

Complete Broadcasting Programmes a Week in Advance

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Wireless Weekly 3^d

INCORPORATING "RADIO IN AUSTRALIA & NEW ZEALAND"

VOL. 14. NO. 4.

FRIDAY, JULY 19, 1929

(Registered at the G.P.O., Sydney, for transmission by post as a newspaper.)

The BABY GRAND

"a Grand Speaker"

£3'15'0



Ross A. Hull
Describes the
**STANDARD
A.C. FOUR**

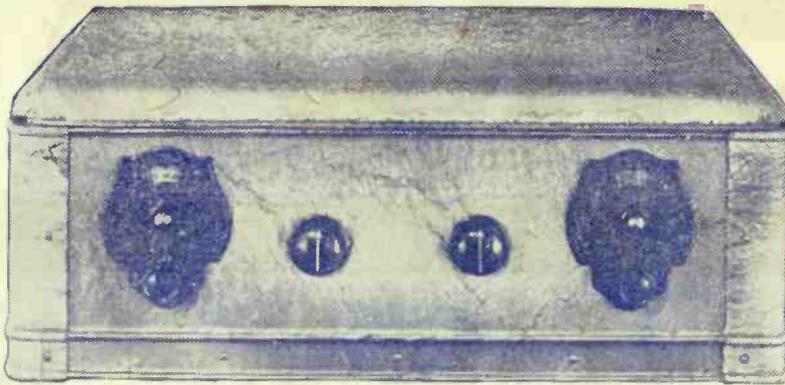
SOMETHING NEW
IN SET DESIGN

EXAMINING
TELEVISION
PROBLEMS

PHILIPS

RADIOKES "AC 3-33"

—OFFICIAL FOUNDATION KIT—



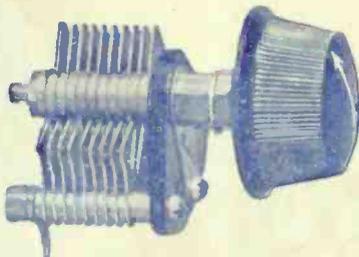
Radiokes Steel Containing Cabinet, all drilled, and beautifully finished in latest two-tone bronze ripple, supplied in knockdown form

has been chosen as the best for use in construction of this truly remarkable receiver.

The practical solution of the A.C. Set problem.

This Kit allows the Home Constructor to build a full electric receiver with the appearance and performance of a high-grade factory product.

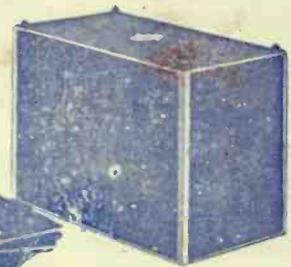
Your electrical and mechanical problems for A.C. Set construction have been solved in the "big" laboratories, and this Kit puts the results of these long and patient researches at your disposal for quite a moderate figure.



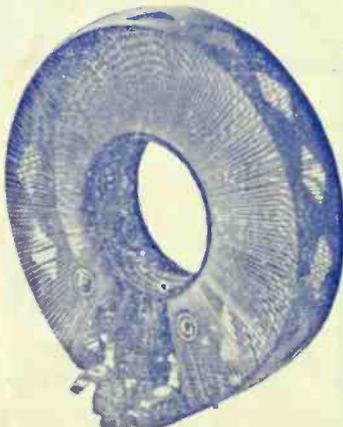
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| All Electric "Standard" | 42 | 0 | 0 | 10/9 | wkly. |
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| All Electric "De Luxe" | 48 | 10 | 0 | 12/3 | " |
| Battery "Standard" | 42 | 10 | 0 | 10/9 | " |
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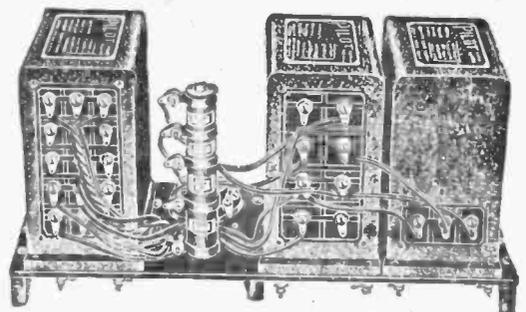
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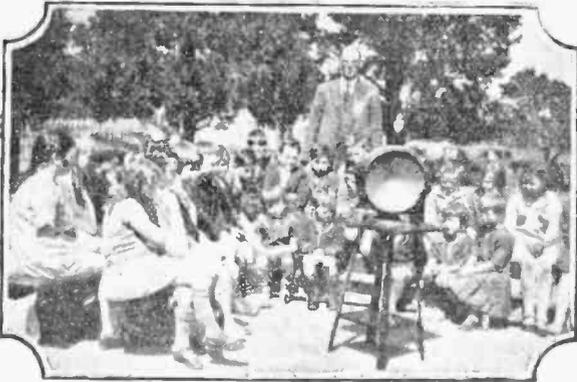
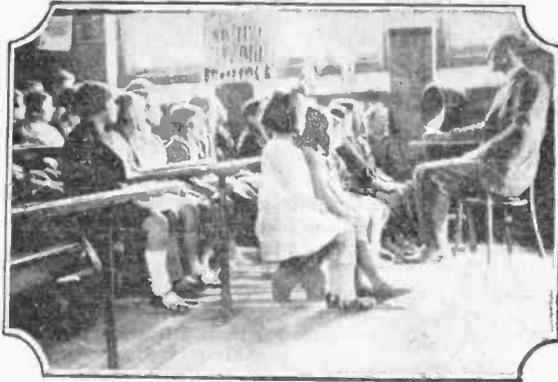
Branches All States and New Zealand.

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Friday,
July
19,
1929.

Wireless Weekly

Incorporating "Radio in Australia & New Zealand"

Address:
Box
3366 PP.
G.P.O.,
Sydney.



Pupils of the public school at Sutton Forest listening in. These young people have the reputation of being the best writers in the State, having taken many prizes; but we doubt whether they learnt the art by radio.

::: RADIO EDUCATION :::

One of the new company's undertakings under the conditions of their contract will be the education of listeners by radio. Some of the problems.

(By H. W. JOHNSON)

IT is expected that in the National Broadcasting Service to be inaugurated next month more attention will be paid to education than during the past four or five years. The specification to which the Union Theatres group tendered contains certain stipulations rendering it obligatory to give attention to educational matters. And in order to ensure compliance by the company the Government intends setting up advisory committees, which presumably will include representatives from the Universities and Education Departments.

Broadcast education is not new, and the new company will have the benefit of the experience of the British Broadcasting Corporation, and other organisations in Europe. The methods of teaching by radio have been tried out and have lived down the early opposition of educationists; lived it down so well that the critics of a few years ago are now strong advocates for broadcast teaching, and render valuable assistance to the interested companies.

It may well be that Australian listeners will not take kindly to being educated by radio. They are not accustomed to the somewhat patronising methods of the older countries and are likely to voice an objection to instruction unless for the schools.

The B.B.C. has shown that adult education can be successfully carried on by radio. The group-listening methods have been carefully fostered, and recently the Corporation organised a school for group leaders at Hull. The group leaders were instructed in the proper methods of arranging for the most satisfactory reception of the lectures, etc., broadcast so that members of the group would be prepared beforehand for the radio lecture, and

during its rendition would be amidst surroundings both technically and psychologically suitable for the best results.

Strangely enough, this method of group listening appears to have started in Russia where it is still the strongest characteristic of the broadcast services. With wise forethought the Soviet leaders energetically fostered the extension of radio. It was recognised as a most suitable medium for the peasant population of Russia, where over 76 per cent. are illiterates. To those people the newspaper or other printed matter was useless, and the advent of a means of conveying the spoken word simultaneously to millions scattered throughout the Soviet States was a happy relief to the Government, which depended so much on the success of its propaganda. The radio companies were helped by the Government to such an extent that over 60 stations have been established.

The number of listeners cannot be gauged as most of the listening outside the large cities is done in groups. The license fee for listening is ridiculously small, and in many cases the Government has given sets of equipment free to groups of peasants or factory workers. The programmes consist mainly of news and information specially prepared and broadcast in a manner suitable to educated listeners.

The Soviet radio authorities were wise in another direction, in deciding to use long wavelengths for their stations. By doing so the range of service over Russia has been made much wider than in other countries for stations of similar power on shorter wavelengths. Long wavelengths—of the order of 1000 to 2000 metres—are not so subject to fading as waves of say, 300 to 500 metres, and the day range, i.e., the ground radiation, is much greater in distance on the longer waves. The interference by atmospherics is, of course, greater on the long waves. That disadvantage is outweighed by

the advantages of daylight range and freedom from fading.

In Germany too much attention has been given to broadcast education. The programmes of the stations of the various companies are subject to approval of State education authorities and other official bodies. The news items are provided by one special source, which is comprised mainly by representatives of the press organisations.

The German programmes differ from ours or from English programmes in the class of item broadcast during the day sessions. Whereas British services, even during the day contain a preponderance of music, in Germany the day sessions are almost exclusively devoted to educational matter. And in the evening the adult education items are featured regularly. Mainly, of course, the evening sessions are given over to music; the day is for heavier matter, and the night for lighter items.

What will the Australian Broadcasting Company do about education? Will it organise day sessions for schools, and include a regular sprinkling of educational talks and lectures in the evening for adults? That would appear to be the manner in which the matter should be approached. The school sessions will need to be handled carefully, as some experimental transmissions in Sydney and Melbourne a few years ago were found by the educational authorities to be unsatisfactory. Whether it was in the quality of reception in the schools or in the matter broadcast was not clearly stated. At all events, the necessary co-operation from the universities and education authorities was not forthcoming.

Radio education—the University of the Air as the Americans call it—can be of immense value, and need not, indeed, should not, be confined to normal scholastic subjects. A very popular and successful feature of the National Broadcasting Company's service in America is the musical service conducted by Dr. Damrosch—an illustrated musical lecture for schools and colleges by a recognised authority on the subject. Such a service could easily be introduced in the national

BETWEEN YOU AND ME

IT'S a serious business, writing a funny page. Here we are, with five minutes to go, and the composing-room ringing like a fire engine, and we haven't anything to write about, because we've already written about the new company and the old company, and broadcasting's in the doldrums, and there isn't any news, and life is dead as salt pork.

We ought to be able to write something about Uncle Bas or Aunt Willa, or Mr. G. Vern Barnett, or Mr. Horace Keats, or Mr. Eric Bessemer, or Mr. Ewart Chapple; but we haven't seen them for days and days and days. There goes that phone.

Three minutes. We ought to be able to write something about queer aspects of broadcasting, or sift a little humour out from the studio happening; but that's all impossible now. There is now no heart in broadcasting; and where there is no heart there is no humour. A wise saying, which ought to be treasured in future, if it has not already been treasured in the past. No Heart; no Humour. No Humour; no Heart.

Wonderful Remark! We wish we could discuss it with Laurence Sterne. That damn bell again.

Anyhow, we have always tried to be humorous. Always tried. Tried.

How about an apology. An apology for ourselves? An apology to our characters? An apology to our public? Make it an apology to everyone. O Space! Space! What crimes are committed in thy name! Two minutes.

To our Dear Friends, the Artists and the Public

At least, we suppose so. We may as well call them friends, to begin with. They will do the calling in the end.

To our Dear Friends, the Artists and the Public

Sounds like the Famous Actor's Farewell.

To our Dear Friends, the Artists and the Public: Speaking firstly to the Artists and Announcers, et cetera, of 2FC and 2BL.

Dear Sirs and Madams,—In the past this page has concerned itself somewhat deeply with your foolish movements.

Cross out foolish. There's that. One minute.



AND THE MICROPHONE

about anyone wouldn't even please his own relations.

Time's up. Give us three more minutes! This apology stunt is good stuff. It was used only recently to advertise a theatre. . . . Then . . . Two minutes? One and a half minute? Good-oh. Thanks.

Therefore, to Mr. G. Vern Barnett, Mr. Ewart Chapple, Miss Kathleen Roe, Mr. Basil Kirke, Captain Stevens, Mr. Eric Bessemer, Mr. Halbert, Mr. Keats, Mr. Tom Innes, Mr. Cochrane, and all the other victims of our typewriter, we offer our sincerest, deepest, and humblest apologies. We recognise our past faults. We recognise our former lapses. We recognise all these things, because at this period in broadcasting it feels comfortably sentimental to remember them, before we begin afresh.

One more minute

Before we begin afresh. Yes, indeed! In the past we have made many mistakes. In the future we shall try not to make so many. We shall attempt to tell the truth about everyone, even if it does bring on libel actions, or lose us our more respectable subscribers.

Half a minute. . . . How'll we end it off?

Do it in the manner of John Wilkes. Hence, in the future, dear artists, we shall give you no SPACE to COMPLAIN of our endeavours to serve you.

Good! Fifteen seconds. Time for an apology to the public? No. Imagine any sensible man reading this far! Poor old Public!

In the past—and we admit it—we have grossly slandered everyone in the above-mentioned stations. Cut out grossly. We have put down inaccurate statements of things that didn't happen; and we have

Listeners We All Know.—No. 7

MR. BRUCE LISTENS.



HERE is Mr. Bruce, listening in to the A.B.C.'s early programmes. What is Mr. Bruce thinking? No one can tell what Mr. Bruce is thinking.

Because he has so many things to think about. He may be thinking about that horrible deficit; or what he will do about the Soviet; or how he will ensure peace in Australian industry; or whether he did right by returning Arbitration to the States; or perhaps he is thinking up a new Royal Commission, or pondering over the recommendations made by a

very old one; or wondering whether the newspaper cartoonists really dislike him, or only do it for fun. (This last would seem to be a good thing to wonder about. We've often wondered if a Prime Minister ever wondered about things like that.)

Poor Mr. Bruce! Even in his spare time, he cannot—or should not be able to—listen to broadcast music or amusement. We expect any minute to hear that he has appointed a Board to Listen-in for him; and to make tabulated reports of what they have heard for his amusement and edification during his spare moments.

put down accurate statements of things that shouldn't have happened; and there was no good in any them, except that they filled up our wide and open spaces, and gained us a certain unenviable reputation as an unbiased slander-monger. In these things we have never considered anyone's interest but our own.

Half a minute.

We have never told the truth about anyone; and if we have we have told the Wrong truth always, just out of spite; as we know very well that the truth



Let's Get This TELEVISION Business Straight -

By D. E. REPOGLE

Our contributor is the principal of a well-known American laboratory, and in this article reviews the problems of radio motion picture transmission.

THOUGH television is on the eve of making its bow to the public, in experimental form at least, undue optimism is entirely out of order. There are many and serious problems standing in the way of a satisfactory television service at this time. Television, be it noted, is a most complicated branch of engineering, involving an intimate knowledge of radio, electricity, mechanics, gaseous conduction, distortionless amplification, modulation and demodulation, photography, optics, and even a new stage technique. We have much to learn of all these.

Some hold that the major problems of television are those of presentation, but with this view we are not wholly in accord. They exist, to be sure, but they are secondary and their solution is in capable hands. Once we have mastered the technique of television transmission, there should be no dearth of subjects. All the world is our stage, and we may draw upon it as we will. For the present, we must content ourselves with simple shadowgraphs or silhouettes; later, as our knowledge and technical facilities increase, we shall perhaps stage playlets; and ultimately we shall televise speakers and artists before the broadcast microphone, leaving the aural accompaniment entirely at the option of our audiences. After all, the television presentation is a fleeting and instantaneous thing, best suited by long odds to portraying a given subject at a given instant of time. But, before we concern ourselves with the pictorial natural of our television images, we must first solve the problems attendant upon their propagation and reception.

WAVE CHANNELS

Our first major problem, then, is that of detail. And it is a most intricate one, involving dot elements, time co-efficients, luminous intensity, accurate synchronisation, and, last, but not least, available wave channels. We may assume it to be a matter of common knowledge that, because of the width of channel required, television is not possible on standard wavelengths. We are, therefore, compelled to resort to short-waves or high frequencies, thus automatically assuming the responsibility for the solution of a number of intricate problems. Short waves, it will be noted, are by no means UNI-



C. FRANCIS JENKINS, with his first home television set. Mr. Jenkins is now at work perfecting television-movies for the home. The home television set shown above is remarkable for its simplicity, in that it is attached to an ordinary radio-receiving set.

VERSAL in their application. Indeed, a critical analysis of the essentials of a satisfactory television service discloses the fact that we shall have to utilise THREE separate but simultaneous short-wave channels in meeting the peculiarities and requirements of urban, rural, and long-distance reception.

BASIC TECHNIQUE

In view of the fact that sound broadcasting is carried on within relatively narrow limits, it may come to some to ask why we require an excessively wide channel, say 100 kilo-cycles, for the propagation of the television image. The reason is that the width of channel determines not only the dimensions of the image itself, but the amount of pictorial detail possible as well. For example, a standard radio channel 10 kilo-cycles wide, would permit us to handle only close-ups and other simple figures, and would admit only of the crudest detail. In order that the reader may better appreciate why this is so, we shall, at this point, briefly analyse the basic television technique as we know it to-day.

At the transmitting end we simply break up our subject into a number of parallel and overlapping lines by means of the familiar scanning disc—a circular plate with eccentrically placed holes. A photo-electric, or light-sensitive, cell converts the varying intensity of these lines into varying electrical impulses. These are amplified in the conventional manner, and impressed on the outgoing waves of a broadcast transmitter. At the receiving end the signals are further amplified and fed to a neon glow tube or

kino-lamp—a sensitive device whose luminosity varies with the modulation of the incoming wave. Our problem is to re-convert this luminosity into lines whose gradations are similar to those obtained at the transmitting end. For this purpose we employ a scanning disc, which must be revolved in perfect step with the one at the transmitting end. The holes in the disc break up the glowing plate of the kino-lamp into a series of lines of varying intensity. At any given instant, however, there is just a single dot of light on the television screen, and its brilliancy or dullness is a function of the modulation of the incoming radio wave at that particular instant. The speed of these successive dots is such that in 1-15th of a second they seem to form lines which in turn unite to weave an entire animated image. It is, therefore, obvious that television is basically an optical illusion, which depends upon the persistence of human vision and upon the slowness of the eye to assimilate ultra-rapid changes of scene.

NUMBER OF LINES

We thus see that the television image, like the newspaper half-tone engraving, is simply a pattern of closely-woven, successive lines. The problem, therefore, resolves itself into questions of how many lines we are using, how much contrast we have between the maximum and minimum intensity, how accurately our lines meet or overlap, and how well we are able to maintain synchronism between two scanning discs. There is, however, a great difference between the half-tone engraving and the television image. Crude in

detail as the former is, it contains 65 vertical and horizontal rows to the square inch, or a total of 4225 dots. Now, in order to weave an even cruder television image, let us say of 50-line texture, or corresponding to 2500 dots to the square inch, we have to transmit its lines in less than 1-16th of a second, or at the stupendous rate of 40,000 dot elements per second.

PICTURE DETAIL.

Referring again to the newspaper half-tone, let us call attention to the fact that a minimum image of about 3 x 5 inches is required for viewing persons and events intelligibly. To achieve this in television practice, even with a 50-line texture, we would have to build up an image 150 lines high and 250 lines wide, a feat which would compel us to transmit the equivalent of 37,500 dot elements in 1-16th of a second. For the present, we have accepted the 100-line image as standard technique, inasmuch as it can be transmitted within an 80-kilocycle wave band, and permits of a reasonable amount of detail. Even, however, with a 100-kilocycle wave band, we may not hope to attain anything like the crystal-clear detail of the present-day motion picture. It must now be obvious that the systems employing 24-line images, which may be crowded into a wave band of 4 or 5 kilocycles, are wholly inconsistent with a serious television service.

In addition to being critical in the matter of screen dimensions a wide channel, as we have intimated, is essential for proper detail. Both high and low frequencies are absolutely essential. If, for example, we delete the low frequencies we introduce extraneous shadows and change the tone of the picture. On the other hand, if we light or cut off the high frequencies we eliminate the sharp lines which are essential to good detail. Further, cutting off the high frequencies will also limit us to slow motion, inasmuch as any rapid action will always appear blurred and indistinct. In general, we might say that television requires a band at least twenty times as wide as that required for the broadcasting of music and speech.

We now come to a consideration of our

second major problem, which is that of luminosity. We have accomplished wonders with present neon tubes with their low candle-power, but there is still room for a world of improvement. It seems highly probable that we shall have to develop a lamp which, while retaining the delicate sensitivity of the neon tube, is capable of vastly greater illumination. Further, we must work out more efficient methods for utilising and conserving the limited amount of light at our disposal. Considerable progress has already been made along these lines by C. Francis Jenkins, of Washington, D.C., who has developed a multiple target neon lamp and an ingenious scanning drum which utilises light-conducting quartz rods. Mr. Jenkins, E. F. W. Alexanderson, and others have developed scanning discs with matched lenses which permit us to make a more efficient use of the light source. The matched lense scanning disc requires an exceptionally powerful neon spot light, but so much progress has already been made by both American and European experimenters in this field that we may consider the problem well on the way of a satisfactory solution at this time.

SYNCHRONISATION.

Our third major problem is that of synchronisation. If television were to be limited to metropolitan areas, where the same alternating current systems are available, it would be a relatively simple matter to keep the two scanning discs in step by means of synchronous motors. Television, however, will doubtless extend to territories in which the same current is not universally available, and we must, therefore, develop some independent means of achieving our end. Already, ingenious speed controls with centrifugal governors making and breaking contacts across speed-control resistances have been developed. Another ingenious device is a gear arrangement which permits adjustment of the phase relation between a synchronous motor and the position of the disc when it is in motion. Under this arrangement a synchronous motor can be used to drive the transmitting mechanism, and the scanning disc at the receiving end can

be controlled so that it can compensate for the difference in phase between transmitter and receiver.

BREAKING DEVICES.

It seems highly probable, however, that the ultimate solution of the problem of synchronisation will be found in the use of ingenious breaking devices which will regulate the scanning disc by means of a definite frequency impressed on the television carrier wave along with the signals themselves. Or perhaps there will be a synchronisation signal which will be sent out for each revolution of the scanning disc at the transmitting end, and which will tend to start out the scanning disc at the receiving end in step with the transmitting disc at each revolution. These, however, are just possibilities. There are many ways of achieving synchronous operation, as we have outlined.

Then, too, the problem of a nation-wide television service is a most serious one, and the production of television receivers on a commercial basis is going to be seriously impaired until some such service is available. The general public can hardly be expected to purchase televisions for home use until it is assured that there are really pictures to tune in. In this connection, it seems highly probable that, in the beginning, at least, we shall make use of the so-called "radio movies." C. Francis Jenkins, Frank Conrad, of Westinghouse, and others, have already worked out practical systems operating on this principle. The subjects are first recorded on a motion picture film from the negative of which any desired number of positive prints may be made. One of these is placed in a transmitting device which scans each frame line by line.

The advantages of the film pick-up are numerous. The subjects may be filmed under the ideal conditions of the motion picture studio, and with all the talent desired. The positive prints may be widely distributed and broadcast by any station without special skill or expensive equipment. Thirdly, it is possible to effect a nation-wide hook-up without the use of wire lines.

The CONTINENTAL RADIO FAN'S PROGRAMMES

OF course, being Australian isn't a cause for too much sorrowing; but for Australians blessed with radio sets and capacities for appreciating good programmes, the Continent is a little too far away. These things were planned before radio became a commercial proposition.

Consider, if you happened to be on the Continent on Sunday, May 26, 1929, and if you had a nice four or five valver, you could hear these main features:—

Concerts.

3 p.m. Munich: Symphony concert.
8.30 " Milan: "Lucretia Borgia" (Donizetti).

9 " Frankfurt: Symphony concert.
9.15 " Stuttgart: Wagner concert.

Operas and Operettas.

8 p.m. Hamburg: "Spring-Air" (Reiterer).
8.5 " Cologne: "The Orloff."
9 " Rome: "Turandot" (Puccini).
9.35 " Zurich: Third Act from "The Mastersingers."

Plays.

4.30 p.m. Leipzig: Two plays by Tchekov.
8.20 " Eiffel Tower: "Babylone" (Pelland).

Other Events.

3 p.m. Brussels: Belgium-France Football Match.

On Monday, May 27, 1929, you could have tuned in to:—

Concerts.

8 p.m. Leipzig: Popular concert.
8.20 " Eiffel Tower: Symphony concert.
8.30 " Prague: Symphony concert (International Relay).
8.30 " Toulouse: Concert (orchestral and vocal).
9 " Leipzig: Symphony concert (three first productions).
9.20 " Munich: Chamber music.

Operas and Operettas.

8 p.m. Königsberg: "Sly" (Wolf-Ferrari).
9 " Naples: "L'Amico Fritz" (Mascagni).

On Tuesday, you might find something to interest you among the following:—

Concerts.

8.15 p.m. Breslau: Orchestral concert.
8.15 " Posen: Symphony concert, Festival of Polish Music.
8.30 " Milan: Concert of old Italian music.
9 " Berlin: Pfitzner chamber music (composer at the piano).
9.30 " Stuttgart: New music (by contemporary composers).

Operas and Operettas.

7.30 p.m. Vienna: "La Boheme" (Puccini).

8.35 " Radio-Paris: "Le Chemineau" (Leroux).

9 " Rome: "Romeo and Juliet" (Zandonal).

Plays.

8 p.m. Cologne: "A Glass of Water" (Scribe).
8 " Frankfurt: "The Duppler Murder Case" (a radio play).

FIFTH DISTRICT STATIONS.

THE following amendments should be made to the list of stations published in the WIRELESS WEEKLY supplement on May 31:—

SOUTH AUSTRALIA

VK5BZ: Name is Cridge, not Bridge.
VK5CF: Address, c/o Box 32, M'Laren Vale, S.A.

VK5GR: G. B. Bragless, South Road P.O. St. Mary's, S.A.

VK5GA: G. R. Anderson, Kingscote, Kangaroo Island, S.A.

VK5IT: Not VK5IL.
VK5NC: Norwood Radio Club (E. Shepard), 10 Watson Ave., Rose Park.

VK5RE: Name is HOBROFT.

VK5XG: Closed down.

VK5HP: Closed down.

VK5JM: Wayville Radio Club, 313 Young St., Wayville, S.A.



HARRY GRAHAM,
New 2BL Announcer.



GWEN GIBSON,
Programme Booker.



HARRY THOMAS,
Dickens' Recitals.



CEC MORRISON,
Symphonic Dance Numbers, Household Helps Department.



RUTH FURST,
Household Helps Department.



MOLLIE O'DOHERTY,
Revue Numbers.

COMING PROGRAMME FEATURES

How the A.B.C. is gathering together new features for broadcasting

MR. HARRY GRAHAM has been appointed to 2BL's announcing staff. For the past two and a half years Mr. Graham has had considerable broadcasting experience in England and Australia. He spent three years in the merchant service. His comic turns among his shipmates led him to the stage, where he established himself as a comedian of more than usual abilities, topping the bill at various English variety houses. He is so well known to Australian listeners-in that he needs no further introduction from us.

Miss Gwen Gibson, former programme director for the New South Wales Broadcasting Company, will act in the same capacity of programme booker with the Australian Broadcasting Company, Limited. Miss Gibson will interview would-be broadcasters and, providing they possess the necessary qualifications, will introduce them to Madame Evelyn Grieg and Mr. Laurence Halbert, studio producer. Miss Gibson possesses what may be termed a thorough knowledge of the details which go to make up a broadcast programme, and should prove a popular member of the personnel of the Australian Broadcasting Company, Limited.

TUESDAY: DANCE NIGHT.

TUESDAY night has been set aside as a special dance night from 2FC for the remainder of this winter. A special twelve-player dance band will broadcast from 8 to 11.30 o'clock, breaking only for short popular song items. These dance nights will be continued definitely through the winter.

CEC MORRISON'S DANCE BAND.

Another feature will be Cec Morrison's Symphonic Dance Band. Cec Morrison is well known as a conductor of dance bands. He studied under Henry Penn at the Conservatorium. His combination (ten men, doubling on two or three instruments) appears at the Australia every Thursday night.

Mr. Morrison is now aiming at symphonic presentations of dance numbers, as featured by the world's foremost conductors, and his band will be a regular feature from 2FC.

WIRELESS SINGERS.

The Wireless Singers are now in rehearsal under the conductorship of Mr. Harry Sherlock. They will appear weekly from the studio. Every month they will be heard with studio productions of comic operas and musical comedies, to be organised by Mr. Sherlock. For some time past Mr. Sherlock has been organising light musical comedy and opera for presentation from 2FC, and has achieved several successes. His future productions should be on a more ambitious scale, and

MR. A. J. HEYMAN.

The children's session from 2FC will still be visited by Uncle Ted and Sandy every Thursday evening. Uncle Ted and his funny doll, Sandy, have in the past proved very great attractions to this session. For Mr. Heyman is a clever ventriloquist. He is also interested in the Cheer-up Society of Mr. Frank Grose, and his assistance will be available there as before.

MISS WILLA HOKIN.

Radio nephews and nieces will be pleased to hear that their Aunt Willa will continue to sing and talk and tell them stories during the evening children's session. Miss Hokin is a Sydney girl, and holds several degrees in music, and is an amateur actress of considerable ability. She will appear in the children's session from 2FC on Mondays, Wednesdays, and Fridays.

COUSIN MARJORIE.

And the radio children's session will also be indebted every Wednesday, at least, to the charming voice of Miss Marjorie Pritchard who, at 15, is known to children all over Australia. Cousin Marjorie is also something of an artist, and many of her drawings have appeared from time to time in **WIRELESS WEEKLY**. Her father is the well-known Mr. Fred Pritchard, builder of fast boats, who sold Kingsford Smith his hydroplane, renamed Miss Southern Cross, from Miss Pritchard.

HOUSEHOLD HELPS.

The "Household Helps" department will embody community service in its truest sense. This department will cover cooking talks, hints to housewives, domestic notes, and week-end suggestions for those at home, for tourists, and picnic parties. Every recipe and suggestion covering the vital problem of food-stuffs will have been tried out and fully analysed before its details are broadcast. This service will have the guidance of Miss Ruth Furst, who, for the past eight years, has been in the employ of the Australian Gas Light Company, Limited, as chief lecturer in their demonstration rooms. Miss Furst is no stranger on the air. She has provided listeners during the past four years with over 2000 recipes and answered over 10,000 queries from city and country centres. The importance of this department is to be greatly increased under the new regime.

MISS GWEN VARLEY

Well known to listeners as the founder of the 2BL sports session, Miss Gwen Varley will continue to broadcast from 2BL. Since the foundation of her session in 1926 she now has over 400 members. The association provides sport for the woman in the home, who has been uncatered for in the past. Miss Varley will also speak on Tuesdays and Fridays, from 6.45 to 7.5, on an elder girls' session, to be known as the Girls' Radio Club. She should have big

one of her special talks will be on the subject of Girl Guides.

Miss Varley has achieved great success as one of the founders and secretary to the rapidly-growing City Girls' Sports Association, which is proving a vital necessity to the business girls of this city.

JIM GERALD

Jim Gerald is the highest-paid comedian on the Fuller circuit. He only recently returned from a tour of the world, where he studied European theatrical presentation in every phase.

Mr. Gerald's services as a comedian were secured for the first programme on the air from 2FC on July 17 of the new company. This will be his first broadcast appearance in Australia. He is his own author and producer.

MISS BESSIE BLAKE

A coloratura soprano who has never yet been on the air, and is perhaps one of Sydney's finest singers, is Miss Bessie Blake. Miss Blake received her tuition from Signor de Giorgio, who put on a special opera for her at the King's Hall some time ago, when Miss Blake made musical history in "La Serva Padrona."

Miss Blake realises that there is little scope in operatic work for her in Australia, and has transferred her interest to comic opera, and has been engaged by Sir Benjamin Fuller to appear in musical plays on his circuit.

THE BIG FOUR

"Charles Perrin, Cliff O'Keefe, Frank Wignell, Fred Webber," comprise one of the finest male quartettes in Australia, known as the Big Four. They are now in the course of a tour on the Union Theatres circuit. They are four vocalists who put over their stuff in a different style from other quartettes. They are comedians, actors, instrumentalists, when the occasion arises, and of course, vocalists of high order.

Presenting a 12-minute programme, entitled, "Music and Mirth," they are bound to earn the applause of thousands of listeners all over Australia.

MOLLIE O'DOHERTY

Engaged to appear in the leading role of "Billie," the scheduled musical comedy for the St. James Theatre at the end of August, Mollie O'Doherty will make her first broadcast appearance from Station 2FC on July 17 on the inaugural programme of the Australian Broadcasting Company, Limited. Miss O'Doherty is an engaging personality, who will make thousands of friends over the air before people will have an opportunity of seeing her on the legitimate stage. She is an original member from the English Revue Company, "This Year of Grace," and appeared in the Melbourne production of that

PROGRAMME PERSONALITIES

"Darn what you've done; what can you do?" asks Ted Henkel

TALL Ted Henkel. That is the first thing you notice about him. Then you look at his face, and you notice it again. It is a long face. On top of a long, but not jutting, chin, sits a long nose, over which towers a tall forehead. In fact, his specifications are, long and narrow, but not too much either way.

He is a man of moods. To-day he is pleasantly talkative; to-morrow he is pleasantly taciturn; mostly he is taciturn after many long rehearsals, which, as you may understand, would be enough to dull the lustrous eye of anyone. However, when he does talk, he talks to the point.

His chief phrase is, "The hull thing about thart." He likes to summarise. He likes to get down to tintacks. When you ask Mr. Ted Henkel a question he picks up a cigarette, looks at it, puts it in his mouth, lights it, twiddles the match into the ash-tray, pulls the ash-tray a little nearer, and stares abstractedly in front of him. If you are wise, you wait. After a while he glances to one side, then to the other; settles himself more comfortably in his chair; blows a little more at the cigarette, and takes it from his mouth. Then:—

"To me, the hull thing about thart . . ."

We got the idea Mr. Henkel was embarrassed by interviews. We got the idea he didn't want to speak about the Life and Opinions of Mr. Ted Henkel. "The hull thing about thart," said Mr. Henkel, after the usual pause for reflection. "Is, what's it matter whart I've done. It's not what you've done. It's what you can do. People come to me for positions—begin telling me what they've done. I say, 'Darn what you've

done; what CAN you do?' That's the way I always look at it." And we couldn't make him look at it any other way. So we hopped on to the question of Sunday night broadcasts, because Mr. Henkel, as you know, will give a programme from 2FC every Sunday fortnight.

