.50 p.m.—The Abad Duo.
 10.3 p.m.—Resumé of following day's programme.
 10.7 p.m.—Mr. Stanley R. Cattet.
 10.14 p.m.—Dance music by Cyril Eske and from the Ballroom of the Westwood. During intervals between dances "Sun" news will be broadcast.
 11.30 p.m.—G.P.O. Clock and chimes.
 National Anthem.

2GB, SYDNEY

Wednesday.

MORNING SESSION.

9 a.m.—Music.
 9.5 a.m.—Good Cheer Talk.
 9.15 a.m.—Music.
 9.25 a.m.—Psychological Class.
 9.40 a.m.—Music.
 10 a.m.—Close down.

AFTERNOON SESSION.

3.10 p.m.—Music.
 3.37 p.m.—Address.
 3.52 p.m.—Music.
 4 p.m.—Address.
 4.15 p.m.—Music.
 4.40 p.m.—Close down.

EVENING SESSION.

7 p.m.—Address.
 7.15 p.m.—Beneficial Service.
 7.40 p.m.—Address.
 7.55 p.m.—Songs by Eva Craft.
 1. "When Children play" (Walford Davison).
 2. "Where art thou?" (Handel).
 5.5 p.m.—Address by Dr. F. K. Best.
 8.20 p.m.—Instrumental Trio, Dan Scully, Marielle Lang, Ada Brook.
 8.30 p.m.—Musical Hoaxing. Vocal Quartette.
 "A Pageant of Summer" by Max Brahe.
 Elsie Brown, Eva Craft, Frederick Turnbull, Clement Hosking.
 8.50 p.m.—Musical solos, Dan Scully:
 "Romance" (Wieniawski).
 "Minuet in E flat." (Beethoven).
 8.58 p.m.—Songs by Frederick Turnbull:
 1. "Who is Sylvia?" (Shoberg).
 2. "Macabre" (MacFarren).
 9 p.m.—Recital by Mr. Heath Burdock.
 9.15 p.m.—Songs, Elsie Brown:
 "In Springtime"
 Elsie Brown, Eva Craft.
 "In a garden of roses" (Sanderson).
 Elsie Brown, and Clement Hosking.
 9.25 p.m.—Instrumental Trio: Leo Brewer, Marielle Lang, Ada Brook.
 9.31 p.m.—Concert solos, F. Coombes.
 9.43 p.m.—Piano solo, Ada Brook.
 9.50 p.m.—Good Cheer Talk.
 10 p.m.—Close down.

2 UW, SYDNEY

Wednesday.

MORNING SESSION.

9 a.m.—News, shipping, mail, studio News.
 9.45 a.m.—Women's Session.
 9.50 a.m.—Resumé of forward programme.
 10 a.m.—Close down.
 11.15 a.m.—Special Employees Luncheon Session.
 12.45 p.m.—Close down.

AFTERNOON SESSION.

- 2 p.m.—Studio selections.
 2.30 p.m.—Resume of forward programme.
 3 p.m.—Close Down.

EVENING SESSION.

- 3 p.m.—Studio items.
 3.05 p.m.—Resume of forward programme.
 6 p.m.—Close down.

NIGHT SESSION.

- 7 p.m.—Studio chimes.
 7.5 p.m.—Where to Go.
 7.10 p.m.—Miss Ailene O'Connor, soprano:
 (at the piano): "Hastfield Balls" (Martin).
 7.14 p.m.—Studio selections.
 7.24 p.m.—Miss Sylvia Churchill, mezzo-
 soprano: "I'm Hoping You Remember."
 7.28 p.m.—Mrs. A. Pearce, violin solo:
 Selected.
 7.35 p.m.—Studio selection.
 7.42 p.m.—Douglas Rae, tenor:
 "Where My Caravan Has Roamed" (Loher).
 7.47 p.m.—Mrs. A. Dalton, pianoforte solo:
 "Cleveland" (Hamstead).
 7.55 p.m.—Miss Ailene O'Connor, soprano,
 (at the piano):
 "When Skies are Gray."
 "Do You Love Me?"
 8.03 p.m.—News Items.
 8 p.m.—Studio Chimes.
 8.2 p.m.—Mrs. A. Pearce, violin solo:
 Selected.
 8.4 p.m.—Douglas Rae, tenor:
 "I Hear a Thrush at Eve" (Cadman).
 8.8 p.m.—Studio Selection.
 8.15 p.m.—Gordon James McDonald, Jazz in-
 terlude:
 (a) "Wonderful Eyes."
 (b) "Rosie O'Ryan."
 (c) "So Blue."
 (d) "I Wonder How I Look when You
 Asleep."
 (e) "The Birth of the Blues."
 8.50 p.m.—Miss Sylvia Churchill, mezzo-
 soprano: "A Song Remembered."
 8.54 p.m.—Doris Filmarie, alto/violinist:
 "The Faithful Lovers."
 8.57 p.m.—Mrs. A. Pearce, violin solo:
 Selected.
 8.41 p.m.—Douglas Rae, tenor:
 "Friend of Mine" (Saundersman).
 8.45 p.m.—Sylvia Churchill, mezzo-soprano:
 "Trees."
 8.50 p.m.—Mrs. A. Dalton, pianoforte solo:
 "Gjellen" (Schumann).
 8.55 p.m.—Studio selections.
 9 p.m.—Studio chimes.
 9.2 p.m.—Weather forecast and news bulletin.
 9.10 p.m.—Douglas Rae, tenor:
 "Because" (D'Hardel).
 9.14 p.m.—Doris Filmarie, alto/violinist:
 "Not-shell Novels."
 9.17 p.m.—Studio selections.
 9.24 p.m.—Resume of forward programme.
 9.56 p.m.—God Save the King.



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*Radio Department is on
the Lower Ground Floor*

Everybody can come to David Jones' New Wonder Store—it will be open every Friday until 9 p.m., on which nights Mr. F. Basil Cooke, F.R.A.S., will give free Lectures on Radio Problems from 7.30 to 8 p.m. We invite you to attend.

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3LO, MELBOURNE

Wednesday.

MIDDAY SESSION.

- 12 noon—Melbourne Observatory Time Signal.
 12.1 p.m.—Metal prices received by The Australian Mines and Metals Association from the London Stock Exchange this day.
 British Official Wireless news from Rugby, Reuter's and the Australian Press Association cables. "Argus" news service.
 12.30 p.m.—JOE ARONSON AND HIS SYM-
 COPATING SYMPHONISTS.
 "Sixty Seconds Every Minute I'm in Love With You" (Davis).
 "Oh You South" (Ceser).
 "Lo-De-De-O" (Pain).
 12.50 p.m.—POLLARD AND WHITE:
 Operatic Entertainers:
 Soprano, "A May Morning" (Denys).
 Tenor, "At Dayning" (Cadman).
 Duet, "The Lost Chord" (Rollivan).
 12.56 p.m.—Stock Exchange information.

12.43 p.m.—**JOE ARONSON AND HIS SYMPHONISTS:**
 "Singing Around" (Grove).
 "The Bird of Avalon" (Parish).
 "Oh, How I Love Bulgarians" (Henderson).
 12.52 p.m.—**EILEEN CASTLE, soprano:**
 "Adieu" (Schubert).
 "Land of Sky Blue Water" (Caldman).
 1 p.m.—**Melbourne Observatory Time Signal.** Let the Sunshine in, if you cannot go out to keep the watch, pull the curtains aside—find out the best—a breeze and junk that collects the dust—it really isn't beautiful—have old-fashioned and sunshine around you—and especially for the sake of the children.
 1.1 p.m.—**MAGGIE FOSTER, violin:**
 "Nocturne" (Chopin).
 "An Old Air" (General Serrate).
 1.15 p.m.—**Melbourne** information.
 Weather forecast and rainfall for Victoria, Tasmania, South Australia and New South Wales. **Grove forecaster.** River reports.
 1.35 p.m.—**JOE ARONSON AND HIS SYMPHONISTS:**
 "Bolsheroid" (Jaffe).
 "You Don't Like It, Nor Much" (Miller).
 "Nesting Time" (Dixon).
 1.54 p.m.—**ERIKY LAYLES, soprano:**
 "La Cloche" (Saint Saens).
 "Love's Young Dream" (Irish).
 1.59 p.m.—**Speeches at the Rotary Club Luncheon, terminated.** **Foot Race House.**
 2 p.m.—**Description of Hurdle Race, 2 m.m. KYNTON RACES, by "Market."** of "The Sporting Globe."
 2.5 p.m.—**Close down.**
 2.45 p.m.—**Description of Trial Handicap, KYNTON RACES, by "Market."** of "The Sporting Globe."
 2.50 p.m.—**Close down.**

AFTERNOON SESSION.

3 p.m.—**Melbourne Observatory Time Signal.**
 3.1 p.m.—**SING SONG,** transmitted from the Hampton State School, under direction of Mr. A. B. Laro.
 3.30 p.m.—**Results of First Club Handicap, KYNTON RACES.**
 3.41 p.m.—**STUDIO QUARTETTE:**
 Two pieces from "Nocturne" (Mozart).
 1. Dargie Dunes.
 2. Indian Invocation.
 3.46 p.m.—**Description of 140 Pony Race, KYNTON RACES, by "Market."** of "The Sporting Globe."
 3.50 p.m.—**ERN TROTMAN, Entertainer:**
 "Discharge on Eggs" (Original).
 "As a Friend" (Lyrics).
 3.57 p.m.—**ELIEK POL LARD and WALTER WRYTE, Operatic Entertainers:**
 Soprano, "A Heart That's Free" (Robyn), Tenor, "Early Morn'g" (Allan), Duet, "Rose of My Heart" (Lobby).
 4.7 p.m.—**STUDIO QUARTETTE:**
 Ballet Music (Lassen).
 4.17 p.m.—**ERN TROTMAN, Entertainer:**
 "What Funny Things You See" (H. Scott).
 4.26 p.m.—**Description of Handicap Trot, KYNTON RACES, by "Market."** of "The Sporting Globe."
 4.28 p.m.—**STUDIO QUARTETTE:**
 "Daphne" Air de Ballet (Pocornu).
 4.30 p.m.—**SISTER LOCKHART:**
 "Infant Welfare."
 4.43 p.m.—**Description of Encourage Mile, KYNTON RACES, by "Market."** of "The Sporting Globe."
 4.58 p.m.—**"Herald" news service.**
 Stock Exchange information.
 5.1 p.m.—**Close down.**

EVENING SESSION.

8.30 p.m.—**Answers to Letters and Birthday Greetings by "MARY MARY."**
 8 p.m.—**STUDIO QUARTETTE:**
 "The Donkey and the Driver" (Leonard).
 8.7 p.m.—**RODINS—A Chababok Photography House to listen to this; it will be most interesting.**
 8.22 p.m.—**STUDIO QUARTETTE:**
 "Slumberland" (Cambden).
 8.27 p.m.—**"MARY MARY,"**
 Poems for the Little One.
 "Dickamora and Hackamora."