"The hull thing about thart is, people want to be amused. I don't pose as an educator. All I want is to see the public gets what it wants. I am like a chef in a restaurant. If someone wants ham and eggs I see they get ham and eggs. If someone wants steak I give him steak. If someone wants caviare I give him caviare. I don't try to push my opinions of what is music down people's throats; I try to give people what they want. If they don't want it they complain, and I dish them up something they do want. That's my job. Here at this very moment, they are fixing up cards to be distributed among the audience, so the audience can send in and tell me what they like. That's done so I can be sure I'll be giving the public what it wants."

Mr. Henkel told us that in America the big day of the picture theatre is Sunday. "Of course, it's different here. Over there they put on more shows on Sunday than any other day of the week. Sundays and holidays are their big days. Nevertheless, I suppose people are all very much the same; and I can understand there are many people who will welcome light music on Sunday night, out here. Sunday night is the time when people get together—when they visit; and light music is restful and entertaining and stimulating. That's my experience."

Australians, he says, have better tastes in music than they have "over there." Australians ask for a higher standard. "In



Tall
Ted
Henkel.

America, for instance, they wouldn't listen to an overture a few years ago. They didn't want it—couldn't understand it. Out here I found the general standard of request numbers much higher."

Mr. Henkel says symphonic arrangement is the newest development of jazz. "The basis of all music is rhythm—you can't escape rhythm. Then the melody. Then the harmony. Then the arrangement. With the symphonic form, you may open to a loud crash from the drums and cymbals; then, perhaps, the melody; then a variation, a new combination, and so on. It's like taking the melody and dressing it. Putting it in furs. Wrapping it in sables, silks, and laces; arranging the folds, stripping it—same melody; the only difference is of arrangement. After all, those are the two main things for a man selling music to watch—arrangement and presentation. They make all the difference."

And, indeed, Mr. Henkel is something of a master of arrangement and presentation, and spends long hours superintending details of which the public never dreams—the effect is the main consideration.



PERCY CODE—A Bandsman with a Record

MR. PERCY CODE is known over the world by everyone interested in bands, and is one of the finest conductors and musicians in Australia. He first attained to prominence by winning the Australian Cornet

Championship at the South Street Competitions in 1910. At that time the "Besses o' the Barn Band" was touring Australia, and Mr. Code was engaged as cornetist for a

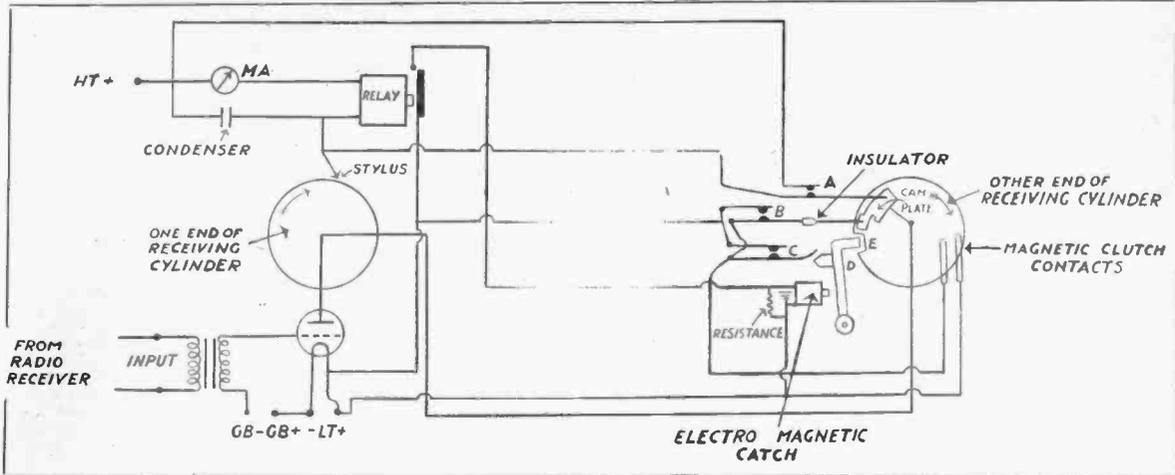
world tour. He accompanied this band through South Africa, the British Isles, and the Continent, learning, and widening his experience.

Returning to Australia, he settled in Ballarat as conductor of the Ballarat City Band, and the Ballarat Competitive Choir. He gained many successes with these two organisations, and won numerous championships. In 1920 his choir won the Grand Choral Championship of Australia. In 1921 Mr. Code went to the United States, and was engaged for two seasons as first trumpet in the San Francisco Symphony Orches-

tra, which has one hundred performers.

Again returning to Australia, he accepted the position of conductor to the Prahran City Band, still retaining his position with the Ballarat Choral Union, which he waved to grand choral championship in the South Street Competitions. With the Prahran City Band he has been broadcasting regularly from 3LO.

Mr. Code is said to know more about bands and band music than anyone else in Australia; and this knowledge should be of some use to him when he begins conducting the A.B.C.'s Melbourne Orchestra.



FULTOGRAPH SYNCHRONISATION

The whole success of the method of picture transmission which it is proposed to install at leading Australian broadcasting stations, lies in the ingenious synchronisation device which is the subject of this article.

A VERY important point with picture transmission is the synchronisation between transmitter and receiver, and quite a few costly ideas have from time to time been evolved as a means to this end. The Fultograph means of achieving synchronism is undoubtedly the cheapest and simplest yet devised. It could not reasonably be expected to get two motors revolving with sufficient accuracy for this class of work, as a variation, say, 1-300th part of a second would, at the end of the transmission, result in a big variation between the relative positions of the light on the transmitter cylinder and the stylus on the receiver.

The Fultograph system is so arranged that the receiving cylinder commences to revolve at the same time as the transmitter, but, in addition, the receiver stops momentarily after each revolution, and recommences by the aid of a special automatic signal from the transmitter. It will thus be obvious that any fractional difference between transmitter and receiver is rectified after each revolution. As the receiver cylinder stops and starts so many times during the formation of a picture any inertia experienced in re-starting would tend to destroy perfect synchronism, and to overcome this difficulty the Fultograph system embraces a magnetic clutch. With this arrangement the clockwork movement is in action during the whole time the picture is being formed, the cylinder being coupled to the drum by the magnetic clutch.

The accompanying diagram shows the arrangement for Fultograph picture reception. As previously mentioned, a synchronising signal from the transmitter is transferred to the plate of the valve, which is in a circuit with the cam plate, switch A spring, stylus, relay, MA, HT plus, the circuit via the cam plate and switch A contact effectively short-circuiting the second path via receiver cylinder, prepared paper, and stylus. The incoming synchronising signal energises the relay, which, via its contact springs, energises coil X. On this coil being energised the cam catch D is drawn from the slot in the cylinder; at the same time the magnetic clutch is energised via contacts C, and the cylinder immediately begins to operate. The signal is of sufficient duration—one-tenth of a second to allow the slot in the cylinder to pass the catch D. On the signal terminating the relay is restored to normal, and, therefore, coil X is de-energised, thus releasing catch D, which will come to rest against the periphery of the cylinder. Switch C is then broken, but

the circuit is maintained by switch B, owing to the cam plate having moved around with the cylinder. Therefore the magnetic clutch circuit remains energised during the complete revolution. Immediately the cylinder commences to rotate the circuit via the cam plate and switch A spring is broken, but as this action closes switch A springs the circuit is completed for the transferred picture-current from plate, cylinder, prepared paper, stylus, and switch A to B, with the relay and MA short circuited by switch A.

The cylinder shaft has a very fine screw

thread running along it, on which rests a knife-edge wheel, this in turn being coupled to the stylus, therefore the latter is drawn horizontally along the paper, which is fixed around the cylinder. The thread of the shaft is of corresponding pitch as in the transmitter, and the horizontal movement of the stylus is in direct relationship to the movement of light on the transmitter. At the end of each revolution the catch D engages in the slot of the cam, when the operation is repeated by the transmission of another synchronous signal.

PROVING RADIO CLUB NEWS

EXECUTIVE REPORT

THE Secretary reports that a letter has been received from the "Waverley Radio Club," stating that they would be pleased to give every co-operation to the Proving Radio Club. Arrangements are being made to have a well-known technician lecture to the members of the two clubs. The Executive reports that Mr. Long, M.H.R., has extended an invitation to the secretary to visit the State Parliamentary Library, to peruse the Acts in relation to Amateur Transmission in Australia, America, and European countries.

CONDOBOLIN GROUP

A LETTER has been received from A. Cleverley, of Bathurst Street, Condo-bolin, stating that he would be pleased to form a group at Condo-bolin. Mr. Cleverley is an ex-member of a Sydney Group, so any person who desires to join may obtain any information from the above address.

KOGARAH GROUP

THE membership of this Group has steadily increased since its inception nine weeks ago. The subjects treated at the last two meetings were: "Capacity of Condensers and Value of Resistances," and "Magnetic Effects of Electric Currents." Both of these lectures provoked a spirited discussion amongst members until they were mastered. It was decided to build a two-stage transformer coupled amplifier, to be used in conjunction with the various sets the members intended to construct. Our Morse code class is making excellent progress under the tuition of Mr. Haywood, whose experience with the key makes him an asset to the Group.

BONDI BEACH GROUP

THIS is a new group, and already the membership is closed. At the last meeting two sets were on view to members. One was a T.P.T.G. transmitter, and the other was the Midget Screen Grid Four. Owing to the inclement weather some of the members could not attend, and the evening was spent discussing the qualities of the two sets.

ARNCLIFFE GROUP

THIS group spent its lecture night getting a thorough knowledge of the various ways of arranging condensers to get various effects and capacities. This was ably described by Mr. Simmonds. The short-wave notes supplied by this group may be of interest to readers and also the amateurs concerned. Using the "Go Getter" the following were received:—

KGO, QRH, 25 metres, full loud speaker strength.

PCJ, fair volume, but a little QRN.

VK2ME was also received on 31-24 metres, broadcasting a description of the football match.

VK2HC on the 42 metre band, and can always be put on the speaker, the modulation of this station is very good.

VK2AK testing with VK3BO—QSA5 modulation was quite clear at about 75 per cent.

VK2HO—On 42 metre band QSA4 but modulation very mushie.

VK2JC, QSA5, 80 per cent modulation. Several were heard on 42 metre band on C.W., but as we are not able to read Morse too well we cannot report.



Dean Talbot.

CHURCH SERVICES

To Be Broadcast

A great deal has been made of the new plans of the A.B.C. to provide special Sunday night programmes. The idea that the Company will be cutting down the popular church services, however, gains no support from the information in the article below.



Rev. T. E. Ruth.

THE following church services have been booked for broadcasting from 2FC and 2BL—

MORNING.—21st July, 1929; 2FC, St. Marks, 28th July, 1929; 2FC, Chalmers St. Presbyterian; 2BL, Christ Church St. Laurence, 4th August, 1929; 2FC, St. John's, Balmah; 2BL, Newtown Methodist, 11th August, 1929; 2FC, Petersham Baptist; 2BL, St. Andrew's Cathedral, 18th August, 1929; 2FC, St. Mary's; 2BL, St. Stephen's, 25th August, 1929; 2FC, Newtown Congregational; 2BL, St. Jude's.

Evening services will be broadcast only from 2BL—

EVENING.—21st July, 1929; Nil, 28th July, 1929; Strathfield Presbyterian, 4th August, 1929; Randwick Presbyterian, 11th August, 1929; Pitt Street Congregational, 18th August, 1929; Central Methodist Mission, 25th August, 1929; Petersham Congregational.

Over fifty applications for broadcasting church services were received from Sydney and suburbs. This number has been reduced to seventeen. Mr. Doyle states that it will be impossible to carry on such a large number of services. During the next few weeks the company hopes to narrow this number down, so that a roster may be drawn up, covering the three months until the end of the year.

Practically every denomination will be catered for under the new church broadcasting system.

Here are short sketches of five prominent parsons, who will be heard during the next six weeks.

REV. CANON LEA.

REV. CANON LEA pioneered church broadcasts in Australia. He is minister to one of Sydney's more fashionable congregations, St. Mark's, Darling Point; but can still remember pleasurable days of his ministry in the bush.

He is chairman of the Sydney committee of the Dubbo Bush Brotherhood, an organisation of the clergy which ministers to wide bush areas. He is one of the two padres in the Rotary Club. He can see a joke, a broad outlook, and a deep problem with the correct reactions, which is a good reason for his

popularity with listeners throughout Australia.

He was born in England, educated at St. Augustus' School, Canterbury, and has been in Australia thirty-six years, twenty-one of which were spent in the outback. He was recently honored by the Archbishop of Canterbury, Dr. Davidson, with the Lambeth Degree of Bachelor of Divinity; and is the only Australian to have received this degree.

REV. D. F. BRANDT.

"RADIO can do more for religion than anything else I know," says Mr. Brandt. "It takes the gospel to small settlements where the church cannot go."

This popular preacher has many interesting stories to tell of his radio services. He has received letters from every corner of Australia and New Zealand. On one occasion, he received a short note from a cattleman in the Gulf of Carpentaria district thanking him for his Book Sermons. One Sunday morning an old man was found dead in a South Sydney Hospital ward. The headphones were still in position, and he was smiling still. He had been listening to one of Mr. Brandt's sermons.

The Rev. D. F. Brandt is one of the original broadcasters, and his old parishioners of Murray Bridge Church, Adelaide, may still listen in to his monthly sermons broadcast from the Chalmers Street Presbyterian Church.

DEAN TALBOT

THE REV. A. E. TALBOT, M.A., Dean of St. Andrew's, was educated at Manchester Grammar School. He spent some years at business, and became partner in one of the foremost Manchester estate firms before entering Cambridge University. This business training is an asset to the church to-day, as the Dean is on the board of the General Church Fund. At the University, he secured two scholarships and an exhibition of Emmanuel College; and won two University prizes and a University scholarship.

He was curate of a fashionable Manchester Church, tutor to the Church Missionary College, London, and for three years before his appointment to the Deanery of Sydney he was Rector of an industrial parish in Eng-

land. Here he came into close contact with those industrial classes to which his sympathy in Sydney has so often been manifested.

The Dean is Senior Chaplain of the Military Forces in New South Wales. In this capacity he joined the A.I.F. during the war. He was wounded at Lone Pine in August, 1915. He is still a young man. Further advancement is expected for him.

REV. T. E. RUTH.

AS minister of the largest non-episcopal church in the Commonwealth, Mr. Ruth talks every Sunday to a congregation in which men usually predominate. He likes to refer to himself as an ANGLOPRESBYTERIAN-BAPTIST.

He was born in Devon, Wales, and educated at Bristol. He was minister in important churches in Southampton and Liverpool, and came to Collins Street, Melbourne, in 1914. Since 1923, he has been evening preacher at Pitt Street, Sydney; and since 1925 the minister. His church is recognised as the Nonconformist Cathedral.

Mr. Ruth has been preaching a special series of broadcast sermons month by month. He takes his broadcasting seriously, and is ably assisted by his organist, Miss Lillian Frost, whose music, he says, is a spiritual minister. His church is recognised as the Australia to broadcast, and recalls with some amusement that some of the clergymen who now protest against curtailment of broadcast services were among the severest opponents of broadcasting in the early days.

REV. HUGH PATON.

SERVICES will be broadcast regularly by 2BL from St. Stephen's Church, conducted by the Rev. Hugh Paton, who is accustomed to broadcasting, and who has received numerous letters from appreciative listeners.

Mr. Paton arrived in Australia from Scotland twenty-seven years ago, to form an Evangelist mission in Queensland. He ministered in Morocco for three years. He succeeded the late Rev. John Ferguson as minister in St. Stephen's in 1925, to preach to one of the largest Presbyterian congregations of Australia.

Trade Executive Reports on New Zealand Progress

RETURNING to Sydney this week from a month's trip in New Zealand, Mr. Eric Dare of Philips Radio, remarked that he had noticed in the Dominion a marked improvement in broadcasting since his last visit a year ago.

"However, the programmes still leave much to be desired," said Mr. Dare. "A vicious circle is apparent. The New Zealand Broadcasting Company is asking for more licensed listeners before improving the service, and many of the public are waiting for the service to improve before they buy radio receivers."

Mr. Dare says radio is now much stronger in the public mind in New Zealand than it was 12 months ago. The trade also has become more stable. There is still, however, much to be wished in respect of broadcasting. Each station has a silent night once a

week, so that after the closing down of 2YA (Wellington) on Tuesday, for instance, there is no local broadcasting until the following Thursday at midday, when a short session of music is provided. This lunch-hour programme is a recent innovation, brought about at the instance of the Radio Dealers' Federation, which made representations to the Government. The absence of any broadcasting in the mornings is noticed by a visitor from Australia.

"The New Zealand Broadcasting Company," Mr. Dare remarked, "states that its stations are running at a loss, and that this is due to the limited number of listeners. 'Any extension of the hours,' the company says, 'would therefore be definitely unprofitable.' Also, the company argues that its staff are entitled to a clear day's holiday a week. Without the Australian stations, New Zealand

listeners would be most unhappy. No set is saleable which cannot receive Australia."

"American receivers," said Mr. Dare, "are predominant on the New Zealand market, there being many makes quite unknown in Australia. As the North and South Islands are well reticulated with electric light and power mains right into the backblocks, almost every valve receiver is A.C. operated. That the New Zealand public is in a position to buy is shown by the remarkable prosperity of the Dominion, where one person in every nine owns a motor car—the highest average of any country in the world. Although Philips radio products and lamps are as popular as ever, the company joins with the rest of the trade in New Zealand in hoping for a speedy improvement in broadcasting as the only means of securing more listeners."

MODEL AEROPLANES for Boys

Mr. Norman Lyons, who has been previously known to listeners both as Mr. Norman of the Boys' Session, and as the "Pilot" of the Aero Session, will be broadcasting from 2FC regularly in future. His Model Aero Club Session is to be greatly enlarged, and he himself will be contributing a series of model aeroplane articles to WIRELESS WEEKLY. Almost immediately he hopes to get the Model Aero Club under way.

By NORMAN LYONS



(Howard Harris photo.)

GREAT things have small beginnings. That statement should satisfy us, for surely the Baby R.O.G. was small enough. Small as it is it has created interest over the whole of Australia.

No doubt the interest was there before the advent of our Baby, and it only remained for "Wireless Weekly" to give the necessary diagrams and instructions to awaken it. Now that we have done so we will make every endeavor to see that it grows into a fine healthy child.

You have seen the Baby R.O.G. and the Indoor Endurance Tractor, an indoor model that will fly nearly three minutes. Then will come outdoor models—the models you are waiting for, models to fly for ten minutes; but you must serve your apprenticeship first by building indoor models.

No doubt you have wondered why you have been set a task requiring so much patience and so much care as the Baby R.O.G. and the Indoor Pusher demand. Well, the reason is this—you must always realise and appreciate what weight means to a model, how everything must be kept as light as possible, and last, and by no means the least important when a size is given, such as 1-32in. x 1-32in., it means 1-32in. x 1-32in., and not 1-16in. x 1-16in. When we get on a little and are building larger models, the lessons you have learnt, the difficulties you have had in keeping your timber down to size when you build the indoor models, will stand you in good stead. Then, when you are an experienced model plane builder, understanding the whys and wherefores, you will go back to your Baby again and rebuild it, just as a refresher course. The Indoor Pusher will not give half the worry, but you must employ just the same amount of care.

Now that we have started building model aeroplanes in earnest it would be advisable to get right down to the basic principles, the models—that is, efficient models—cannot be built without some understanding. Of all the hobbies one can follow there is none so fascinating, none requiring so much cunning, craftiness, and experience as model aeroplanes. One thing of which you may definitely be assured is that the "rule of thumb" will not operate. There must be a reason for everything, and you must understand that reason before you apply it.

Therefore, our first question is: "Why does an aeroplane fly?" And this question must be fully understood, for there is one common enemy to aeroplanes—the force of gravity. Were it not for this force Hargrave—Australian pioneer—and the Wright Bros. would have solved the problem many years earlier than they did. It may be of interest to know that Hargrave's box kite models—now in a Berlin museum—contain the basic principles of the present-day aircraft.

Well, it was this force that worried the pioneers of aviation. Now, every boy has flown a kite, and it will be more readily understood when it is known that the principles governing the flight of a kite are exactly the same as those which apply to the aeroplane.

If a kite is flown in the wind it quickly attains a certain altitude, at which it will remain so long as the wind keeps blowing. Since the kite remains in the air the forces acting on the kite are said to be "in equilibrium," or, in other words, balance, for the wind is overcoming gravity which is constantly endeavoring to bring the kite to the earth. But the air pressure when sufficiently intense lifts the kite against the action of gravity, plus the pull of the string.

The air pressure is really a combination of two forces—"lift" and "drift." The lift, as the term implies, tends to raise the kite in opposition to gravity; drift or resistance tends to move the kite in the direction of the wind. Therefore, when building our models the resistance must be made as low as possible, because, as is clearly seen, it necessarily will absorb power. Now we will assume that it takes a wind blowing at 15 miles an hour to lift our kite; therefore, it would lift to exactly the same height if the holder of the kite string commenced to run at a rate of 15 miles an hour in calm air. This proves that a model is merely a kite with a mechanical arrangement, which supplies the motion necessary to fly it, eliminating the necessity for a wind and the kite string. Again, if the kite were to stop still while remaining in the air and you could fasten an engine and propeller to your kite string capable of moving the kite forward at the same rate at which the wind is blowing, your kite would fly, and, as far as we need go at present, would constitute an aeroplane.

We assumed that a kite requires a minimum speed of fifteen miles an hour in order to keep aloft, and if the wind is blowing at fifteen miles an hour the boy flying the kite may remain stationary. If it blows at five miles an hour he must run at ten miles an hour against the wind. If it blows at ten miles an hour he must run at five miles an

hour against the wind or twenty-five miles an hour with the wind to maintain his kite.

Therefore, an aeroplane has two speeds—its air speed and its speed relative to the earth. The former is the sum of the speed relative to the earth and the velocity of the wind, the latter is the rate at which it would travel a given distance. It can be seen that if it is blowing at fifteen miles an hour and a plane is travelling at ten miles an hour against the wind, it has really an air speed of twenty-five miles an hour, but on the other hand, if the plane is travelling with the wind, the air speed is the speed relative to the earth minus the velocity of the wind. We know that the weight of a floating ship must equal the weight of water it displaces, and an aeroplane by its course through the air must deflect a volume of air at least equal to its own weight, to enable it to lift itself from the ground. The more air it deflects, the higher it will ascend.

It is the law that action and reaction are equal and opposite which keeps a ship afloat, for the water presses back with equal pressure to that which is applied by the weight of the ship. It is in reality due to this law that the aeroplanes can resist gravity, for the motion of an aeroplane through the air causes a pressure on the latter, the result being what is termed "lift."

But before our model will fly, further considerations have to be dealt with. The centres of pressure and gravity must be made to coincide and must also be stable in both lateral and longitudinal directions. We can find the centres of gravity by moving our main plane backwards or forwards until it will glide steadily to the earth. But even though it is now balanced, it will have a tendency to rock sideways or laterally. This we overcome by bowing the wings, giving what is known as the dihedral angle. Our plane will now glide to the earth steadily and without a rocking motion and it can now be considered laterally stable.

Our next worry is stability in a longitudinal direction. This is just as important and is not quite so easy to find. The surface of the elevator or tail according to whether the machine is a "pusher" or a "tractor" is placed at a positive angle to the horizon and this angle can only be found by experiment.

So we have determined:—

Firstly, that in order to be stable longitudinally, the centre of pressure must be kept as near to the centre of gravity as possible.

Secondly, the main surface of the plane must be inclined to preserve lateral stability.

(Next week's article will deal with practical construction of Model Aeroplane fuselages and carving air screws.)

Model 'Planes

HERE'S the Way to Bend BAMBOO

BAMBOO is a material that the successful model aeroplane builder cannot get along without—there's nothing better for parts where lightness and firmness are essential—and just for that reason those who have followed the articles in WIRELESS WEEKLY must know how to split bamboo to size and bend it to shape.

For wingtips, for the frame of the fin, for elevator spars, and for ribs, there's nothing better than bamboo. The wood can be split down so that in breadth and thickness it is about the size of a hairbrush bristle. It can be bent into almost any desired shape by heating, and when it is cool it will not straighten out again. It can easily be glued to balsa, it holds tissue paper with a firm grip, and once in place it is better than wire.

HOW TO SPLIT IT

First the splitting. To split bamboo, start at one end of the stick with the blade of a sharp knife, or place the piece flat on a firm surface and start on the broad side, near one end, with the point. The wood will open along the grain as the knife follows down. It takes very little pressure.

But be careful. Don't try to split more than two or three inches at one time. Bamboo has a pernicious way of working a split



Bristol Tawiplane, showing the graceful lines achieved by modern designers.

over toward the edge. Follow through, and the piece split off will be wedge-shaped—broad at one end and tapering to nothing at the other. Such a piece won't do for a wingtip or fin frame.

It isn't hard to overcome this tendency, however. As soon as the split is an inch or two long, take out the point of the knife and set it over a small fraction of an inch toward the centre. Now follow the seam until it begins to work over toward the edge once more. Then start a new split. When the piece is free, you can cut away any connecting fibres and sandpaper the piece down to size.

Here are a few things to remember. First, the shiny side of a piece of bamboo is the stronger, and therefore the best. Second, when making wingtips, one piece of bamboo should be bent for both tips, so that the curves will be alike. The curved piece can be split in two later on.

NOW THE BENDING

Bending bamboo is easy. Hold the piece over an open flame, exerting a gentle pressure on the ends. When the wood is warm, it will bend easily and quickly in the shape desired. A candle in a draughty room won't do, because the wind throws the heat every way, and a gas jet won't do because the heat area is too large. Use a candle in a still room. If that doesn't give results, heat a wooden-handled screwdriver in a gas jet, and bend your bamboo over that. The screwdriver is an excellent tool for it, because the bamboo can be held in one hand and the screwdriver in the other, and because the chance of burning fingers is slim.

If the bamboo gets a double twist in it, heat an electric iron or some other flat metal piece, and lay the bamboo on it under a weight until it is straightened out.

The big thing, remember, is to keep from trying to hurry the job. It takes a little patience.

An Aeronautical Dictionary

The fifth of the series of aviation definitions

Cockpit: The open space, usually in the fuselage, where the pilot and passengers are accommodated. It differs only slightly from the cabin.

Cabin: An enclosed space where the pilot and tall surfaces are attached.

Longeron: A fore-and-aft member of the framing of an aeroplane fuselage or nacelle, usually continuous across a number of points of support. The fuselage stick of a "flying stick" aeroplane model might be called a longeron.

Cowling: A removable covering which extends over or around the engine and sometimes over a portion of the fuselage or nacelle as well. Its purpose is to offer a smooth, streamlined surface to the air, rather than a broken surface.

Fire Wall: A fire-resistant transverse bulkhead, set in an aeroplane to separate the engine compartment from the other parts, and so to lower the risk from fire in the engine compartment.

Overall Length: The distance from the extreme front to the extreme rear of an aircraft, including the propeller and the tail unit. Measure from the tip of the "spinner," which fits over the hub of the propeller, to the point farthest to the rear, and you have the overall length.

Body: The fuselage, hull, or nacelle of an airship, including the cowling and covering and the nacelle mounting. A nacelle (al-

ready defined) is an enclosed shelter for the passengers or power plant of an aeroplane, you remember. It is usually shorter than a fuselage, and does not carry the tail unit, which is attached to the wings in such cases by the (one or more) tail boom.

Tail Boom: A spar or outrigger running from the front to rear, which connects the tail surfaces with the main supporting surfaces.

Flying Boat: A form of seaplane supported, when resting on the water, by a hull (or hulls), which provides flotation and also serves as a fuselage. Flying boats with one central hull are known as the "central hull" type. Wing tip floats are used to keep such planes from tipping sidewise. The term "boat seaplane" is no longer used.

Hull: That part of a flying boat which buoys up the aircraft on the surface of the water; it contains accommodation for the crew and passengers, usually serving both as float and fuselage.

Float: A completely enclosed watertight structure attached to an aircraft to support it on the surface of the water or to keep it from tipping. In float seaplanes the crew is carried in a fuselage or nacelle separated from the float. The word "pontoon," often used by laymen, is obsolete among aeronautical engineers.

Mr. Alexis Albert

M. R. ALBERTS ALBERT has been appointed substitute director for his father, Mr. Frank Albert, on the board of the A.B.C. At 24 Mr. Alexis Albert is perhaps the most wealthy young man in Australia. He holds a lieutenant's commission in the Australian Navy, and is now in his last year of the Sydney University course of Economics. He is well known as an amateur yachtsman, and is interested in the drama. He has a private theatre in his home, which will hold 60 people, and is fitted either for stage or film presentations.



Official Opening A.B.C. in VICTORIA on July 22.



MAURICE DUDLEY.
Announcer and
Studio Productions.

Next week the Australian Broadcasting Company takes over the Melbourne service through 3LO. A number of appointments have been made, and the first programmes prepared. The first of these appears on page 40 of this issue. An unusual array of talent will appear at the studio on the opening evening.



DR. LOFTUS HILLS,
D.Sc.,
Director of Talks.



FRANK HATHERLEY,
Announcer and
Community Singing.



C. J. O'CONNOR,
Announcer and
Bedtime Stories.

THE official opening of the new broadcasting era in Victoria will be performed on Monday evening, July 22 by the Prime Minister (Mr. Bruce) and the Postmaster-General (Mr. Gibson), who will be introduced by Mr. Stuart F. Doyle. As in Sydney, these formalities will be followed by a recital by Alexander Brailowsky. Included in the programmes with Brailowsky are Walter Kirby, Madame Joy M'Arden, Muriel Cheek, Edward Beachcroft, Edouard Lambert, the Lieder Singers, Connors and Paul, Syd. Beck, Linn Smith's Jazz Band, and the National Broadcasting Orchestra (under the direction of Mr. W. G. James, and conducted by Mr. Percy Code). Most of these artists have never broadcast before.

APPOINTMENTS

Professor Bernard Heinze, Ormond professor, and Director of the Melbourne University Conservatorium of Music, has been appointed director-general of music, and will be ably supported by Mr. William G. James as assistant director of music and orchestras, and Mr. Percy Code, as conductor of the National Broadcasting Orchestra at 3LO and 3AR. These well-known musical experts will act as an advisory committee in connection with the musical policy of the company, and each one of them will act in his respective sphere in directing the musical activities in the new era.

Other important appointments that have received universal approval are those of Dr. Loftus Hills, D.Sc., as lecture and talks director; Hugh Huxham as programme producer; Eric Welch as sporting manager; and Frank Hatherley as leader of song at community singing.

SUNDAY NIGHT CONCERT

The first Sunday night programme in the new broadcasting era will be provided by the State Theatre Musical Ensemble, with Stanley Porter's Symphony Orchestra, Bob M'Question's Syncopated Band, and Frank Lauterman at the Wurlitzer organ.

COURT CARDS PROGRAMME

Something entirely new in a broadcasting programme will be "staged" at 3LO by "The Court Cards" on Friday night, July 27. This will take a very novel form—the whole pack being "shuffled" in an ensemble turn, with individual items by the Jack of Hearts and

the other Knaves and Kings and Queens, not forgetting the interruptions and patter of the Joker.

A SCENE FROM DICKENS

Maurice Dudley is to broadcast, on Tuesday night, July 23, a scene from Dickens. Well known previously as "Billy Bunny" and an announcer, Maurice Dudley will still be heard from 3LO in the new broadcasting era. Besides being one of the most popular announcers on the air, Maurice Dudley is a successful producer of plays for broadcasting, using, as he does, his old stage craft, gained through a quarter of a century's experience with J. C. Williamson's and at Drury Lane.

FRANK HATHERLEY'S RETURN

"Bobby Bluegum" announcer and leader of community singing, Frank Hatherley has joined the ranks of the A.B.C. Another children's favorite to be heard will be Miss Hazel Maude, well known as "Little Miss Kookaburra." Miss Maude has been "off the air," so to speak, for a week or two, and her remarkable "laugh" and personality will be welcomed again by her many friends.

BROADCASTING NOTES

A STUDIO presentation of the light romantic opera, "Young England" (Basil Hood) will be given from the Australian Broadcasting Company's studio, 3LO, on July 23. The action of the opera takes place in the stirring days of Sir Francis Drake. Principals include Veronica Cox and Marjoh Daniels, with a prologue by Miriam Redward.

MADAME JOY M'ARDEN, the distinguished soprano, is another celebrity to feature on the opening programmes of the Australian Broadcasting Company at 3LO. Coming to Australia with great overseas reputation, she created an excellent impression on her recent appearance in "Hiawatha," and musical listeners will welcome the opportunity of hearing this famous Continental artist.

MISS MURIEL CHEEK is due to broadcast from 3LO under the banner of the Australian Broadcasting Company on July 25.

TO mark her first broadcasting appearance Rita Coonan, the successful Australian soprano, is to broadcast a special Strauss recital from 3LO on Tuesday evening, July 23.

A SPECIAL feature will be made by 3LO of community singing, which will be conducted by Mr. Frank Hatherley, and the broadcasting aspect of which will receive special attention, so that listeners throughout the country may participate in it and organise local community gatherings for that purpose.

DON COSSACKS' choir soloist, Senia Chostakoff, will broadcast from 3LO, but in the new broadcasting era he will be heard with orchestral accompaniments. Songs, including "Evening Bells" and "Softly Chimes the Bells," are beautifully orchestrated, and will be a popular feature in the programmes.

MOLLY MACKAY is included in the first programmes from 3LO. This popular young singer has a charming voice, which is admirably suitable for broadcasting, and with an extended repertoire she will have many new numbers for the microphone.

WELL known as the leader of her own dance band, Thelma Ready is to be heard with her banjo from 3LO in the new programmes.

Dickens

MR. HARRY THOMAS, Sydney's well-known Dickens authority, will speak from 2FC every Wednesday morning for an indefinite period, we understand. Mr. Thomas comes to his task from a successful season with the "Tales of Two Cities" and "Nicholas Nickleby"—his own dramatisation—at St. James Hall. Mr. Thomas will supplement his talks with readings and characterisations. His sessions should be of interest to all Dickens lovers, as he has spent his life in the study of Dickens, whom he regards as one of the greatest and most true-to-life humorists this world has known.

Ferranti Painting Book

AN interesting and amusing painting booklet for children has been issued by Messrs. Ferranti, Limited. This booklet is procurable from A. Beal Pritchett (Aust.), Ltd., 17 Parker Street, Sydney, and will be supplied free of charge on receipt of 1/6 stamp for postage. Any applicant interested in the building of radio sets will also be supplied with useful information by this company.

Wireless Weekly

Incorporating "Radio in Australia and New Zealand."

FRIDAY, JULY 19, 1929.

Programme Presentations

A NEW mode of presenting the broadcasting programmes is introduced by the Australian Broadcasting Company in this issue of WIRELESS WEEKLY.

It has been the custom of the broadcasting companies to arrange their advance programmes in detailed form with every item strictly scheduled to time. The plan of the new company is to arrange its programmes as "presentations." Instead of a varied assortment of items, all will be chosen with a view to the effect of the whole. The performance will be rehearsed a few days beforehand, and not until then will an idea of the exact time of each item be known. Even then the company plans not to publish the programme item by item and stick to schedule, but to educate listeners to tune in a programme and to listen right through the night.

This policy has many advantages, and reveals the experience of the entrepreneurs in the "show" business—above all, it is desired to make each programme a "show." But, excellent as this is, there are many other considerations which must weigh in seeking to please listeners-in, and many would be disappointed if they could not pick and choose their items and be sure of tuning in at the right moment.

In applying the successful methods of the theatrical producer, the radio entrepreneur cannot lose sight of the fact that, in radio, he is catering for the individual, and in the theatre for a crowd; and that the psychology of the crowd and the individual are vastly different. The audience in front of the stage, swayed by mass feeling, which easily outweighs individual opinion, reacts in an entirely different manner from the listener, alone in his home. If he does not quite like an item, he is likely to tune out, and wants a detailed and accurate programme to look over.

This requirement, of course, has not always been met in the past, but the new broadcasters, in the twilight between the radio entertainment technique and the theatrical technique, will not make the error of overlooking it. The solution of the problem is to combine both the laudable plan to give "presentation" programmes and to issue the details of that "presentation" in advance.

PSYCHOLOGY AND BROADCASTING

FROM the pinnacle of popularity of wireless broadcasting in Victoria one can look back in wonder upon its remarkable development. Beset in the beginning with the problem of supplying programmes to an audience which was then a doubtful potentiality the broadcasters realised that in order to entice people to listen in it was and is always necessary to provide something worth listening to. As a genesis to serious broadcasting in Victoria, grand opera with Dame Nellie Melba in the role of Mimi in "La Boheme" was selected. Radio dealers will recollect the satisfactory results in trade of the announcement to this effect. Listening-in sprang immediately into popular favor and the issue of licences has increased rapidly and consistently ever since.

For the present satisfactory position of wireless in Victoria there must be a reason. The success of any form of entertainment depends upon definite psychological principles, and it does not matter how perfect technically a programme may be, if it is not to the liking of the public, then assuredly it will be a failure from the point of view of popularity. There are two extreme classes of listeners—the so-called "highbrow" and the "lowbrow." The one is deadly anathema to the other. Fortunately, however, neither represents a very considerable number of licence holders, but in between them there is the huge army of enthusiastic and satisfied listeners who are reasonable in their requirements, and with whom wireless broadcasting has become an indispensable service and in many cases of isolation and illness a veritable godsend.

Nevertheless in supplying broadcast programmes all classes must be considered and

catered for, and it is surprising how popular the old classical music is becoming and conversely how many "highbrows" are beginning to "discover" melody in some of the modern jazz numbers.

In preparing their programmes the directors of the Herald Broadcasting Station 3DB have studied closely the psychology of listening-in, and have ascertained what will please the big majority of listeners. The immediate result of paying close attention to the requirements of listeners is that 3DB is fast becoming one of the most popular stations in Australia.

New Announcer at 3DB

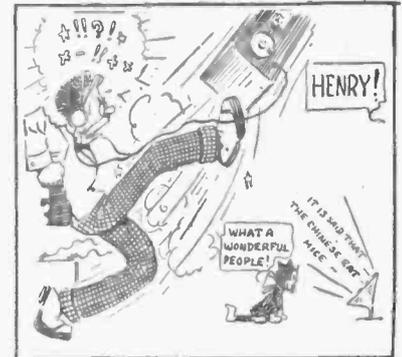
MR. RENN MILLAR, the well-known bass-baritone, has joined the staff of "The Herald Station 3DB" as an announcer and children's storyteller. Mr. Millar has become very popular as an announcer at 3LO, and Station 3DB is fortunate in securing a singing announcer of his outstanding ability.

Lord Mayor and Premier

NOVEL programmes to be selected by well-known men are shortly to be broadcast by the Herald station, 3DB. The Lord Mayor (Cr. Luxton) is busy making his choice of musical numbers for his ideal programme.

The Premier of Victoria (Sir William M'Pherson) is also going to frame a programme according to his own particular taste. Listeners to 3DB will be interested in the efforts of Melbourne's leading public men as entrepreneurs.

THAT FIRST SET No.4





Readers are urged to express their opinions 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 necessarily represent our editorial policies. Anonymous letters are not considered.

Stadium Broadcasts

Dear Sir,—As regards the description of the contests in action at the Sydney Stadium being discontinued, I am sorry to think that 2KY has taken what is left to offer the listeners. I am not speaking for myself, but for the maimed returned soldiers who are not able to attend a contest. If the Stadium matched the opponents more evenly there would be better fights, and broadcasting would not interfere with the gate takings.

Yours, etc..

TUNE OUT.

Waverley.

Be Fair

Dear Sir,—The "Safety Valve" of your valued paper is an excellent institution, but I feel that I need a very large safety valve indeed when I read a letter like Mr. Geo. Olderham's in your issue of July 5th, under the now almost classic heading "Give 'Em Muck."

Mr. Olderham has every right to express his grievances, but your readers also have equal right to demand that such grievances be in accordance with fact.

It is almost incredible that any fair-minded listener can refer to the broadcasting of the writings of the late Rev. G. A. Studdert-Kennedy ("Woodbine Willie") as the "wallings of Woodbine Willy." Those who were privileged to know him, and those who have read and listened to his words, will agree that the very last word in our language that could be honestly applied to him is the term "wailer." He was one of the greatest forces in the Church in modern times; a forceful and fearless speaker, of whom one might say:

"His life was gentle; and the elements so mixed in him that nature might stand up and say to all the world: THIS WAS A MAN!"

If his utterances can be classed as "wallings," it may interest Mr. Olderham to know that many good Australian listeners (who are usually averse to walling of any kind) derive both pleasure and profit from them, as the letter-files of Station 2BL can prove.

The amateur person who is otherwise a rampant militarist," to whom Mr. Olderham refers, is the announcer who reads the alleged "wallings" so excellently—Captain A. C. Stevens. Because a man possesses military rank is evidently quite sufficient for the writer to class him as a "rampant militarist," but if Mr. Olderham had listened to Captain Stevens he would have heard him, not once or twice, but many times, refer to the horror, evil, and futility of war. He is no more a rampant militarist than I, a humble clergyman, am.

Personally, like hundreds of other listeners, I enjoy 2BL's radio church service, and hope it may go on for a long time to come. Regarding music, we get much really good music both from 2FC and 2BL, but, unfortunately, Mr. Olderham has not been listening in at the time of its transmission.

Carry on, Mr. Olderham, but be fair; you will be far more effective.

Yours, etc..

C. E. ADAMS

No Foreigners

Dear Sir,—I read with much disgust the wall of some person by the name of Olderham in reference to the music supplied by 2BL and 2FC. Mr. Olderham states that he wants a better class of music. He does not say what he calls a better class of music. What he thinks is good music other people may think tosh. Surely he does not want those worn-out old compositions of the Old Masters; almost every person who listens in, except a few long-haired Italians, Germans or other foreign people, would prefer even second-class ballads than a continual repetition of the worn-out old stuff of foreign composers. If this should be the class of music that Olderham wants, I would suggest that he dispose of his wireless set, and purchase a musical box with the sort of music he requires; perhaps, also, he would prefer a magic lantern to the more modern movies.

In reference to the Radio Service, conducted by Mr. A. C. Stevens on Sunday mornings, I would like to say that if a vote were taken of the different services held on a Sunday morning, I am sure Mr. Stevens' talk on Woodbine Willie would show such a huge majority as to make other services seem small. I, with thousands of others, in spite of the wail of Olderham, hope that whatever church services are disposed of by the A.B.C. Mr. Stevens and his Radio Service will continue to delight thousands of listeners-in.

In conclusion, I would ask Mr. Olderham to read the letters of some Queenslanders in WIRELESS WEEKLY who think the programmes from 2BL and 2FC are the best in Australia. These Queenslanders complain of the amount of so-called good music from 4QG, and wish it were buried with the old fellows who wrote it.

Yours, etc..

A. CHARD.

Wollongong.

Australia's Prop.

Dear Sir,—Is broadcasting service useful to farmers? Too right it is. Market reports, news, sheep and wool prices, river levels lectures, and, above all, weather forecasts. Why! some days my receiver is used only to get this information.

Doesn't Sir James Barrett understand that the primary producers is the prop on which Australia is leaning at the present time? And that what is a help to the farmer in particular, is an even greater help to Australia's trade in general. Can't he realise that it is rain, and rain alone, that provides food and drink for our flocks and indirectly for all high-stomached city critics.

Tell Sir James Barrett that market reports are to the farmer what stock reports are to the share-broker, and if he only saw a paper twice a week he would be mightily grateful for any news that he received via radio. Yours, etc..

CYANOBUZZZZ.

Standardised Receiver

Dear Sir,—It is with great satisfaction I hear that the new purveyors of broadcasting are going to sweep church services off one of their A class stations. It is a splendid service to give us. Such relief, and so swiftly, too. The publishing of mine and numerous other complainants' wails, and in allowing this matter of church monopoly to be ventilated, deserves much praise. It is an advance against snarling silly sarcastic saints seizing several stations simultaneously and solemnly shattering Sunday's solace.

I might offer a suggestion to the P.M.G.'s Department. Why not take over the installing of receiving apparatus, and making them a standardised job, like the telephone apparatus? This would enable also the collecting of the maximum amount of license fees. The sets, of course, would need to be all-electric, and would be the means of educating a big public to the cheapness, efficiency, and use of radiology.

Yours, etc..

GEORGE OKELL.

Sans Souci.

Please Explain

Dear Sir,—It is with interest that I read in your valuable paper an article from Mr. Robert Allen, of Apla, Samoa, under the heading, "Got the Time." Mr. Allen says that by using a broad tuning aerial coil and tuning, etc., etc., that he can hear the clocks of Wellington, New Zealand, Sydney, N.S.W., and his local clock striking, 9, 8, and 10 o'clock. It would be very interesting to readers of "Wireless Weekly," if Mr. Allen could explain how this comes about, as Wellington, N.Z. is one and a half hours ahead of Sydney time. I'm not certain of the time in Samoa. Has Mr. Allen a tuning coil some millions of miles long, or so short that the difference of 30 minutes in the striking of the hours can be accounted for.

I would be glad if you would publish this letter, as some listener may be able to work out the size of Mr. Allen's aerial coil for those interested. Yours, etc..

N. H. MEYERS.

Bingara.

Half Mixture

Dear Sir,—Now that the A.B.C. is to give us something to listen to, I would like to support Mr. Olderham's suggestion in doing away with the so-called announcer's "Radio Church Service."

Also, in the interests of the listening public, it would be a good idea to get rid of the cause of this continual source of—er—annoyment.

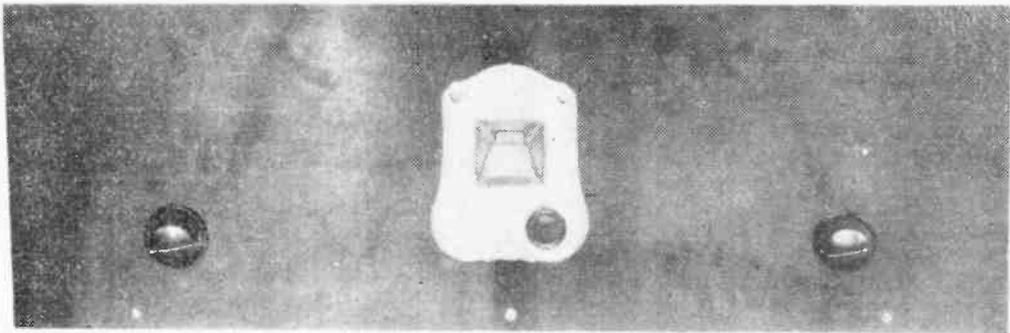
In conclusion, give us something decent to listen to on Sunday. Not church, church, church, but a half-and-half mixture of church and good music. Further, Australians do not need loyalty pumped into them. True Australians ARE LOYAL.

Yours, etc..

D. W. WATT.

Roseville.

First Receiver Described by



The front panel, showing single dial control.

BUILDING THE

WE laugh when we reflect on the way in which this article could have been trimmed up had we been given to writing stories on radio receivers in the Modern Australian Manner. "The City Women's Symmetryfile: Four," we could have put at the top of the page, "Revolutionary Receiver Incorporating the Radical Rosulodyne Circuit."

As it is we are rather amused at the title we have chosen—at the apparent necessity of keeping near enough to the conventions to call the thing a something-or-other Four. "Standard," as applied to the circuits, does, however, mean something, since the circuit used in this receiver is essentially conventional. It is, in fact, the very same basic circuit that was used by the writer back in 1922 in one of the first radio frequency amplifier receivers built in this country. It differs from the old arrangement only in the manner in which provision is made for the screen-grid connections and the A.C. filament supply. The important differences are all in the components—the way in which they are designed, and the methods involved in their combination.

Essentially, the receiver consists of two stages of radio frequency amplification, a detector, and one stage of audio frequency amplification. The first three valves are of the "A.C." type, with indirectly heated filaments, while the output amplifier is a power valve of the ordinary type with its filament heated directly.

In order to permit the use of single control tuning without the complication of "trimmer" condensers the input to the first valve is untuned. This results in a sacrifice in the radio frequency amplification of about 15, but permits all tuning condensers to be "gauged" on the one control shaft, providing they are matched. Coupling between the radio frequency amplifiers is obtained by the use of transformers, in which both the primary and

secondary are tuned. This necessitates the use of two tuning condensers for each amplifier stage—a complication which is offset, we believe, by the increased amplification made possible without the sacrifice of selectivity resulting from the use of other methods.

The detector valve in this receiver is operated at a plate voltage of 90 or 100 in order to prevent it from overloading at the voltage inputs necessary to drive the output valve at its maximum rating. The use of such a "power" detector, with grid circuit rectification (which is considered preferable to plate detection in this instance) results in relatively heavy grid current through the secondary of the radio frequency transformer feeding the detector. This ordinarily means a reduction in the selectivity of the particular tuned circuit concerned. The loss in selectivity in this receiver is reduced by the use of a slight amount of regeneration, which is made adjustable, but so limited that the detector can never be made to oscillate. The arrangement of the output amplifier is quite normal, though provision is made for the use of a valve of high power rating. In general the receiver is modelled closely on the lines of a modern American outfit, excepting that it is shorn of a couple of valves and built up almost entirely with English and Continental apparatus.

WHAT THE RECEIVER WILL DO

The set was designed to permit a high standard of performance while limiting the number of valves to four. Musical reproduction was given first consideration, and precautions were therefore taken all through the receiver to avoid the possibility of serious distortion. The next most important consideration was selectivity. Provision was made in the design for the attainment of sufficient selectivity to avoid interference between stations except in cases where the receiver was to be operated in the immedi-

vicinity of a broadcasting station. Other requirements influencing the design were tuning with a single control, the incorporation of apparatus readily available, simplicity in the mechanical arrangement of the parts, and full operation from the alternating current supply. Consideration was also given, of course, to the matter of sensitivity. Sufficient radio frequency amplification was provided to permit the reception of any station the signals from which were sufficiently far above the "background" noises to allow satisfactory reproduction from a musical point of view. No thought whatever was given to possibility of making the receiver suited for the reception of badly garbled signals from far-off stations buried in a mess of atmospheric and other extraneous noises.

The completed receiver, illustrated on these pages, can truthfully be said to fulfill these requirements. For a half dozen evenings the outfit has been operated at an average sort of location at Potts Point, Sydney, with a 60-foot aerial strung between buildings at a height of about 15 feet. With a good loud speaker the receiver has shown an ability to provide a musical reproduction if a musical production is being transmitted by any station with a signal strength well above the noise level. Its selectivity was sufficient to provide an appreciable gap of silence between all stations operating on the allotted frequencies. The single control feature was shown to be quite satisfactory in operation, while the hum resulting from the A.C. power supply was of such a low value as only to be audible a few inches from the speaker diaphragm. Under the conditions mentioned, full "loud-speaker strength" reception was possible from the local stations, and any inter-State stations which happened to be well above the noise level.

THE CIRCUIT

Two points must be explained before we can go on to a detailed description of the circuit arrangement. The first is that the "grounds" shown in the circuit diagram are not the sort of "grounds" that are buried in the earth. They are merely connections to the shielding of the receiver. Hence any wires which are shown as running from some component to ground are just connections between that component and the shielding. The second point is that the var-

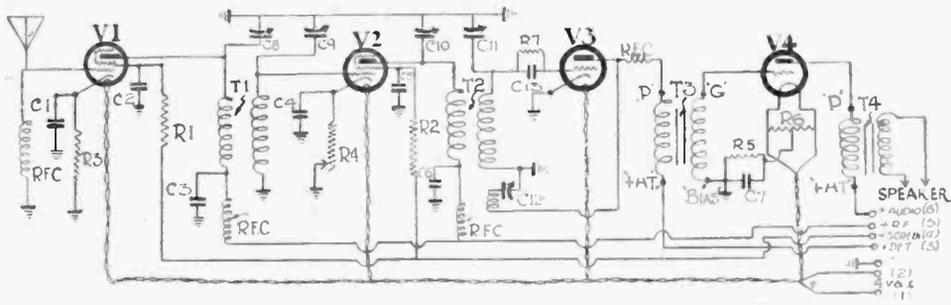


Single drum control enables you to get the stations blindfolded. Selectivity is not interfered with. The stations are a slight turn of the drum apart.



Full A.C. operation is a welcome convenience. You just plug into the socket. The power end of the receiver will be described next week.

Ross A. Hull—Technical Editor



The Circuit Diagram.

STANDARD A.C. 4

able condensers are represented in a slightly different manner from those in the ordinary diagrams with which the reader may be familiar. The symbol used in this circuit diagram—and to be used in future diagrams—has a solid straight line indicating the fixed plates of the condenser and a curved line with an arrow indicating the rotary plates. With the exception of these features the diagram is quite normal.

At the left we see the aerial connected to the grid of the first radio frequency amplifier, and also running through a radio frequency choke to ground. This "ground," like the others, is merely the shielding of the set, which, in turn, is connected with the power supply, and, through the capacity of the transformer windings, to the lighting circuit. An additional ground wire to some water pipe or buried plate is quite unnecessary.

The cathode of the first valve—the "C" terminal on the valve socket—is by-passed through a .5 mfd. condenser C1 to ground, and also runs through a 450-ohm fixed resistor R3. The plate current of this first valve runs through this resistor on its way to the cathode, and it is the voltage drop resulting from this current that serves to provide the bias voltage for the valve.

The filament of this and the other valves is connected to the filament supply transformer through twisted flexible wire of the same type as that used to feed the family toaster or the electric iron. Twisted wire is used, in order to avoid the induction of alternating voltages in other wiring of the set which may lie close to, or parallel with, the filament wiring. The screen-grids of the first and second valves are connected to the screen-grid voltage supply through 10,000-ohm resistors R1 and R2. These resistors, together with the by-pass condensers C2 and C5, serve to avoid unwanted feed-back between the two radio frequency valves.

The plate terminal of the first valve (the terminal at the top of the valve) connects to the top end of the primary of the first

radio frequency transformer through a short wire running under the lid of the first shield. This primary winding is tuned by the first of the four condensers, C8, located at the left end of the shaft. The plate voltage reaches the first valve through this primary, and a by-pass condenser C3 and radio frequency choke serve to limit the radio frequency energy getting back through the plate lead to the power supply and the other valves. The secondary of the transformer is tuned by condenser C9, and connects directly between the grid of the second radio frequency amplifier and ground.

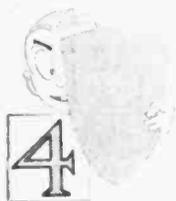
Bias for the second amplifier, V2, is obtained in a similar manner to that of V1 but in this case the bias resistor is made variable, in order to provide a volume control. Being similar in most respects to the first stage, the plate circuit of the second valve needs no description. It is merely coupled through the second transformer, T2, to the grid circuit of the detector valve, in which will be seen the grid condenser C13 and the grid-leak R7.



High quality reproduction is an important feature. Absolute clarity and freedom from distortion make the studio performer seem to be in your own room.

denser, C12. In the output of the detector valve, V3, will be seen the usual radio frequency choke and the audio frequency transformer T3. The secondary of this transformer connects to the grid of

the last valve and ground, while the filament circuit of that valve is connected through a centre-tapped resistor, R6, to the bias resistor R5. This resistor is by-passed by condenser C7, and connects to ground in the manner of the other bias resistors. The value of this particular resistor is not specified



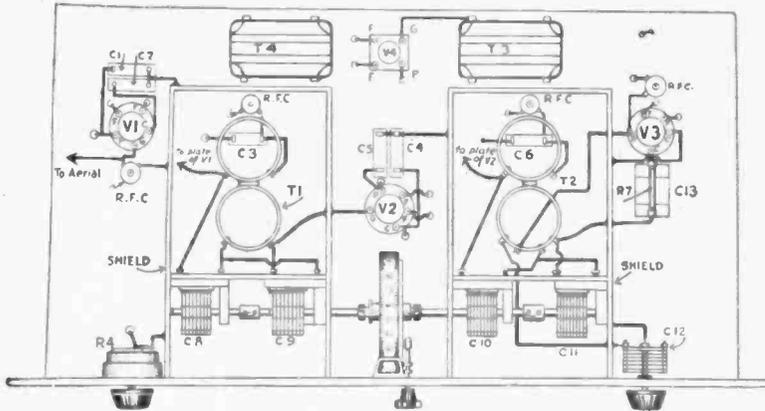
All metal shielding increases reception efficiency, and is part of the plan of simplicity of construction. The average radio fan can build this set.

in the list of parts, since it will vary with the type of valve and the plate voltage used. Suitable values will be presented next week when consideration is given to the necessary plate and filament supply apparatus. Transformer T4 is, of course, the output transformer, used to avoid the plate current having to pass through the windings of the speaker, and, in some cases, to provide a satisfactory relationship between the impedance of the valve and the speaker used. Detailed consideration will be given in next week's article.

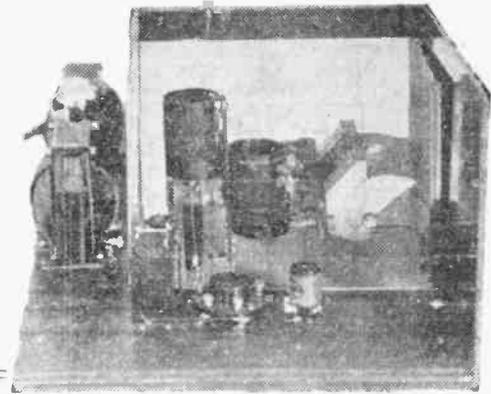
Turning now to the mechanical arrangement of the receiver, in order to become familiar with its ramifications, it can be seen from the photographs that the tuned circuits of the two radio frequency amplifiers are arranged in the two large shields. These shields, we would explain, are absolutely essential, and successful operation cannot possibly be obtained without them.

The first radio frequency amplifier is at the left side of the receiver where its plate lead is convenient to the first transformer inside the shield. The output of this transformer feeds directly to the second radio frequency amplifier located between the two shields, while this valve connects through a short wire to the second transformer in the second shield. This transformer

SET DESIGNED TO GIVE SPLENDID RESULTS WITH FOUR VALVES



The Baseboard Lay-out.



End View.

convenient to the third valve (the detector) which is to be seen sitting on the right of the right-hand shield. The audio frequency transformer into which the detector feeds can be seen behind the right hand shield, while between it and the output transformer is the output valve. Further details of the location of the parts can be obtained readily from a study of the plan drawing of the set in conjunction with the circuit diagram. The symbols on all of the components correspond in both drawings.

other radio frequency chokes and the audio transformers.

The next problem is to attach the variable condensers to the side plates of the shields. The particular condensers used had a "single hole" type of mounting, and this single hole was therefore drilled in the right hand sides of the shields. The pair of condensers tuning the second radio transformer T2 must be joined to the shaft of the drum dial, however, and this necessitates the drilling of a hole in the left side of the right hand shield box to permit the extension shaft to pass through. No special extension connector

was available at the time when this receiver was built, and, as a result, the extension shaft from condenser C10 to the drum dial was secured to the butt of the condenser shaft by wrapping the joint with heavy copper wire and applying some solder and a very hot iron. At this stage the drum dial should be placed in position, and with the panel still to be attached the wiring can be started.

The filament leads to all valves, the plate and screen-grid supply leads, and the wires to the cathodes all drop through holes in the base and are carried underneath to the group of feed wires to be seen at the right rear of the base. Wires which are functioning as conductors of radio frequency energy are all made relatively short by the disposition of the apparatus, and all of them are carried on the upper surface of the base. They can be seen in the photographs, and are detailed in the plan drawing.

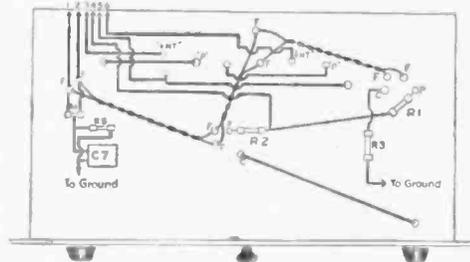
The power supply wires are shown terminating in a bundle. The actual method of making connections between these leads and the power supply is left to the choice of the builder. We suggest, however, that matters are simplified greatly if some form of battery cable is used, terminating at the receiver in a multipoint plug and socket. The use of a row of binding posts is possible, but to our way of thinking such an arrangement is quite clumsy and antiquated.

The connections to the metal of the shields are of importance. Lugs should be inserted under the heads of the screws that hold the vertical corner posts to the bottoms of the screening boxes. The grounded leads are then soldered to these lugs.

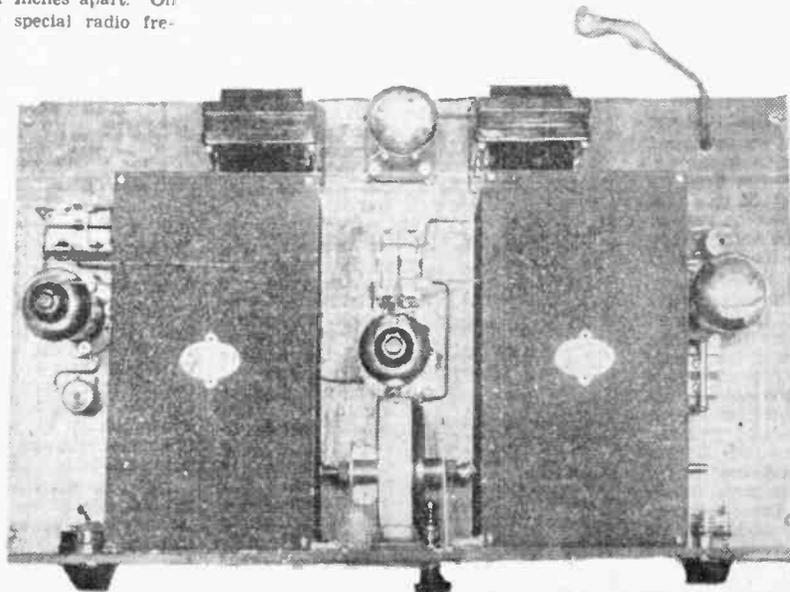
When all wiring has been completed in accordance with the diagrams (with the excep-

THE PROCESS OF ASSEMBLY

The first work is to prepare the baseboard, which should be 20in. x 12in. x 3/8in. thick. In this particular receiver trouble was had from warping of the wood. This could be avoided if the base was built with separate pieces screwed or glued to its front and rear edges in the manner of a drawing board. A centre line should then be drawn from the front to the rear of the base and the two bottom pieces of the shields (with uprights attached) screwed down about four inches apart. On these bottom pieces the special radio frequency transformers may now be mounted. In approximately the position shown in the illustration, by means of a wood screw running through a hole in the metal and into the baseboard. The by-pass condensers C3 and C6 may then be attached in a similar manner and the radio frequency chokes placed behind them. At this stage all the valve sockets may be screwed into place at approximately the positions indicated on the drawings and photographs, together with the by-pass condensers, the



The Sub-panel Wiring.



A floor view of the completed set.

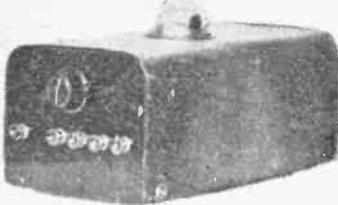
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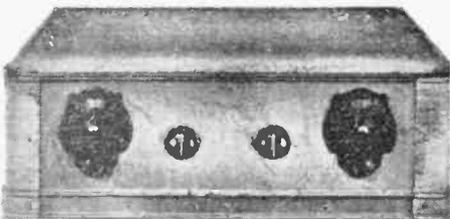
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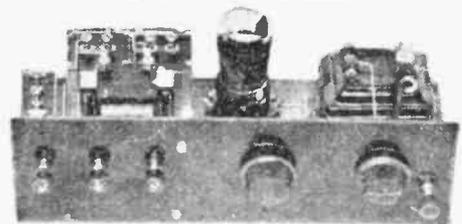
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COMPLETE PARTS AND VALVE 59/6

Some parts for the Standard A.C. Four FEATURED IN THIS ISSUE.

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|--------------------------------------|---|----|----|---|---|----|----|
| Philips E442 Screen Grid Valves | 2 | 0 | 0 | Pilot Single Drum Dials | 1 | 1 | 0 |
| Philips E424 Special Detector Valves | 1 | 15 | 0 | Pilot Twin Condensers, 0005 (insulated) | 1 | 9 | 6 |
| Philips B405 Super-power Valve | 0 | 15 | 0 | Hydra .5mf. Condensers | 0 | 3 | 0 |
| Pilot UY Valve Sockets | 0 | 3 | 0 | Pilot 10,000 ohm Fixed Resistors | 0 | 5 | 6 |
| Pilot UX Spring Valve Sockets | 0 | 3 | 0 | Radiokes 7-plate Midget Condenser | 0 | 5 | 3 |
| Radiokes Screening Boxes | 0 | 15 | 0 | Pilot 450 ohm Resistor | 0 | 3 | 6 |
| Bakelite Panels Cut, 24 x 12 x 3-16 | 0 | 18 | 0 | Pilot .0001 Fixed Condenser | 0 | 2 | 3 |
| Five-ply Baseboards, 20 x 12 x 3-4 | 0 | 4 | 0 | Ferranti AF5 Transformers | 2 | 17 | 0 |
| | | | | Ferranti OPI Output Transformers | 2 | 1 | 0 |

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LIST OF PARTS REQUIRED

V1, 2 Philips E 442 screen-grid valves.

V3, Philips E 424 special detector valve.

V4, Power valve (a variety of types to be mentioned).

3 UY type Pilot valve sockets.

1 UX type Pilot socket.

2 Radiokes standard (9in. x 5in. x 6in.) shields.

1 Dilecto panel, 24in. x 12in. x 3/16in.

1 Baseboard, 20in. x 12in. x 3/16in.

1 Single-control drum dial (Pilot).

T1, T2, 2 Radiokes double coils (special).

C8 to C11, 2 Twin Formo condensers, .0005 mfd.

C1 to C7, .5 mfd. fixed condensers.

C12, 7-plate Radiokes Midget condenser.

C13, .00015 mfd. fixed condenser.
R1, R2, 10,000-ohm fixed resistors (Pilot).

R3, 550-ohm fixed resistor (Pilot).

R4, 20,000-ohm variable resistor (whatever type available).

R5, Fixed variable resistor (Pilot), various values, according to power valve used.

R6, 20-ohm centre-tapped resistor (Igranic).

R7, 2-megohm gridleak (Electrad).

T3, Audio transformer (Ferranti AF5).

T4, Output transformer (Ferranti OPI).

(Hecht and Co.)

tion of the volume control R4 and the condenser C12) the remaining sides of the shield may be placed in position. The leads from the plates of V1 and V2 and the grid leads to V2 and V3 may be made to pass through holes drilled in the sides of the shields near to the top and bottom respectively. Heavily insulated wire should, of course, be used for these leads.

With everything else assembled the panel may now be prepared. The fitting of the drum dial will be facilitated by use of the paper template supplied with the dial, while the drilling of the holes for the volume control and the regeneration condenser C12

should present no difficulties. Then, with the front plate of the drum dial in position, the panel may be attached to the baseboard by means of a few wood screws. Slide bracket may be employed with advantage to make the attachment of the panel to the base more secure.

At this stage the receiver may be a very fine looking affair but it is not as yet ready to start pushing speaker diaphragms back and forth. There remains the adjustment of the four tuning condensers—an extremely important process—and the provision of power supply. Both of these matters will be given detailed treatment in the next article.

SERVICING A RADIO SET

ELIMINATORS AND FILTERS

XXXIII.

One thing about eliminators that the service man should watch is the troubles caused from heat, due mostly to the eliminator being closed up tight. Filter condensers moisten and go "ker-flooy" at times from no cause but the heat, assuming there is too much heat.

If there is a hum from electrolytic rectifiers do not blame it immediately on filter condensers. The plate may not have been formed, or the radio was not used for a considerable period, and the plates should be formed again, or "warmed up."

Be sure to always test the current drain on an eliminator, and compare it with the manufacturer's rating. There may be considerable over-drain, which kills the rectifying tubes or the plates, if electrolytic. Even burns out the transformers.

Sometimes sufficient current will not be delivered because of low pressure. Read the line voltage, and, if it is lower than 110 volts, and is consistently so, there is nothing else to do but take it up with the light company.