8.40 p.m.—**Official report of Newmarket Stock Sales by the Associated Stock and Station Agents, Bourke-street, Melbourne.** Number of Stock and Cattle done for week's sales.
 8.43 p.m.—**"Herald" news service.** Weather synopsis. Shipping movements.
 8.52 p.m.—**Stock Exchange information.**
 8.55 p.m.—**Finch Market reports by J. B. Dorsett, Ltd.—Rabbit prices.**
 8.59 p.m.—**Market reports.**
 9 p.m.—**SINATOR GUTHRIE will give a 7 p.m.—**Official report of Wool Sales from his office in Geelong.
FROM THE STUDIO:
 7.10 p.m.—**Market reports by the Victorian Producers' Association Co., Ltd.—Cattle, Grain, Hay, Straw, Jute, Dairy Produce, Potatoes and Oatmeal.** Market reports of Perth by the Victorian Producers' Association.—**Detail of Wholesale Prices of Fruit by the Wholesale Fruit Merchants Association, Citrus Fruits.**

NIGHT SESSION.

7.15 p.m.—**Under the auspices of the DEPARTMENT OF AGRICULTURE, MISS KNIGHT, 12, Princes Street, Geelong, for week out:**
 "Preserving Fruit for Cake Decoration."
 7.30 p.m.—**Under the auspices of the Institution of Engineers, Australia, Melbourne, by Mr. S. KENNEDY, M.L.C., asst. chairman of the Institution: "A Water Supply Controversy."**
 7.4 p.m.—**CAPTAIN C. H. PETERS:**
 "Book, Wine and Observation."
 8 p.m.—**MISS HAMILTON, of Toorak College,** will speak on:
 "Guiding in the Schools."
 8.10 p.m.—**First Half of CONCERT by the MELBOURNE CHORAL UNION, conducted by Miss. Duffo Atkins, Soprano, Miss Gertrude Burton, Contralto, Mr. W. A. Bussan, Baritone, Mr. Donald MacBeath, Violin.** British Musical Society quartette. Programme arranged by Wm. G. JAMES.

TRANSMISSION FROM ASSEMBLY HALL, COLLINS STREET, MELBOURNE, BRITISH MUSICAL SOCIETY QUARTETTE:
 Quartette (Händel).
MELBOURNE CHORAL UNION:
 "Medieval," "The Silver Swan" (Gibbons).
 "Sweet Flowers."
 "A Romance, Baritone."
 Aria, "Good Fellows be Merry" (Hart).
 DONALD MACBEATH and ALEC. LAW, Violin and Organ.
 "Krieger"—Solo for Violin and Organ (Joseph Raut).
 GERTRUDE BURTON, Contralto:
 "Sonnets" (Greek).
 "The Swan" (Gregg).
 "Serenade" (Hans Wolf).

MELBOURNE CHORAL UNION:
 "Fantasia on Christmas Carols" (Vanclua Williams).
 For Harp Solo, Chorus and Organ.
 Soloist, W. A. Bussan.
FROM THE STUDIO.
 8.15 p.m.—**ELLEN HENNING'S METHODIST MALE CHOR.** (Conductor, Ed. S. Crow).
 "Masters of the Arms" (Holla).
 "Holy Night" (Boethoven).
 8.21 p.m.—**LEN GIBSON'S NEAPOLITAN SEXTETTE:**
 "Humoresque" (Ovaska).
 "Hawaiian Love."
 8.26 p.m.—**ELLA KINGSTON, Soprano:**
 "The Making of Spring" (de Rego).
 "Lach Leven" (Kennedy Russell).
 8.34 p.m.—**MAGGIE FOSTER (Violin),**
 "Fest" (Donaudy).
 "When Other Lovers"

8.43 p.m.—**ERN TROTMAN, Entertainer:**
 "Sobotta" (H. Jordan).
 8.50 p.m.—**WILFRID WICK METHODIST MALE CHOR.**
 "Dawn, Ye Gey, Ma Honey" (Noel).
 "The Sword of Igraine" (Bullard).
 8.57 p.m.—**"Argus" News Service:** Melbourne. Information. British Official Wireless News Announcements: THE ROYAL AUTOMOBILE CLUB OF VICTORIA'S SAFETY MESSAGE for to-day is for: PEDESTRIANS: A dangerous person is one who acts with no thought of consequence to others.

10.4 p.m.—**LEN GIBSON'S NEAPOLITAN SEXTETTE:**
 Len Gibson, Mandolin Solo, "Intermezzo."
 Ella "Cavalleria Rusticana" (Mascagni).
 Orchestral—"L'Amore Perdona" (Pizzoli).
 10.11 p.m.—**ELLA KINGSTON, Soprano:**
 "Beloved, All I Have" (A. Woodford).
 "The Marlow" (Molly Carme).
 10.18 p.m.—**MAGGIE FOSTER, Violin:**
 "Romance d'Autonne" (Adele Gerard).
 "Happy Moments."
 10.23 p.m.—**LEN GIBSON'S NEAPOLITAN SEXTETTE:**
 "Honiolu Moon" (Lawrence).
 "Symphony" (Friml).
 10.32 p.m.—**ERN TROTMAN, Entertainer:**
 "Song-writing" (C. Gray).
 10.40 p.m.—**EILEEN CASTLE, Soprano:**
 "None But the Weary Heart" (Tchickow-sky).
 "Obstinatium" (Spross).
 10.46 p.m.—**LEN GIBSON'S NEAPOLITAN SEXTETTE:**
 "Hawaiian Moon."
 10.55 p.m.—**Island Steamer Movements.**
 10.58 p.m.—**GIRL GREAT THOUGHT:**
 "It is a sad business in us after all, that the thought of a man's death hollows him anew to us; as if life were not sacred, if it were comparatively a light thing to fall in love and reveal to the brother who has to stifle the whole to blame sleep with us, and all our tears and tenderness were due to the one who is spared this hard journey."—George Elliot.
 10.56 p.m.—**JOE ARONSON AND HIS SYMPHONISTS.**
 11.40 p.m.—**GOD SAVE THE KING.**

4QG, BRISBANE.

Wednesday.

EARLY MORNING SESSION.

6.40 a.m.—**Physical culture session.**
 7 a.m.—**Close down.**

MIDDAY SESSION.

1 p.m.—**Market reports weather information, "The Daily Mail" and "The Daily Standard."**
 1.30 p.m.—**Lunch hour music.**
 1.55 p.m.—**Standard time signal.**
 2 p.m.—**Close down.**

AFTERNOON SESSION.

3.20 p.m.—**Afternoon tea music.**
 4.15 p.m.—**Telegraph news.**
 4.30 p.m.—**Close down.**

EARLY EVENING SESSION.

8 p.m.—**"Daily Standard" news announcements.**
 8.10 p.m.—**Lecturette: A Beauty Talk by Dorothea Webster.**
 8.40 p.m.—**The children's hour—stories—"Little Miss Brisbane."**
 9 p.m.—**Special news service, market reports, stock reports.**
 9.50 p.m.—**Weather news, announcements.**
 10.15 p.m.—**Standard time signal.**
 10.45 p.m.—**Lecturette: "Selections of the Field Males"—by Mr. J. R. McMillan (Plant Breeder, Government Agricultural High School and College).**

NIGHT SESSION.

PART I.
 The first portion of to-night's programme will be provided by Mr. Arthur Shannan's Party.
 8 p.m.—**FROM THE STUDIO:**
 Pianoforte solo:
 (a) "The Swan" (Paincgrent).
 (b) "Etude F Sharp Major" (Bensell).
 Miss Miller, Violon.
 Baritone solo:
 "Drize Goe West" (Sanderson).
 (c) Mr. W. Saxe.
 Pianoforte:
 (a) "Freude A Flat Major" (Chopin).
 (b) "Freude A Flat Major" (Chopin).

The World's Flyers carried Burgess.

- (r) "Maurice G. Major" (Chorus).
 (d) "Iris and Violet Brilliant" (E. Platt) (Chorus).
 Mr. Arthur Sharnan.
 Soprano solo:
 (a) "London Spring Song" (Oliver).
 (b) "Down Washburn Way" (Oliver).
 Miss Ivy Plank.
 Pianoforte solo: "Riverside No. 1" (Liszt).
 Miss Dorothy Fishman.
 Baritone solo: "Fires" (Ayward).
 Mr. W. Saxe.
 Pianoforte solo:
 (a) "Eloise's Shere Wine" (Scrabin).
 (b) "Fantasia on 'Dumka'" (Rachmaninoff).
 (c) "Melodie" (Rachmaninoff).
 (d) "Al the Donnybrook Fair" (Scott).
 Mr. Arthur Sharnan.
 Soprano solo:
 (a) "Back of the Sunset" (Mrs. Spencer Browne).
 Miss Ivy Plank.
 Baritone solo: "Livinia" (Bruno Huhn).
 Mr. W. Saxe.
 Pianoforte solo:
 (a) "Irish Tune from Country Derry" (Grieg).
 (b) "Eloise's Concert" (Liszt).
 Mr. Arthur Sharnan.

PART II.

A RADIO INTERLUDE—"ALL ABOARD"
 "All Aboard," like every other Radio Interlude, is a short story without a plot. In it a trip from Brisbane to Sydney on board one of the smart inter-State liners is related. The interlude is in the nature of a radio play, except that it differs in detail. Instead of the main characters which comprise the cast, portraying the story, there will be a central character. This character will comprise an announcer who will take the central position and will tell the story the whole way through.

The members of the cast will really act as the "actors."
 The object of the station in presenting such an interlude is to try and place before listeners something "different" in the nature of programming.

Being simply a piece of illustrated marine descriptive matter, the interlude may not appeal to all listeners. Its introduction has, however, been arranged so as to attempt to give radio enthusiasts a change in the type of entertainment usually submitted.

- The cast will be taken by members of the GOC staff and artists.
 8 p.m.—FROM THE STUDIO.
 Radio Interlude—"All Aboard."
 10 p.m.—"The Daily Mail News"; weather news. Close down.

6WF, PERTH.

Wednesday.

- 12.30 p.m.—Tune in.
 12.35 p.m.—Markets, news and cables.
 1 p.m.—Time signal from Perth Observatory.
 1.1 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.
 1.5 p.m.—Quintette Orchestra.
 2 p.m.—Close down.
 2.30 p.m.—Tune in.
 2.35 p.m.—Orchestral music relayed from Royal Regent Theatre.
 Vocal numbers from the Studio.
 4.30 p.m.—Close down.
 6.45 p.m.—Tune in.
 6.50 p.m.—Stories for the children.
 7.20 p.m.—Stocks, markets and news.
 7.45 p.m.—Talk.
 8 p.m.—Time signal from Perth Observatory.
 8.1 p.m.—Weather notes supplied by the Meteorological Bureau of Western Australia.
 FROM THE STUDIO.
 8.5 p.m.—Songs by the Melody Quartette:
 Quartette:
 "Come to the Fair."
 "Sweet and Low."
 "Has anyone thy rings days missed."



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Heavy Gauge Zinc Containers, High-Grade chemicals, perfect balance and efficient insulation, ensure long life and noiseless reception.

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The Ever-Ready Co. (Gt. Britain) Ltd.

163 Pitt Street SYDNEY

Thurs., Dec. 15

2FC, SYDNEY

EARLY MORNING SESSION.

7 a.m. to 8 a.m.

MORNING SESSION.

- 10 a.m.—"Big Ben" and announcements.
10.45 a.m.—Studio music.
10.15 a.m.—"Sydney Morning Herald" news service.
10.30 a.m.—Studio music.
10.35 a.m.—Last minute sporting information by the 2FC Racing Commissioner.
10.45 a.m.—Studio music.
11 a.m.—"Big Ben."
11.15 a.m.—Marching music for school children.
11.30 a.m.—A.P.A. and Rector's Cabaret.
11.35 a.m.—Studio music.
11.55 a.m.—A Reading.
12.30 a.m.—Close down.