When squeaking occurs constantly in using an eliminator, by-pass the detector plate to negative filament, using 1 mfd., and put a high variable resistance (25,000 ohms up) in series with the detector plate voltage. Adjust this and lose the squeak.

COILS AND WINDINGS

XXXIV.

A workable table is printed here, giving the number of turns and size of wire for different diameter solenoid secondary coils, to cover the 200-600 meter band, and the required capacity of condenser to shunt across them. The primary winding is dependent

upon how much regeneration you want. About 15 per cent. of the number of turns on the secondary is approximately right, but there are too many things to be considered to give other than the approximate number of turns for the primary winding. The more turns you have the more regeneration, and the quicker the tube will break into oscillation.

GRID LEAKS

XXXV.

When servicing a set, do you take the grid leak which is in the set for granted? Sometimes the difference between good and bad reception can be traced directly to the value of leak being used for the individual detector tube.

It is always policy to tune in a station and turn volume low, having the detector filament at a normal heat, and try different leaks. With some leak values a frying noise is evident, with others a distinct loss of volume, but there is a proper resistance to be found within the range of one to several megohms. Adjusting a proper leak not only leaves the radio in better condition, but adds approximately 2/3 to the cash drawer. Use the metallized type leak exclusively. They are less noisy, and leave a better job, and have a better price.

A grid leak dissipates the collecting charge of electrons on the grid conductor. If it dissipates them too quickly by low resistance the grid does not have an strong pulse action in passing plate current, therefore there is a loss of volume. If the leak has too high a resistance, and won't dissipate the charge of grid electrons before the next charge arrives, the grid cannot respond exactly to the exciting of incoming variations, hence a distortion of the intercepted wave. The use of a proper grid leak is not to be minimized, and, as the characteristics of individual tubes vary, a leak should be fitted to the tube in use.

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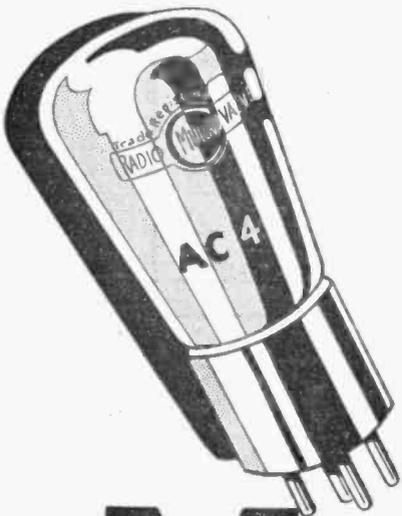
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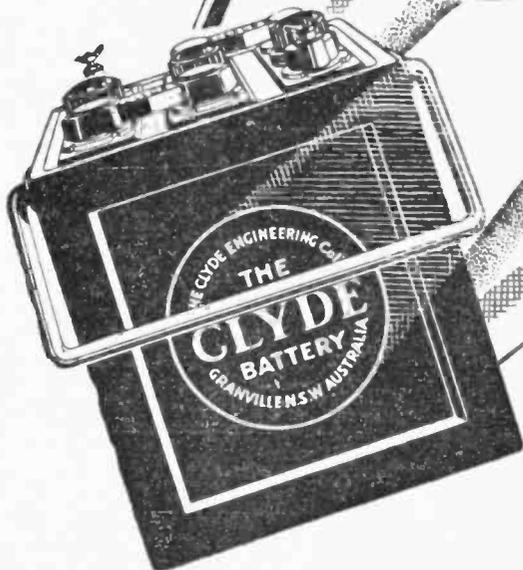


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RADIO PROFICIENCY

Here is the first article of the series written especially for the A.O.P.C. aspirant. No difficulty should be found in following these articles, since the subjects to be discussed have been briefly treated in "Proving Radio," and the reader should now fully grasp the general principles. This week we discuss briefly the necessities of an amateur operator as regards radio knowledge; we treat the relation of electro-magnetic waves to sound waves, the frequency of sound waves through air, fresh and salt water; prove the existence of the ether; and discuss the frequencies of the human voice.

BEFORE any person is permitted to operate a transmitter of any kind, it is necessary for him to hold a transmitter's licence. This involves an examination in several subjects relative to theory and operation. The examination is set by the Radio Inspector.

There are two distinct papers—one dealing with theory, and the other with operation practice. The applicant must also pass a Morse test of sending and receiving at the rate of twelve words per minute. The first paper embraces such matters as Ohm's Law, calculation of capacity, inductance, etc., adjustment of the transmitter, and other like subjects.

The second paper usually gives a list of abbreviations used in operating. These include not only the international "Q" signals, but also other letter signals, which save a considerable amount of time. This paper also treats operation of the transmitter in general, radio-telegram traffic, priority of radio messages, ship and shore communication, and allied branches.

The Morse test (which may seem to most to be the easier test of the three) is usually the downfall of the A.O.P.C. (Amateur Operator's Proficiency Certificate) applicant. The speed at which the applicant must receive and send is twelve words per minute. It is very much easier to send at this rate than it is to receive. Constant practice on stations which are sending just a little faster than the student can follow is the best way to improve reception speed.

Readers who are continuing "Proving Radio Course," now that the A.O.P.C. articles have actually started, will find that previous explanations of theoretical matters will enable them to understand many technical books which before seemed to them too far advanced. Credit is given to the experiments, which, judging by general report, made all the theoretical points perfectly clear. We shall, therefore, perform experiments in cases where theory or data is in any way intricate.

Wireless telegraphy deals with the transmission of electro-magnetic or ether waves. All movements of the ether consist of electric and magnetic forces alternating in direction. They produce a disturbance spreading outwards in all directions, and this is called an "electro-magnetic wave" or, simply, an "ether wave."

In wireless telephony, we deal with the transmission and reception of speech or music, which is "placed" on an ordinary continuous wave, and transmitted in the usual manner. This process of placing the frequencies of a sound wave on the carrier

frequency of the transmitter is termed "modulation."

Ether waves are generated by the movement of electrons. The waves are simply disturbances spreading outward through the ether. There is no actual transfer of the medium itself through space.

This can be followed by performing a simple experiment. Tie a rope to a post. Now wave the other end of the rope up and down. It will be noticed that waves pass along the rope to the pole, though the rope does not leave the hand and travel to the pole.

It will also be noticed, when performing this experiment, that the form of the wave travels forward. If five ropes are held in the hand, and the ropes are placed equidistant from each other, in a circle around the experimenter, he will see that the source of the motion (the transmitter) can cause the waves to spread in all directions. Nevertheless, though these waves are travelling away from the experimenter, the ropes do not leave his hand.

The same applies to electro-magnetic waves. No actual transfer of the medium itself takes place. The medium is merely disturbed, and wave motions are set up in it. The medium is, of course, "ether," of which more presently.

It will also be noticed that the height of the waves depends on the energy with which the rope is shaken. This "height," in language which has already been treated, is the amplitude of the wave.

The energy which the rope received from the hand of the experimenter is expended upon the post. So in ether waves the energy is expended on the receiver.

As mentioned in "Proving Radio" recently, the frequency of waves is measured in cycles per second. The number of waves to reach a given spot in one second is termed "frequency per second." If the rope was so shaken as to cause five complete cycles or oscillations to reach the pole in one second it will have a frequency of five cycles per second.

There are, of course, many types of waves. In "Proving Radio" we have touched on radio frequency waves. If you remember, these are waves which have a very high frequency. The frequency in this case is so high that a diaphragm vibrated at the frequency will not produce an audible sound. On the other hand, some waves have only a frequency of between 16-10,000 cycles per second, and these can be heard, and are therefore termed audio frequencies. The greater the frequency of the wave, the higher will be its note. Thus, the lowest note on the organ has a frequency of 16 cycles per second, whilst the highest note on the piano has a frequency of 4138 cycles per second.

If the frequency of the note is doubled, that note is raised an octave (eight full notes or tones). Thus, middle C on the piano has a frequency of 256 cycles per second. Eight notes (an octave) above middle C, i.e., treble C, the frequency will be 512 cycles per second. If the frequency is halved, the note is lowered an octave.

The range of fundamental frequencies in the human voice in singing is about 60 c.p.s. (cycles per second) for a low bass, to about 1300 c.p.s. for a very high soprano.

Sound waves travel at the rate of 1132 feet per second through air (approximately 13 miles per minute). Objects in the path of the sound waves would tend to divert them from their course. A wind blowing, or any large object present in their path will hinder their progress.

Sound waves through fresh water travel at the rate of 4700 feet per second, whilst as salt water is a better conductor, they will travel in this at 4900 feet per second.

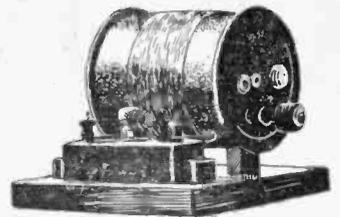
There is a very definite relation between wave length and frequency. It will be readily seen that the wave length depends upon the frequency of the wave and the speed with which it is travelling. We refer to this speed as "velocity," and use the symbol "v." Thus, if the wave is travelling at 'v' feet per second the wave length will be velocity over frequency—i.e., v over f . For example, the wave length of middle C referred to would be 1132 over 256, equal 4, and twenty-one-fiftieths feet through air. In fresh water the wave length of the same note would be 4700 over 256 feet, and in salt water it would be 4900 over 256. The wavelength of treble C through salt water would be 4900 over 512, and the answer would, of course, be in feet.

The speed of ether waves (compare with the speed of sound waves) is 186,000 miles, or 300,000,000 metres, per second (the same speed as light waves). Sometimes it becomes convenient for us to use the metric system, and in such cases we refer to the speed of ether waves as being 3 x 10 to the eighth power metres per second. You will know (if you have followed "Proving Radio") that 3 x 10 to the eighth power will be 300,000,000.

We are led to believe in the existence of ether because it is unreasonable to suppose that energy can be carried through space without some intervening carrier or medium. As an instance, the energy received on earth from the sun must have been carried by some medium. This we term ether. Ether is said to inter-penetrate all matter; it cannot be removed from any place.

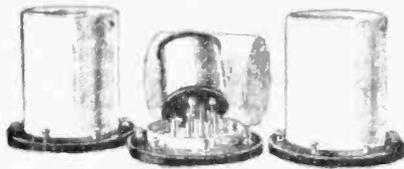
Different ether waves produce various effects. They do not affect the ear directly, but may be made to do so if they are converted to air waves. Some of the ether waves are used for X-ray work. Others constitute light, and others serve for radio work.

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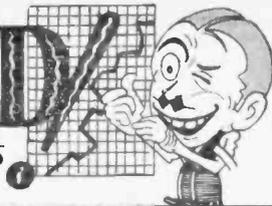
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CURVES AHEAD

The Experimenters' Department of Technical Progress
Conducted by Ross A. Hull M.I.R.E.



Frequency "Standards"

MR. A. G. WEYNTON, of Cremorne, writes:—

"The short-wave station VK2ME was heard working to-day and announcing its wavelength as 31.25 metres. This would not appear to have been correct. The receiver used here was calibrated from the standard frequency transmissions of W9XL, and is regularly checked. According to observations here, VK2ME was operating on 31.56 metres. A further check was made on PCJ and W2XAF, who both were on the air during part of VK2ME's transmission, the former on 31.4, and the latter on 31.48. It was found that their wavelengths coincided with my calibration.

"Checking up on another short-wave receiver, it was found that VK2ME's dial reading was higher than either PCJ or W2XAF, thus definitely proving that VK2ME was working off waver.

"Anyone attempting to calibrate a short-wave receiver for ordinary purposes would take such an announcement of wavelength as being correct, but it appears evident that such is not the case. As we have no standard frequency transmissions in this country calibration is naturally difficult. It seems a great pity that some definite move is not made to scrap the existing wave-meters in use and to replace them with something that can be relied upon."

We heartily agree with Mr. Weynton. Successful operation of many stations on even the broadcast frequencies—let alone the higher frequencies above—demands some highly accurate frequency standard and similarly accurate sub-standards. Very considerable activity is to be found in other countries in the work of arriving at frequency standards and making them readily available. It certainly is to be hoped that Australia soon will join in.

A Common Speaker Trouble

EVEN though the moving coil of a dynamic speaker may be quite central, annoying rattles or buzzes may occur after the speaker has been in use for some time. Owing to the characteristics of the paper cone as a sound conductor, one is often led to conclude, by the apparent direction of the sound, that the rattle has its origin at the periphery of the cone. The obvious remedy seems to be a tightening of the rim band, but in the majority of cases this will prove ineffective. I have examined three speakers with this defect, which previous attempts had failed to eliminate. In all three cases I found that the trouble was due to looseness between the spider support and the moving coil. These two components are joined together with glue, which in the cases referred to had been applied rather scantily, if not carelessly, with the result that the edge of the spider support in parts had become unglued and free to resonate. To rectify this remove the cone support assembly with cone for convenience, and, by means of a long-handled artist's brush, apply a small quantity of good liquid glue to the junction of the coil and spider, and on both sides of the latter. If a fine brush is used there should be no difficulty in putting the glue just where it is needed—right at the joint. The speaker should not be subjected to further use till the glue is thoroughly dry.

High Frequencies Essential

THE lack of brilliancy, characteristic of certain types of dynamic speakers, is mainly due to accentuation of the base notes and undue suppression of the treble notes. Dynamic speakers have come in for a considerable amount of criticism from musical critics on this score. However, this condition is open to remedy by any experimenter providing that the set or amplifier, used in conjunction with the speaker, has an undistorted output of no less than 1400 milliwatts.

It will be found on investigation that a tone filter, consisting of a 1f. choke and condenser, usually shunts the primary of the output transformer. Its function is to cut off all frequencies above the vicinity of

FOR THE EXPERIMENTER

That there exists in Australia a considerable number of advanced experimenters interested in modern developments, trends, and practices in both broadcasting and short-wave communication is made evident by correspondence reaching WIRELESS WEEKLY, and by our own personal observations. Providing we are able to obtain sufficient support, we hope to maintain this new page for their particular interests. In it we are to discuss modern developments in all phases of broadcast reception, electrical gramophone reproduction, and short-wave working, without limiting ourselves to the elementary considerations to be so widely treated in other pages of the magazine.

The fundamental objective, however, is to make the page a debating ground for Australian experimenters, in which extracts from foreign publications will be printed only when they are considered to be of especial interest or consequence. This objective, naturally, will be attained only if experimenters in this country will co-operate to the extent of coming forward to discuss, in this page, their own particular experiences, observations, or problems.

No payment will be made for unsolicited contributions. Readers having ideas, however, are invited to submit them for consideration.

3500 cycles. Dispense with this entirely, and connect the set leads direct to the primary of the input transformer. The result will be an infinitely better frequency response and a brilliance of tone hitherto lacking. Any tendency to screech on the higher frequencies can be prevented by shunting the input transformer primary with a .01 to .05 mfd. fixed condenser. The procedure outlined above does not apply to sets or amplifiers using semi-power valves, which often do not respond successfully to such treatment.

Some of the later types of dynamic speakers have an excellent frequency response, and do not require any modification.

U.S. Receiver Design

KEITH HENNEY, Director of the Laboratory of "Radio Broadcast," makes some interesting comment in that magazine concerning trends in the design of American broadcast receivers. In part, he says:—

"It is certain that 1929 will see the general adoption of the 245-type power tube, and indications that that most up-to-date receivers will use two of them in push-pull. Many receivers seem to be including some sort of band-pass tuning, some as preselectors and some between tubes as coupling circuits. Many receivers will have but one stage of audio, and of those which use screen-grid tubes the majority will require but a very small antenna for loud speaker operation from distant stations.

"The average sensitivity of receivers built in 1928 was of the order of 50 micro-volts per meter; those built in 1929 will probably be ten times as sensitive, 5 mv/m.

"The advantage of uniform sensitivity over the broadcast band is a talking point (and a good one, we believe) of several manufacturers. Whether or not this uniform sensitivity means uniform selectivity we do not know. This would be more of an advantage than uniform sensitivity, in our opinion.

"Some receiver manufacturers feel that the problem of getting a.c. screen-grid tubes in sufficient quantities and of sufficient uniformity will militate against the widespread use of this new addition to the tube line. Tube manufacturers, on the other hand, see no great difficulties in the way of building these more complicated structures. They feel that the experience gained in the production of the heater-type tube will cut down the time of experiment on the newer tube, and that when manufacturers are ready for the tubes with the additional grid they will be ready.

"Some manufacturers have discovered that they will require the same number of tubes when the screen-grid type are used as in 1928, and, therefore, that the advantage in making a screen-grid tube set is only one of sales appeal. On the other hand, at least one manufacturer is ready to advertise that his receivers will not be screen-grid tube equipped, and others have discovered that the same performance can be secured from a four-tube set using the a.c. screen-grid tubes as is now possible from six tubes. Such a receiver will have two screen-grid r.f. amplifiers, a 227-type power detector, or a screen-grid detector, and one stage of a.f. amplification. Will such a receiver have sufficient selectivity? That is the question everyone asks.

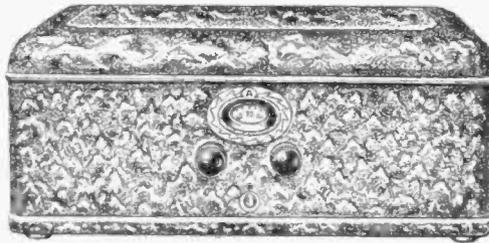
"With an equal number of tubes it ought to be possible to design a receiver that, with a small antenna or loop, would bring in as much programme enjoyment as an older set with a large outside antenna. We hope the advertising departments will not offer the screen-grid receivers as being more free from static and other unwanted racket. If they are loop operated considerable discrimination against unwanted signals, broadcasting, or static may be secured. A blanket statement, however, that the screen-grid tube will make a set freer from undesired noise is too

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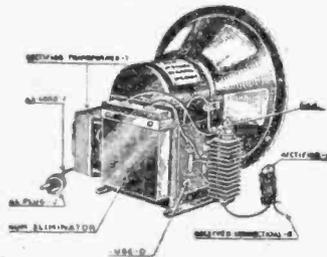
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Local Programmes, Friday, July 19

2FC

EARLY SESSION, 7 a.m. to 8.15 a.m.

- 7.0: "Big Ben" and meteorological information.
- 7.5: Early rising music.
- 7.40: Breakfast news.
- 7.45: Mails and shipping.
- 7.48: What's on to-day?
- 7.50: Children's birthday calls.
- 8.0: Music from the studio.
- 8.15: Close.

MORNING SESSION, 10.30 a.m. to 12.30 p.m.

- 10.30: Announcements.
- 10.32: To-morrow's sporting events.
- 10.45: The State Theatre grand organ.
- 11.0: Household Helps Department. Cooking hints and recipes by Miss Ruth Furst.
- 11.10: The Studio Light Orchestra.
- 12.0: "Big Ben" and Stock Exchange.
- 12.5: A new story.
- 12.20: Midday market reports, supplied by the N.S.W. State Marketing Board.
- 12.30: Close.

THE LUNCH HOUR, 1 p.m. to 2.30 p.m.

- 1.0: Lunch to music with the Station Orchestra.
- 2.0: Stock Exchange, second call.
- 2.2: Popular education: A talk on music, with illustrations.

THE RADIO MATINEE, 2.30 p.m. to 4.30 p.m.

- 2.30: The Station Orchestra.
- 2.42: Peter Sutherland, basso.
- 2.50: Daisy Richards, violin solos.
- 3.0: "Big Ben."
- 3.2: The Station Orchestra.
- 3.15: Peter Sutherland, basso.
- 3.22: The Janetski Trio.
- 3.32: Nora Hill, Irish soprano.
- 3.48: The Station Orchestra.
- 4.0: Daisy Richards, violin solos.
- 4.8: Nora Hill, soprano.
- 4.15: The Janetski Trio.
- 4.22: The Station Orchestra.
- 4.28: The Stock Exchange, final call.
- 4.30: Close.

EARLY EVENING, 5.45 p.m. to 7.55 p.m.

- 5.45: Kiddies' "good-night" stories. Uncle Bas and Aunt Willa.
- 6.45: The Dinner Orchestra.
- 7.30: Sporting news and views.
- 7.45: Price Dunlavy at the console of the Wurlitzer organ at the State Theatre.

EVENING PRESENTATION, 8 p.m. to 11.30 p.m.

- Artists:
- The National Broadcasting Orchestra.
- Keith Grant, New Zealand baritone.
- Lily Price, pianist.
- Mdlle. Dora Marquita, soprano.
- Charles Lawrence and Frank Ryan, comedians.

- A male quartette.
- The Two Fosters.
- The Oriental Dance Band.
- Muriel O'Malley, contralto.
- Athos Martelli, cellist.
- Horace Keats, conductor.
- 8.0: The National Broadcasting Orchestra.
- 8.14: Keith Grant, baritone.
- 8.22: First broadcast appearance of Lily Price, pianist (from the studio of Madame Teresa Carreno).
- 8.33: First broadcast appearance of Mdlle. Dora Marquita (from the studio of Madame Marchesi), with orchestral accompaniment.
- 8.42: The National Broadcasting Orchestra.

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- 9.0: Charles Lawrence and Frank Ryan, entertainers.
- 9.10: Athos Martelli, cellist.
- 9.18: The Two Fosters, in Melodious Moments.
- 9.26: The National Broadcasting Orchestra.
- 9.40: Muriel O'Malley, contralto.
- 9.48: A male quartette.
- 9.55: The National Broadcasting Orchestra.
- 10.15: To-morrow's programme.
- 10.20: Simpson's Syncopaters, from the Oriental Ballroom in dance music.
- 11.30: National Anthem. Close.

2BL

MORNING SESSION.

- Announcer: A. C. C. Stevens.
- 8.0: G.P.O. chimes. Weather report—State and metropolitan.
- 8.3: Studio music.
- 8.15: News and information service, from the "Daily Telegraph Pictorial."
- 8.45: Studio music.
- 9.30: G.P.O. chimes. Half an hour with silent friends.
- 10.0: G.P.O. chimes. Close down.

MIDDAY SESSION.

- Announcer: A. C. C. Stevens.
- 11.0: G.P.O. chimes; 2BL Women's Sports Association Session, conducted by Miss Gwen Varley.
- 11.30: Advertising hints.
- 11.40: Women's Session, conducted by Mrs. Cranfield. Talk on "Infant Welfare" by Nurse May.
- 12.0: G.P.O. chimes. Special ocean forecast and weather report.
- 12.3: Studio music.
- 12.30: Shipping and mails.
- 12.35: Market reports.
- 12.48: "Sun" midday news service.
- 1.0: G.P.O. chimes. Studio music.
- 1.30: Talk to children and special entertainment for children in hospital, by Uncle Steve.
- 2.0: G.P.O. chimes. Close down.

AFTERNOON SESSION.

- Announcer: A. C. C. Stevens.
- Accompanist: Kathleen Roe.
- 3.45: G.P.O. chimes. Popular music.
- 4.0: G.P.O. chimes. Phyllis Broadbent, soprano—(a) "I Wonder if Love is a Dream" (Foster).
- (b) "Ships of Arcady" (Head).
- 4.7: Captain A. C. C. Stevens will speak on "The Pearl Banks of Ceylon."
- 4.22: Dorothy Benbow, contralto—(a) "Just a Ray of Sunlight" (Squire), (b) "Oh, That We Two Were Maying" (Nevin).
- 4.29: Studio items.
- 4.40: Phyllis Broadbent, soprano—(a) "Wild Flowers" (Phillips), (b) "Three Green Bonnets (d'Hardelet), 4.47: "Sun" news service.
- 4.52: Dorothy Benbow, contralto—(a) "Whatever is—Is Best" (Lohr), (b) "I Love You Truly" (Jacobs-Bond).
- 5.0: G.P.O. chimes. Pianoforte reproduction.
- 5.24: Producers'

Distributing Society's poultry report. 5.27 Features of the evening programme.

EARLY EVENING SESSION.

- Announcer: Basil Kirke.
- 5.30: Children's Session conducted by Uncle Bas. Music and entertainment. Letters and stories.
- 6.30: "Sun" news and late sporting.
- 6.40: The Instrumental Trio.
- 7.7: 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.
- Grain and fodder report ("Sun").
- Dairy produce report ("Sun").
- 7.25: M. Pim and Miss Pam in advertising talks, handy hints, and nonsense.
- 7.53: An A.C. Special.
- 7.55: Programme and other announcements.

EVENING SESSION.

- Announcer: Basil Kirke.
- Accompanist: G. Vern Barnett.
- 8.0: G.P.O. chimes. A transmission will be arranged from one of Sydney's leading theatres.
- 9.15: From the Studio: Weather report.
- 9.18: C. R. Dexter will give last-minute sporting information.
- 9.31: Robert Scott, tenor—(a) "Il Mio Tesoro" (Mozart), (b) "Passing By" (Purcell).
- 9.38: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
- 9.50: From the Studio: Robert Scott, tenor—(a) "She is Far From the Land" (Moore), (b) "Ahe, Moon of My Delight" (Lohmann).
- 9.57: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
- 10.7: From the Studio: Billee Cresswell, popular vocalist.
- 10.14: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
- 10.24: From the Studio: Billee Cresswell, popular vocalist.
- 10.30: Late weather report.
- 10.32: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
- 10.57: From the Studio: To-morrow's programme.
- 10.59: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
- 11.30: National Anthem. Close.

2GB

- 10.0: Music.
- 10.10: Happiness talk, by A. E. Bennett.
- 10.20: Music.
- 10.30: Women's session, by Miss Helen J. Beegling.
- 11.30: Music.
- 11.45: Close down.
- 2.0: Music.
- 2.5: Women's radio service, by Mrs. Dorothy Jordan.
- 2.50: Movie know all.
- 3.0: Music.
- 3.30: Close down.
- 5.30: Children's session, by Uncle George.
- 7.0: Music.
- 7.45: Feature story.
- 8.0: Miss Elsie Brown, soprano.
- 8.7: Instrumental Quartette.
- 8.15: Mr. Clifford Lathlean, baritone.
- 8.30: Symphony Orchestra.
- 8.35: Humorous Interlude by Mr. Jack Win and Mr. Heath Burdock.
- 8.40: Miss Ada Brook, pianiste.
- 8.45: Address.
- 9.0: Weather report.
- 9.3: Miss Florence Gordon, contralto.
- 9.15: Symphony Orchestra.
- 9.23: Humorous Interlude by Mr. Jack Win and Mr. Heath Burdock.
- 9.28: Miss Elsie Brown, soprano.
- 9.38: Organ music.
- 9.48: Miss Florence Gordon, contralto.
- 9.58: Miss Ada Brook, pianiste.
- 10.3: Instrumental Music.
- 10.30: Close down.

2UW

MIDDAY SESSION.

- 12.30: Request numbers.
- 1.0: G.P.O. clock and chimes; music.
- 1.15: Talk on Home craft, by Pandora.
- 1.40: Music and request numbers.
- 2.30: Close down.
- 4.30: Musical programme.

EVENING SESSION.

- 5.30: Children's hour, conducted by Uncle Jack.
- 6.30: Close down.
- 7.0: G.P.O. clock and chimes.
- Request numbers.
- 8.0: Music.
- 9.0: G.P.O. clock and chimes; comments of Foreign Affairs by Mr. J. M. Prentice.
- 9.10: Music and request numbers.
- 10.30: Close down.

N.B.—Same programme as above for Tuesday, July 23, and Wednesday, July 24.

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The PHILIPS DUAL-RATE CHARGER

The PHILIPS TRICKLE CHARGER



PHILIPS RECTIFIER TYPE 1016/1017.
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PERHAPS you do not mind carrying your accumulator frequently for charging—perhaps the cost of each charge does not worry you—but the risk of deterioration of your "A" battery **MUST** be avoided.

Here the Philips home-charger steps in. With one of these units you can ensure charging at a rate which will not damage the delicate accumulator plates. You can practically save the cost of charging as the current consumption is negligible. You can save the trouble of taking the battery to town for re-charging and ensure regular rejuvenation. In short, you **MUST** have a Philips home-charger.

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This unit, as its name implies, charges at either of two rates—1.3 or .5 amps. A switch in the output leads changes the rate and enables the unit to be used either as a "boost" or "heavy trickle" charger.

The 1453 is encased in a heavy one-piece aluminium casing through the fret of which the valve can be inspected. If all is well, this valve will emit a "blue glow." Complete with plug and cords

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THE PHILIPS TRICKLE CHARGER

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PHILIPS

Interstate Programmes, Friday, July 19

3LO

DAILY MORNING SESSION.

7.15: Morning melodies. 7.20: Morning exercises to music. 7.30: Stock reports; market reports; Stock Exchange information; general news; shipping and sporting information. 8.0: Melbourne Observatory time signal. 8.1: Morning melodies. 8.15: Close down.

MORNING SESSION.

11.0: 3LO's supper dish recipe: Fried oysters. 11.5: Miss I. V. Crawford will speak on "Practical Psychology." 11.35: "Au Fait" will speak on "Fashions." 11.45: Under the auspices of the Department of Health, Dr. Scantlebury will speak on "Some Aspects of Infant Welfare."

MIDDAY SESSION.

12.0: Time signal. 12.1: British official wireless news from Rugby; Reuter's and the Australian Press Association cables; "Argus" news service. 12.15: Newmarket stock sales; special report by the Associated Stock and Station Agents, Bourke Street, Melbourne. 12.20: The Station Orchestra. 12.30: Harold Webb, baritone. 12.37: Stock Exchange information; metal prices received from the London Stock Exchange by the Australian Mines and Metals Association this day. 12.44: The Station Orchestra. 1.0: Meteorological information; weather forecasts for Victoria, New South Wales, South Australia, and Tasmania; ocean forecasts; river reports; rainfall. 1.13: Harold Webb, baritone. 1.20: The Jedral Trio. 1.45: Close down.

AFTERNOON SESSION.

2.15: The Station Orchestra. 2.24: Myrtle Walscott, contralto. 2.31: The Station Orchestra. 2.39: Tom Semple, tenor. 2.46: The Station Orchestra. 2.50: Lesbia Dobson, piano. Mozart programme. 3.5: The Station Orchestra. 3.15: Tom Semple, tenor. 3.23: Bertha Joransen, violin. 3.30: The Station Orchestra. 3.38: Myrtle Walscott, contralto. 3.45: Mildred and Connie, harp and violin. 4.0: The Jedral Trio. 4.45: News service; Stock Exchange information; results of coursing, Waterloo Cup, at Geelong. 4.45: Close down.

EARLY EVENING SESSION.

5.45: Answers to letters and birthday greetings. 6.5: Stories and entertainment for the kiddies. 6.20: Captain Donald Maclean. 6.35: Lindsay Higgins, piano. "Fantasia in D Minor" (Mozart). "Sonata in A Major" (Mozart). "Two Preludes" (Debussy). "Clair de Lune" (Debussy).

EVENING SESSION.

7.15: Stock Exchange information. 7.15: Market reports. 7.30: News service. 7.42: Birthday greetings. 7.45: Out of the Past. 7.46: Cecil H. J. Williams will speak on "To-morrow night's events at the Stadium." 8.0: A Maker of History.

NIGHT SESSION.

8.0: Collingwood Citizens Band—March, "Distant Greeting." Overture, "Diamond Cross." 8.10: Victor Harding, bass-baritone—"The Desert" (Emanuel). "When Thy Blue Eyes" (Lassini). 8.17: Collingwood Citizens' Band—Selection, "The Pirates of Penzance" (Gilbert and Sullivan). 8.27: Violet Jackson, soprano—"My Ships." "Pirate Dreams" (Hueter). 8.34: Transmission from Melba Hall, University Symphony Orchestra conducted by Professor Benjamin Heinz.

Orchestra: Overture, "Figaro" (Mozart). Symphony, "New World" (Dvorak). University Symphony Orchestra. Soprano: "Waltz Song" from Rome and Juliet. Myrtle Wise.

Orchestra: "Peer Gynt Suite" (Grieg). University Symphony Orchestra. Soprano: "The Trout" (Schubert). "Lullaby" (Brahms). Myrtle Wise.

Orchestra: Introduction to Act 3, "Lohengrin" (Wagner). University Symphony Orchestra. From the Studio. 9.34: Victor Harding, bass-baritone—"The Deathless Army" (Troterre). "Little Billie" (Diack).

9.41: Collingwood Citizens' Band—Selection, "The Bohemian Girl" (Balfe). 9.51: Violet Jackson, soprano—"Prelude" (Scott). "The First of June" (Herbert Oliver).

9.58: News service; British official wireless news from Rugby; meteorological information; announcements. 10.8: Eric Welch will speak on to-morrow's V.A.T.C. races at Caulfield. 10.18: The Jedral Trio (Alva Hattenbach, violin; Edna Hattenbach, cello; John Simons, piano)—"Ave Maria" (Schubert). "Serenata" (Moszkowski). "Love's Garden" (Schumann).

Alva Hattenbach, violin—"Ballad Music" (Schubert-Kreisler). The Trio—"Romance" (Campagnoli). "Romdo" (Schubert).

10.44: Ern Hall's Radio Revellers, with Hugh Huxham—"Shivering" (Doody). "Promise Me" (Van Cotho). "Ready for the River" (Moret). "My Stormy Weather" (Plantadosi). "What'll You Do" (Cohn). "Do You" (Plantadosi). "My Mother's Eyes" (Baer). "Stay at Home Guy" (O'Hagen). "Pa's Old Hat" (Nichols). "Colombo" (Nichols).

11.30: God Save the King.

3AR

MORNING NEWS SESSION.

10.0: G.P.O. clock says "Ten." 10.1: "Age" market reports. Farm and station produce, fruit, fish, and vegetables. 10.25: "Age" shipping reports. Ocean forecasts. 10.30: Mail notices. Express train information. 10.35: "Age" news service, exclusive to 3AR. 10.50: Weather forecast.

MORNING MUSICAL SESSION.

11.0: Recordings. 12.20: British official Wireless news from Rugby. Announcements. 12.30: Close down.

AFTERNOON SESSION.

3.0: Recordings. 3.30: Albert Sammons, violin, and William Murdoch, pianoforte. "The Kreutzer Sonata" in A Major (Bethoven). 3.30: Close down.

EVENING SESSION.

6.0: Recordings. 7.0: News session. Announcements. 7.20: Recordings.

NIGHT SESSION.

8.15: Under the auspices of the Federated Mothers' Club, Mrs. Longland will speak. 8.30: Community Singing, transmitted from the Collingwood Town Hall. The Radio Revellers, with Hugh Huxham. Assisted by Mildred and Connie, with their harp and violin. 1.20: News session. Announcements.

3DB

MORNING SESSION.

11 a.m.: Time. Popular British music, Elgar, German, Besley, Ansell, Bantock. 11.30: "La Vogue." 11.35: Solos, instrumental and vocal. 12.0: A pianoforte recital and some ballads. 12.25: Forecast of chief news and features to appear in "The Herald." 12.30: Close down.

AFTERNOON SESSION.

2.0: Half an hour of light opera. 2.30: Orchestra, cello, songs. 2.55: Atwater Kent radio hour. 3.58: "Herald" news. 4.0: Close down.

EVENING SESSION.

5.30: Children's hour, "Billy Bunny." 6.0: Snatches of comic opera. 6.30: What's on at the theatres and movies. 6.32: Radio movie club. 6.40: Sullies, songs, and strings. 7.0: Some special excerpts. 7.30: Spanish scales. 7.45: Market reports.

NIGHT SESSION.

8.0: A symphony concert. 8.30: Special releases. 9.0: "Sun News Pictorial" hour. 10.0: Merry and bright music. 10.30: Slumber music. 10.40: Resume of news flashes from "Sun News Pictorial." 10.45: God Save the King.

4QG

EARLY MORNING SESSION.

7.43: Tine signals. 7.45: News service. 8.0: Records. 8.15: News service. 8.30: Close down.

MORNING SESSION.

11.0: Music. 11.5: Social news. 11.15: Lecturette: a cookery and household talk by "The Etiquette Girl." 11.30: Music. 12 (noon): Close down.

MIDDAY SESSION.

1.0: Market reports and weather information. 1.20: Lunch-hour music. 2.0: Close down.

AFTERNOON SESSION.

3.0: The Studio Orchestra: Overture, "Le Chevalier Breton" (Herman); valse, "Lucille Love" (Olmán); dance intermezzo, "Laughing Eyes" (Finck); caprice, "In the Starlight" (Hueter); rag step, "Live Wire" (Shepherd). 3.30: Organ recital by Mr. Geo. Sampson, F.R.C.O. City Organist. 4.0: Studio Orchestra: Entr'acte, "A Voice in the Wilderness" (Russell); march, "The Glencoe" (Hayes) 4.10: Records. 4.15: News. 4.30: Close down.

NIGHT SESSION.

8.0: In response to many requests another special orchestral programme arranged by Mr. Erich John will be broadcast. From the Studio: Group I—Grand Opera—Orchestra—"Overture" from "Tancredi" (Rossini). W. W. Griss (tenor)—"Flower Song" from "Carmen" (Bizet). Orchestra—"Entr'acte Music" from "Rosamunde" (Schubert). Mildred Bell (contralto): Softly Awakes my Heart" from "Samson and Delilah" (Saint-Saens).

8.30: Group II.—Echoes from an Old World Garden—Orchestra—"La Cinquante" (Marie). "Menuet" (Boccherini). Stanley Tamblin (bass-baritone)—"At the Court of Gay Versailles" (Arundale). Orchestra—"Air de Louis XIII." (Glycs). "Chaconne" (Durand). Mildred Bell (contralto) and Stanley Tamblin (bass-baritone)—"Rendez-Vous" (Aletier).

9.0: Metropolitan weather forecast. Group III.—Classical. Orchestra—"Unfinished Symphony" (Schubert). Part I. Mildred Bell (contralto)—"The Ring" (Schumann). Orchestra—"Unfinished Symphony" (Schubert). Part II. Stanley Tamblin (bass-baritone)—"Within Those Holy Portals" (Mozart). Orchestra—"Marche Militaire," No. 2 (Schubert).

9.30: Group IV.—Light Opera. W. W. Crisp (tenor)—"The Trysting Tree," from "Nell Gwyn" (German).

Orchestra—"Three Dances" from "Nell Gwyn" (Ed. German).

"Country Dance." "Pastoral Dance." "Merrymakers' Dance." Mildred Bell (contralto) and Stanley Tamblin (bass-baritone)—"Vocal Duet—"When the Lilac Bloom Uncloses." from "Lilac Time" (Schubert). Orchestra—Selection, "The Mikado" (Gilbert and Sullivan). 10.0: Weather. Close down.

5CL

MORNING SESSION.

11.30: Chimes. 11.31: Recordings. 11.45: Kitchen craft and menu talk. 12.1: Recordings. 12.15: News. 12.40: Recordings. 12.52: Railway, Exchange, and meteorological information. 1.1: Community singing from the Adelaide Town Hall. 1.59: Weather. 2.0: Close down.

AFTERNOON SESSION.

3.0: Chimes. 3.10: A studio concert. 4.10: An educational talk on "Italian Flax and Hemp Industries." "Canadian Pool Benefits Farmers." 4.25: Stock Exchange. 5.30: Close down.

EVENING SESSION.

6.0: Chimes. 6.1: Birthday greetings, correspondence, songs, and stories. 6.30: Dinner session. 7.1: Senior Birthday League greetings. 7.2: Sporting service and general market reports. 7.15: "Mo" Manning on "Football." 7.30: Mr. R. J. A. Bruce will continue his talk on "Various Aspects of Overseas Trade." 7.45: Mr. A. Grenfell Price, M.A., P.R.C.S., will continue his series of talks on "Pioneers of Australia—Captain Cook."

NIGHT SESSION.

8.0: Chimes. 8.1: Programme review. 8.10: Announcements. 8.15: The Red Hot Peppers' Dance Band (conducted by Tom Dorrington)—"Love's Dream" (Liszt). "Melody of Love" (Donaldson). "Away From You." "Rose of Flanders" (Ireland). 8.27: Mary Edson, soprano—"June is in My Heart" (Vaughan). 8.30: "Alabama Stamp" (Johnson). "Rubinesque" (Kajsmán). "Down South" (Donaldson). "My Blackbirds Are Bluebirds Now" (Friend). 8.42: Bessie Francis, elocutionist—"The Tramp in a Hat" (Baer). 8.45: "Crazy Words" (Ager). "There's a Rainbow Round My Shoulder" (Johnson). "Sweet Sue, Just You." "Look in the Mirror" (Steph). 8.57: Norman Morphet, tenor—"Muletter of Malaga" (H. Troterre). 9.1: Meteorological information, including semaphore tides. 9.2: Overseas grain report. 9.3: "It's a Precious Little Thing Called Love." "Someday You'll Say O.K." (Donaldson). "Mississippi Mud" (Barris). 9.17: Mary Edson, soprano—"The Waking of Spring" (Teresa Del Riego). 9.15: "Sally of My Dreams." "Sunny Boy." "Querida" (Simon). "It Goes Like This" (Friend). 9.27: Bessie Francis, elocutionist—"Not Understood" (by special request). 9.30: "High Noon a Hit" (Baer). "Side by Side" (Woods). "Cock-a-doodle." "That's My Weakness Now" (Steph). 9.42: Norman Morphet, tenor—"I Was I Roved the Mountains" (Hermann Lohr). 9.45: "Mexican Serenade" (Tereso). "Revenge" (Young). "Painting Pretty Pictures." "Beloved" (Kahn). 9.57: Mary Edson, soprano—"No, No, No" (Maltlo). 10.1: Bessie Francis, elocutionist—"Simplicity." 10.4: Norman Morphet, tenor—"Rose of England." 10.8: Jean Finlay, pianist—"Staccato Caprice" (Aletier). "Squidillas" (Albeniz). 10.15: General news service. 10.20: 5CL's sporting service, including selections by "Sultans" for to-morrow's races at Morphettville and Caulfield. 10.30: Close down.

6WF

10.0: Records. 11.0: Close down. 12.30: Tune in. 12.35: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin. 1.3: Items by the Radio Trio. 2.0: Close down. 3.30: Tune in. 3.35: Afternoon Tea music, relayed from the Primrose Cafe de Luxe. 4.30: Close down. 6.45: Tune in. 6.48: Bedtime stories by Uncle Duffy. 7.5: Light music by the Perth Piano Trio. 7.30: Commercial information. 7.45: Talk on Racing. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Items by the Karoola Instrumental Duo, Miss Margery Hodgson, and the Messrs. M. Malcolm and A. Norwood, in broadcast plays; relay from the Assembly Hall, Perth, of portions of concert by the Perth Philharmonic Society. 8.50: Late news items, station announcements, ships within range announcement, late weather bulletin. 8.58: "Gardening" talk by Mr. James Conarty. 9.12: Programme continued from the Studio and the Assembly Hall. 10.30: Close down.

104.5 METRE TRANSMISSION

Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL

MIDDAY SESSION.

11.30: Recording. 11.34: Weather. 11.55: Weather report. 12.1: Shipping information. Ships within wireless range. Mail notices. Housewives' guide. Commercial news. 12.22: Announcements. 12.55: News service. British official wireless news. Railway auction produce sales. held at railway. 1.30: Close down.

AFTERNOON SESSION

3.0: Chimes. 3.4: Weather information. 4.15: Personalities. 4.30: Close down.

EARLY EVENING SESSION

6.15: Recordings. 6.30: Peggy Dyer will play the piano for the wee folk. "Valse Parisienne." "Charmeuse" (Clarke). 7.0: Answers to letters and birthday greetings by "Uncle David" and "The Story Lady." 7.10: News service. Railway auction produce. Sales held at railway. Announcements.

EVENING SESSION

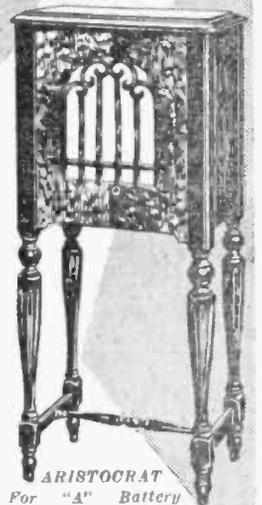
- 7.15: Sid Jones will speak on "Football."
- 7.30: A Concert Programme.
 - Gwen Davidson, soprano — "Wind In the Trees" (Thomas)
 - "Love, the Jester" (Phillips).
- 7.37: Royal Opera Orchestra — "Sylvia Ballet," Parts 1 and 2 (Delibes)
- 7.44: Owen Burrows, baritone — "To Anthea" (Horton).
- "Requiem" (Horne).
- 7.51: New Queen's Hall Orchestra — "Faust" Ballet Music (Gounod).
- 7.58: Mrs. R. D. Hay, Contralto — "The Turn of the Year" (Willeby)
- "Sunday" (Brahms).
- 8.5: Herbert Dawson, Organ Solo — "Toccata" (Dubois).
- "Meditation" (Debussy).
- 8.12: Gwen Davidson, Soprano — "Happy Song" (Del Riego).
- "When Love is Kind" (Moore).
- 8.15: International Concert Orchestra — "Over the Waves."
- "Danube Waves"
- 8.26: Owen Burrows. "Invictus" (Hugo).
- "I Pass Your Garden Singing."
- 8.33: Sascha Jacobsen, Violin Solo — "Midnight Bells" (Henberger).
- "From the Cranebrook" (Gardner).
- 8.40: Mrs. R. D. Hay, Contralto — "Trees" (Bach).
- "A Sprig of Boronia" (Hull).
- 9.45: News Session.
- 10.0: Chimes.
- 10.1: Close down.

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Local Programmes, Saturday, July 20

2FC

EARLY SESSION—7 a.m. to 8.15 a.m.
 7.0: "Big Ben" and meteorological information.
 7.5: Early rising music.
 7.40: Breakfast news.
 7.45: Mails and shipping.
 7.48: What's on to-day?
 7.50: Children's birthday calls.
 8.0: Music from the studio.
 8.15: Close.

MORNING SESSION—10.30 a.m. to 12.30 p.m.

10.30: Announcements.
 10.32: The racing observer.
 10.45: Studio organ recital.
 11.0: Week-end suggestions.
 11.10: The Light Orchestra.
 12.0: "Big Ben" and Stock Exchange.
 12.5: "A New Story"
 12.20: Popular music
 12.30: Close.
 Note.—During the afternoon racing descriptions and results will be given from Canterbury races.

THE LUNCH HOUR—1 p.m. to 2.30 p.m.

1.0: Lunch to music with the Station Orchestra.
 2.0: What to do in the Garden.
 2.20: A glance at the afternoon papers.

SPORT AND MUSIC

2.30: The Station Orchestra will play during the afternoon between the race descriptions which will be given from Canterbury races. During the afternoon solos by Miss Gwladys Fimister will be given.

EARLY EVENING—5.45 to 7.55

5.45: Kiddies' "Good-night Stories," told by the "Hello Man."
 6.54: The Dinner Orchestra.
 7.30: Sporting news and views
 7.40: Late news.
 7.45: From the State Theatre—Mr. Price Dunlavy at the Console of the Wurlitzer.

EVENING PRESENTATION—8 to 11.30.

Artists—
 "Odds and Ends" Radio Revue
 Muriel O'Malley, contralto.
 John Warren, baritone.
 Willie Shine, comedian
 Randall Woodhouse, tenor.
 Grace Quine, popular items.
 Studio Instrumentalists.
 Violet Rogers, soprano
 8.0: "Odds and Ends," a radio revue that is a little different.
 9.0 (approx.): From the Studio: Muriel O'Malley, contralto, and John Warren, tenor, in popular numbers.
 9.10: Comic Opera Reminiscences by the Studio Instrumentalists.
 9.25: Willie Shine, comedian.
 9.28: Randall Woodhouse, tenor.
 9.34: Grace Quine, in popular items
 9.40: Studio Instrumentalists.
 10.0: Violet Rogers, soprano.
 10.8: A description of to-night's boxing match.
 10.15: To-morrow's programme and announcements.
 10.20: Dance music from the "Oriental" ballroom will be supplied by Simpson's Syncopaters until 11.30, with popular vocal numbers sung by Margaret Grimshaw between the dance items.
 11.30: Close. "God Save the King."

2BL

MORNING SESSION.

Announcer: A. C. C. Stevens.
 8.0: G.P.O. chimes. Weather report—State and metropolitan. 8.3: Studio music. 8.15: G.P.O. chimes. News and information service from the "Daily Telegraph Pictorial."
 8.45: Studio music. 9.30: G.P.O. chimes. Half an hour with silent friends. 10.0: G.P.O. chimes. Close down.

MIDDAY SESSION.

Announcer: A. C. C. Stevens.
 11.0: G.P.O. chimes. Women's Session, conducted by Mrs. Cranfield. What's on at the Pictures and Theatres. 11.30: Advertising hints. 11.40: Talk on "Gardening" by Mr. Cooper, Park Superintendent, City Council. 12.0: G.P.O. chimes. Special ocean forecast and weather report. 12.6: Studio music. 12.30: "Sun" midday news service. 12.40: Studio music. 1.0: "Sun" news service. 1.10: Studio music. 1.40: "Sun" news service. 1.50: Studio music. 2.0: G.P.O. chimes. Close down. Note: Race results from Canterbury Park will be broadcast by arrangement with "Sun" Newspapers, Ltd.

AFTERNOON SESSION.

Announcer: Eric Bessemer.
 2.0: From Canterbury: Description of the races in the running. During intervals from the Studio musical items by the Popular Trio. Progress results of the All Blacks v. Australia Football Match, played at Brisbane. 4.45: From the Studio: Complete sporting and racing resume. 5.0: "Big Ben." Close.

EARLY EVENING SESSION.

Announcer: Basil Kirke.
 5.40: Children's Session conducted by Uncle Bas. Music and entertainment. Letters and stories. 6.30: "Sun" news service. 6.40: Dinner music. 7.7: Complete sporting and racing resume. 7.30: Mr. Pim and Miss Pam in advertising talks, handy hints, and nonsense. 7.53: An Ad. Special. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: Basil Kirke.
 7.30: To-night's programme.
 7.35: G. Vern Barnett, pianoforte solos.
 7.45: From Her Majesty's Theatre:
 2BL interviews—
 Marie Bremner.
 Lance Fairfax.
 8.0: By arrangement with J. C. Williamson, Ltd., the first act of the "Desert Song."
 9.25: E. J. Tait (Market Street).
 9.28: From the Studio—Weather report. A musical item.
 9.35: From Her Majesty's Theatre, by arrangement with J. C. Williamson, Ltd.: The second act of the "Desert Song."
 11.0: G.P.O. chimes. From the Studio: A sketch written by Ron M'Cuag, in which the following characters appear—
 Basil Kirke,
 Captain Stevens,
 Vern Barnett,
 Ray Allsop,
 Kathleen Roe,
 Knight Barnett,
 Eric Bessemer.
 11.10: Description of to-night's contest at the Stadium, by an Eye-witness.
 11.20: The Troubadours.
 11.30: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
 11.40: From the Studio: The Troubadours.
 11.50: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
 12.0: "Auld Lang Syne." Close.

2GB

3.0: Musical session. 5.30: Children's session, by Uncle George. 7.0: Request evening. 8.0: Dance and instrumental programme. 10.30: Close down.

2UW

5.30 p.m.: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: Request numbers. 10.30: Close down.

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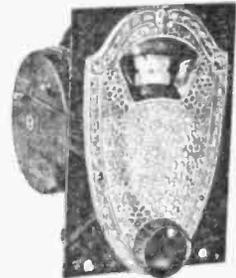
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Interstate Programmes, Saturday, July 20

3LO

EARLY MORNING SESSION.

7.15 to 8.15: See Friday.

MORNING SESSION.

10.50: Final selections by Eric Welch for to-day's V.A.T.C. races at Caulfield. 11.0: The Strad Trio. 1.19: Myrtle Walscott, contralto. 11.26: Cecil Parkes, violin. 11.32: Myrtle Walscott, contralto. 1.39: Nyra Montague, piano. 11.42: The Strad Trio.

MIDDAY SESSION.

12.0: Melbourne Observatory time signal. 12.1: British official wireless news from Rugby. Reuter's and the Australian Press Association cables. Argus news service. 12.20: The Radio Revelers. 12.29: J. Alexander Browne, baritone. 12.36: Stock Exchange information. Metal prices received by the Australian Mines and Metals Association from the London Stock Exchange this day. 12.40: The Radio Revelers. 12.49: Molly Mackay, soprano. 12.56: The Radio Revelers. 1.2: Meteorological information. Weather forecast for Victoria, New South Wales, South Australia, and Tasmania. Ocean forecast. River reports. Rainfall. 1.8: J. Alexander Browne. 1.15: The Radio Revelers. 1.21: Molly Mackay, soprano. 1.28: Description by Eric Welch of Leamington Hurdle Race, 2 miles 65 yards, V.A.T.C. races at Caulfield. 1.35: Description by Percy Steele of baseball match, Richmond v Colingwood, at R.C.C.

AFTERNOON SESSION.

2.18: Description by Eric Welch of Lillimur Two-year-old, 7 furlongs, V.A.T.C. races at Caulfield. 2.25: Description of baseball match, by Percy Steele, Richmond v Colingwood, at R.C.C. 2.48, 3.10, 3.45, 4.25, and 4.55: Description of football match, South Melbourne v Melbourne, at S.M.C.G., by Rod McGregor. 2.53: Description of Murrumbena Handicap, 1 mile 3 furlongs, V.A.T.C. races at Caulfield. 3.0, 3.37, 4.10, and 4.45: Description by Mel Morris of football match, Richmond v Colingwood, at Richmond C.C. 3.27: Description of Godfrey Watson Steeplechase, 2 miles 3 furlongs, V.A.T.C. races at Caulfield. 3.35: Quarter-time football scores. 4.0: Half-time scores. 4.3: Description of Kambrook Trial, 1 mile, V.A.T.C. races, at Caulfield. 4.35: Three-quarter-time scores. 4.38: Description of Malvina Welter, 1 mile, V.A.T.C. races, at Caulfield. 5.15: News service. 5.30: Final scores. 5.35: Close down.

EARLY EVENING SESSION.

5.45: Late sporting. 6.0: Birthday greetings, stories, and entertainment for the children. 6.20: Captain Donald MacLean will conclude, for the present, his tales of adventure by land and sea. 6.30: Lindsay Biggins, piano.

EVENING SESSION.

7.0: Market reports. 7.15: News session. Football scores. 7.25: Birthday greetings. 7.39: Out of the Past. 7.50: The Station Orchestra. 7.45: Dr. J. A. Leach, B.Sc., will speak on "Sittels or Tree Runners."

NIGHT SESSION.

8.0: Programme announcements. 8.1: The Station Orchestra—Overture, "Martiana" (Wallace). 8.11: "The Sundowners"—Duet, "Onaway, Awake, Beloved" (Cowen). Tom Temple, tenor, and Herbert Sanderson, baritone. Quartettes, "I Miss You Lize" (Crummitt), "Nancy Lee" (Adams). 8.20: The Station Orchestra—"Joyous Yearning" (Coates). 8.28: Dawn Harding, mezzo-soprano—"Shepherd Song" (Roud). "Down by the Salley Gardens" (Martin Shaw). 8.35: The Station Orchestra—"Chopiniana" (arr. Hosmer). 8.60: The Melody Makers will give a programme of—

"Gems from Martiana." 9.25: The Station Orchestra—"Whispering of the Flowers" (Von Bion). 9.30: Song feature of the week. 9.34: The Station Orchestra—"Selection, 'The Girl Friend' (Rogers). 9.44: The Sundowners—Quartettes, "Redskins" (Zamecnik), "Blue Skies" (Berlin), "Mississippi Mud" (Barris). 9.54: Agnes Fortune, piano—Selected. 10.1: Dawn Harding, mezzo-soprano—"Where Corals Lie" (Elgar). Selected. 10.8: Late sporting. 10.15: The Station Orchestra—"Kissing Time" (Caryl). 10.25: "The Sundowners"—"Oft in the Stilly Night" (Old Irish). "Close Harmony" (O'Hara). "The Spider and the Fly" (O'Hara). 10.35: Thelma Ready, banjoist—Ten minutes of up-to-the-minute melodies. 10.46: A special programme of request and latest numbers will be furnished by Ern, Hall's Radio Revelers. Vocal refrains by Hugh Huxham. 11.30: God Save the King.

3AR

MORNING MUSICAL SESSION.

11.0: Recordings. 11.50: British Official Wireless news from Rugby.

Announcements. Rates of exchange, supplied by Thomas Cook and Sons. 12.0: Close down.

AFTERNOON SESSION.

3.0: The Station Orchestra. 3.10: Gertrude Hutton, contralto. 3.17: The Station Orchestra. 3.32: Syd. Exton, tenor. 3.39: The Jedal Trio. 4.9: Gertrude Hutton, contralto. 4.16: The Station Orchestra. 4.33: Syd. Exton, tenor. 4.40: The Station Orchestra. 5.0: Close down.

EVENING SESSION.

6.0: Recordings. 7.10: News session. Announcements. 7.20: Recordings.

NIGHT SESSION.

8.1: All sporting results. 8.30: 21st Battalion Band (conductor, T. B. Davison)—Regimental March, "Moray Firth" (M'Kenzie). Dance, "Queen Bess" (Rimmer). 8.40: Thomas B. George, bass—"Nita Gitana" (Newton). "Invictus" (Hubb). 8.47: Lindsay Biggins, piano—"Gundersen" (Schumann). "Dances in Form of Suite" (Schubert). 9.7: Molly McKay, soprano—"Echo Song" (Eckert). "Synagogue Song" (Kjerulf). 9.14: 21st Battalion Band—March, "Duntroon" (Code). Waltz, "Rosaline" (Greenwood). 9.24: Thomas B. George, bass—"Two Grenadiers" (Schumann). "Uncle Remus" (Homer). 9.31: The Jedal Trio (Alva Hattenbach, violin; Edna Hattenbach, cello; John Simons, piano)—Trio, "Andante" (Reissiger). "Pierette" (Chaminade). Cello, "Slumber Song" (Rimsky-Korsakov). Trio, "The Old Refrain" (Brandt-Kreisler). "Flower Waltz" (Tschaiakowsky). 10.1: Molly McKay, soprano—"Ma Voisine" (Goring Thomas). "Cuckoo Clock" (Schaefer). 10.8: 21st Battalion Band—Descriptive Sketch, "Trooping the Colors." Regimental March, "Colonel Bogey." 10.20: News session. Announcements. 10.30: God Save the King.

3DB

MORNING SESSION.

10 a.m. Time A high-brow programme. 10.30: A low-brow programme. 11.0: A band and some singers. 11.30: An octet and some light songs. 11.55: Forecast of chief news and features to appear in "The Herald."

EVENING SESSION.

5.30: Children's hour, "Bobby Bluegum." 6.0: Ballads and a band. 6.30: Sporting results. 6.45: What's on at the theatres and movies. 6.47: Radio movie club. 6.55: A famous military band and some favorite artists. 7.30: A short session of chamber music and light songs. 8.0: A special dance programme. 9.0: "Sun News Pictorial" hour. 10.0: Some favorite items and artists. 10.30: Slumber music. 10.40: Resume of news flashes from "Sun News Pictorial." 10.15: God Save the King.

4QG

EARLY MORNING SESSION.

7.30 to 8.30: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EARLY EVENING SESSION.

6.15: "Queenslander" bi-weekly news service for distant listeners. 6.30: Bedtime stories, conducted by "Uncle Ben." 7.0: To-day's races in detail. 7.20: General sporting notes. 7.0: Sailing notes by Mr. Fred Smith.

NIGHT SESSION.

Radio Play, "The Bells," in three acts. Mathias Christian Hans Judge of the Court The Mesmerist Catherine Mrs. Robt. Bell. Annetta Dulcie Dunlop. Act 1 and 2: Room in house of Mathias. Act 3: "A Court of Justice" (The Dream). 8.0: Radio Play—"The Bells." Part 2—Studio Programme. 9.0: Metropolitan weather forecast. 9.1: Patricia McQuigley (soprano)—"My Dreamland Rose" (Phillips). "Little Brown Owl" (Sanderson). 9.9: The Aloha Trio—Hawaiian Music. 9.13: Ernest Harper (baritone)—"King of the Night" (Stoneham). "Time to Go" (Sanderson). 9.20: The Aloha Trio—Hawaiian Music. 9.25: Mrs. Charles Willey (contralto)—"When You're Away" (Sanderson).

"The Leaves and the Wind" (Leoni). 9.30: Dance music. 10.0: News. Close down.

5CL

MIDDAY SESSION.

12.0: Chimes. 12.1: Special late selections for Caulfield races, by 3LO's sporting commissioner. 12.3: Probable starters and selections for races at Morphettville to-day. 12.15: General news service. 1.0: Morphettville result, first division Handicap Welter. 1.5: Caulfield result, Leamington Hurdle. 1.40: Morphettville result, second division Handicap Welter. 1.45: Resume of Morphettville and Caulfield race results. 1.50: Close down.

AFTERNOON SESSION.

2.20: Morphettville result, July Hurdles. 2.30: Caulfield result, Murrumbena Handicap. 2.50: Description of League football. 3.0: Resume of race results at Morphettville and Caulfield. 3.5: Caulfield result, Godfrey Watson Steeplechase. 3.8: Description of League football. 3.40: Morphettville result, Kambrook Trial. 3.42: Description of League football. 4.1: Resume of race results at Morphettville and Caulfield. 4.3: Description of League football. 4.15: Caulfield result, Leamington Hurdle. 4.20: Morphettville result, Breeders' Handicap. 4.21: Description of League football. 5.0: Resume of race results at Morphettville and Caulfield, and final football scores. Close down.

EVENING SESSION.

6.0: Resume of Morphettville and Caulfield race results. 6.1: Birthday greetings, correspondence, songs, and stories. 6.30: Recordings. 7.0: Chimes. 7.1: Senior Birthday Club greetings. 7.3: Stock Exchange. 7.6: Announcements. 7.10: Rev. G. E. Hale, B.A., will speak on "The Future Development of Man." 7.25: Mr. C. G. Riley, a talk on "Items of Interest." 7.40: 5CL's sporting service, including Morphettville and Caulfield race results, League football results, country sporting golf results, Soccer, 3 grades, lacrosse results, ladies' and gentlemen's hockey, cycling, athletics, and other sporting results.

NIGHT SESSION.

8.0: Chimes. 8.10: A special programme from 3LO, Melbourne. 10.20: 5CL's sporting service, including Morphettville and Caulfield race results, League football results, country sporting golf results, lacrosse results, ladies' and gentlemen's hockey, cycling, athletics, and other sporting results. 10.45: Close down.

6WF

10.0: Tune in. Records. 11.0: Close down. 12.0: Tune in. 12.5: Racing anticipations. 12.7: Pianoforte solos by Miss Audrey Dean. 12.44: Markets, news, etc. 1.0: Time signal. 1.1: Weather. 1.2: Close down. 3.30: Tune in. 3.35: Musical Items Sporting Race results, and quarter-time scores of the following football matches: West Perth v Claremont-Cottesloe, East Perth v Perth, Subiaco v South Fremantle. 5.30 approx.: Close down. 6.45: Tune in. 6.48: Bedtime stories by Auntie Amy. 7.12: Sports results. 7.30: Commercial and general information. 7.45: Music. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Vocal and instrumental artists from the studio. Miss Audrey Dean pianist. 8.30: A relay of old-time dance music from the Unity Theatre. 8.50: Late news items, station announcements, ships within range announcement, late weather bulletin. 9.5: Programme continued from the Studio and Unity Theatre. 10.30: Close down.

104.5 METRE TRANSMISSION

Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL

MIDDAY SESSION.

11.30 to 1.30: See Friday. 1.30: Description of Leamington Hurdle, two miles, Caulfield, Victoria. 1.35: Close down. 2.30: Description of Lillimur Two-year-old, seven furlongs Caulfield. 2.55: Description of Murrumbena Handicap, one mile, Caulfield.

AFTERNOON SESSION.

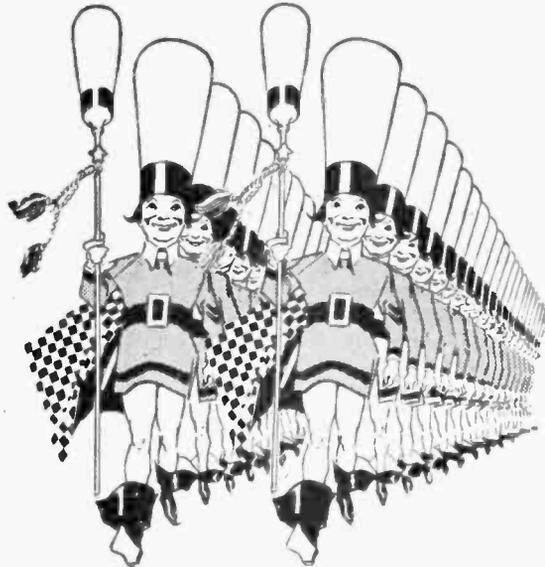
3.0: Transmission from North Hobart Oval—Football match, Lefroy v. North Hobart. 3.30: Description of Godfrey Watson Steeplechase, two miles 3 furlongs. 3.35: Lefroy v. North Hobart. 4.5: Description of Kambrook Trial Mile, Caulfield. 4.30: Description of Malvina Welter, Caulfield. 4.30: Lefroy v. North Hobart. 4.50: All sporting results to hand. 5.0: Close down. 6.0: All sporting results to hand.

EARLY EVENING SESSION.

6.15: Recordings. 6.30: "Uncle David." 7.0: Answers to letters and birthday greetings. 7.15: News session.

EVENING SESSION.

7.30: Rev. Greenwood will speak on "Badminton." 7.45: J. M. Counsel will speak on "European Affairs." 8.6: A request programme of popular records specially arranged by Paton's Music Warehouse. 9.30: News session. 10.20: Close down.



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2FC

10.0: Announcements.
10.5: Music from the Studio.
10.30: This morning's news.
10.45: Studio music.
11.0: Morning service from St. Mark's Church of England, Darling Point; preacher, Rev. Canon E. Howard Lea.
12.15: Music.
12.30: Close.

AFTERNOON CONCERT—3 to 4.30

3.0: From the Lyceum Hall—Pleasant afternoon service arranged by the Central Methodist Mission.
4.30: Close.

EVENING SESSION—6 to 10.30

6.0: Announcements.
6.5: The Monaco Instrumental Quartet.
6.40: An address by a prominent personality.
7.0: The Monaco Instrumental Quartet.
7.20: Excerpts by Signor and Signora Mollinaris from Verdi's opera, "Il Trovatore."
8.0: From the Capitol Theatre—A Sunday night concert presented by Ted Henkel and his "Capitolians," which includes—
The Capitol Light Orchestra.
Fred Scholl at the Wurlitzer.
10.0: Meditation music.
10.30: Close down. "God Save the King."

2BL

MORNING SESSION.

Announcer: A. C. C. Stevens.
11.0: G.P.O. chimes.
From Burton Street Baptist Church.
Morning Service, conducted by the Rev. H. G. Hercus.
12.15 Approx.: From the Studio: "Sun" news service.
12.30: Studio music.
2.0: G.P.O. chimes. Close down.
AFTERNOON SESSION.
Announcer: Basil Kirke.
3.0: G.P.O. chimes.
Record recital.
3.30: From Pitt Street Congregational Church; Organ Recital by Lillian Frost.
4.30: From the Studio: Musical Items.
5.0: G.P.O. chimes. Close down.

EVENING SESSION.

Announcers: Basil Kirke and G. Vern Barnett.
Accompanist: G. Varn Barnett.
6.0: Farewell to the children by all those who have been associated with the 2BL Children's Session since its inception.
6.30: From the Newtown Congregational Church: Organ and Orchestral Recital.
Organist—Mr. Allan Weekley.
Orchestral Leader—Miss Howsens.
Orchestra—"Sacred Wreath No. 34—Volti."
Orchestra—"Selection from Faust" (Gounod)—Volti.
Orchestra—"Sacred Wreath No. 5"—Volti.
Organ Solo—"Pensee" (Dubois, arr. Roper).
7.0: Evening Service, conducted by Rev. Mearns Massie—
Call to Worship—Doxology.
Short Prayer—Gloria (Chanted).
Hymn No. 3, "O God Our Help."
Scripture Lesson—Pastor.
Healing Prayer.
Duet—Mr. and Mrs. Gibb.
Hymn No. 33, "The Old, Old Story."
Messages to sick friends.
Announcements—Questions for July.
Offertory Anthem, "Sweet is the Sunlight" (Eggleston).
Hymn No. 34, "God Will Take Care of You."
Silent Prayer.
Sermon—"A Sin-Soaked Soul"—The Pastor.