MIDDAY SESSION.

- 12 noon—"Big Ben" and announcements.
12.25 p.m.—Stock Exchange, first call.
12.35 p.m.—Official weather forecast, rainfall.
12.5 p.m.—Studio music.
12.10 p.m.—Summary of "Sydney Morning Herald" news service.
12.15 p.m.—Rugby wireless news.
12.25 p.m.—Studio music.
12.30 p.m.—Marching music for school children.
12.45 p.m.—Studio music.
12.45 p.m.—From Farmer's Tea Rooms: The Oak Hall Instrumental Trio.
12.55 p.m.—Studio music.
1 p.m.—"Big Ben." Weather intelligence.
1.2 p.m.—"Evening News" midday news service.
Producers' Distributing Society's Report.
1.30 p.m.—The Oak Hall Instrumental Trio.
1.35 p.m.—Stock Exchange, second call.
1.40 p.m.—Marching music for school children.
1.45 p.m.—Margaret Butterworth, contralto.
1.46 p.m.—Studio music.
1.50 p.m.—From Farmer's Tea Rooms: The Oak Hall Instrumental Trio.
1.55 p.m.—From the Studio: The 2FC Racing Commissioner's latest racing information.
2 p.m.—Close down.

AFTERNOON SESSION.

- Duets:**
"In Springtime," Miss Doris Harrigan and P. H. Croft.
"For you alone," Mrs. Clear and Mr. Bungert.
Solos:
"Nightingale of June," Miss D. Harrigan, soprano.
"E'lucevan le Stella," Mr. Bungert, tenor.
"My Task," Mrs. Clear, contralto.
"Banks of the Dearer," Mr. P. H. Croft, baritone.
10 p.m.—Late news by courtesy of "The Daily News" Newspaper Co.
Ships within range announcement.
Weather notes.
10.30 p.m.—Close down.
10.45 a.m. Broadcast.
Simultaneous broadcast on 184 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL, HOBART

Wednesday,

MORNING SESSION.

11 a.m. to 12 noon.

AFTERNOON SESSION.

- 9 p.m.—G.P.O. Clock Chimes the Hour.
9.1 p.m.—Tune in selection.
9.3 p.m.—Hobart Stock Exchange Quotations
Weather information.
Items of interest; Announcements.
9.10 p.m.—Radio Auction Bridge Game, No. 23.
9.4 p.m.—Social and Educational Calendar from "Illustrated Tasmanian Mail."
9.15 p.m.—Story from "Illustrated Tasmanian Mail."
9.30 p.m.—Close down.

EARLY EVENING SESSION.

- 6.30 p.m.—"Usule Peters" last hour.
7 a.m.—Story from "Illustrated Tasmanian Mail."
Birthday Greetings.

NIGHT SESSION.

- 9.30 p.m.—Musical selection.
1.35 p.m.—Weekly Scouting Corner.
1.50 p.m.—"Mercury" special Interstate news service.
Railway Auction Produce Sales.
Weather forecasts.
Hobart Stock Exchange Quotations.
9 p.m.—G.P.O. Clock Chimes the Hour.
9.1 p.m.—Selections by 7ZL Studio Trio: Intermezzo, "April Moods" (Eugene), Valse Lente, "Albanais" (Candide), Intermezzo, "Raindrops" (Gardell), Netherland folk-song, "Danceboek" (Valerian), "Kirch alled" (Dorivalanski), Violin solo, Selected, Mr. Bernard Freeman.
Selections from "Tiptoe" (Gershwin), Suite Intermezzo, "Intermezzo" (Bose), Valse Intermezzo, "Desire D'Amour" (Mitschke), Clarinet solo, Selected, Mr. Alex. Cudde, Moresca Girelona, "Aubade Dubergier" (Aletier).
Interpersed with items by the following: Miss Jean Hibbard (mezzo-soprano), Mr. G. Muir (tenor), Mr. H. Taylor (bassoonist).
9.40 p.m.—British Official Wireless News.
9.50 p.m.—"Mercury" special Interstate news service.
Ships within wireless range.
Weather forecasts.
Station announcements: To-morrow's programme.

- 4.22 p.m.—E. Jer. Bedford, contralto:
"Dinah" (McGill).

- 4.25 p.m.—From the Lyceum Theatre, Pitt Street, Sydney:
Orchestral items.

- 4.45 p.m.—From the Studio:
Studio (Remains), third call.

- 4.57 p.m.—Ella Head, mezzo:
"My Prayer" (Squire).

- 4.59 p.m.—From the Lyceum Theatre, Pitt Street, Sydney:
Orchestral items.

- 6 p.m.—"Big Ben" Close down.

EARLY EVENING SESSION.

- 5.45 p.m.—The chimes of 2FC.
5.50 p.m.—The "Hello Man" talks to the children.
6.30 a.m.—Story time for the young folk.
6.40 p.m.—Studio music.
7.00 p.m.—"Big Ben" Late sporting news.
7.10 p.m.—Delety's market reports (wool, wheat and stock).
7.15 p.m.—Fruit and vegetable markets.
P.D.S. poultry markets.
7.22 p.m.—Weather and shipping news.
7.25 p.m.—"Evening News" late news service.

NIGHT SESSION.

- 7.40 p.m.—Programme announcements.
7.45 p.m.—Win and Winkle, English entertainers.
7.52 p.m.—Norman McLennan, baritone:
(a) "The Boy Invents the Busby" (Remmel),
(b) "A Striptease" (Baker).
8 p.m.—"Big Ben."
The N.S.W. Tramway Band:
(a) March, "The Kevonian" (Greenwood),
(b) Waltz, "Beauty's Bower" (Greenwood),
8.15 p.m.—Madame Vera Tasma, soprano.
9 p.m.—The N.S.W. Tramway Band:
Overture, "The Golden Squire" (Greenwood).
8.30 p.m.—Captain Frank Harley returns to the Studio with the first of a series of thrilling adventure tales.
9 p.m.—"Big Ben." Latest weather forecast.
9.1 p.m.—The N.S.W. Tramway Band:
(a) Cornet Polka, "The Star of the North" (Greenwood).
Bandman Faulkner.
(b) Waltz, "In Loveland's Lane" (Round).
8.15 p.m.—Norman McLennan, baritone:
(a) "The Currian Falls" (Hardoll),
(b) "The Sword of Morana" (Bullard).
9.18 p.m.—Win and Winkle, English entertainers.
9.27 p.m.—Madame Vera Tasma, soprano.
9.30 p.m.—The N.S.W. Tramway Band:
Selection, "In Sunny Lands" (Lauriet).
9.42 p.m.—Ad Crose, Scotch comedian.
9.45 p.m.—Harrison White, basso solo.
9.53 p.m.—The N.S.W. Tramway Band:
Enphonic solo, "My Old Kentucky Home" (Remmel).
Bandman Taylor.
10 p.m.—"Big Ben."
Madame Vera Tasma, soprano.
10.5 p.m.—Harrison White, basso solo.
10.14 p.m.—Ad Crose, Scotch comedian.
10.20 p.m.—From the Ambassadors:
The Ambassadors Dance Orchestra:
Conductor, Al Hammett.
10.30 p.m.—Latest weather forecast.
10.31 p.m.—From the Studio:
Harrison White, basso solo.
10.40 p.m.—From the Ambassadors:
The Ambassadors Dance Orchestra:
Conductor, Al Hammett.
10.57 p.m.—Late news and announcements.
11 p.m.—"Big Ben."
The Ambassadors Dance Orchestra in popular numbers until 11.30 p.m.
11.30 p.m.—National Anthem.
Close down.

Burgess Went Over the Pole with Byrd.

2BL, SYDNEY.

Thursday.

EARLY MORNING SESSION.

7 a.m. to 1 a.m.

MORNING SESSION.

- 10.58 a.m.—G.P.O. Clock and Chimes.
Musical programme from the Studio.
11.07 a.m.—News from the "Daily Telegraph"
Pictorial.
11.16 a.m.—Musical programme from the
Studio.
11 a.m.—G.P.O. Clock and Chimes.
Announcements.
11.4 a.m.—Musical programme from the
Studio.
11.15 a.m.—Wentz's Session: Social Notes—
Replies to Correspondents by Mrs. Jordan.
Talk on "Housing" by Mr. Brogan. Talk
on "Diction Drafts" by Miss Hoyle.
12 noon.—G.P.O. Clock and Chimes.
Special Ocean forecast and Weather report.
12.3 p.m.—Musical programme from the
Studio.
12.4 p.m.—Information—Mails, shipping, and
port directory.
12.11 p.m.—Bosta in call by Wireless.
12.13 p.m.—Fruit Market report.
12.15 p.m.—Vegetable Market report.
12.17 p.m.—London Metal Market report.
12.19 p.m.—Dairy and Farm Produce Market
report.
12.22 p.m.—Poultry Market report.
12.24 p.m.—Fish Market report.
12.26 p.m.—Rabbit Market report.
12.28 p.m.—Stock Exchange report.
12.28 p.m.—H.M.V. Gramophone Recital.
12.31 p.m.—Stock Exchange report.
1.30 p.m.—G.P.O. Clock and Chimes.
Talk to Children and Special Entertainment
for Children in Hospital.
6 p.m.—G.P.O. Clock and Chimes.
Close down.

AFTERNOON SESSION.

- Racing information broadcast immediately
after each race by courtesy of the "Sun."
1 p.m.—G.P.O. Clock and Chimes.
Musical programme from the Studio.
2.10 p.m.—News from the "Sun."
2.20 p.m.—Musical programme from the
Studio.
2.30 p.m.—News from the "Sun."
2.44 p.m.—Dungowan Dance Band, broadcast
from the Dungowan Cabaret.
3 p.m.—G.P.O. Clock and Chimes.
News from the "Sun."
4 p.m.—Musical programme from the
Studio.
4.15 p.m.—Talk on "Women of the Orient of
all Ages."
4.30 p.m.—Dungowan Dance Band.
4.38 p.m.—News from the "Sun."
4.53 p.m.—Resume of night's programme.
4.57 p.m.—Racing resume.
4.59 p.m.—Special Ocean forecast.
5 p.m.—G.P.O. Clock and Chimes.
Close down.

EARLY EVENING SESSION.

- 7.45 p.m.—G.P.O. Clock and Chimes.
Children's Session.
8.30 p.m.—Musical programme from the
Studio.

SPECIAL COUNTRY SESSION.

- 7 p.m.—G.P.O. Clock and Chimes.
Australian Mercantile Land and Finance
Co.'s report.
Weather report and forecast by courtesy of
Govt. Meteorologist.