Hymn No. 29, "God be With You Till We Meet Again."
Benediction.

Returning—"Count Your Blessings."
8.30: From the Studio: The Final Night of 2BL's License—A Concert Programme contributed to by those artists who first broadcast through 2BL. Miss Nellie Stewart has also signified her willingness to participate in to-night's function.
10.0: National Anthem. Close.

2GB

9.0: Address by Miss Mary Rivett, "Rest and Efficiency." 9.30: Address by Mr. Victor E. Cromer, "Rest and Relaxation." 10.15: Organ music from St. Alban's Church, Regent Street, Sydney. 10.30: Morning service from St. Alban's Church. 12 noon: Music from Studio. 12.30: Close down. 3.0: Musical session, 5.30: Children's session by Uncle George. 7.0: Lecture from Adyar House. 8.0: Music from Studio. 8.15: Sacred concert from Adyar House; Rosenkranz player piano solos. 8.23: Miss Beatrice Kendrick, contralto. 8.30: Mr. Gregory Valentine, violinist. 8.38: Mr. Gerald Cashman, tenor. 8.45: Miss Gladys Aubin, soprano. 8.52: Rosenkranz piano solos. 9.0: Weather report. 9.1: Miss Beatrice Kendrick, contralto. 9.8: Mr. Gregory Valentine, violinist. 9.16: Mr. Gerald Cashman, tenor. 9.23: Rosenkranz piano solos. 9.28: Miss Gladys Aubin, soprano. 9.35: Close down.

2UW

10.30 a.m.: Music and request numbers. 1 p.m.: Close down. 5.30 p.m.: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: Musical programme. 10.30: Close down.

WIRELESS TALKS

from Station 2GB

by

VICTOR E. CROMER

and

MARY RIVETT, M.A.

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Sunday Evenings: 9.30 to 9.45
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Interstate Programmes, Sun., July 21

3LO

MORNING SESSION
10.30: Bells from St. Paul's Cathedral. 10.45: Express train information. 11.0: Morning service from Cairns Memorial Church. 12.15: Close down.

AFTERNOON SESSION.

2.0: Recital of the World's Most Famous Records
3.0: Pleasant Sunday Afternoon from Central Mission, Wesley Church. Chairman, Rev. J. H. Cain.
4.30: Close down.

EARLY EVENING SESSION

5.45: Shipping information. 5.47: Answers to letters and birthday greetings. 6.25: "Brother Bill's" talk. "Home, Sweet Home." 6.45: Adult Birthday Greetings and Programme Announcements. 6.47: Bells from St. Paul's Cathedral.

EVENING SESSION

7.0: Evening Service from St. Paul's Cathedral, Melbourne.

NIGHT SESSION

Accompanist: Mabel Nelson.

- 8.30: The Brunswick City Band—
Overture, "The Magic Flute" (Mozart)
- 8.40: Madame Elsie Davies, soprano—
"Hear Ye Israel," from "Elijah" (Mendelssohn).
"Cradle Song" (Schubert).
- 8.47: Brunswick City Band—
Selection, "Rossini's Works" (Round).
- 8.57: J. Howard King, Bass-Baritone—
"Lord God of Abraham," from "Elijah" (Mendelssohn).
"The Praise of God" (Beethoven).
- 9.4: Lindsay Biggins, piano—
"Impromptu C Minor" (Schubert)
"German Dances—Set I" (Schubert)
"Orientale" (Amen).
- "Clair de Lune" (Debussy).
- "Irish Tune from County Derry" (Grainger).
- 8.24: Madame Elsie Davies, soprano—
"Ave Maria" (Luzel).
Madame Elsie Davies and Chorus, "Inflammatus" from "Stabat Mater" (Rossini).
- 9.31: Brunswick City Band—
"Palmer House" (Petee).
- 9.36: J. Howard King, Bass-Baritone—
"Twas in the Lovely Month of May" (Schumann).
"I Will Not Grieve" (Schumann).
"At Nightfall I See You" (Schumann).
- 9.43: Brunswick City Band—
"Gems of Harmony" (Smith).
- 9.53: News Service. Announcements.
- 10.0: God Save the King.

3AR

MORNING SESSION.

11.0: Morning Service from Scots Church, Preacher, Rev. George Anderson, B.A., of Korea. 12.15: British Official Wireless news from Rugby. News from yesterday's papers. 12.20: Close down.

EVENING SESSION.

5.0: "Brer" Rabbit, your old friend, has something different. 5.30: Close down.

NIGHT SESSION.

- 7.0: Evening service from the Auburn Methodist Church—
Preacher, Rev. Joseph Snell.
Organist, J. Sutton Crow.
- 8.30: The Strad Quarto Quartette (Cecil Parkes, violin; Mrs. Montague, piano; Eunice Gregory, viola; and Frank Johnstone, cello).
"Piano Quartette, D Major" (Mendelssohn)
First Movement only.
- 8.40: Freda Treweek, mezzo-soprano—
"The Faro" (The Orpheus) (Gluck)
"A Song of Thanksgiving" (Allison)
- 8.47: The Strad Quartette—
"The Distant Lane" (Gulke).
"Songs Without Words" (Mendelssohn).
"Brandenburg Extract" (Bach).
- 8.57: Freda Treweek, mezzo-soprano, and Tom Semple, tenor—
Duet, "A Night in Venice."
9.7: Eddie Fitch and the Regent Wurlitzer, transmitted from the Regent Theatre, Collins Street, Melbourne.
"Request numbers."
9.50: Tom Semple, tenor—
"The Vain Sult" (Brahms).
"Good-night" (Brahms).
- 9.57: News session. Announcements
- 10.0: God Save the King.

3DB

AFTERNOON SESSION.

3.0 p.m.: A symphony programme. 4.30: Close down.

EVENING SESSION.

- 6.30: Children's hour, "Bobby Bluegum."
- 7.0: An opera.
- 8.0: Requests.
- 10.0: God Save the King.

4QG

MORNING SESSION.

11.0: The complete morning service will be relayed from All Saints' Church of England, Wickham Terrace.
12.30: Close down.

AFTERNOON SESSION.

3.15: The band concert provided by the Brisbane Federal Band will be relayed from the Brisbane Botanic Gardens.
4.30: Close down.

EARLY EVENING SESSION.

6.0: Greetings to little listeners and replies to letters.

NIGHT SESSION.

7.0: The complete evening service will be relayed from All Saints' Church of England, Wickham Terrace. At the conclusion of the church service the concert by the Brisbane Municipal Concert Band will be relayed from Wickham Park Bandstand.
9.30: Close down.

5CL

MORNING SESSION.

10.45: Carillon of Bells from Adelaide Town Hall.
11.1: Divine Service from Maughan Methodist Church.
12.10: British Official Wireless news. 12.15: Close down.

AFTERNOON SESSION.

3.0: Chimes. 3.1: From the Exhibition Building: A concert provided by the South Australian Musicians' Union (50 performers); in aid of the Minda Home: Grand March, "Tannhauser" (Wagner); Overture, "William Tell" (Rossini); vocal, "Vissi d'Arte" from "Tosca" (Puccini); Vera Thrush, A.M.U.A.—Minuet, "Don Juan" (Mozart); Gavotte, "Mignon" (Thomas) (strings only) Vocal "Blow, Blow, Thou Winter Wind" (Sergeant). Howard Rogers—Suite (in four parts), "Don Quixote" (Saffraker). Vocal, "Yonder" (Olivier). Vera Thrush, A.M.U.A.—"Oriental Fantasy" (Ketyby); Selection, "Dorothy" (Celleir). Organiser and conductor, Thomas Grigg. 4.0: Close down.

EVENING SESSION.

6.0: Chimes. 6.1: Birthday Greetings, correspondence songs and stories. 6.15: "The Bird Lady" and "The Sunshine Songsters" will entertain the children.
7.1: Divine Service from the School Chapel, St. Peter's College, Adelaide.

NIGHT SESSION.

- 8.20: Announcement.
- 8.20: The Station Quartette—
Overture, "Morning, Noon, and Night" (Suppe)
- 8.31: Wilfred Thomas, basso—
"It Is Enough" (Mendelssohn)
"But Who May Abide" from "Messiah" (Handel)
- 8.43: Lizette Poelia, violinist—
Selected violin solos.
- 8.47: The Madrigal Singers—
"O Hush Thee My Baby" (Sullivan)
"Drink to Me Only"
"Kine Herod and the Cock"
"The Holly and the Ivy" (Old English Songs).
"Carry Me Back to Old Virginia" (Bland).
- 8.59: The Station Quartette—
Selection, "The Gondoliers" (Sullivan).
- 9.7: Wilfred Thomas, basso—
"Sylvia" (Oley Sneaks)
"Long Ago in Alcina" (Messenger)
- 9.13: Geoff Goldsworthy, cellist—
"Le Cygne" (Saint-Saens).
- 9.19: The Madrigal Singers—
Request numbers.
- 9.31: The Station Quartette—
Intermezzo, "Noli" (Delibes).
"Ave Maria" (Gounod).
- 9.40: Rev. R. W. A. Ward, M.A. (Chaplain to the Bishop of Plymouth) will talk to you.
- 9.52: General news service.
- 10.0: Close down.

6WF

10.25: Tune in. 10.30: Special half-hour for the enthusiastic listener. 11.0: Morning service relayed from Trinity Congregational Church. 12.15: Close down. 3.30: Tune in. 3.35: Musical programme from the Studio, vocal artists: Mr. L. Judson, pianist. 4.30: Close down. 6.48: Tune in. 6.48: Redline stories by Mr Foreman. 7.15: Music. 7.30: Evening service relayed from St. George's Cathedral. 8.45: Community singing and vocal solos relayed from Queen's Hall, William Street, Perth. 10.5: Close down.

104.5 METRE TRANSMISSION

Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 8.45 p.m.

7ZL

10.45: Bells from Trinity Church. 11.0: Morning Service from Chalmers Presbyterian Church, Hobart. 12.15: Close down. 3.00: Pleasant Sunday Afternoon Service. 4.30: Close down. 6.15: Children's Chorus Singing, conducted by Trevor M. Morris. 6.45: Bertha Southey Bramhall will read a poem to the wee folk: "The Low Lily." 7.0: Evening Service from St. David's Cathedral, Hobart. 8.25: A programme of sacred and classical music arranged by J. M. Counsel. 9.45: News session. 9.50: Close down.



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Local Programmes, Monday, July 22

2FC

EARLY SESSION, 7 to 8.15 a.m.

- 7.0: "Big Ben" and meteorological information.
 7.5: Early rising music.
 7.40: Breakfast news.
 7.45: Mails and shipping.
 7.48: What's on To-day?
 7.50: Children's birthday calls.
 8.0: Music from the Studio.
 8.15: Close.

MORNING SESSION, 10.30 a.m. to 12.30 p.m.

- 10.30: Announcements.
 10.32: Sporting, Racing Observer.
 10.45: Organ recital, State Theatre.
 11.0: Household Helps. Cooking Hints and Helps.
 11.10: The Light Orchestra.
 12.0: "Big Ben" and Stock Exchange.
 Fiction Talk.
 12.20: Midday market reports.
 12.30: Close.

THE LUNCH HOUR, 1 p.m. to 2.30 p.m.

- 1.0: Lunch to music with the Station Orchestra.
 2.0: Stock Exchange, second call.
 2.2: Popular Education—A talk to be given by a lecturer from the Sydney University.
 2.20: A glance at the afternoon papers.

THE RADIO MATINEE, 2.30 p.m. to 4.30 p.m.

- 2.30: The Station Orchestra.
 2.50: Agnes M'Diarmid, soprano.
 3.0: Una Black, violinist.
 3.8: The Station Orchestra.
 3.20: Gordon Hele, baritone.
 3.28: Marcus Burkett, blind pianist.
 3.34: The Station Orchestra.
 3.50: Agnes M'Diarmid, soprano.
 3.55: Una Black, violinist.
 4.0: The Station Orchestra.
 4.13: Gordon Hele, baritone.
 4.17: Marcus Burkett, piano solos.
 4.22: The Station Orchestra.
 4.28: Stock Exchange, final call.
 4.30: Close.

EVENING SESSION, 5.45 to 7.55 p.m.

- 5.45: Kiddies' "Goodnight" stories: Uncle Bas and Aunt Willa.
 6.45: The Dinner Orchestra.
 7.30: Sporting news and views.
 7.40: Late news.
 7.45: Price Dunlavy from the State Theatre.

EVENING PRESENTATION, 8 to 11.30 p.m.

Artists:—

- Alexander Brailowsky, famous Russian pianist, to be relayed from 3LO, Melbourne.
 The National Broadcasting Orchestra.
 Fraser Coss, baritone.
 Etta Feld, soprano.
 John Boulton and Reg. Mitchell, in a radio sketch.
 St. Andrew's Cathedral Choir.
 Horace Keats, conductor.
 Romano's Dance Orchestra.
 8.0: "Big Ben."
 8.2: The National Broadcasting Orchestra.
 8.20: Fraser Coss, baritone.
 8.28: St. Andrew's Cathedral Choir.
 8.36: Etta Feld, soprano, first broadcast appearance.
 8.45: Relayed from Victoria through station 3LO, a recital by the world-famous pianist, Alexander Brailowsky, who makes his final broadcast before leaving Australia.
 9.5: From the Sydney Studios—
 The National Broadcasting Orchestra.
 9.25: From 3LO, Melbourne, Alexander Brailowsky, the world-famous pianist.
 9.40: From the Sydney Studios—St. Andrew's Cathedral Choir.
 9.50: John Boulton and Reg. Mitchell in a new sketch.
 10.0: The National Broadcasting Orchestra.
 10.15: To-morrow's programme and announcements.
 10.20: Dance music from Romano's Dance Band.
 11.30: Close.

2BL

OPENING SESSION—8.15 a.m. to 11 a.m.

- 8.15: Music for every mood.
 8.45: "Interest Item" on outstanding events of the day.
 9.0: Light music and songs.
 9.30: British Official Wireless news.
 9.40: New music.
 10.10: The Ladies' Club Hour—The Australian Women's A.B.C. Association, conducted by Miss Gwen Varley.
 10.30: The Studio Light Orchestra.
 11.0: Close.

MIDDAY SESSION—12 Noon to 2.30 p.m.

- 12.0: The Station Orchestra.
 1.0: Afternoon news service.
 1.15: Women's "Interest Talk."
 1.30: The Traders "Selling the Set" Music.
 2.0: At the Console of the Wurlitzer organ at the Capitol Theatre, Mr. Fred Scholl.

AFTERNOON ENTERTAINMENT—2.30 to 5.45.

- 2.30: Business Efficiency Talk.
 2.45: "The Magic Carpet"—A story of Travel and Adventure.
 3.0: Musical programme from the studio—Wendling and Molloy, entertainers.
 Eden and Jack Landeryou, mirth and melody.
 Dance Music.
 4.45: "The Trade Hour," demonstration music for the retailers.
 5.45: Close.

THE DINNER HOUR—6.15 to 7.55 p.m.

- 6.15: The Dinner Orchestra.
 6.45: The 2BL Boys' Aero Club, conducted by Norman Lyons.
 7.5: Markets.
 7.20: Late news.
 7.30: Instrumental music by the Light Orchestra.
 7.55: What's on the air to-night?

THE NIGHT PROGRAMME, 8 to 10.30.

Artists:—

- The N.S.W. Tramway Band.
 The Two "Wireless Wits."
 The Light Orchestra.
 A Troupe of Hawaiian Players.
 Fred Gooch, entertainer.
 Gilbert and Evans, popular vocalists.
 The Studio Dance Band.
 Fred McDonald in sketches of Australian Life.
 Cresswell and Rich, entertainers.
 The Australian Broadcasting Company Limited present a Night of Mirth and Music to open Station 2BL as the Popular Station.
 8.0: The New South Wales Tramway Band in a selection of popular airs.



Alexander Brailowsky, the famous Russian pianist, who will be heard again from 2FC to-night.

- 8.15: Vignettes from the vaudeville stage.
 8.26: The Two "Wireless Wits."
 8.35: The Light Orchestra.
 8.48: A breath from the South Seas—a troupe of players in a medley of Hawaiian melodies.
 9.0: Official weather forecast.
 9.1: First broadcast appearance of Fred Gooch, entertainer.
 9.10: Gilbert and Evens in popular numbers.
 9.18: The A.B.C. Dance Band.
 9.30: Welcome reappearance of Fred McDonald, the "Original Dave" in "On Our Selection."
 9.45: Cresswell and Rich, entertainers.
 9.54: The A.B.C. Dance Band.
 10.10: "Dave" again.
 10.20: The A.B.C. Dance Band.
 10.30: Close. "God Save the King."

2GB

- 10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20: Music. 10.30: Women's session by Miss Helen J. Beegling. 11.30: Music. 11.45: Close down. 2.0: Music. 2.5: Women's radio service by Mrs. Dorothy Jordan. 2.50: Movie Know All. 3.0: Address by Mr. H. Morton. 3.30: Close down. 5.30: Children's session by Uncle George. 7.0: Music. 7.45: Feature story. 8.0: Mr. Norman Ellis, tenor. 8.7: Symphony Orchestra. 8.15: Miss Heather Kinnaird, contralto. 8.22: Band selections. 8.30: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.35: Mr. Cecil Chaseling, baritone. 8.45: Address. 9.0: Weather report. 9.3: Symphony Orchestra. 9.13: Mr. Norman Ellis, tenor. 9.23: Mr. Heath Burdock, Shakespearean recital. 9.33: Band selection. 9.40: Miss Heather Kinnaird, contralto. 9.50: Symphony Orchestra. 9.55: Mr. Cecil Chaseling, baritone. 10.5: Instrumental music. 10.30: Close down.

2UW

MIDDAY SESSION.

- 12.30: Request numbers. 1.0: G.P.O. clock and chimes; music. 1.15: Talk on Home-craft, by Pandora. 1.40: Music and request numbers. 2.30: Close down. 4.30: Musical programme.

EVENING SESSION.

- 5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. clock and chimes; request numbers. 7.45: Radio talk; hints and advice, by Mr. E. Homfray. 8.0: Music. 9.0: G.P.O. clock and chimes. Comments on Foreign Affairs by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.

2KY

MORNING SESSION

- 10.0: Tune in to the ticking of the clock. 10.3: Musical interlude. Selection of popular fox-trots. 10.15: Hawaiian steel guitar selections. 10.30: Request numbers. 10.50: Vocal items. 11.0: A few laughs. 11.5: Pianoforte selections. 11.15: Calls and announcements. 11.20: Musical interlude. 11.30: Request numbers. 11.40: Music and vocal items. 11.55: Where to go to-night. 12.0, noon: Closing announcements.

CHILDREN'S SESSION

- 6.0 p.m.: Birthday calls, request numbers, Kiddies' Entertainment. Aunt Jemima and Uncle Bert.

EVENING SESSION

- 7.0: Musical interlude. 7.15: Dance music. 7.45: Militant Women's Group. 8.0: Overture. 8.8: Tenor solos, Mr. A. Hillman. 8.15: Dance music. 8.30: Series of Biblical talks presented by I.B.S.A. 8.45: Soprano solos, Miss Wright. 9.0: Novelty interlude. 9.10: Request numbers. 9.30: Selection of latest Brunswick, Columbia, Parlophone, Regal, and Golden Tongue Records. 10.0: Closing announcements.



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Interstate Programmes, Monday, July 22

3LO

EARLY MORNING SESSION

7 a.m. Time signal from Melbourne Observatory. Weather forecast. 7.5 Early rising music. 7.40: Mails and shipping. 7.43: What's on to-day? 7.45: Birthday greetings. 8.0: Breakfast news and market reports. 8.15: Close down.

MORNING MUSICALS

10.30: The "Wurlitzer" for To-day—Dr. Loftus Hills. 10.35: Reproduced music. 10.45: Arnold Coleman at the Wurlitzer organ. 11 a.m. to 12.15: 3LO Studio Orchestra; Lorna Reid, songs at the piano. 12.15: To-day's news; rates on "Change" weather forecast.

MIDDAY SESSION

12.30: National Broadcasting Orchestra, under the direction of Wm. G. James; conductor, Percy Code—Overture, "The Magic Flute" (Mozart), selection, "Carmen" (Bizet). William Perryman, tenor. Orchestra, "Prelude in G Minor" (Rachmaninoff). "Three Dances from Nell Gwynne" (German). 1.0 to 2.0: Luncheon music supplied by the National Broadcasting Orchestra, under the direction of Wm. G. James; conductor, Percy Code.

THE LECTURETTE SESSION

2.0: Miss A. Wallis' "Parents and Children's Questions." 2.15: Reproduced music. 2.25: A microphone interview with the Consul for China, Mr. F. T. Sung Chinese Consul-General—"The People of China." 2.40: Reproduced music. 2.45: Hon. J. H. Keating, L.L.B.—"The Early Days of Our Commonwealth."

THE RADIO MATINEE

3.0 The National Broadcasting Orchestra, under direction of Wm. G. James (conductor, Percy Code)—Overture, "Rug" (Mendelssohn) Edward Bracheroff, tenor—"Ah, Moon of My Delight" (Lehmsh). "J'ai Pleure en Reve" (Georges Hue). "The Little Girl from Hanley Way" (Coningsby-Clarke). 3.20 From the Bijou Theatre—Linn Smith's Jazz Band and assisting artists. 3.40: Orchestra, Suite "Arielle" (Bizet). 3.50: Keith Desmond—"The Third Act" of "The Christian," by Hall Caine; "Glimme the Ground" by "Dryblower." 4.0: Orchestra Selection from "The Student Prince" (Romberg). 4.10: Dawn Harding, mezzo-soprano. Orchestra—Ballet music from "Faust" (Gounod). 4.30: Close down.

THE CHILDREN'S CORNER

5.45: "Billy Bunny"—The children's own original entertainer is back again. He has been away investigating his castles in Spain, and has some wonderful stories concerning "A Kid from Madrid." The 3LO Studio Orchestra will play "Some Goblin Music." 6.15 to 7.30: Dinner music, provided by the 3LO Studio Orchestra. 7.30: To-day's news; rates on "Change" market reports.

NIGHT SESSION

7.45: National Broadcasting Orchestra, under the direction of Wm. G. James (conductor Percy Code)—Overture, "Rienzi" (Wagner). Argentine from Fourth Symphony (Tchaikowsky).

8.0 Mr. Stuart F. Doyle, chairman of directors of the Australian Broadcasting Company, will introduce the Prime Minister, the Right Hon. S. M. Bruce, and the Hon. W. G. Gibson, Postmaster-General, who have been asked to open the new Broadcasting Service.

8.12: William Bossence, baritone—"To Music" (Schubert). "Good Fellows Be Merry" from "The Peasant" Cantata (Bach), with orchestral accompaniment.

8.22: Frouard Lambert, violin—"Meditation" from "Thais" (Massenet). "Polonaise in D" (Wienlawski).

8.27: Orchestra—"Dance of the Hours" (Ponchielli).

8.45: First broadcast appearance in Victoria of the world-famed pianist Alexander Bralowsky.

8.57: First appearance in broadcasting of the famous tenor, Walter Kirby.

9.00: Alexander Bralowsky will continue his recital.

9.05: First appearance in Australian broadcasting of Madame Joy M'Arden, the celebrated Dutch Pianist, Donna.

9.50: Orchestra—"Second Hungarian Rhapsody" (Liszt).

10.0: The Leder Sisters—"When Evening's Twilight" (Hatton). "Now is the Month of Maying" (Morley). "The Me. O Lord" (Burlleigh).

10.15: Orchestra—"Walse Caprice" (Rubinstein). "Marche Mizonne" (Poldini).

10.20: News session.

10.30: Linn Smith's Jazz Band, with Connors and Perryman as vocalists, the popular comedians.

11.20: God Save the King.

3AR

MORNING NEWS SESSION.

10.0 to 10.59: See Friday.

MORNING MUSICAL SESSION.

11.0: Crebitch Singers—A Sonorous Symphony.

11.30: The Halle Orchestra, conducted by Hamilton Hartly Symphony, "From the New World" (Dvorak).

12.10: British Official Wireless news from Rugby. Announcements. 12.20: Community Singing, transmitted from the Kings' Theatre, Melbourne. Conductor, G. Mackay. Ern Hall's Radio Revelers, with Hugh Huxham. 1.45: Close down.

AFTERNOON SESSION.

3.0: Recordings. 4.30: Close down.

EVENING SESSION.

6.0: Recordings. 7.10: News service. 7.20: Recordings. 7.45: A Maker of History. 7.46: Captain Donald MacLean, well known by listeners of 3AR, will tell of—

"The Conquest of Peru."
8.1: The Radio Revelers, with Hugh Huxham—"It's a Precious Little Thing Called Love" (Davis).

"Sweethearts on Parade" (Lombardo). "Deep Night" (Henderson).

8.9: Jack Hocking, the Sighing Serenader—"Oh, you have no idea."
8.12: The Radio Revelers—"Stay At Home Girl" (O'Hagen).

"Me and the Man in the Moon" (Monaco). "High Tension" (Bee).

8.21: Rita Hilton, soubrette—"Whistle It"—"The Red Mill."
8.24: The Radio Revelers—"Ahl Sweet Mystery of Life" (Herbert).

"Ten Little Miles from Town" (Kahn). "If You Want the Rainbow You Must Have the Rain" (Rose).

8.33: Arthur Douglas, Scottish Comedian—"Here's Maggie and There's Jeannie."
8.36: The Radio Revelers—"Happy Days and Lonely Nights" (Fisher).

"Love Dreams" (Mendoza). "Dada" (Dore).

8.45: Jack Hocking, the Sighing Serenader—"Kiss and Make Up."
8.48: The Radio Revelers—"Pickin' Cotton" (Henderson).

"I'm on the Coast of Town" (Kahn). "The Magic Violin" (Leslie).

8.57: Rita Hilton, soubrette—"Tact"—"Floradora."
9.0: The Radio Revelers—"Shinanki Da" (Cole).

"Where the Sky Little Violets Grow" (Kahn). "I Don't Care" (Dovell).

9.9: Arthur Douglas, Scottish Comedian—"She's the Lass for Me."
9.12: The Radio Revelers—"You'll Recognize My Baby" (Cohn).

"Glad Rag Doll" (Ager). "That's Her Now" (Ager).

9.21: Jack Hocking, the Sighing Serenader—"Mother I Still Have You."
9.24: The Radio Revelers—"Only a Rose" (Friml).

"Can You Blame Me?" (Goodwin). "Casablanca" (Evans).

9.33: Rita Hilton, soubrette—"Take me Back to Bingleville"—"Bing Boys on Broadway."
9.36: The Radio Revelers—"Melancholy Mama" (Sherwin).

"Shake That Thing" (Jackson). "She's Funny That Way" (Moret).

9.45: Arthur Douglas, Scottish Comedian—"Saturday Night."
9.48: The Radio Revelers—"Chilly Pom Pom Pee" (Bryan).

"Carolina Moon" (Burket). "Thinking of You" (Rubv).

9.57: Jack Hocking, the Sighing Serenader—Selected.
10.0: The Radio Revelers—"Up on the Clouds" (Rubv).

"I Kiss You Hand, Madame" (Rubv). "My Mother's Eyes" (Baer).

10.9: Rita Hilton, soubrette—"Somebody's Coming to Tea."
10.12: The Radio Revelers—"I Face Down an' a Boom" (Brockman).

"In a Little Town Called Home Sweet Home" (Donaldson). "My Angelina" (Wayne).

10.20: News service.
10.30: The Radio Revelers—"The Wedding of the Painted Doll" (Brown).

"What D'r Say" (Brown). "Sonny Boy" (Jolson).

"Silly of My Dreams" (Kernell). "Fading and Fading" (Packard).

"Lullaby" (Schuster). "Forty-seven Ginger-headed Sailors" (Saronv).

"That's How I Feel About You" (Davis). "Ma-la" (Berlin).

11.0: God Save the King.

3DB

MORNING SESSION.

11 a.m.: Time. Glee and madrigals and an orchestra. 11.30: "La Vogue." 11.35: Popular music. 12.0: Operatic excerpts. 12.25: Forecast of chief news and features to appear in "The Herald." 12.30: Close down.

AFTERNOON SESSION.

2.0: Military Bands and vocal quartettes. 2.30: Dvorak's orchestral music, and some negro songs. 2.55: Atwater Kent radio hour. 3.55: "Sun News Pictorial" news flash. 4.0: Close down.

EVENING SESSION.

6.0: Children's hour, "Billy Bunny."
6.30: What's on at theatres and movies.
6.32: Radio movie club.
6.40: A Schubert programme.
7.0: A brass band and some ballads.
7.30: Dance "Band and Boom" (Packard).
7.45: Market reports.
8.0: Sir William M'Pherson's programme.
10.40: Resume of news flashes from the "Sun News Pictorial."
10.45: God Save the King.

4QG

EARLY MORNING SESSION.

7.43 to 8.43: See Friday.

MIDDAY SESSION.

1.0 to 2.0: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EARLY EVENING SESSION.

6.0 to 7.45: The Children's Music Corner, conducted by "The Music Man." 7.45: Lequette, "The Children's Music Corner, conducted by The Music Man."

NIGHT SESSION.

8.0: The Studio Orchestra—Overture, "The Pirate" (Bellini).

8.8: Kennedy Allen—"The Fourth of a Series of Reviews on Shakespeare and His Works—"The Charm of 'As You Like It'."

8.18: Ernest Harper (baritone)—"The Young Royalist" (Adams).

8.24: Herbert Jackson (cornetist)—Cornet solo, "The Satellite" (Smith) (accompanied by the Studio Orchestra).

8.30: From the School of Arts—The Brisbane Eisteddfod Choir in a short recital, including: Chorus, "March Triumphant Thunders" (Elgar)—Full Choir.

Ladies' Chorus, "Gounod's Waltz Song" (arr. Branscombe). Male Choir, "Serenade" (Besnicht).

Full Choir: Part Song, "Butterfly" (Blumenthal). 9.0: From the Studio—Metropolitan weather forecast.

9.1: The Studio Orchestra—Valse, "Lure of the Night" (Brahms).

9.8: Ella Howie (contralto)—"The Enchantress" (Hatton). "My Prayer" (Squire).

9.16: Mrs. F. North—"A Reading from 'Three Men in a Boat' (Jerome K. Jerome).

9.26: Hugh Olive (tenor)—"Did One But Know" (White). "Garden Lea" (V. Williams).

9.34: The Studio Orchestra—Dance, "Dream of the Rose Maiden's" (Brahms).

9.40: Ernest Harper (baritone)—"Why Shouldn't I" (Russell).

9.45: A quarter of an hour's recital of electrically reproduced records.
10.0: News. Close down.

5CL

MORNING SESSION.

11.15 to 2.0: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EVENING SESSION.

6.0 to 7.30: See Friday.

NIGHT SESSION.

8.0: Chimes.
8.10: Walter Barratt and his Maison Masters of Melody—"The Iron Division" (Kent).

"Savoy Irish Melody" (somers). "Old-fashioned Rose" (Prior).

8.20: Wilfred Thomas, bass—"Smile Thro' Your Tears" (Hambert).

8.23: Walter Barratt and his Maison Masters of Melody—"Ho-Ho-Hogan" (Tucker).

"Carolina Moon" (Davis). "Roses of Yesterday" (Berlin).

8.33: Beryl Alford, elocutionist—"His First Long Trousers."
8.36: Walter Barratt and his Maison Masters of Melody—"Happy Days and Lonely Nights" (Fisher).

Xylophone Solo, "Zamparte" (Lake). "Promise Me" (Van Cothle).

8.42: Gwen Russell, soprano—"Prince Charming" (Liza Lehmann).

8.46: Walter Barratt and his Maison Masters of Melody—"I Do, Do You?"

"That's How I Feel About You" (Livingston). "Tell Her in the Moonlight" (Davis).

9.0: Chimes.
9.1: Meteorological information, including Semaphore tides.

9.2: Overseas grain report.
9.3: Announcements.
9.5: A stirring drama of the French-Revolutionary Period.

The story by Beryl Alford. The songs by Marcelle Berardi.

9.25: Walter Barratt and his Maison Masters of Melody—"Good Little, Bad Little You" (Green).

Frank Waterman, trumpet, and Walter Barratt, Saxophonist—"Duet, 'Roses of Picardy' (Wood).

"Love Dreams" (Aker). 9.35: Wilfred Thomas, bass—"My Little Banjo" (Dichmont).

9.38: Walter Barratt and his Maison Masters of Melody—"Flower of Love" (Dreyer).

"Ten Little Miles from Town" (Kahn). "Ramona" (Wayne).

9.48: Beryl Alford, elocutionist—"Butterflies."
9.51: Walter Barratt and his Maison Masters of Melody—"Rio Rita" (Tierney).

"The Kinkajou" (Tierney). "Yo Te Amo (I Love You)" (Whiting).

10.1: Gwen Russell, soprano—"April is a Lady" (Montagu Phillips).

10.4: Walter Barratt and his Maison Masters of Melody—"All by Yourself in the Moonlight" (Walls).

"Let's Talk About my Sweetie" (Donaldson). "May be I'll Baby You" (Birtch).

10.15: General news service. British Official Wireless news. Meteorological information. Announcements. Results of Amateur Billiards Championship of South Australia.
10.30: Walter Barratt and his Maison Masters of Melody—

"You're Wonderful" (Fields).
 "When Susie Goes Steppin' By" (Kaufman).
 "My Angeline" (Wayne).
 "Forty-seven Ginger-headed Sailors."
 "My Mother's Eyes" (Bner).
 "I'm on the Crest of a Wave" (De Sylva).
 "Sally of My Dreams" (Kernell).
 "Yesterday" (Harrison).
 "Just Like a Melody out of the Sky" (Donaldson).
 "Don't Keep Me in the Dark, Bright Eyes" (Weindley).
 11.0: Close down.

6WF

10.0: Tune in. Records. 11.0: Close down. 12.56: Tune in. 12.55: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin. 1.2: Panatrophe hour. 2.0: Close down. 3.30: Tune in. 3.35: Musical programme. 4.30: Close down. 6.45: Tune in. 6.48: Bedtime stories by Uncle Duffy. 7.5: Light music by the Radio Trio. 7.30: Commercial and general information. 7.45: Talk by Lieut.-Colonel Le Souef, Director Zoological Gardens, South Perth. 8.0: Time signal. 8.1: Weather bulletin. 8.3: Concert by the R.S.L. Band, conducted by Mr. George Mellor. 8.20: Talk, "Mystic Java," by Mr J. Cowie, of the Orient Touring Co. 8.50: Late news items, station announcements, ships within range announcement, late weather bulletin. 9.5: Programme continued from the Studio. 10.30: Close down.