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Producers' Distributing Society's Fruit and Vegetable Market report.
 Stock Exchange reports.
 Grain and Fodder report ("Sun").
 Dairy Produce report ("Sun").
 Weekly Traffic Bulletin.
 Talk about holidays.
 7.12 p.m.—Country news from the "Sun."
 7.16 p.m.—Helpful hints to listeners, by Mr. Alan Burgess.
 7.20 p.m.—Talk by Mr. Mackinnon, B.E.
 8.0 p.m.—G.P.O. Clock and Chimes.
 8.05 p.m.—Dramatized Topical Chorus.
 An hour's programme presented by Items Miscellaneous Limited.
 8.1 p.m.—The Salomna Dance Orchestra, presenting the Latest Dance Items.
 8.15 p.m.—Miss Mild Field, Sydney (Australia).
 8.20 p.m.—The Salomna Dance Orchestra.
 8.30 p.m.—Mr. Frank Ryan (Entertainer).
 Rhomboid and Dramatic Recitations.
 8.37 p.m.—The Salomna Dance Orchestra.
 8.47 p.m.—Mr. Edmund Q. Williams (Baritone).
 8.54 p.m.—The Salomna Dance Orchestra.
 8.6 p.m.—Weather report and forecast, by courtesy of Mr. C. J. Marn, Govt. Meteorologist.
 9.0 p.m.—From the Wrennet Street Hall, The Marrickville Salvation Army Band (Bandmaster, Mr. N. H. Knight).
 9.23 p.m.—From the Studio: Miss Ethel Friend.
 9.32 p.m.—Mr. Frank Ryan.
 9.39 p.m.—The Marrickville Salvation Army Band.
 9.49 p.m.—Reviews of following day's programme.
 10 p.m.—G.P.O. Clock and Chimes.
 10.1 p.m.—Mr. Clement Q. Williams.
 10.3 p.m.—Doris Manning and Harry Graham, presenting Harlequin and Follies.
 10.23 p.m.—Dance Music by Cyril Kay and The Westworth Cafe Orchestra, transmitting from the Ballroom of the Westworth. During intervals between dances "Sun" news will be broadcast.
 11.30 p.m.—G.P.O. Clock and Chimes.
 National Anthem.

3LO, MELBOURNE.

Thursday.
MORNING SESSION.
 12.0 noon.—Melbourne Observatory Time Signal.
 Metal Prices received by the Australian Mines and Metals Association from the London Stock Exchange this day; Reuters's Cable; British Official Wireless News from Murch; "Argus" News Service.
 12.20 p.m.—COMMUNITY SINGING from the Studio. (Conductor, Mr. D. J. MACKAY).
 FROM THE STUDIO ORCHESTRA (Conductor, REGINALD BRADLEY).
SOLOISTS:
 EILEEN CASTLE, Soprano.
 "Gloriana's Prayer" (Homer).
 "Ball of Shandon" (Irish).
 ERN TROTMAN, Entertainer.
 "Say No More About It" (Swiss).
 "I Was With the Mater" (Swiss).
 1.45 p.m.—Meteorological Information; Weather Forecast and Rainfall for Victoria, Tasmania, South Australia and New South Wales from Forecasts; River Reports; Stock Exchange Information.
 2.0 p.m.—Close Down.

AFTERNOON SESSION.
 2.0 p.m.—Melbourne Observatory Time Signal.
 2.1 p.m.—E.V. KENNETH BRUNDENSON:
 "Topics of the Week."
 2.15 p.m.—DR. FLOYD, will speak to Students of Music.
 2.30 p.m.—MR. CHARLES NUTTALL.
 A Travelling.
 2.41 p.m.—STUDIO QUARTETTE.
 Suite, "St. Agnes' Eve," Part I. (Coleridge Taylor).

2.55 p.m.—MAGGIE FOSTER, Violin:
 "Lolabelle" (Krieger).
 "Grazed" (Ligeti).
 3.0 p.m.—JESSIE IRWIN, Soprano.
 "Tina Voss Poco Pa" (Romaine).
 A Love Song (Berg).
 3.0 p.m.—STUDIO QUARTETTE:
 "St. Agnes' Eve," Part II. (Coleridge Taylor).
 3.18 p.m.—JESSIE IRWIN, Soprano:
 "Love's Song" (Donizetti).
 "Boasch" (Arditi).
 3.23 p.m.—STATION TRIO:
 "Where You and I Were Young, Maggie" (Rattensfeld).
 3.30 p.m.—Herald News Service.
 3.45 p.m.—Evening from St. Paul's Cathedral.
 4.00 p.m.—Announcements for Saturday's Race at EPSOM.
EVENING SESSION.
 4.35 p.m.—Answers to Letters and Birthday Congratulations by "MARY GUMLEAF."
 4.0 p.m.—ELLIE BRADSHAW:
 "Songs for the Children."
 4.17 p.m.—"MARY GUMLEAF" presents a Play by her Pupils.
 "THE CHRISTMAS SIGN."
 Fennell.

To make Christmas truly a festival-season of joyous exultation, reverence and glorification for the Child who was born to the Christian, peace to every heart, is the purpose of this little play.—(Dorothy Ternan).
CHARACTERS:
 The Child LORNA HIRLEY
 Night EDNA MORRIS
 Spirit of Christmas MAURICE DUDLEY
 The Child's Mother DORIS FEUGLY
 The Child's Sister GLADYS MCKENZIE
 The Star BEATRICE TELMAN
 4.21 p.m.—ELLIE BRADSHAW:
 "Carols of the Children."
 4.32 p.m.—"MARY GUMLEAF":
 "Poems for the Children."
 4.40 p.m.—Official Report of Newmarket Stock Sales by the Associated Stock and Suction Agents, Bourke Street, Melbourne.
 4.45 p.m.—Herald News Service; Weather Synopsis; Shipping Movements.
 4.52 p.m.—Stock Exchange Information.
 4.57 p.m.—Fish Market Reports, by J. R. Borden, Ltd., Rabbit Street.
 4.58 p.m.—River Reports.
 4.59 p.m.—Market Reports by the Victorian Producers' Co-operative Co., Ltd.: Poultry, Fresh Hay, Straw, Jute, Dairy Produce, Potatoes and Onions; Market Reports of Fruit by the Victorian Fruitgrowers' Association; Retail Prices; Wholesale Prices of Fruit by the Wholesale Fruit Merchants' Association; Citrus Fruits; Albany Wool Sales, Report.

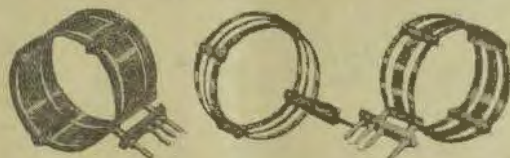
NIGHT SESSION.
 7.15 p.m.—Under the auspices of the Royal Automobile Club of Victoria: MR. ALFRED SAFFRIDGE, President of the club, will speak on "Motoring this year and next."
 7.30 p.m.—MR. TREGONING, of the Country Roads Board, will speak on "The New Highway and Road Binders."
 7.45 p.m.—MISS BEPPIE DE VRIES, now appearing in "The Student Prince," at His Majesty's Theatre, will speak to you from her dressing-room. By permission of J. C. Williamson, Ltd.
 8.0 p.m.—Transmission from the NEW TOWN HALL, MELBOURNE: Official Opening.
 FROM THE STUDIO.
 8.15 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Cuddie Cuddie" (Homer).
 "Dorothy's Dream" (Homer).
 "A Japanese Sunset" (Dreyfus).
 8.21 p.m.—BELLE POLLARD AND WALTER WHITE, Operatic Entertainers:
 Duet, "Honey, the Moon is Shining" (Allaire).
 E.V. KENNETH BRUNDENSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Suzette" (Homer).
 "Oh, Where's My Love" (Kahn).
 "A Sunday" (Donizetti).
 8.31 p.m.—MILLIE McCORMACK, Mezzo Soprano:
 "Oh, Mistress Mine" (Quilter).

8.35 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Honey and Dreaming" (Gael).
 "Hil-dee Hil-dee, Good-bye Thursday, Hello Friday" (Homer).
 "Slippers" (Senter).
 8.41 p.m.—ERN TROTMAN, Entertainer:
 "A Wonderful Time."
 8.41 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "I Wonder How I Look When I'm Asleep" (Hindemith).
 "A Lane In Spain" (Lewis).
 "Forgotten" (O'Hagan).
 8.0 p.m.—MAGGIE FOSTER, Violin:
 "Popular Chorus."
 9.3 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "If You See Sally" (Kahn).
 "Let's Make Believe" (Hauer).
 9.5 p.m.—Report on Albany Wool Sales.
 10.2 p.m.—BELLE POLLARD AND WALTER WHITE, Operatic Entertainers:
 "A Wonderful Time."
 10.15 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Home of Sleep" (Hindemith).
 "Why Should I'm Sorry" (Quilter).
 "Sally" (Kahn).
 10.24 p.m.—MILLIE McCORMACK, Mezzo Soprano:
 "Oh, Where's My Love" (Kahn).
 10.27 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Oh, Miss Hannah" (Homer).
 "My Good-bye" (Warren).
 "Funny Tune" (Hauer).
 "Piano Solo" (Hauer).
 10.36 p.m.—ERN TROTMAN, Entertainer:
 "What Funny Things You See" (Hauer).
 10.49 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Foggy Day" (Hauer).
 "Where Do You Want To Go" (Kahn).
 "Baby Mine" (Hauer).
 10.48 p.m.—RON, W. L. EDGAR:
 "Miss Switzerland and Her Wives."
 10.51 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Ain't That a Grand and Glorious Feeling" (Terkay).
 "I Never Knew I'd Find You" (Hauer).
 "The Doll Dance" (Hauer).
 11.0 p.m.—Announcements.
 The Royal Automobile Club of Victoria's SAFETY MESSAGE to motorists is four: MOTORISTS: "Don't forget to slow down and look at street or road intersections. It may save a human life, possibly your own. Motorological Information; Sporting News by "Olympus"; British Official Wireless News from Rugby; "Argus" News Service.
 "Do you go plinking?" This year make four resolutions—1. To be careful and first. 2. Not to destroy other people's property. 3. Not to leave an untidy litter of papers and fins about. 4. If motorist, to remember Safety First.
 11.15 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "There's a Trick in Pickle" a Chick, Chick, Chick (Terkay).
 "Days of Hearts and Flowers" (Terkay).
 "Her Home Went. Her Home Gone. I Have Left It All Alone" (Smith).
 11.21 p.m.—MAGGIE FOSTER, Violin:
 "Because I Love You."
 11.23 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Say, Say, Sigh" (Kahn).
 "Night and Joy Down" (Hauer).
 "When Do We Dance?" (Hauer).
 11.28 p.m.—BELLE POLLARD AND WALTER WHITE, Operatic Entertainers:
 "That's How I Love You" (Hauer).
 11.41 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "In a Japanese Garden" (Hauer).
 "A Japanese Sunset" (Dreyfus).
 "Heaven Help a Sailor on a Night Like This" (Hauer).
 11.45 p.m.—MILLIE McCORMACK, Mezzo Soprano:
 "The Four Leaf Clover" (Brown).
 11.48 p.m.—JOE ARONSON AND HIS SYNO-COPATING SYMPHONISTS:
 "Side, Side, Side" (Hauer).
 "Oh, My" (Hauer).
 "The Whole World is Laughing at Me" (Hauer).

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The range is from 15 to 130 metres when used in conjunction with a .00015 m.f.d. tuning condenser, thereby including all local and international broadcasting stations, and also can it be made to embrace the broadcast band simply by the addition of another plug in R.F. Unit, making it possible for your short-wave set to become a broadcast receiver.

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11.2 p.m.—OUR GREAT THOUGHTS.

You were made for enjoyment, and the world was filled with things which you will enjoy, unless you are too proud to be pleased by them, or too grasping to care for what you cannot turn to other account than mere selfishness.—Buckley.

11.5 p.m.—JOE ARONSON AND HIS SYM-PATHIZING SYMPHONISTS.

11.50 p.m.—GOD SAVE THE KING.

4QG, BRISBANE

Thursday

MIDDAY SESSION.

1.0 p.m.—Market Reports, Weather Information, "The Daily Mail" and "The Daily Standard" News.

1.20 p.m.—A Lunch Hour Address.

1.50 p.m.—Stamford Time Signal.

2.0 p.m.—Close Down.

AFTERNOON SESSION.

2.50 p.m.—A Programme of Music by the Studio Orchestra.

4.15 p.m.—"The Telegraph" News.

4.20 p.m.—Close Down.

EARLY EVENING SESSION

6.8 p.m.—"Daily Standard" News; Announcements.

6.30 p.m.—"The Children's Society"; Stories by "The Sandman."

7.0 p.m.—Market Reports, Stock Reports.

7.30 p.m.—Weather News; Announcements; "Daily Standard" News.

7.45 p.m.—Weather Talk by Mr. Julio Jones.

NIGHT SESSION.

8.0 p.m.—FROM THE PRACTICE ROOM: An instrumental programme of music by the Brisbane Exhibition Band.

8.30 p.m.—Yingling Song.

A recital by the Yonagata District Choir. (Conductor, Mr. A. B. Taylor.)

Vocal solo, "O, Who will ever be Down's" (Pearson).

Yonagata District Choir.

Vocal, "The Promise of Life" (Cowan).

Miss C. Brown.

Electronium, "The Book."

Miss Blanche Richardson.

Instrumental Number, "Maren."

Mrs. H. White and family.

Part Song (Humorous), "Old Mother Hubbard" (Whistler).

Yonagata District Choir.

Vocal Solo, "The Carnival."

Mrs. Ethel Jorgensen.

Vocal Solo, "Gimme, Gimme to Me" (Thompson).

Mr. G. Knott.

Chorus, "A Little Farm Wall Titled" (Mock).

Male Choir.

Vocal Solo, "Hail Caledonia" (A. Straus).

Mrs. A. H. Taylor.

Humorous Number, "Mel Mel My"

Mr. A. Fruse.

Vocal Duet, "I Would That the Love" (Mendelssohn).

Miss C. Brown and Mrs. A. H. Taylor.

Vocal Solo, "Sing, Sweet Bird" (Gaza).

Miss Edith Barber.

Instrumental Number, "Gipsy Festival."

Mrs. H. White and family.

Ladies' Chorus, "Yingling Song" (arranged by Mr. A. H. Taylor from Mendelssohn's pianoforte piece).

Ladies' Choir.

Chorus, "Kilisey" (Dalfy), and "Australiana Anthem" (words and music by A. H. Taylor).

Yonagata District Choir.

STUDIOS' RECITAL.

8.0 p.m.—From the Studio:

A recital by the students of Miss Florence

Maxin. Assisting artists: Mrs. A. E. Curtis,

Miss Ruby Brown, Mr. W. R. Pfitzer, and

Miss Stray.

Orchestral Selections:

(a) "Folk Song" (Old German Melody).

(b) "Haunting Melody" (Bkito).

(c) "La Serenata" (Eraga).

Piano Solo:

(a) "Capriccio" (Smarzatti).

(b) "Allegretto Risoluto" (Holler).

Miss Jaeger Hardt.

Violin Solo, "Singing Song" (Mendelssohn).

Master Norman Harland.

Song, "Bird Songs at Eventide" (Coates).

Miss Ruby Brown.

Violin Solo, "Retrospect" (Telhwar).

Miss Miriel Wynyard.

Piano Solo, "Salerello" (Harting).

Miss Mavis Franklin.

Violin Solo, "Dance Characteristique" (Andriole).

Master Ronald Doonan.

Recitation, "Papa and the Boy."

Master John Hayes.

Violin Solo:

(a) "Allegro Poco Moderato" (Tartini).

(b) "Un Sourire" (Fugini).

Miss Stella Jordan.

Piano Solo, "A June Evening" (Calamara).

Mr. Rolf M. Peitz.

Celli Solo, "Hercules de Jocelyn" (Godard).

Mr. W. R. Pfitzer.

Songs:

(a) "Good Morning, Brother Sunshiner" (Lachmann).

(b) "The Swallows" (Cowan).

Mrs. A. E. Curtis.

Violin solo with Cello obbligato, "Cavatina" (Raf).

Mr. R. G. Peitz and Mr. W. B. Peitz.

Piano Solo, "Tartini's" (Gorman).

Miss Doris Wynyard.

Trios:

(a) "Nocturne" (Chopin).

(b) "Nocturne" (Chopin).

Miss Stella Jordan (first violin), Mr.

R. G. Peitz (second violin), Mr. W.

R. Pfitzer (Cello).

10.8 p.m.—Studio Programme.

Hawaiian Instrumentalists in selected numbers.

The Hawaiian Melody Makers.

Central Solo, "Whatever is, is Best" (Haber).

Miss Dulcie Peterson.

Hartono Solo, "Parlet" (Teuti).

Mr. G. B. Astley.

Hawaiian Instrumentalists in selected numbers.

The Hawaiian Melody Makers.

Soprano Solo, "Aberni" (Penn).

Miss Jean McDougall.

Hawaiian Instrumentalists in selected numbers.

The Hawaiian Melody Makers.

7.55 p.m.—"The Daily Mail" News; Close down.

7ZL, HOBART

Thursday.

MORNING SESSION.

11 a.m. to 12 noon.

AFTERNOON SESSION

3 p.m.—G.P.O. Clock Chimes the Hour

3.1 p.m.—Tune in selection.

3.2 p.m.—Hobart Stock Exchange Quotations.

Weather information.

Home of interest; Announcements.

3.15 p.m.—Selections by 7ZL Studio Trio:

Overture, "Queen of Autumn" (Wood).

Valse, "Belle Dame" (Bord).

"Dance of the Dragon Fly" (Eberle).

"I Shall Never Forget" (Wood).

Violin solo, Mr. E. J. McCane.

4.15 p.m.—Chat by Child Welfare Nurse.

4.30 p.m.—Close down.

EARLY EVENING SESSION.

6.30 p.m.—Children's Corner with "Uncle

Heater."

7 p.m.—"Uncle Peter's" half-hour.

NIGHT SESSION.

7.30 p.m.—Musical selection.

7.35 p.m.—The Photographic Corner:

"Holiday Photography," by Mr. Chas. H.

Sims, manager of Kokoak Ltd., Hobart.

7.50 p.m.—"Mercury" special Tasmanian news

service.

Railway Auction Produce Sale.

Weather forecasts.

Hobart Stock Exchange quotations.

8 p.m.—G.P.O. Clock Chimes the Hour.

8.1 p.m.—Selections by Jones I.V.L. Band

(Conductor, Mr. Charles Goddard).

8.2 p.m.—Talk on Hobart Science Progress by

Mr. Clive Lord.

8.40 p.m.—British Official Wireless News.

8.50 p.m.—"Mercury" special interstate news

service.

Ships within wireless range.

Tasmania District Weather Reports.

Station announcements: To-morrow's pro-

gramme.

National Anthem.

Friday, Dec. 16

2FC, SYDNEY.

EARLY MORNING SESSION.

5 a.m. to 8 a.m.

MORNING SESSION.

8 a.m.—"Big Ben" and announcements.

10.5 a.m.—Studio music.

10.15 a.m.—"Sydney Morning Herald" news

service.

10.30 a.m.—Studio music.

10.45 a.m.—Studio music.

11 a.m.—"Big Ben"

Marching music for school children.

11.5 a.m.—A.P.A. and Reuter's Cable Services

11.50 a.m.—Studio music.

11.15 a.m.—A talk on Home Cooking and

Recipes by Mrs. Ruth Forest.

11.30 a.m.—Close down.

MIDDAY SESSION.

12 noon—"Big Ben" and announcements.

12.15 p.m.—Stock Exchange first call.

12.45 p.m.—Official weather forecast, rainfall.

12.5 p.m.—Studio music.

12.50 p.m.—Summary of "Sydney Morning

Herald" news service.

Rugby wireless news.

12.55 p.m.—Studio music.

12.59 p.m.—Marching music for school children.

1.00 p.m.—Anna Edger, mezzo:

"Trees" (Rau).

12.45 p.m.—From Farmer's Tea Room:

The Oak Hall Instrumental Trio.

(Leader, Mr. Horace Keatt).

12.55 p.m.—Studio music.

1 p.m.—"Big Ben" Weather intelligence.

1.2 p.m.—"Evening News" midday news service.

1.29 p.m.—From Farmer's Tea Room:

The Oak Hall Instrumental Trio.

(Leader, Mr. Horace Keatt).

1.35 p.m.—Stock Exchange second call.

1.39 p.m.—Marching music for school children.

1.40 p.m.—From the Studio:

Anna Edger, mezzo:

"Surrealism in de Join's time" (Ring).

1.45 p.m.—Studio music.

1.50 p.m.—From Farmer's Tea Room:

The Oak Hall Instrumental Trio.

1 p.m.—"Big Ben" Close down.

AFTERNOON SESSION.

2 p.m.—"Big Ben" and announcements.

2.3 p.m.—Clara Hunt, mezzo contralto:

"Ma Cuddy-headed Baby" (Clutman).

2.7 p.m.—Studio music; popular records.

3.15 p.m.—A reading.

3.25 p.m.—May Boyer, contralto.

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- 8.35 p.m.—Fosse Brakell:
"O thank me not" (Mallinson).
8.36 p.m.—Marching music for school children.
8.40 p.m.—Muriel Watt, contralto:
"My Message" (D'Almeida).
8.45 p.m.—From Farmer's Tea Rooms:
The Oak Hall Instrumental Trio.
(Leader, Mr. Horace Keats).
8.55 p.m.—From the Studio:
Kathleen Horne, soprano:
"I Pitch my Tent" (Caravan) (Castes).
9 p.m.—Popular record.
9.1 p.m.—From Farmer's Tea Rooms:
The Oak Hall Instrumental Trio.
(Leader, Mr. Horace Keats).
9.15 p.m.—From the Studio:
Jeanette Rooney, contralto:
"The Garden of Sleep" (de Laza).
9.20 p.m.—Popular record.
9.25 p.m.—From Farmer's Tea Rooms:
The Oak Hall Instrumental Trio.
(Leader, Mr. Horace Keats).
9.30 p.m.—From the Studio:
May Bowyer, contralto:
4.40 p.m.—Clara Hunt, mezzo-contralto:
"The Call of the Martins" (Brake).
"Slave Song" (Del Riego).
4.45 p.m.—Stock Exchange, third call.
4.47 p.m.—Fosse Brakell, contralto:
"Western Sea" (Mallinson).
4.50 p.m.—Muriel Watt, contralto:
"Sometimes when night is nigh" (Pbills).
4.53 p.m.—Jeanette Rooney, contralto:
"Down Song" (Brake).
4.56 p.m.—Popular record.
5 p.m.—"Big Ben." Close down.

EARLY EVENING SESSION.