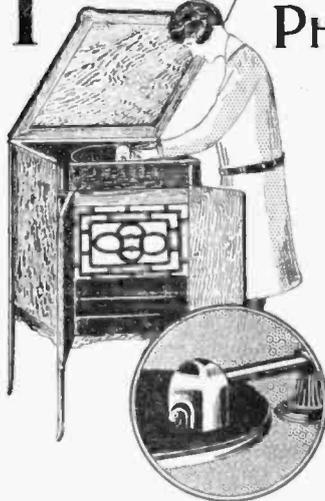
104.5 METRE TRANSMISSION

Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL

11.30: Record recital. 11.34: Midlands forecast. 11.35: Record recital. 11.55: Tasmanian stations' 9 a.m. weather report. 12.0: G.P.O. clock chimes the hour. 12.1: Shipping information. Ships within wireless range. Mail notices. Housewives' guide. Commercial news. 12.8: Record recital. 12.30: Announcements. 12.33: Record recital. 12.55: "Mercury" news service. British Official Wireless news. Railway auction produce sales, held at Railway 1.10: Record recital. 1.30: Close down. 3.0: G.P.O. clock chimes the hour. 3.1: Record recital. 3.4: Weather information. 3.5: Record recital. 4.15 "Aunt Edna" will speak on "Shoes, Gloves, and Hosiery". 4.30: Close down. 6.15: Children's Hour with "Uncle David". 7.15: News session. 7.30: Under the auspices of the Tasmanian University, Rev. A. C. Nelson will speak on "Origins of the Drama". 7.45: Geo. Collis will speak on "Physical Culture". 8.0: G.P.O. clock chimes the hour. 8.1: Record recital. 8.15: A Studio concert arranged by Madame Helen George. 9.30: News session. 9.45: Record recital. 10.0: G.P.O. clock chimes the hour. Close down.

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Local Programmes, Tuesday, July 23

2FC

EARLY SESSION, 7 to 8.15 a.m.

- 7.0: "Big Ben" and meteorological information.
 7.5: Early rising music.
 7.40: Breakfast news.
 7.45: Malls and shipping.
 7.48: What's on To-day?
 7.50: Children's birthday calls.
 8.0: Music from the Studio.
 8.15: Close.

MORNING SESSION, 10.30 a.m. to 12.30 p.m.

- 10.30: Announcements.
 10.32: The Racing Observer.
 10.45: Organ recital.
 11.0: Household Hints—Hints to Housewives.
 11.10: The Light Orchestra.
 12.0: "Big Ben" and Stock Exchange, first call.
 12.5: A literary talk.
 12.20: Midday market reports.
 12.30: Close.

THE LUNCH HOUR, 1 p.m. to 2.30 p.m.

- 1.0: Lunch to music with the Station Orchestra.
 2.0: Stock Exchange, second call.
 2.2: Popular Education—Broadcast English.
 2.20: A glance at the afternoon papers.

THE RADIO MATINEE, 2.30 p.m. to 4.30 p.m.

- 2.30: The Station Orchestra.
 2.45: Alma Berge, soprano.
 2.52: The Station Orchestra.
 3.5: W. G. Desmond, entertainer.
 3.12: David Craven, baritone.
 3.20: The Station Orchestra.
 3.34: Zilla Blestowe, contralto.
 3.42: W. G. Desmond, entertainer.
 3.50: The Station Orchestra.
 4.0: Alma Berge, soprano.
 4.8: David Craven, baritone.
 4.15: The Station Orchestra.
 4.22: Zilla Blestowe, contralto.
 4.28: Stock Exchange, final call.
 4.30: Close.

EARLY EVENING, 5.45 to 7.55 p.m.

- 5.45: The Kiddies' "Goodnight" Stories told by the "Hello Man" and assisted by Aunt Eily.
 6.45: The Dinner Orchestra.
 7.30: Sporting news and views.
 7.40: Late news.
 7.45: Organ recital.

A NIGHT OF DANCING.

THE FIRST OF A SERIES OF TUESDAY NIGHT "ALL-DANCE" PROGRAMMES.

Dance music will be supplied by the new company's Dance Orchestra of 12 players, who will play groups of dance music throughout the evening until 11.30 o'clock.

8.0: The A.B.C. Dance Band, of 12 performers. Conductor: Mr. Cec. Morrison.
 8.15: Alf. Lawrence and Nell Crane, entertainers.

- 8.22: The A.B.C. Dance Band.
 8.37: David Craven, baritone.
 8.44: Some more dance music.
 9.0: Compton Courts, comedian.
 9.8: Dance music.
 9.23: Nea Hallett, popular numbers.
 9.30: A dance group.
 9.45: Renee, the Harmonist.
 9.52: The A.B.C. Dance Band.
 10.15: To-morrow's programme; official weather forecast, and announcements.
 10.20: Dance music.
 11.30: Close down. God Save the King.

2BL

OPENING SESSION—8.15 a.m. to 11 a.m.

- 8.15: Music for every mood.
 8.45: "Interest Items" on outstanding events of the day.
 9.0: A bunch of ballads.
 9.30: British Official Wireless news
 9.40: New music.
 10.10: The Ladies' Club Hour, conducted by the Australian Women's A.B.C. Association.
 10.30: The Studio Light Orchestra.
 11.0: Close.

MIDDAY SESSION—12 Noon to 2.30 p.m.

- 12.0: The Station Orchestra.
 1.0: Afternoon news service.
 1.15: Women's "Interest Talk."
 1.30: The Traders "Selling the Set" Music.
 2.0: At the Console of the Capitol Wurlitzer—Mr. Fred Scholl.

AFTERNOON ENTERTAINMENT—2.30 to 5.45.

- 2.30: Business Efficiency Talk.
 2.45: The Magic Carpet—A story of Travel and Adventure.
 3.0: During the afternoon a description of the Fire Brigade Demonstration from the Headquarters.
 4.45: "The Trade Hour" demonstration music for the retailers.
 5.45: Close.

THE DINNER HOUR—6.15 p.m. to 7.55 p.m.

- 6.15: The Dinner Orchestra.
 6.45: A talk to the Girl Guides.
 7.5: Markets.
 7.20: Late news.
 7.30: The Light Orchestra.
 7.55: What's on the air to-night?

EVENING SESSION—8 to 10.30.

Artists—

Vern Barnett's Instrumental Trio
 Madame Goosens-Viceroy, soprano.
 Signor Torzillo, harpist.
 Keith Grant, baritone.
 Vern Barnett, pianist.
 Charles Lawrence Revue Company.

A CONCERT PROGRAMME

- 8.0: Trio of Instrumentalists, conducted by Mr. C. Vern Barnett.
 8.15: A recital by Madame Goosens-Viceroy, soprano.
 8.25: Signor Torzillo, harp solos.
 8.35: Pianoforte solos, G. Vern Barnett.
 8.42: Keith Grant, New Zealand baritone.
 8.50: Cello solo. Official weather forecast
 9.0: Madame Goosens-Viceroy, soprano
 9.10: Violin solo.
 9.18: Signor Torzillo, harpist.
 9.24: Keith Grant, baritone.
 9.32: The Instrumental Trio.
 9.45: A revue produced by Charles Lawrence.
 10.30: Close. National Anthem.

2GB

- 10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20 Music. 10.30: Women's session by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's radio service by Mrs. Dorothy Jordan. 2.50: Movie Know All. 3.0: Music. 3.30: Close down. 5.30: Children's session by Uncle George. 7.0: Music. 7.30: Talk from Sutton's 2GB Radio Service Department by Mr. Stan Crittenden. 7.45: Feature Story. 8.0: Miss Hazel McClelland, contralto. 8.7: Instrumental Trio. 8.15: Mr. Cecil Houghton, tenor. 8.22: Symphony Orchestra. 8.30: Miss Doris Robinson, soprano. 8.40: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.45: Organ music. 8.50: Miss Hazel McClelland, contralto. 9.0: Weather report. 9.3: Address. 9.15: Instrumental Trio. 9.25: Mr. Cecil Houghton, tenor. 9.35: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 9.40: Symphony Orchestra. 9.50: Miss Doris Robinson, soprano. 10.0: Instrumental music. 10.30: Close down.

2KY

MORNING SESSION

- 10.0: Tune in to the ticking of the clock. 10.3: Musical interlude. Selection of popular fox-trots. 10.15: News items. 10.30: Vocal items. 10.50: Hawaiian steel guitar selections. 11.0: A few laughs. 11.5: Pianoforte selections. 11.15: Calls and announcements. 11.20: Musical numbers. 11.30: Request numbers. 11.40: Music and vocal items. 11.55: Where to go to-night. 12.0, noon: Closing announcements.

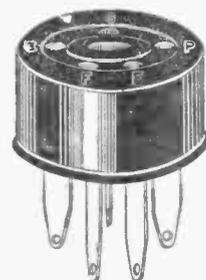
CHILDREN'S SESSION

- 6.0 p.m.: Birthday calls, request numbers kiddies' entertainment. Aunt Jemima and Uncle Bert.

EVENING SESSION

- 7.0: Musical interlude. 7.15: Sporting feature; Turf topics; how they should run to-morrow—Geo. A. Davis; 7.45: Request numbers. 8.0: Novelty numbers, Miss Billie Underwood. 8.10: Soprano solos. 8.18: Baritone solos, Mr. Higgins. 8.26: Pianoforte selections, Mr. Hancock. 8.30: Series of Biblical talks presented by I.B.S.A. 8.45: Music and request numbers from the studio. 9.0: Sporting feature, presented by Tooth and Co. Ltd., Kent Brewery, from the ringside of M'Hugh's Leichhardt Stadium. Results of early events and full description of main 15-round event. 9.40: Dance music from the the studio. 10.0: Closing announcements.

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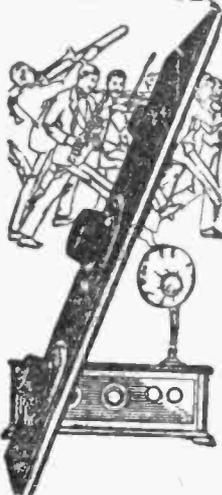
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Interstate Programmes, Tues., July 23

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3LO

EARLY MORNING SESSION.

7 a.m.: Time signal from the Melbourne Observatory; weather forecast, 7.5: Early rising music, 7.40: Mails and shipping, 7.43: What's On To-day? 7.45: Birthday greetings, 8.0: Breakfast news and market reports, 8.15: Close down.

MORNING MUSICALS.

10.30: The Thought for to-day, Mr. Charles Nuttall, 10.35: Reproduced music, 10.45: Arnold-Coleman at the Wurlitzer organ, 11 a.m. to 12.15: 3LO Studio Orchestra, with Molly Mackay (soprano) and Rita Hilton (contralto), 12.15: To-day's news; rates on 'Change; weather forecast.

MIDDAY SESSION.

12.30: National Broadcasting Orchestra, under direction of Wm. G. James, (Conductor, Percy Code). Overture, "Merry Wives of Windsor" (Nicolaï), "Unfinished Symphony" (Schubert), J. Howard King, bass-baritone, Orchestra, "In the Garden" (Goldmark), "Serenade" (Toselli), Luncheon music, supplied by the National Broadcasting Orchestra, under the direction of Wm. G. James, (Conductor, Percy Code).

THE LECTURETTE SESSION.

2.0: Miss Babbington, "Temperament and what it Means, 2.15: Reproduced music, 2.25: Professor D. E. Copland, M.A., D.Sc., "Economics of Household Expenditure, 2.40: Reproduced music, 2.45: Dr. Loftus Hills, Topics of the Week.

THE RADIO MATINEE.

3.0: National Broadcasting Orchestra, under the direction of Wm. G. James, (Conductor, Percy Code). Fantasy, "The Sibyls" (Grieg), "Andante Cantabile" (Tachnikowsky); Tom Semple, tenor; Orchestra, "Les Preludes" (Liszt), 3.30: Dr. A. E. Floyd, "Going Halfway to Meet the Composer," 3.50: A short piano recital by Raymond Lambert—First Movement Concerto in A Minor, with orchestral accompaniment (Grieg); 4.5: Orchestra, overture, "Carnaval" (Dvorak); 4.10: Jessie Clarke, songs at the piano, 4.20: Orchestra, "Three Dances from Henry VIII," (German); 4.30: Close down.

THE CHILDREN'S CORNER.

5.45: "Bobby Bluebird" here again; also his two little friends 'Ector and 'Orace; now for some fun, 6.5: "The Mouth Organ Man" will play some ragtime melodies, 6.15 to 7.30: Dinner music, provided by the 3LO Studio Orchestra.

NEWS FROM EVERYWHERE.

7.30: News session, rates on 'Change; market reports.

NIGHT SESSION.

7.45: National Broadcasting Orchestra, under the direction of Wm. G. James, (Conductor, Percy Code). Overture, "Egmont" (Beethoven), "Elegie" from Trio in D Minor (Arensky), 8.0: Cecilia Choir of Women, conducted by Minnie C. Bull, accompanist, Madge Sissons, Laudate pueri Dominum (Mendelssohn), "Where is thy Crown of Beauty" (Whittaker), "The Death of Teneor" (Brahms), "Morning" (Minnie C. Bull), 8.10: Malvern Tramways Band, Ballet music from "Coppelia" (Delibes), 8.20: First appearance in broadcasting of Rita Coonan, a new Australian soprano—A Strauss programme: "Serenade," "At Night," "The Night Comes Stealing."

8.30: Orchestra—

"Hiawatha" Suite (Coleridge Taylor), 8.40: First appearance in Australian broadcasting of Miss M. Llewellyn, the celebrated English harpist, 8.50: Cecilia Choir of Women— "Hecuba's Lament" from "The Trojan Women" of "Euripides" (Holst).

For contralto solo, chorus, piano, and string quartet. Hecuba, Violet Semple.

9.0: A cello recital by Louis Hattenbach— "Nocturne Op. 9, No. 2" (Chopin), "Chanson Grecque" (Schumann), "Lullaby" (Hattenbach), "Guitarre" (Popper).

9.20: A scene from Dickens— Declaimed by Maurice Dudley.

9.30: Orchestra— Incident in music to "Monsieur Beaucaire" (Rosse), 9.40: Cecilia Choir of Women (soloist, Isabel Hulme) "Serenade" (Schubert), "The Snow" (Elgar), "Fly, Singing Bird, Fly" (Elgar).

9.50: Malvern Tramways Band— Waltz Brillante, "Bacchante" (Rimmer), 10.0: Ern. Trotman, entertainer, 10.15: Malvern Tramways Band— Selection, "Souvenir of Overtures" (Hawkins), 10.25: News from the morning papers, 10.30: "The Rex" Dance Band, 11.30: God Save the King.

3AR

MORNING NEWS SESSION.

10.0 to 10.59: See Friday

MORNING MUSICAL SESSION.

11.0: Recordings, 12.20: British Official Wireless news from Rugby, Announcements, 12.30: Close down.

AFTERNOON SESSION.

3.0: Recordings, 4.30: Close down.

EVENING SESSION.

6.0: Recordings, 7.10: News service, Announcements, 7.20: Recordings.

NEWS SESSION.

7.59: Out of the Past, 8.0: The Strad Trio—Trios: "Entr'act from Rosemunde" (Schubert), "Westmoreland Menuett" (Shields) "Berencse" (Hlynski).

8.14: A Maker of History, 8.15: Madeline Knight, contralto— "Too Late" (Tschikowsky), "The Silver Ring" (Chaminade), 8.22: Cecil Parkes, alto— "Hymn to the Sun" (Rimsky-Korsakov) "Caprice No. 24" (Paganini), 8.37: Under the direction of Madame Elsie Davie, Melbourne's Grand Opera Quartette and Company will present— "Norma" by Bellini.

Cast:
 Norma Elsie Davie
 Adalgisa Ina Lillycrop
 Clotilde Isabel Burroughs
 Pollione John D. Sullivan
 Flavio Frederick Earl
 Orovoso Charles Evans
 Chorus of Druids, Priestesses, and Warriors.
 Pianist, Ada Adams.

9.37: Captain Donald MacLean will continue his series of talks—

"The Conquest of Peru,"

9.52: Madeline Knight, contralto— "Saucy South Wind" (Wilbey), "Spring Sang a Song" (Carne)

10.0: The Strad Trio—Trios: "Adagio" (Schubert), "Gavotte from Mignon" (Thomas)

Myra Montague, piano— "To the Spring" (Grieg), "The Sea" (Paingren)

Trios— "Melody" (Mozzawski), "Waltz" (Coleridge-Taylor)

10.20: News service, 10.30: The Radio Revelers, with Hugh Kuxham— "I Can't Give You Anything but Love" (Fields), "Revenge" (Lewis)

"She's got a Great Big Army of Friends" (Nelson), "Sonatine" (Katzman), "I Ain't Never Been Kissed" (Lealle), "You Went Away, You Too Often" (Bryan), "Sweet Sue, Just You" (Harris), "Roses of Yesterday" (Berlin), "Cradle of Love" (Wayne), "Anywhere is Heaven" (Brady), 11.0: God Save the King.

3DB

MORNING SESSION.

11 a.m. Time, 11.30: H. Squire, Celeste octet and two singers, 11.35: A symphony orchestra and classical songs, 12.0: Modern light music and songs, 12.25: Forecast of chief news and features to appear in "The Herald", 12.30: Close down.

AFTERNOON SESSION.

2.52: Jazz and Keltour, 3.55: "Sun News Pictorial" news flash, 4.0: Close down.

EVENING SESSION.

6.0: Children's hour, "Bobby Bluegood," 6.30: What's on at the theatres and movies, 6.32: Radio movie club, 6.40: Light music, orchestral and modern English songs, 7.0: Songs and music from stage successes, 7.30: Instrumental and vocal solos, 7.45: Market reports.

NIGHT SESSION.

8.0: A happier programme, 10.40: God Save the King.

4QG

EARLY MORNING SESSION.

7.43 to 8.30: See Friday.

MORNING SESSION.

11.0 to 12.0: See Friday.

MIDDAY SESSION.

1.0 to 2.0: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EARLY EVENING SESSION.

6.5: An Astronomy Talk—"The Origin of the Solar System," by Mr. A. K. Chapman, 7.45: "Agricultural Exhibits of the Royal National Show," by Mr. J. P. Reid, Editor "Queensland Agricultural Journal."

NIGHT SESSION.

A programme arranged by Mr. Erich John, 8.0: Grand Opera— Instrumental Quartette— "Scarf Dance" from the Ballet "Callirhoe" (Chaminade), Mixed Quartette— "March Song" from "Norma" (Bellini), Stanley Tambllyn (baritone)— "Even Braver Heart" from "Faust" (Gounod), Mrs. Robert Bell (soprano) and W. W. Crisp (tenor)— Vocal Duet, "Garden Scene" from "Faust" (Gounod), Instrumental Quartette— "Gavotte" from "Iphigenia in Tauris" (Gluck), 8.30: May Day Music in Merrie Old England: Male Quartette— "Merrie Men, 'tis First of May" (Arundale), Mrs. Robt. Bell (soprano) and Mildred Bell (contralto)— Duet, "Round the Maypole Bliethly Tripping" (Donizetti), James Hunter (baritone)— "Waltz Song" (Beethoven), Mildred Bell (contralto)— "The First of May" (Martin), Instrumental Quartette— "Morris Dance" (German), 8.40: Sacred— Mixed Quartette— "Soul with All Thine Anguish" (arr. Erich John), W. W. Crisp (tenor)— "Come, Margarita, Come" from "Martyr of Antioch" (Sullyan).

- Mrs. Robert Bell (soprano)—
"Ave Maria" (Mascagni).
Instrumental Quartette—
"Meditation" (Bach-Gounod).
8.0: Carnival Music:
Mixed Quartette—
"The Carnivale" (Rossini).
Stanley Tamblin (bass-baritone)—
"Carnival Night" (Cuvillier).
Mildred Bell (contralto) and W. W. Crisp (tenor):
Vocal Duet, "Pierrot, Pierrette" (Linné).
Mixed Quartette—
"King Carnival" (arr. Erich John).
Instrumental Quartette—
"Carnival Revels" (Cobb).
9.20: Classical—
Mrs. Robert Bell (soprano) and Mildred Bell (contralto)—
Vocal Duet, "How Lovely is the Face" (Handel).
James Hunter (baritone)—
"The Flight of Time" (Schubert).
Mildred Bell (contralto)—
"Love Triumphant" (Brahms).
Instrumental Quartette—
"The Swan" (Saint-Saens).
9.40: Miscellaneous—
Mixed Quartette—
"Bright Little Star" (Erich John).
Jack Lord (tenor)—
"Jim" (Parks).
Mrs. Robert Bell (soprano)—
"The Pipes of Junce" (Day).
W. W. Crisp (tenor) and Stanley Tamblin (bass-baritone)—
"From Oberon in Fairyland" (Newton).
Instrumental Quartette—
"Menuet" (Paderewski).
10.0: News Weather. Close down.

5CL

MORNING SESSION.

11.15 to 2.0: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EVENING SESSION.

5.30: 5CL's sporting service, including Murray Bridge acceptances. 5.0 to 7.45: See Friday.

NIGHT SESSION.

- 8.0: Chimes.
8.10: From the Colonel Light Gardens Institute—
"The Song of Australia."
Trio and chorus, "The Cough and the Crow" (Bishop).
The Choral Society (soloists, Miss Thalis Allin, Mrs. Galvin, and Mr. Allin).
Eddie Ronchetti, vocalist—
"Matinata" (Tosti).
"Rose" Quartette—
"Don't You Cry, Ma Honey" (Noll).
Cyril Bradley, A.T.C.L., vocalist—
"How is My Boy?" (Romer).
The Choral Society—
"Rose of My Heart" (Lohr).
Mary Haywood, elocutionist—
"The Parrot" (Anon).
Allan Cheek, vocalist—
"The Bandolero" (Stuart).
The Choral Society—
"The Village Blacksmith" (soloist, G. Naylor).
Interval.
From 5CL Studio—
Mr. J. W. Bell, Deputy-Commissioner of the Repatriation Commission, will talk to you.
End of Interval.
Continuation of concert from Colonel Light Gardens Institute.
Jean Renou, A.M.U.A., pianiste.
Selected.
The Choral Society—
"Martyrs of the Arena" (de Rille).
Eddie Ronchetti, vocalist—
"Prelude" (Landon Ronald).
"Rose" Quartette—
"My Old Kentucky Home" (Lewis).
Cyril Bradley, A.T.C.L., vocalist—
"A Chip of the Old Block" (Squire).
The Choral Society—
"The Watchword" (Pinsuti).
Mary Haywood, elocutionist—
"Home" (Anon).
Allan Cheek, vocalist—
"The Song of Hybras the Cretan" (Elliott).
The Choral Society—
"Slumber Song" (Lohr).
From 5CL Studio.
News Session.

10.15: General News Service, Weather, and Sporting.
10.30: Modern Dance Music
11.0: Close down.

6WF

10.0: Tune in. Records. 11.0: Close down. 12.30: Tune in. 1.35: Markets, news, etc. 1.0: Tune signal. 1.1: Weather. 1.3: Luncheon music. 2.0: Close down. 3.30: Tune in. 3.35: Musical programme. Pianosolo solos by Miss Audrey Dean; vocal solos by Mr. Frank Romaine. 4.30: Close down. 6.45: Tune in. 6.48: Bedtime stories by Uncle Duffy. 7.5: Light music by the Radio Trio. 7.30: Commercial and general information. 7.45: Talk, "Books of the Month," by Mr. J. Bathgate. 8.0: Tune signal. 8.1: First weather bulletin. 8.3: A relayed programme. 8.50: Late news items, station announcements, ships within range announcement, late weather bulletin. 10.30: Close down.

104.5 METRE TRANSMISSION

Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 8.45 p.m.

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24/6

EVER-READY
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Local Programmes, Wednesday, July 24

2FC

EARLY SESSION—7 a.m. to 8.15 a.m.
 7.0: "Big Ben" and meteorological information
 7.5: Early Rising Music.
 7.40: Breakfast news.
 7.45: Mails and shipping.
 7.48: What's on to-day?
 7.50: Children's birthday calls.
 8.0: Music from the studio.
 8.15: Close.

MORNING SESSION—10.30 a.m. to 12.30 p.m.
 10.30: Announcements.
 10.32: General sporting talk.
 10.45: Organ recital.
 11.0: Household Hints—Cooking hints and recipes by Miss Ruth Furst.
 11.10: Light Orchestra.
 12.0: "Big Ben" and Stock Exchange.
 12.5: A "Dickens" story.
 12.20: Midday market reports.
 12.30: Close.

THE LUNCH HOUR—1 p.m. to 2.30 p.m.
 1.0: Lunch to music with the Station Orchestra.
 2.0: Stock Exchange, second call.
 2.2: Popular Education.
 2.20: A glance at the afternoon papers.

THE RADIO MATINEE—2.30 p.m. to 4.30 p.m.
 2.30: The Station Orchestra.
 2.45: John Andrews, tenor.
 2.52: Keith Kennedy, violinist.
 3.0: The Station Orchestra.
 3.15: Evelyn Hall, contralto.
 3.22: The Station Orchestra.
 3.40: John Andrews, tenor.
 3.48: Keith Kennedy, violinist.
 3.57: The Station Orchestra.
 4.8: Evelyn Hall, contralto.
 4.16: The Station Orchestra.
 4.28: Stock Exchange, final call.
 4.30: Close.

EARLY EVENING—5.45 p.m. to 7.55 p.m.
 5.45: Kiddies' "Good-night" Stories, told by Uncle Bas, assisted by Aunt Willa and Cousin Marjorie.
 6.45: The Dinner Orchestra.
 7.30: Sporting news and views.
 7.40: Late news.
 7.45: At the Console of the Wurlitzer organ at the State Theatre, Mr. Price Dunlavy.

EVENING PRESENTATION

The "Will Prior" Hour.
 Iris De Calros Rego, pianist.
 The Metropolitan Grand Opera Stars.
 Jules Van Der Klei, Cellist.
 The Spanish Serenaders, Novelty Instrumentalists.
 Jack CANNOT, comedian.
 Ernest Fellows, trumpet player.
 Billy Cresswell, popular vocalist.
 Romano's Dance Orchestra.
 8.0: "Big Ben." The "Will Prior" Hour from the State Theatre—
 The State Theatre Orchestra, conducted by Mr. Will Prior.
 Mr. Price Dunlavy at the Wurlitzer organ. Stage presentation by Clyde Hood.
 Instrumental and solo numbers by principals attached to the State Theatre presentation.
 Chorus numbers.
 9.0: From the Studio—
 Iris De Calros Rego in a piano recital.
 9.12: The Metropolitan Grand Opera Stars in excerpts from favorite operas—
 Rene Maxwell, soprano.
 Madame Lillian Gibson, contralto.
 Charles Nicis, tenor.
 Alfred Cunningham, baritone.
 9.25: Jules Van Der Klei, 'cello.
 9.32: James Donnelly in an unusual offering.
 9.39: The Spanish Serenaders, novelty instrumentalists.
 9.47: Jack CANNOT, comedian.
 9.55: Ernest Fellows, trumpet solos.
 10.5: Billy Cresswell, in popular songs.
 10.15: To-morrow's programme and announcements.
 10.20: Dance numbers from Romano's Restaurant, conducted by Bennie Abrahams, until 11.30 p.m.
 11.30: Close. "God Save the King."

2BL

OPENING SESSION, 8.15 a.m. to 11 a.m.
 8.15: Music for every mood.
 8.45: "Interest Item" on outstanding events of the day.
 9.0: Old Folks' programme.
 9.30: British official wireless news.
 9.40: New music.
 10.10: The Ladies' Club Hour—The Australian Women's A.B.C. Association, conducted by Miss Gwen Varley.
 10.30: The Studio Light Orchestra.
 11.0: Close.

MIDDAY SESSION, 12 noon to 2.30 p.m.
 12.0: The Station Orchestra.
 1.0: Afternoon news service.
 1.15: Women's Interest Talk.
 1.30: The Traders' "Selling the Set" music.
 2.0: At the Console.

AFTERNOON ENTERTAINMENT, 2.30 p.m. to 5.45 p.m.
 2.30: Business Efficiency Talk.
 3.45: The Magic Carpet—A story of travel and adventure.
 3.0: Musical programme from the Studio—
 Peggy Bell, soprano.
 Josef Kaartinen, saxophonist.
 Les Coney, comedian.
 Dance music.
 4.45: "The Trade Hour" demonstration music for the Retailer.
 5.45: Close.

THE DINNER HOUR, 6.15 p.m. to 7.55 p.m.
 6.15: The Dinner Orchestra.
 6.45: The Boys' Radio Club, Mr. Norman Lyons.
 7.5: Markets.
 7.20: Late news.
 7.30: Instrumental music by the Light Orchestra.
 7.55: What's on the air to-night?

EVENING PROGRAMME, 8 p.m. to 10.30 p.m.

Artists:—
 The Mosman Municipal Band
 The Wireless Singers.
 The Metropolitan Grand Opera Stars.
 Ernest Fellows, trumpet player.
 Jack CANNOT, entertainer.
 Iris de Calros-Rego, pianist.
 The Spanish Serenaders, Novelty instrumentalists.
 Billy Cresswell, popular vocalist.
 Jules Van der Klei, 'cellist.
 James Donnelly, story teller.
A NIGHT OF COMIC OPERA MUSIC.
 8.0: The Mosman Municipal Band in a selection of well-known comic operas.
 8.18: The Wireless Singers, a chorus of voices specially trained for broadcasting.
 Conductor, Mr. Harry Sherlock.
 8.30: The Mosman Municipal Band, in recollections of Gilbert and Sullivan.
 8.45: The Metropolitan Grand Opera Stars: Rene Maxwell, soprano.
 Lillian Gibson, contralto.
 Charles Nicis, tenor.
 Alfred Cunningham, baritone.
 8.59: Ernest Fellows, trumpet solos.
 9.5: Official weather forecast.
 9.6: Jack CANNOT, comedian.
 9.14: The Wireless Singers.
 9.24: Iris de Calros-Rego, solo pianist.
 9.32: The Spanish Serenaders, Novelty instrumentalists.
 9.42: The Mosman Municipal Band.
 10.0: Billy Cresswell, popular vocalist.
 10.8: Jules Van der Klei, 'cello solos.
 10.18: James Donnelly, story teller.
 10.28: Announcements.
 10.30: Close. National Anthem.

2GB

10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20: Music. 10.30: Women's session by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's radio service by Mrs. Dorothy Jordan. 2.50: Movie Know All. 3.0: Labor-saving demonstration from Nock and Kirby. 4.0: Close down. 5.30: Children's session by Uncle George. 7.0: Music. 7.45: Feature story. 8.0: Miss Thelma Lansdowne, contralto. 8.7: Instrumental Quartette. 8.15: Mr. Barend Harris, baritone. 8.22: Symphony Orchestra. 8.30: Mr. Jack Win and Miss Nora Windle in a dramatic sketch. 8.40: Miss Gladys Verona, soprano. 8.50: Band selections. 9.0: Weather report. 9.3: Address. 9.15: Miss Thelma Lansdowne, contralto. 9.25: Instrumental Quartette. 9.35: Mr. Jack Win and Miss Nora Windle in a humorous sketch. 9.45: Mr. Barend Harris, baritone. 9.55: Symphony Orchestra. 10.0: Miss Gladys Verona, soprano. 10.10: Instrumental music. 10.30: Close down.

2UW

See Friday.

2KY

MORNING SESSION
 10.0: Tune in to the ticking of the clock. 10.3: Popular fox trots. 10.15: Hawaiian steel guitar selections. 10.30: Request numbers 10.50: Vocal items. 11.0: A few laughs. 11.5: Pianoforte selections. 11.15: Calls and announcements. 11.20: Musical interlude. 11.30: Request numbers. 11.40: Music and vocal items. 11.55: Where to go to-night. 12.0, noon: Closing announcements.

CHILDREN'S SESSION

6.0 p.m.: Birthday calls, request numbers kiddies' entertainment Aunt Jemima and Uncle Bert.

EVENING SESSION

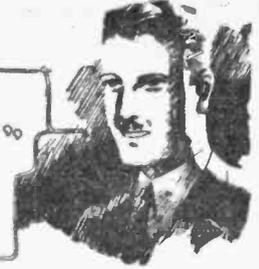
7.0: Musical interlude. 7.15: Sporting feature. Complete review of to-day's racing Northey Du Maurier. 8.0: Hawaiian steel—Mr. Geo. A. Davis. 7.40: Health feature. Guitar selections. 8.15: Tenor solos, Mr. Chas. E. McDonald. 8.30: Banjo solos, Master Harry Weir. 8.36: Al. Rosenberg at the piano. 8.45: Contralto solos. 9.10: Sporting feature. Presented by Tooth and Co. Ltd., Kent Brewery. From Sydney Stadium, full description from the ringside of main 15-round event. 9.55: Result of main 15-round event. 10.0: Closing announcements.