- 8.40 p.m.—The changes of 2FC.
8.46 p.m.—The "Hain Man" talks to the children.
8.50 p.m.—Story time for the young folk.
8.55 p.m.—From Farmer's Oak Dining Hall:
The Oak Hall Instrumental Trio.
(Leader, Mr. Horace Keats).
Kenneth Hunt, tenor.
The Oak Hall Instrumental Trio.
9 p.m.—"Big Ben."
Latest racing information by the 2FC Commission.
9.10 p.m.—Dalgely's market reports (wheat, wheat and stock).
9.15 p.m.—From and vegetable markets.
9.20 p.m.—Weather and shipping news.
9.25 p.m.—"Evening News" late news service.

NIGHT SESSION.

- 7.46 p.m.—Programme announcements.
7.45 p.m.—Cricket reminiscences, prepared by Mr. Frederick Harper.
8 p.m.—"Big Ben."
From Her Majesty's Theatre, Pitt Street, Sydney: After an lapse of two years, the first act of the Comic Opera,

"WILDFLOWER."

- Featuring Marie Burke and Herbert Brown (permission of J. C. Williamson, Ltd).
Musical numbers:
1. "I love you, I love you."
2. "Some like to Hunt."
3. "Wildflower."
4. "Hambalfra."
5. "I'll collaborate with you."
6. "April Blossoms."
7. Finale.
9.1 p.m.—From the Studio:
Latest weather forecast.
9.5 p.m.—"Home Romance and Juliet"
A Talk by Mr. W. F. Kay.
9.24 p.m.—Gwen Selva, soprano:
"Nymphs and Fauns" (Brebner).
9.32 p.m.—"Let's go round the world!"
The second of a series of travel talks by Rev. F. H. Howard, recently returned from a world tour.
9.42 p.m.—Alfred Cunningham, baritone:
(a) "Parted" (Tooti).
(b) "Live, or let me die" (Romansa from "Dinorah") (Meyerbeer).

- 10 p.m.—"Big Ben."
Lionel Lawson, violinist.
10.7 p.m.—Gwen Selva, soprano:
(a) "Within my heart a song I find" (Hargrett).
(b) "A Pastor" (Carty).
10.10 p.m.—Cec Morrison and his "Gloom-chasers."
10.25 p.m.—Alfred Cunningham, baritone:
(a) "The song of the Windmill" (Travers).
(b) "High no more, ladies" (Old English).
10.30 p.m.—Late wireless forecast.
10.41 p.m.—Cec Morrison and his "Gloom-chasers."
10.47 p.m.—Late news and announcements.
11 p.m.—"Big Ben."
Cec Morrison and his "Gloom-chasers."
11.30 p.m.—National Anthem.
Close down.

3LO, MELBOURNE.

Friday.

MORNING SESSION.

- 10.30 a.m.—Description of CROQUET CHAMPIONSHIP MATCHES, Australia v. England, at Melbourne Cricket Club, Union-street, Windsor, by Mr. G. J. Miller.
10.45 a.m.—Close down.
11.30 a.m.—Description of CROQUET CHAMPIONSHIP MATCHES, Australia v. England, at Melbourne Cricket Club, Union-street, Windsor, by Mr. G. J. Miller.
11.45 a.m.—Close down.
11.50 a.m.—MELBOURNE OBSERVATORY TIME SIGNAL.
12.1 p.m.—Metal prices received by the Australian Mines and Metals Association from the London Stock Exchange this day. Reporter's and the Australian Press Association cables. British official wireless news from Rugby. "Argus" news service.
12.20 p.m.—STUDIO QUARTET:
Selection of Stephen Adams' Popular Songs.
12.30 p.m.—ROLLARD AND WHITE, operatic entertainers, soprano and tenor:
Soprano, "Just a Spray of Rosemary" (Carlington).
Tenor, "A Dream" (Harlett).
Enct, "Annie Laurie" (Old Scotch).
12.40 p.m.—Stock Exchange information.
12.45 p.m.—AGNES FORTUNE, pianist:
"Schuras in E Minor" (Grieg).
12.50 p.m.—STUDIO QUARTET:
"Nature's Adoption" (Brooks).

- 1 p.m.—MELBOURNE OBSERVATORY TIME SIGNAL:
Are you taking precautions to keep the food and especially the milk away from the flies. Get rid of these pests. Keep your garbage bins covered for your own sake as well as for the sake of your neighbors.
1.1 p.m.—Description of INTERSTATE CRICKET MATCH, Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.

FROM THE STUDIO.

- 1.10 p.m.—ERN TROTMAN, entertainer:
"The Swimming Master" (Anon.).
"The Vocalist's Guide" (Original).
1.17 p.m.—Meteorological information. Weather forecast and rainfall for Victoria, Tasmania, South Australia, and New South Wales. Ocean forecast. River reports.
1.24 p.m.—STUDIO QUARTET:
The Romantic Suite.
(1) "Courtship" (Cecil Stanley).
(2) "Wedding Morn."
1.34 p.m.—ERN TROTMAN, entertainer:
"The Palmist."
1.40 p.m.—STUDIO QUARTET:
The Romantic Suite.
(1) "Festivities."
1.48 p.m.—CAPTAIN DONALD McLEAN:
"Practical Prizes!"

- 2 p.m.—DESCRIPTION OF CROQUET CHAMPIONSHIP MATCHES, AUSTRALIA v. ENGLAND, at MELBOURNE CLUB, UNION-STREET, WINDSOR, by Mr. C. J. Miller.
2.10 p.m.—Description of INTERSTATE CRICKET MATCH VICTORIA v. QUEENSLAND, at MELBOURNE CRICKET GROUND, by Mr. Rod McGregor.

AFTERNOON SESSION.

- 3 p.m.—Melbourne Observatory time signal.
3.1 p.m.—Progress report of Croquet Championship Matches, Australia v. England, at Melbourne Cricket Club, Union-street, Windsor.
3.5 p.m.—STUDIO QUARTET:
"The Ballet of the Flowers," Part 1 (Mallory).
(1) Violets.
(2) Lily of the Valley.
3.14 p.m.—MISS FRANCES FRASER:
"London at Play."
4.40 p.m.—STUDIO QUARTET:
"The Ballet of the Flowers," Part 2.
(3) Daffodils.
(4) Gardenia.
3.40 p.m.—Description of Interstate Cricket Match, VICTORIA v. QUEENSLAND, at MELBOURNE CRICKET GROUND, by Mr. Rod McGregor.

FROM THE STUDIO.

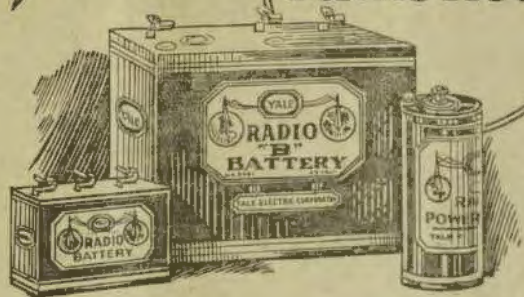
- 2.50 p.m.—ELLEN CASTLE, soprano:
"Antonia's Aria" (Tales of Hoffman (Offenbach)).
"Swah a Lil' Fallow" (Diabasi).
2.57 p.m.—STUDIO QUARTET:
Extracets, "Gavotte Mignon."
Gavotte, "Elly" (Thomas).
4.1 p.m.—EILENE FOLLARD and WALTER WHITE, operatic entertainers:
Soprano, "Rosalinde" (Arditi).
Tenor, "Evening Song" (Bismantini).
Duet, "Alma."
4.14 p.m.—MRS. W. G. MALLAWAY MARWOOD:
THE STORY and Use of color—Orange.
4.25 p.m.—Description of Interstate Cricket Match, VICTORIA v. QUEENSLAND, at MELBOURNE CRICKET GROUND, by Mr. Rod McGregor.
4.40 p.m.—FROM THE STUDIO.
4.45 p.m.—"Herald" news service. Stock Exchange information.
5 p.m.—MRS. WENFORD, Superintendent of the Suburban Home:
"Our Work and News."
5.10 p.m.—Description of Interstate Cricket Match, VICTORIA v. QUEENSLAND, at MELBOURNE CRICKET GROUND, by Mr. Rod McGregor.

EVENING SESSION.

- 6.26 p.m.—Answers to letters, and birthday greetings, by "BILLY BUNNY."
6.55 p.m.—MR. ROD McCREGOR will also give the children a description of the final of to-day's great Cricket Match, Victoria v. Queensland, at Melbourne Cricket Ground.
7 p.m.—FROM THE STUDIO.
6.5 p.m.—CLIFF BRADSHAW:
Songs for the children.
6.10 p.m.—CAPTAIN DONALD McLEAN:
"Prizes and Sh. Moe. Prizes."
6.27 p.m.—CLIFF BRADSHAW:
Songs for the children.
6.35 p.m.—"BILLY BUNNY":
More about the Treasure Seekers.
6.40 p.m.—Official Journal of Newmarket Stock Sales, by the Associated Stock and Station Agents, Bourke-street, Melbourne. Number of sheep and cattle drawn for week's sale.
6.45 p.m.—"Herald" news service. Weather synopsis. Shipping movements.
6.52 p.m.—Stock Exchange information.
6.57 p.m.—Palm market reports, by J. H. Burnett, Ltd. Rabbit prices.
6.59 p.m.—River reports.
7.2 p.m.—Market reports, by the Victorian Producers' Cooperative Co. Ltd. Poultry, grain, hay, straw, juce, dairy produce, potatoes and onions. Market reports of fruit.

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NIGHT SESSION.

7.15 p.m.—Under the auspices of the Department of Agriculture, Mr. R. J. de C. TALBOT, Veterinary Officer, will speak on: "Store Breeders in Victoria."
7.30 p.m.—AGNES FORTUNE, piano:
"Water Wagtail" (Scott).
7.40 p.m.—MR. H. K. LOVE:

"Technicalities."
Mr. Love will be glad to attend to your wireless difficulties, and we ask you to write to him for any advice that you may require.

7.50 p.m.—EILEEN CASTLE, soprano:
"Topsy Song"—Homes and Juliet (Goswami).
"The Banjo Song" (Howe).

7.57 p.m.—MAGGIE FOSTER, violin:
"The Last Rose of Summer" (Moussy).
"Coming Home" (Willeby).

8 p.m.—EILEEN CASTLE, soprano:
"Morni Amor" (Brazz).
"Ma Little Banjo" (Dichmoot).

8.11 p.m.—MAGGIE FOSTER, violin:
"Serruade" (Schumann).
"Traumeria" (Schumann).

And now follow, not your best foot forward, lay aside your newspapers, your pipes, of course, your knitting and your household shirley; forget for just an hour that—really, you haven't danced for years and years—and join the light of heart from Cape York to Cape Pillar (not pillow) in the swaying rhythms of—

OUR OLD TIME NIGHT.

"... music swelling a-south through the room.
With new delights of old wyes and old songs,
Whose rich deigns the quivering nerve prolongs."
—John Freeman.

8.20 p.m.—SMART and ALMONT'S BAND:

Waltz, "Merry Wives."
8.27 p.m.—MADOLINE KNIGHT, contralto:
"The Valley by the Sea."

8.30 p.m.—SMART and ALMONT'S BAND:
Quadrilles—First Set, "Pleasantly."

8.45 p.m.—SYD EXTON, tenor:
"Two Eyes of Grey" (McGeach).

8.48 p.m.—SMART and ALMONT'S BAND:
Polka, "The Dumbkin."

8.53 p.m.—OLD TIME CHORUSES! Let us all join in!

9 p.m.—SMART and ALMONT'S BAND:
Burdens, "Baby Park."

9 p.m.—ERN TROTMAN, entertainer:
"Pipe Light."

9.11 p.m.—SMART and ALMONT'S BAND:
Alberca, "Jolly Times."

9.20 p.m.—MADOLINE KNIGHT, contralto:
"Nellie Gray."

9.23 p.m.—SMART and ALMONT'S BAND:
Schottische, "Old Memories."

9.33 p.m.—SYD EXTON, tenor:
"If You Would Love Me" (McDermid).

9.38 p.m.—SMART and ALMONT'S BAND:
Waltz, "Blue Danube."

9.42 p.m.—OLD TIME CHORUSES:
"Come Along; Don't be Hushful."

9.45 p.m.—SMART and ALMONT'S BAND:
Lancers, "Sunshine Girl."

10 p.m.—ERN TROTMAN, entertainer:
One Man Minstrel Show.

10.10 p.m.—SMART and ALMONT'S BAND:
Polka Mazurka, "La Violetta."

10.15 p.m.—MADOLINE KNIGHT, contralto:
"The Three Fishers."

10.18 p.m.—SMART and ALMONT'S BAND:
Burdens, "Back Porch."

10.23 p.m.—SYD EXTON, tenor:
"Early in Our Alley."

10.25 p.m.—SMART and ALMONT'S BAND:
Royal Irish, "Ireland."

10.34 p.m.—"CARDIGAN" (Mr. H. A. Wolfe, sporting editor of the "Argus" and the "Australasian") will speak on to-morrow's races.

10.46 p.m.—The "Argus" news service. Meteorological information. British official wireless news. Island steamer movements.

11 p.m.—The Royal Automobile Club of Victoria's Safety Message for to-day is for MOTORISTS:

"Binding headlights cause many accidents. Give the other fellow a wide Safety First."

OUR GREAT THOUGHT:
"A man's fate is his own temper; according to that will be his opinions as to the particular manner in which the course of events is regulated. A consistent man believes in destiny; a suspicious man in chance."
—Beaconfield.

11.1 p.m.—JOE ARONSON and HIS SYNCO-PATING SYMPHONISTS.

11.40 p.m.—GOD SAVE THE KING.

Saturday, Dec. 17

2FC, SYDNEY

EARLY MORNING SESSION.

7 a.m. to 8 a.m.

MORNING SESSION.

10 a.m.—"Big Ben" and announcements.
10.8 a.m.—Studio music.

10.15 a.m.—"Sydney Morning Herald" news service.
10.30 a.m.—Studio music.

10.35 a.m.—The 2FC Racing Commentator:
Late sporting news.
10.45 p.m.—Studio music.

11 a.m.—"Big Ben." Studio music.
11.5 a.m.—A.P.A. and Repters' Cable Services.

11.10 a.m.—Studio music.
11.35 a.m.—A talk on Gardening, by Mr. G. J. Luckley ("Rodgum").

11.50 a.m.—Close down.

MIDDAY SESSION.

12 noon—"Big Ben" and announcements.
12.2 p.m.—Stock Exchange, first call.

12.3 p.m.—Studio music.
12.50 p.m.—"Sydney Morning Herald" news service.

10.10 p.m.—Rugby wireless news.
12.35 p.m.—Studio music.

NOTE: During the afternoon descriptions from the Rosehill Race Course, 2FC Commentator will describe each event in the running.

1 p.m.—"Big Ben." Weather intelligence.
1.3 p.m.—"Evening News" midday news service.

1.30 p.m.—Studio music.
NOTE: During the intervals of racing events the following musical items will be heard:

From the Crystal Palace Theatre, George Street, Sydney:

Orchestral items.
From the Studio:
Jack Wright, novelty pianist.

4.30 p.m.—Complete resume of the day's sporting events.
5 p.m.—"Big Ben." Close down.

EARLY EVENING SESSION.

5.40 p.m.—The chimes of 2FC.
5.45 p.m.—The "Hello Man" talks to the children.

6.15 p.m.—From the Waterfall Sanatorium:
Continuation of the Children's Service, conducted by the three Uncles: Uncle Jerry, Uncle Hal and Uncle Dick.

7 p.m.—"Big Ben."

Weather intelligence.
7.3 p.m.—Late sporting news.
7.15 p.m.—"Evening News" late news service.
7.25 p.m.—Studio music.

NIGHT SESSION.

7.30 p.m.—Programme announcements.
7.35 p.m.—From the Waterfall Recreation Room: A concert by the 2FC Hospital Concert Party on the occasion of the Patients' Christmas Party.

The combined forces of the "Sparklers" (led by Mr. Goring) and "Revelers" (led by Mr. Halbert) will present a varied programme for the benefit of listeners and patients alike.
The artists are as follows:—
R. B. Orchard.
Feggy Dunbar, contralto:

(a) "To a Melancholy (Brahe).
(b) "Three" (Alyward).
(c) "In a old-fashioned Town" (Souler).
(d) "Where my Caravan has Rested" (Lohr).

Freda Archer, tenor:
(a) "Look down, dear eyes" (Flaker).
(b) "Garden of your heart" (Doret).
(c) "Home, Little Maup, Home" (Hill).
(d) "Calling me back to you" (Sewers).

Laurence Halbert.
Carlton Fay, pianoforte solo.

Wally Baynes, comedian.
Shirley Cooke, soprano.

Brunton Glick, elocutionist:
(a) "The Curate."
(b) "Bertram, the Bachelor."
(c) "Old Barty."

(d) "Sea Wars" (Sanderson).
NOTE: The Concert will continue without a break until 9.15 p.m. to enable the artists to return to Sydney by the last train.

9.15 p.m.—From the Studio:
Late weather forecast.

9.16 p.m.—A "Hebrmann" Recital by Madame Emily Marks (soprano) and Miss Enid Hines (piano):

(a) Piano, "Devotion."
(b) Soprano, "Moonlight."
(c) Soprano, "Spring Night."
(d) Piano, "Noctella."

9.25 p.m.—Montgomery Stuart:
A Humorous Sketch.

9.32 p.m.—Laurence Macaulay, baritone:
(a) "Here's to Old Bohemia" (Czechoslovakian) (Traditional).
(b) "Good-night" (Czechoslovakian) (Traditional).

9.40 p.m.—Concluding items of the "Schumann" Recital by Madame Emily Marks (soprano) and Enid Hines (piano):

(c) Soprano, "The Lady Bird."
(f) Soprano, "Love's Tears."
(g) Piano, "Romance in F Sharp."

9.45 p.m.—From the Ambassadors:
The Ambassadors Dance Orchestra.
Conductor, Mr. Al Hammett.

9.58 p.m.—From the Studio:
Montgomery Stuart:
"Can Doo" Stories.

10.3 p.m.—From the Ambassadors:
Dance music by the Ambassadors Orchestra.

10.12 p.m.—Laurence Macaulay, baritone:
(a) "Father and Mother Dear" (Czechoslovakian).
(b) "Parasol to Bobusia" (Czechoslovakian).

10.20 p.m.—The Ambassadors Dance Orchestra.
Conductor, Mr. Al Hammett.

10.30 p.m.—Late weather forecast.

10.31 p.m.—Len Macrae, popular baritone.

10.41 p.m.—The Ambassadors Dance Orchestra.
10.57 p.m.—Late news and announcements.

11 p.m.—"Big Ben."

The Ambassadors Dance Orchestra, interspersed with vocal numbers by Mr. Len Macrae.

11.45 p.m.—National Anthem.
Close down.

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Kit of Transformer and Chokes, in separate aluminium frame, £6/10/-



EMMCO "B" BATTERY ELIMINATOR, particularly for sets up to five valves. Suitable for any type of valves. Beautifully finished with Bakelite top and enclosed in a neat metal case. Measures 8 1/2" x 5" x 8 1/2", weighs 14 lbs. Fitted with the well known Raytheon Valve. Especially constructed for use with the Australian A.C. Mains. Thousands are in use throughout Australia and New Zealand.

Price, complete with cord & adaptor £10/10/-
Kit containing Transformer and Chokes, in one aluminium frame, £6/10/-

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A present such as this cannot fail to give permanent pleasure and hours of service — besides far better radio reception.

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3LO, MELBOURNE.

Saturday.

MORNING SESSION.

- 10.45 a.m.—Description of Croquet Matches—Australia v. England, at Melbourne Club, Union Street, Windsor, by Mr. C. J. MILLER, Croquet Champion of Victoria.
FROM THE STUDIO.
- 11 a.m.—JOHNSTON'S STUDIO BOYS:
March "Dance of the Doves" (Mazurka).
Fox Trot "Drifting and Dreaming".
- 11.10 a.m.—BELLE POLLARD and WALTER WHITE, Operatic Entertainers:
Soprano, "The Mistle-Toe" (Morse).
Tenor, "Stars of Angkor".
Duet, "Eden Abonah".
- 11.25 a.m.—MAGGIE FOSTER, violin:
"Polonaise" (Wagner-B).
"Sousair D'Amour" (Chabauty).
- 11.35 a.m.—Description of Interstate Cricket Match—Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.
- 11.45 a.m.—JOHNSTON'S STUDIO BOYS:
Cornet Duet, "Bosses of the Bar," by L. Barwell and W. Hokey.
- 11.55 a.m.—EILEEN CASTLES, soprano:
"Legend of Hilda" (Piafetti).
"Viviana".
- 12 a.m.—Description of Croquet Matches—Australia v. England, at Melbourne Club, Union Street, Windsor, by Mr. C. J. MILLER, Croquet Champion of Victoria.
- 12.10 p.m.—Melbourne Observatory Time Signal.
Are you responsible whatever people may do. Don't leave a later of rubbish behind you, be careful with fire, and Cross-Country, Golfing, Hammer, Safety Pins.
- 12.15 p.m.—Metal Prices received by The Australian Mines and Metals Association from the London Metal Exchange this day. British Official Wireless news from Radio-Rover's and The Australian Press Association's cables. "Arrest" news service.
- 12.25 p.m.—Description of Interstate Cricket Match—Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.
- 12.30 p.m.—JOHNSTON'S STUDIO BOYS:
Selection, "Favorite Melodies".
- 12.40 p.m.—Stock Exchange Information.
- 12.45 p.m.—ERN TROTMAN, entertainer:
"The Graveyard's Wedding" (Paul).
"The Death of Nelson" (Vignoni).
- 12.55 p.m.—THE STUDIO ORCHESTRA:
Selection, "The Merry Widow".
- 1 p.m.—Melbourne Observatory Time Signal.
"Are you going out today?"—in the interests of general safety, care, give and obey the suggested traffic signals. Don't be or cause a casualty through any fault of your own.
- 1.15 a.m.—Description of Interstate Cricket Match—Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.
- 1.31 a.m.—JOHNSTON'S STUDIO BOYS:
Interlude—"Pavane's Gavotte".
- 1.35 p.m.—SILEEN CASTLES, soprano:
25. "Pony and the Rose" (Heslin).
26. "Twas April".
- 1.55 p.m.—Description of Interstate Cricket Match, Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.
- 2.30 p.m.—ERN TROTMAN, Entertainer:
"The Willow," Burlesque (Aron).
"The Summer Pastime" (Lano-Wilson).
- 2.45 p.m.—MAGGIE FOSTER, violin:
Popular Melodies.
- 3.05 p.m.—THE STUDIO QUARTETTE:
Selection, "The Cigarette".
- 3.15 a.m.—Description of Croquet Matches, Australia v. England, at Melbourne Club, Union Street, Windsor, by Mr. C. J. MILLER, Croquet Champion of Victoria.
- 3.30 a.m.—Description of Ten-year-old Handicap, 4 1/2 miles, EPROM RACES, by "Market," of "The Sporting Globe".
- 3.15 p.m.—Description of Interstate Cricket Match, Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. ROD MCGREGOR.

AFTERNOON SESSION.

- 3.30 p.m.—Melbourne Observatory Time Signal.
- 3.35 p.m.—JOE ARONSON and HIS SYNCOPATING SYMPHONISTS:
"The Toy Fox Trot" (Giacca).
"Just Once Again" (Ash).
"Rolling Down the Rio" (King).
- 3.40 p.m.—Description of Breast Stompe, 2 miles 1/2 chasing, EPROM RACES, by "Market," of "The Sporting Globe".
- 3.45 p.m.—Description of Interstate Cricket Match—Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.
- 3.55 p.m.—Press Reports of Croquet Matches—Australia v. England, at Melbourne Club, Union Street, Windsor.
- 3.55 p.m.—Description of Rowing—Victorian Champion Four—in Lower Yarra, by Mr. W. H. Sweeting.
- 4.10 p.m.—Description of Eprom Handicap, 1 1/2 miles, EPROM RACES, by "Market," of "The Sporting Globe".
- 4.15 p.m.—Description of Interstate Cricket Match—Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.
- 4.20 p.m.—Description of Encourager Handicap, 1 mile, EPROM RACES, by "Market," of "The Sporting Globe".
- 4.45 p.m.—Description of Croquet Matches—Australia v. England, at Melbourne Club, Union Street, Windsor, by Mr. C. J. MILLER, Croquet Champion of Victoria.
- 5 p.m.—"Herald" news service.
Stock Exchange information.
- 5.15 p.m.—Description of Interstate Cricket Match—Victoria v. Queensland, at Melbourne Cricket Ground, by Mr. Rod McGregor.
- 5.30 p.m.—Late Sporting results.

EVENING SESSION.

- 5.45 p.m.—Answers to letters and birthday greetings, by "LITTLE MISS KOOKA-KOOKA".
- 5.50 p.m.—MR. ROD MCGREGOR will now describe the final of to-day's great Test Match—Victoria v. Queensland, from Melbourne Cricket Ground; transmission from M.C.C.
- 6 p.m.—Answers to letters and birthday greetings, by "LITTLE MISS KOOKA-KOOKA".
- 6.10 p.m.—STUDIO QUARTET:
Suite, "English Folk Songs" (Vaughan-Williams).
- 6.25 p.m.—MISS SHEPHERD:
"More Strangely Ours".
- 6.35 p.m.—THE STUDIO QUARTET:
"More Folk Songs."
- 6.40 p.m.—Sporting results.
- 6.45 p.m.—"Herald" news service. Weather synopsis. Shipping movements.
- 6.55 p.m.—Stock Exchange information.
- 6.67 p.m.—River reports.
- 7 p.m.—Market reports by the Victorian Producers' Co-operative Co. Ltd., Poultry, grain, hay, straw, jute, dairy produce, fruits and onions. Market reports of Australia.

by the Victorian Fruit-growers' Association—retail prices. Wholesale prices of fruit by the Wholesale-Fruit Merchants' Association, Cairns fruits.

NIGHT SESSION.

- 7.15 p.m.—MR. NORMAN BROOKES, president of I.T.A.V., will speak on "The Visit of the French Tennis Champions".
- 7.30 p.m.—Mr. Ed. E. Prescott, Australia Guinea Flowers and Buttercups.
- 7.45 p.m.—DR. J. A. LEAVER:
"Tess-Ducks and Shelducks".
- 8 p.m.—MR. E. A. EDMANSON:
"The Work of the Sutherland Homes Committee".
- 8.15 p.m.—Presentation of prizes to the winners in the singing grades of the I.T.O., Melbourne, Child Radio Song Competition.
- 8.20 p.m.—STUDIO PRESENTATION OF THE OPERA
"FAUST," Part II.
(Under the direction of E. SUTTON CROW, assisted by THE STUDIO ORCHESTRA and ALFRED METHUEN CHORUS).
CAST.
Faust JOHN D. SULLIVAN, tenor.
Mephistopheles THOR. GREGG, bass.
Valentine ALEXANDER WAGNER.
Margherita BROWNE, baritone.
Yvonne F. DAVIES, bass.
Martha ELISE DAVIS, soprano.
Suzanne IRA LILLEGRAFF, soprano.
Martha MYRTLE WALLACE, mezzo-soprano.
Mephistopheles MEXX-SOPRANO.
- 10.10 p.m.—BELLE POLLARD and WALTER WHITE, operatic entertainers:
Soprano, "She is Far from the Land" (Lambert).
Tenor, "Songs of Araby" (Clay).
- 10.15 p.m.—MAGGIE FOSTER, violin:
"Chanson" (Froelich).
"Winged" (Schubert).
- 10.24 p.m.—EILEEN CASTLES, soprano:
"Aida" (Debussy).
"Retour d'Alsace" (Smetana).
- 10.31 p.m.—JOE ARONSON and HIS SYNCOPATING SYMPHONISTS:
"When Will We Meet Again" (Flacino).
"Jack in the Box" (Niebel).
- 10.37 p.m.—ERN TROTMAN, entertainer:
"Grand Opera" (Original).
- 10.44 p.m.—Late sporting results. Island Races movements.
The Royal Automobile Club of Victoria's Safety Message for to-day is for EVERY-ONE:
"Don't fall asleep when crossing a thoroughfare—you may wake up at the hospital."
Going picnicking to-morrow—remember to be careful with matches and camp fires—don't let it be on YOUR conscience that through sheer carelessness happy homes are reduced to ashes and desolation.
- 11 p.m.—GIB GREAT THOUGHT!
"The art and born in misery, the Almighty never called any of his creatures into the world to render them unhappy, yet man may be wretched from his own follies and vices."—Salomon Gessner.
- 11.15 p.m.—JOE ARONSON and HIS SYNCOPATING SYMPHONISTS.
- 11.40 p.m.—GOD HAVE THE KING.

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CANDWINDBA (CANGWINDBA).—Q: Why have the final numbers completely changed on my 4V "Radair"? I had a goodly number of stations fitted with fixed coils but rather suddenly the whole lot seems to have changed and now I have to "hunt round" before I can strike correct setting of this (two). Please explain if possible.

A: I think if you look to your aerial or your earth lead outside, you will find the trouble. Probably too some connection has broken in one of the components. This would cause this effect. If neither of those conditions are correct, then it would be better to get in touch with the agents for your set.

C.A. (MILLUMBIMBY).—Q: I would be very much obliged to you if you could enlighten me on the following subject.—Although Station 400 comes in perfect in the day-time, it is very distorted at night. You can hardly understand a single word. It is as though someone is talking with his mouth full. — to speak. I must say that everyone else I have spoken to in this district, say the same thing. All Southern stations, also N.E., are O.K. Our distance from Brisbane is 116 miles.

A: I must confess that I experience the same distortion from 400 at the present time. Many readers have written in advising me also to this effect, so I am afraid that you will have to accept this matter for the time being.

P.P. (SYDNEY).—Q: I have a new 5 Valve autodyne, and get extremely poor reception of interstate stations, same being very faint, and I do not get Hubert or Western Australia at all. Valves are 2 Philips AC39 and 2 Philips A499. Aerial fixed, including lead in. Batteries are: 1 Ever Ready A Battery, No. 135, 2 Columbia Batteries, No. 472, 2 Standard Accumulators.

A: The valves you have are quite suitable as are your batteries. Don't expect to receive Western Australia in a Neutrodyne, because this station transmits on a wavelength that the Neutrodyne will not tune. Hubert—You should get to this station to within the range to which the average neutrodyne will tune. Try a B40 on the last audio stage, and make your 5 valve on this stage alone. If your neutrodyne has been properly built you should not receive the Inter-State very faintly, rather should all Inter-State stations be loud on the speaker. It is hard for me to diagnose the cause of faintness, without seeing the receiver, so I would suggest that you take it to your dealer and ask him for his comments.

O.T. (ROCKDALE).—Q: A friend of mine built a 2-Valve Harkness Reflex Set, with which he received very good results of both local and inter-State stations. As I was not satisfied with my Browning Drake set, I decided to try the Harkness. Wanting to keep the cost down, I used 0005 variable condenser and No. 25 wire for the coils. With these I am able to get good local reception on the local speaker. What I wish to know is—(1) Can the 0005 condensers be used in place of the 00035, with success when using the standard gauge of wire, No. 25? (2) If so, would there be any difference in the number of turns in the coils. I am sure that with another valve added, that this set would be worth while sticking to. (3) Would like to get the circuit for a 2-Valve Harkness Reflex, which I understand from the week's "Wireless Weekly" was printed in April, shall I send the money by post, or will it be necessary to call at the office.

A: You had better only use a secondary on 50 turns in each of the R.F. transformers, you don't seem to have the larger 2 submers. It is not advisable to add another valve to the receiver just yet. The usage of wire you use is quite in order. I am glad that there are no copies of the Harkness 2-Valve receiver available. Your aerial should not be more than 50 feet overall with this receiver.

W.D.K. (LISMORE).—Q: Constructed my "Luxury" Marconi 5-Valve set some time ago, and up to date it is giving really remarkable results. On receiving your description of the 3-Valve "Elophone" will being the new variation set, I was just wondering whether I would be justified in building this receiver, and using what parts I could from the "Luxury."

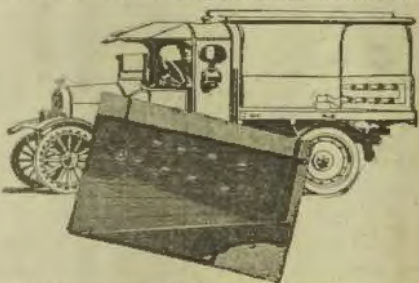
A: Now, I can't really tell you this, it is a matter for you to decide, if you are of the experimental turn of mind, go and build it, and let me hear how you get on.

G.G. (BRISBANE).—Q: I have a 5-Valve Neutrodyne set, employing the Ayrton coil, three 0005 condensers, and two signal transformers, 3/2 and 5/1, and two valves, radio A425, Del. AM9, Audio D300. I would like you to tell me through some "Wireless Weekly" if I am using the wrong kind of valves for inter-state work, also if I can do better with different transformers.

A: Both valves and transformers are O.K. See that you have the 3:2 transformer in the first stage.

WORRIED (BRISBANE), T.H.W. (WAGGA).—Q: Will you kindly let me know where I can obtain the correct identifying calls for an Eagle Triplex Charger.

A: Messrs. Swan & Co. Ltd., of Fitzroy, Sydney, can supply you with all the parts for this charger.



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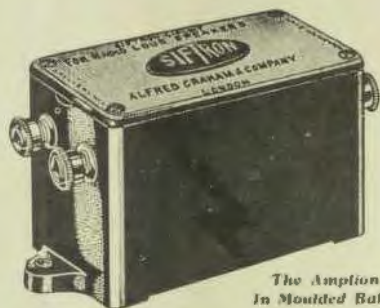
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