WAVELENGTHS

| | Metres. | Watts |
|---|---------|-------|
| 2FC —N.S.W. Broadcasting Co. Ltd., Market St., Sydney, 0700-2230 | 442 | 5000 |
| 2BL —N.S.W. Broadcasting Co. Ltd., Market St., Sydney, 0800-2330 | 353 | 5000 |
| 2GB —Theosophical Broadcasting Station, 39 Bligh St., Sydney, 1000-2200 | 316 | 3000 |
| 2KY —Trades and Labor Council, Goulburn St., Sydney, 990-2200 | 280 | 1500 |
| 2UW —Radio Broadcasting, Ltd., "Palmy" Building, Ash St., Sydney, 1230-2230 | 267 | 500 |
| 2UE —Electrical Utilities, Ltd., 619 George St., Sydney, 0730-2330 | 293 | 250 |
| 2LO —Dominions Broadcasting Co., 120A Russell St., Melbourne, 0715-2340 | 371 | 5000 |
| 2AR —Dominions Broadcasting Co., 120A Russell St., Melbourne, 1000-2200 | 484 | 5000 |
| 2UJ —O. J. Nilson and Co., 45 Bourke St., Melbourne, Australia | 319 | 500 |
| 2DB —Broadcasting Station, Capitol House, Swanston St., Melb. | 255 | 500 |
| 2QG —Queensland Government Radio Service, Brisbane, 0800-2200 | 385 | 5000 |
| 2GR —Gold Radio Service, Ruthven St., Toowoomba | 294 | 100 |
| 5CL —Central Broadcasters, Ltd., 114 Hindmarsh Square, Adelaide, 1100-2310 | 409 | 5000 |
| 5DN —5DN Propy, Ltd., 2-4 Montpelier St., Parkside | 313 | 500 |
| 5KA —National Musical Federation, Ltd., 81 Flinders St., Adelaide | 250 | 2500 |
| 6WF —Commonwealth Government Broadcasting Station, Perth, 1230-2330 | 1250 | 5000 |
| | 100 | |
| 2ZL —Tasmanian Broadcasters Pty., 95 Elizabeth St., Hobart, 1130-2201 | 516 | 3000 |
| 1VA —Radio Broadcasting Co. of New Zealand, 419 Queen St., Auckland, 1500-2203 (silent day Monday) | 333 | 500 |
| 2VA —Radio Broadcasting Co. of New Zealand, Wellington, 1500-2200 (silent day, Wednesday) | 420 | 5000 |
| 3VA —Radio Broadcasting Co. of New Zealand, Christchurch, 1500-2103 (silent day, Tuesday) | 306 | 500 |
| 1YA —Radio Broadcasting Co. of New Zealand, Dunedin, 1700-2200 (silent days, Monday and Thursday) | 463 | 750 |



"Can't hardly"
"Was you" "I seen"
"He aint"



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SYDNEY**

Interstate Programmes, Wed., July 24

3LO

EARLY MORNING SESSION

7 a.m.: Time signal from the Melbourne Observa-
tory; weather forecast. 7.5: Early rising music. 7.40:
Mails and shipping. 7.43: What's on to-day? 7.45:
Birthdays greetings. 8.0: Breakfast news and market
reports. 8.15: Close down.

MORNING MUSICALS

10.30: The Thought for To-day—Dr. Loftus Hinds.
10.35: Reproduced music. 10.45: Arnold Coleman at
the Wuritzer organ. 11 a.m. to 12.15: The 3LO
Studio Orchestra; Gertrude Hutton, contralto; Tom
Masters, tenor. 12.15: To-day's news; rates on
Change; weather forecast.

MIDDAY SESSION

12.30: The National Broadcasting Orchestra, under
the direction of Wm. G. James; conductor, Percy
Code—Overture, "Oberon" (Weber), "Peer Gynt"
Suite (Grieg), John Hobbs, bass-baritone. Orches-
tra—"Entr'acte et Danse des Bacchantes" (Gounod),
"Danse des Bouffons" (Rimsky-Korsakov), 1.0 to
2.0: Luncheon music provided by the National Broad-
casting Orchestra, under the direction of Wm. G.
James (conductor, Percy Code).

THE LECTURETTE SESSION

2.0: Miss Alice Smith, "Common Errors in Pro-
nunciation." 2.15: Reproduced music. 2.25: Prof. H.
K. Bailey, B.A., B.C.L., "Russia and the British
Empire." 2.40: Reproduced music. 2.45: Mr. A. E.
H. Nickson, F.R.C.O., A.R.C.M. "Characteristics of
Composers."

THE RADIO MATINEE

3.0: The National Broadcasting Orchestra, under
the direction of Wm. G. James (conductor, Percy
Code)—Overture, "Orpheus" (Offenbach); suite,
"Summer Days" (Coles); Rosina Down, soprano
3.30: Orchestra—"Salut d'Amour" (Eigart), "Scenon
Rosmarin (Kreislere); E. Mason Wood, baritone;
Orchestra, selection from "The Gondoliers" (Sulliv-
van); Stanley J. Allen, tenor; Orchestra, musical
gems from Tchaikowsky. 4.30: Close down.

THE CHILDREN'S CORNER

5.45: "Little Miss Kookaburra" is back at 3LO and
will tell the little ones about "Mollie and the Moon
Fairies." 6.5: Fairy tunes and folk dances by the
3LO Studio Orchestra.
6.15 to 7.30: Dinner music provided by the 3LO
Studio Orchestra. 7.30: To-day's news; rates on
Change; market reports.

NIGHT SESSION

7.45: National Broadcasting Orchestra, under the
direction of Wm. G. James (conductor, Percy Code)—
Overture, "William Tell" (Rossini).
Excerpts from "Scheherazade" (Rimsky-Korsak-
ov).
8.0: A Light Romantic Opera, "Young England"—
Libretto and lyrics by Basil Hood.
Music by G. H. Clutsam and Hubert Bath.

DRAMATIS PERSONAE:

| | |
|---------------------|------------------|
| Francis Drake | William Bossence |
| John Oxenham | Edward Jones |
| Sir George Sydenham | George Horau |
| William Courtenay | George Byer |
| Tom Moon | John Stuart |
| Sam Best | Frank Armstrong |
| Harry Sydenham | Miriam Redward |
| Queen Elizabeth | Marion Daniels |
| Betty Sydenham | Veronica Cox |
| Joan (her maid) | Eveline Ringwood |
| Tib (a servant) | Elsa Hoekins |

Drake's men, townspeople, etc.
The Prologue—Miriam Redward.

SYNOPSIS OF SCENERY

Prelude The Stern of Drake's Ship
ACT I Old Plymouth
Scene
Scene I ACT II The Deck of Drake's Ship
Scene II "The Golden Hind" at Deptford
ACT III
Scene Outside the Village Church
9.30: Orchestra—
"Gavotte and Musette" (Baff).
"In a Monastery Garden" (Ketyby).
Doreen Berry—
Poetry set to music with orchestral accompani-
ment. "The Two Painters," by Alfred Noyes.
A tale of Old Japan.
Orchestra—
Selections from "The Fortune Teller" (Herbert).
First appearance of "The Radio Magician".
10.0: Gus Quinn—"Radio Magic."
Have your pack of cards, pencil, and paper in
readiness.
Orchestra—
Selections from musical comedy.
10.30: Gus Quinn—More Radio Magic.
10.35: "The Rex" Dance Band.
11.30: "God Save the King."

3AR

MORNING NEWS SESSION.

10.0 to 10.59: See Friday.

MORNING MUSICAL SESSION.

11.0: Recordings. 12.20: British Official Wireless
news from Rugby. Announcements. 12.30: Close
down.

MIDDAY SESSION

1.30: Speeches from the Rotary Club Luncheon,
transmitted from the Freemasons' Hall, Collins Street,
Melbourne. 2.0: Close down.

AFTERNOON SESSION.

2.45: Description of the mid-week football. Post

and Telegraph v. The "Argus," on the Collingwood
Football Ground. 3.30: Selections. 3.45: Further
description of the mid-week football. Post and Tele-
graph v. The "Argus," at the Collingwood Football
Ground. 4.20: Selections. 4.35: Final description of
the mid-week football. Post and Telegraph v. The
"Argus," at the Collingwood Football Ground. 5.10:
Close down.

EVENING SESSION.

6.0: Recordings. 7.10: News service. Announce-
ments. 7.20: Recordings.

NIGHT SESSION.

7.46: Captain Donald MacLean will continue his
series—

"The Conquest of Peru."
8.0: Out of the Past.

8.1: Hawthorn Silver Star Band—
March "Conflict" (Coles)

Bruce Small, tenor—
Selected.

Band—
Selection, "Gems of Great Masters" (arr
M'Anally).

Male Quartette—
Selected.

Conductor H. Stevens, Cornet Solo—
"Lizzie Polka" (Hartman).

Male Chorus.
Band—
Hymn, "Nearer, My God, to Thee."

Bandmaster A. Stevens, Euphonium Solo
"Land of Hope and Glory."

Bruce Small, Tenor—
Selected.

Band—
Selection, "Three Movements from 'Elijah'"
(arr. M'Anally).

Male Quartette—
Selected.

Band—
March, "Flag of Freedom" (Coles).

9.20: The Sundowners (Tom Semple, tenor; Her-
bert Sanderson, baritone; Robert Gillard, bass; and
Robert Allen, alto)—

"Dear, on a Night Like This" (Conrad).
"I Haven't Told Her" (Pain).

9.27: Lindsay Biggins, piano—
"Four Preludes" (Scriabine).

"Evening" (Voormolen).
"Berceuse" (Voormolen).

"Song" (Granados).
"Andaluz" (Granados).

9.47: The Sundowners (Tom Semple, tenor; Her-
bert Sanderson, baritone; Robert Gillard, bass; and
Robert Allen, alto)—

"Swing Along Alo" (Mounts).
"O Sussanah" (Poster).

10.4: The Radio Revellers—
"It's a Precious Little Thing Called Love" (Da-
vis).

"Sweethearts on Parade" (Lombardo).
"Deep Night" (Henderson).

"Stay at Home Girl" (O'Hagen).
"Me and the Man in the Moon" (Monaco).

10.20: News service. Announcements.
10.30: The Radio Revellers—
"High Tension" (Bee).

"Ah! Sweet Mystery of Life" (Herbert).
"Ten Little Miles from Town" (Kahn).

"If You Want the Rainbow You Must Have the
Rain" (Rosen).
"Happy Days and Lonely Nights" (Fisher).

"Love Dreams" (Mendoza).
"Dada, Dada" (Dore).

"Pickin' Cotton" (Henderson).
11.0: God Save the King.

4QG

7.43 to 4.30: See Friday.

EARLY EVENING SESSION.

7.45: Lecturette by Mr. A. J. M'Kenzie (Queensland
Agricultural High School and College).

NIGHT SESSION.

During the evening the dance music will be re-
layed from the annual Catholic Ball. The frockings
and the presentation of the debutantes will be de-
scribed.

Between dance items the following will be relayed
from the Studio:

Mrs. Ferrier (contralto).
"Slave Song" (Del Riego).

"When All Was Young" (Gounod).
Mrs. L. Corrigan (harpiste)—

"To a Wild Rose" (Nevin).
Fred Becket (tenor)—

"Tom Bowling" (Dibdin).
"Linden Lea" (Williams).

E. M'Lennan (soprano)—
"Villa" (Lehar).

"Love's Cigarette" (Simpson).
Mrs. L. Corrigan (harpiste)—

"Mazurka" (Schlinklin).
Mabel Theodore (soprano)—

"The Valley of Memory" (Coverley).
"As I Went Roaming" (Brahe).

From the Studio—News service supplied by the
Metropolitan dailies. Weather news. Close down.

5CL

MORNING SESSION.

11.15 to 2.5: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EVENING SESSION.

6.0 to 7.45: See Friday.

NIGHT SESSION.

8.0: Chimes.
 8.10: A request presentation of the famous opera, "La Traviata."
 Characters—
 Violetta Marcelle Bernardi
 Alfredo Dino Padellari
 Germont Malcolm Jones
 Marquise-Gastone
 Barone-Doctore Bert Woolley
 Annina-Flora Ann Young
 And Chorus
 Explanatory remarks by Horace Perkins, Mus. Bac., A.M.U.A.
 Music by the Crescent Trio.
 10.0: P. H. Nichols and Bessie Francis in a Tennyson Interlude, "Guinevere."
 10.20: General news service.
 10.30: Modern dance music.
 11.0: Close down.

6WF

10.0: Tune in. Records. 11.0: Close down. 12.30: Tune in. 12.35: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin supplied by the Meteorological Bureau of Western Australia. 1.3: Talk, "Care of the Sick," by Dr. Winifred Holloway, of London. 1.20: Music. 1.30: Close down. 3.30: Tune in. 3.35: Afternoon tea concert relayed from the Primrose Cafe de Luxe. Vocal items from the Studio. 4.0: Talk, "Sealing Wax Craft," by Miss B. Hoyles. 4.40: Close down. 6.45: Tune in. 6.48: Bedtime stories by Uncle Duffy. 7.5: Light music by the Radio Trio. 7.30: Commercial and general information. 7.45: Talk on a popular science by Mr. Hal McKail. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Musical programme from the Studio. Miss Audrey Dean, pianiste. 8.50: Late news items, station announcements, late weather bulletin, ships within range announcement. 9.5: Programme continued from the Studio. 10.30: Close down.

104.5 METRE TRANSMISSION
 Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL

11.30: Gramophone recital. 11.34: Midlands weather forecast. 11.35: Gramophone recital. 11.55: Tasmanian stations' 9 a.m. weather report. 12.0: G.P.O. clock chimes the hour. 12.1: Shipping information. Ships within wireless range. Mail notices. Housewives' Guide. Commercial news. 12.8: Gramophone recital. 12.30: Announcements. 12.33: Gramophone recital. 12.55: "Mercury" news service. British Official Wireless news. Railway auction produce sales, held at Railway. 1.0: Gramophone recital. 1.30: Close down. 3.0: G.P.O. clock chimes the hour. 3.1: Gramophone recital. 3.4: Weather information. 3.5: Gramophone recital. 4.15: Readings from the "Illustrated Tasmanian Mail." 4.30: Close down. During the afternoon descriptions of the Ballarat races, held at Ballarat Racecourse, Ballarat, Victoria. 6.15: Gramophone recital. 6.30: Bertha Southey Brammall will tell a Tasmanian Fairy Tale to the wee folk. "Grey Amber." 6.45: Gramophone recital. 7.0: Answers to letters and birthday greetings by Bertha Southey Brammall. 7.15: News session. 7.30: E. T. Emmett, of the Tasmanian Government Touring Bureau, will answer questions on "The West Coast of Tasmania." 7.45: W. C. Webb will speak to motorists. 8.0: G.P.O. clock chimes the hour. 8.1: Gramophone recital. 8.6: A Columbia recital including latest releases, specially arranged by Pindley's Music Warehouse. 9.20: News session. 9.45: Columbia recital (continued). 10.0: G.P.O. clock chimes the hour. Close down.

7ZL

Tuesday, July 23

11.30 a.m.: Record recital. 11.34: Midlands weather forecast. 11.35: Record recital. 11.55: Tasmanian stations' 9 a.m. weather report. 12.0: G.P.O. clock chimes the hour. 12.1: Shipping information. Ships within wireless range. Mail notices. Housewives' Guide. 12.8: Record recital. 12.30: Announcements. 12.33: Record recital. 12.55: "Mercury" news service. British Official Wireless news. Railway auction produce sales, held at Railway. 1.0: Record recital. 1.30: Close down. 3.0: G.P.O. clock chimes the hour. 3.1: Record recital. 3.4: Weather information. 3.5: Record recital. 3.45: Miss Joyce Walker will speak on "Home-craft." 4.0: Record recital. 4.15: An educational talk on "Rice—Importation into New Zealand." 4.30: Close down. 6.15: Children's Hour with "Uncle David" and "The Story Lady." 6.45: Molly Hall will recite to the wee folk: "Old Chap" and "Pooftish Questions." 7.0: Answers to letters and birthday greetings, by "Uncle David" and "The Story Lady." 7.15: News session. 7.30: Under the auspices of the Agricultural Department S. V. Sandman will speak on "Quality in Cream." 7.45: W. E. Fuller will speak on "Literary Lapses and Literary Lists." 8.0: G.P.O. clock chimes the hour. 8.1: Record recital. 8.15: A programme of dance music by the Discus Dance Ensemble. 8.27: Al. Jolson, "My Mammy." 8.30: Dance numbers. 8.42: Henry Burr, "Out of the Dawn." 8.45: Discus dance numbers. 8.57: Frank Munn, "Was it a Dream?" 9.0: Dance numbers. 9.12: Vernon Dalhart, "Down on the Farm." 9.15: Dance numbers. 9.27: Al. Jolson, "Back in Your Own Back Yard." 9.30: News session. 9.40: Dance numbers. 9.52: Slumber music. 10.0: G.P.O. clock chimes the hour. Close down.

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Local Programmes, Thursday, July 25

2FC

EARLY SESSION—7 a.m. to 8.15 a.m.
 7.0: "Big Ben" and meteorological information.
 7.5: Early Rising Music.
 7.40: Breakfast news.
 7.45: Malls and shipping.
 7.48: What's on to-day?
 7.50: Children's birthday calls.
 8.0: Music from the studio.
 8.15: Close.

MORNING SESSION—10.30 a.m. to 12.30 p.m.

10.30: Announcements.
 10.32: The racing observer.
 10.45: An organ recital.
 11.0: Household helps—Domestic notes.
 11.10: The Light Orchestra.
 12.0: "Big Ben" and Stock Exchange first call.
 12.5: "With the Poets."
 12.20: Midday market reports
 12.30: Close.

THE LUNCH HOUR—1 p.m. to 2.30 p.m.

1.0: Lunch to music with the Station Orchestra.
 2.0: Stock Exchange, second call.
 2.2: To-day's acceptances, by the Racing Observer.
 2.12: Popular Education—"Nature's Wonders."
 2.20: A glance at the afternoon papers.

THE RADIO MATINEE—2.30 p.m. to 4.30 p.m.

2.30: The Station Orchestra.
 2.42: Norman Francis, tenor.
 2.50: The Station Orchestra.
 3.0: Zilata Kalmikoff, cellist.
 3.8: Robert Gilbert, baritone.
 3.15: The Station Orchestra.
 3.30: Norman Francis, tenor.
 3.38: The Station Orchestra.
 3.50: Zilata Kalmikoff, cellist.
 4.0: Robert Gilbert, baritone.
 4.8: The Station Orchestra.
 4.28: Stock Exchange, final call.
 4.30: Close.

EARLY EVENING—5.45 p.m. to 7.55 p.m.

5.45: Kiddies' "Good-night" Stories, told by the "Hello Man," assisted by Uncle Ted and "Sandy."
 6.45: The Dinner Orchestra.
 7.30: Sporting news and views.
 7.40: Late news.
 7.45: An organ recital.

A RECITAL OF ART MUSIC

The Sverjensky Instrumental Trio
 Fraser Coss, baritone.
 Bessie Blake, soprano.
 Alexander Sverjensky, pianist.
 Amy Ostinga, contralto.
 Leslie MacCallum, flautist.
 The Sydney Male Voice Choir
 Hilda Grace and Amy Henderson, violin and piano.
 William Collins and Partner, sketches
 The Hotel Australia Dance Band.
 8.0: The Sverjensky Instrumental Trio.
 8.15: Fraser Coss, baritone.
 8.22: A cello solo.
 8.30: Bessie Blake, soprano (with flute obbligato).
 8.38: Alexander Sverjensky, pianoforte solos.
 8.50: Amy Ostinga, contralto.
 8.57: Leslie MacCallum, flute solos.
 9.5: Fraser Coss, baritone, and Bessie Blake, soprano, duet (with string accompaniment).

9.10: Violin solos.
 9.18: Amy Ostinga, contralto (with flute obbligato).
 9.26: The Sverjensky Trio.
 9.40: The Sydney Male Voice Choir.
 9.50: Hilda Grace and Amy Henderson violin and piano.
 10.0: William Collins and partner, sketches
 10.15: Official weather forecast; to-morrow's programme and announcements.
 10.20: Dance music from the Hotel Australia, supplied by Cec Morrison and his "Gloochasers," who will play dance numbers until 11.30 p.m.
 11.30: Close. "God Save the King."

2BL

OPENING SESSION, 8.15 a.m. to 11 a.m.
 8.15: Music for every mood.
 8.45: "Interest Item" on outstanding events of the day.
 9.0: A melange of mirth and melody.
 9.30: British official wireless news.
 9.40: New music.
 10.10: The Ladies' Club Hour—The Australian Women's A.B.C. Association, conducted by Miss Gwen Varley.
 10.30: The Studio Light Orchestra.
 11.0: Close.

MIDDAY SESSION, 12 noon to 2.30 p.m.

12.0: The Station Orchestra.
 1.0: Afternoon news service.
 1.15: Women's Interest Talk.
 1.30: The Traders' "Selling the Set" music.
 2.0: At the Console.

AFTERNOON ENTERTAINMENT,

2.30 p.m. to 5.45 p.m.

2.30: Business Efficiency Talk.
 2.45: The Magic Carpet—A story of travel and adventure.
 3.0: A musical programme to include—
 Edith Cowley and Ian Maxwell, entertainers.
 Romano's Dance Band, conducted by Bennie Abrahams.
 Tom King, novelty pianist.
 4.45: "The Trade Hour," demonstration music for the Retailer.
 5.45: Close.

THE DINNER HOUR, 6.15 p.m. to 7.55 p.m.

6.15: The Dinner Orchestra.
 6.45: Girls' Radio Club.
 7.5: Markets.
 7.20: Late news.
 7.30: Instrumental music by the Light Orchestra.
 7.55: What's on the air to-night?

EVENING PROGRAMME, 8 p.m. to 10.30 p.m.

Artists:—
 Ted Henkel and his Capitol Theatre Orchestra.
 Fred. Scholl at the Wurlitzer.
 The Sydney Male Voice Choir.
 Willie Shine, comedian.
 Olga Le Grey, popular vocalist.
 Hilda Grace and Ann Henderson, violin and piano.
 Simon Phillipoff, Ballalaika player.
 Willie Shine, comedian.
 William Collins and partner in sketches.
 8.0: From the Capitol Theatre, a programme, presenting—
 Ted Henkel and his Capitol Theatre Orchestra.
 Fred. Scholl at the Wurlitzer organ.
 "Talkies."
 Special item from the "Capitol" Broadcasting Studio.
 9.0: From the Studio, official weather forecast.
 9.1: The Sydney Male Voice Choir.
 9.12: Willie Shine, comedian.
 9.20: Olga Le Grey in popular numbers.
 9.28: Hilda Grace and Ann Henderson in numbers for violin and piano.
 9.38: William Collins and partner, sketches
 9.50: Simon Phillipoff, Ballalaika solos.
 10.0: Olga Le Grey, in popular numbers.
 10.8: Willie Shine, comedian.
 10.18: Simon Phillipoff, Ballalaika solos.
 10.28: Announcements.
 10.30: Close. National Anthem.

2GB

10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20: Music. 10.30: Women's session by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's radio service by Mrs. Dorothy Jordan. 2.50: Movie Know All. 3.0: Address by Mr. H. Morton. 3.30: Close down. 5.30: Children's session by Uncle George. 7.0: Music. 7.45: Feature Story. 8.0: Miss Mary Neal, contralto. 8.7: Symphony Orchestra. 8.15: Mr. William Green, tenor. 8.22: Madame Betts-Vincent in an illustrated talk on the making of music. 8.30: Miss Gwen Selva, soprano. 8.40: Instrumental Trio. 8.50: Miss Mary Neal, contralto. 9.0: Weather report. 9.3: Address.

9.15: Instrumental Trio. 9.25: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 9.40: Band selections. 9.50: Miss Gwen Selva, soprano. 10.0: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 10.5: Instrumental music. 10.30: Close down.

2UW

MIDDAY SESSION.

12.30: Request numbers. 1.0: G.P.O. clock and chimes; music. 1.15: Talk on Homecraft, by Pandora. 1.40: Music and request numbers. 2.30: Close down. 4.30: Musical programme.

EVENING SESSION.

5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. clock and chimes; request numbers. 8.0: Music. 8.15: Garden talk by Mr. S. H. Hunt. 8.30: Request items. 9.0: G.P.O. clock and chimes. Comments on Foreign Affairs by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.

2KY

MORNING SESSION

10.0: Tune in to the ticking of the clock. 10.3: Popular fox-trots. 10.15: Hawaiian steel guitar selections. 10.30: Request numbers. 10.50: Vocal items. 11.0: A few laughs. 11.5: Pianoforte selections. 11.15: Calls and announcements. 11.20: Musical interlude. 11.30: Request numbers. 11.40: Music and vocal items. 11.55: Where to go to-night. 12.0, noon: Closing announcements.

CHILDREN'S SESSION

6.0 p.m.: Birthday calls, request numbers, kiddies' entertainment. Aunt Jemima and Uncle Bert.

EVENING SESSION

7.0: Musical interlude. 7.5: Birthday calls. 7.15: Request numbers. 7.30: Hawaiian steel guitar selections. 7.45: Humorous interlude. 8.0: Orchestral selections. 8.10: Tenor solos, Mr. G. Mason. 8.17: Bert Warne presents a humorous interlude. 8.30: Frederick Holt presents a recital of Australian compositions and artists, with musical and vocal illustrations. 8.45: Selection of humorous records. 9.10: Request numbers. 9.40: Continue record recital. 10.0: Closing announcements.

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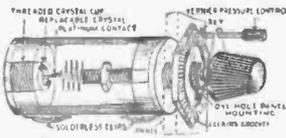
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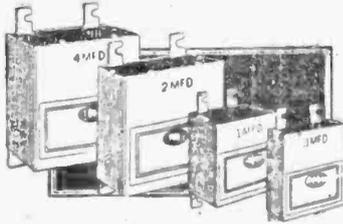
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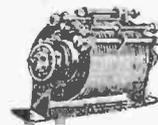


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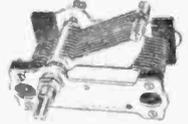
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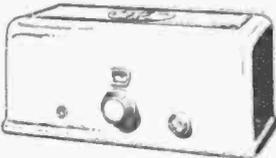
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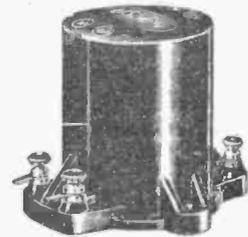


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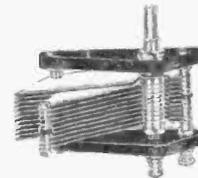
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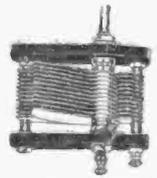
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Interstate Programmes, Thursday, July 25

3LO

EARLY MORNING SESSION.

7.0 a.m. Three signal from the Melbourne Observatory: weather forecast, 7.5. Early rising music, 7.40. Mails and shipping, 7.45. What's On To-day? 7.45. Birthday greetings, 8.0. Breakfast news and market reports, 8.15. Close down.

MORNING MUSICALS.

10.50: The Thought for To-day, Mr. Chas. Nuttall. 10.55: Reproduced music, 10.45. Arnold Coleman at the Wuritzer, 11.0 to 12.15 3LO Studio Orchestra—Freda Northcote, mezzo. Ernest Wilson, bass-baritone. 12.15: News of the day, Rates on Change, weather forecast, 12.30. National Broadcasting Orchestra, under the direction of Wm. G. James, (Conductor, Percy Code)—Overture, "Euryanthe" (Weber); Gret Hart, soprano; Orchestra, "The Nutcracker Suite" (Tchaikovsky); Herbert Sanderson, baritone, 1.0 to 2.0: Luncheon music provided by the National Broadcasting Orchestra, under the direction of Wm. G. James, (Conductor, Percy Code).

THE LECTURETTE SESSION.

2.0: A. G. Mackay, Ph. C., "The Things we Drink, Cocoa," 2.15. Reproduced music, 2.25: Dr. E. Sweetman, M.A., Litt.D., "Recent Discoveries of Ancient Civilisations," 2.40: Reproduced music, 2.45: M. J. M'Cur, M.A., "The Psychology of Everyday Life."

THE RADIO MATINEE.

3.0: The National Broadcasting Orchestra, under the direction of Wm. G. James, (Conductor, Percy Code)—"Pina's Cave" (Mendelssohn), Freda Treweek, mezzo-soprano; the Metropolitan Fire Brigade Band, conductor, F. C. Johnston, "The Minstrel Singers" (Wagner), J. Alexander Brown, baritone; Orchestra, "Serenade" (Saint Saens), "Finnish Lullaby" (Krook), 3.50: A playlet, "The Proposals of Pezvo," produced by J. Beresford Fowler, He. J. Beresford Fowler, She. Edna Morcom, 4.5: The Metropolitan Fire Brigade Band, "March, 'Simplyity' (Ord Hume), "Sonia" (Gosset), "Leur" (Orchestra), "Scenes Pastique (Godard) 4.30: Close down, 4.45: Evening, transmitted from St. Paul's Cathedral, 5.00: Acceptances and barrier positions for Moonee Valley races on Saturday, 5.35: Close down.

THE CHILDREN'S CORNER.

5.45: "Bobby Bluegum," songs and stories for the little ones, 6.15 to 7.30: Dinner music, supplied by the 3LO Studio Orchestra, 7.30: To-day's news: rates on Change; market reports.

NIGHT SESSION.

7.5: The National Broadcasting Orchestra, under the direction of Wm. G. James, (Conductor, Percy Code)—

Overture, "Rosamunde" (Schubert).
Andante Cantabile from Fifth Symphony—(Tchaikovsky).
8.0: Will Davies, bass—
"Lovely Smile of Sister Kind" (Gounod).
"Sometimes when Night is Nigh" (Lyal Phillips).
"When the King went forth to War" (Koeneman).
8.10: National Broadcasting Orchestra—
"Hymn to the Sun" (Rimsky-Korsakov).
"Spanish Dance" (Hadley).
8.20: Frank Hatherley.
A dramatic recital from the works of "The Canadian Kipling," Robert W. Service.

8.30: Orchestra—

Solo: "A Lover in Damascus" (Findeu).
A POPULAR MELBOURNE SINGER.
8.40: Laurel Cheek, soprano, Old English Songs.
"Lumps and Shepherds" (Purcell).
"Listen to the Voice of Love" (Hook).
"Good Morrow, Grasp Joan" (Hook).
"Polly Willis" (Arne).

8.50: Talking about "Talkies."
Fifteen minutes in a Projection Room: A popular explanation of how the "Talkies" talk.

9.3: Colin Turner, tenor—
"Silent Noon" (Vaughan Williams).
"The Yob, Old Gipsy Man" (Warren).
9.15: Orchestra—
Selection, "Aida" (Verdi).

9.25: St. Paul's Cathedral Handbell Ringers.
9.35: Orchestra—
"Romance," and two dances from "The Conqueror," (German).
"Entrance of the Queen" and "Processional March" from "The Queen of Sheba" (Goldmark).

9.45: "The Harmonious Humorists"—
In a Happy Half-hour.
10.20: News from to-morrow's papers, sporting news.

10.30: "The Rex" Dance Band.
11.30: God Save the King.

3AR

MORNING NEWS SESSION.

10.0 to 10.30. See Friday last.

MORNING MUSICAL SESSION.

11.0: Recordings, 11.30: Percy Grainger, a famous Australian, interprets "Sonata, F. Minor, Op. 2" (Brahms), 12.0: Recordings, 12.20: British Official Wireless news from Rugby. Announcements, 12.30: Community Singing, transmitted from the King's Theatre, Russell Street, Melbourne, 1.48: Close down.

AFTERNOON SESSION.

2.35: Description of the Public School football. Xavier College versus Wesley College, by S. G. Harris, 3.7: Description of the Public School football, 4.15: Further description of the Public School football, 4.37: Final description of the Public School football, 4.45: Close down.

EVENING SERVICE.

6.0: Recordings, 7.10: News session. Announcements, Acceptances and barrier positions for the Moonee Valley races.

NIGHT SESSION.

8.0: Out of the Studio.
8.1: The Strad Trio—
"Suite" (Handel).
"Sylvestre" (Lavater).
"Westmoreland Minuet" (Shields).
8.16: Victor Baxter, tenor—
"Passing By" (Purcell).
"Have You Seen but a White Lily Grow?" (Lelmann).
8.23: The Strad Trio—
"Morceau" (Bowden).
"Think to Me Only" (arr. Cecil Parkes).
"Molly on the Shore" (Grainger—arr. Kreisler).

8.32: Jessie Slimith, contralto—
"Oh, That it Were So" (Bridge).
"Down in the Forest" (Landon Roudal).
8.40: Captain Donald MacLean will continue his series of talks on—
"The Conquest of Peru".

9.0: The Strad Trio—
"Trio, Op. 89 B Flat" (Schubert).
9.10: Transmission from Cairns Memorial Church, East Melbourne—
Concert by the Choir, Organist, Miss E. F. Thurman; Conductor, R. J. Oehr—
Anthem—
"Hark, Hark, My Soul" (Shelley).
Soloists: Miss Louise Thornton and Mrs. Abery.

9.20: Anthem—
"God So Loved the World"—"The Crucifixion" (Stainer).
9.30: Motet—
"Hear My Prayer" (Mendelssohn).
Soloist: Miss Louise Thornton.

9.40: Chorus—
"Gloria in Excelsis" (Mozart).
Duet and Chorus—
"I Waited for the Lord" (Mendelssohn).
Soloists: Miss Louise Thornton and Miss Sadie Cooper.

9.50: Anthem—
"To Thee, Great Lord" (Rossini).
Anthem—
"The Lord is King" (H. J. King).

9.55: Tenor Solo—E. J. Elberidge.
9.40: The Radio Revellers, vocal refrains by Hugh Huxham—
"Pickin' Cotton" (Henderson).
"I'm on the Crest of a Wave" (Henderson).
9.47: Victor Buxter, tenor—
"The Star and the Flower" (d'Hardelot).
"A Brown Bird Singing" (Haydn Wood).
9.54: The Radio Revellers—
"The Magic Violin" (L. Heil).
"Shimanki Da" (Cob).
"Where the Sky Little Violets Grow" (Kahn).

10.4: Jessie Slimith, contralto—
"The Blind Lover" (Keys).
"I Love You More" (Lee).
10.11: The Radio Revellers—
"I Don't Care" (Dowell).
"You'll Recognise My Baby" (Oahn).
"Glad Rag Doll" (Ager).
10.21: "Age" news service. Announcements.

10.30: The Radio Revellers—
"That's Her Now" (Ager).
"Only a Rose" (Friml).
"Can You Blame Me?" (Goodwin).
"Casablanca" (Evans).
"Melancholy Mama" (Shewin).
"Shake That Thing" (Jackson).
"She's Funny That Way" (Moretti).
"Chilly Pom Pom Pee" (Hvran).
"Carolina Moon" (Burke).

11.0: God Save the King.

3DB

MORNING SESSION.

11.0: Time Military Bands and famous baritones.
11.30: Famous dance bands and entertainers, 12.0: Community music and light classical songs, 12.25: Forecast of chief news and features to appear in "The Herald," 12.30: Close down.

AFTERNOON SESSION.

2.0: Symphony Orchestra: vocal quartettes; choral items, 2.55: Atwater Kent hour, 3.55: "Sun-News" Pictorial" news flash, 4.0: Close down.

EVENING SESSION.

5.30: Children's hour, "Bobby Bluegum."
6.30: Arthur Prior's Band.
Harold Williams.
Hubert Elsdell.
7.0: Paul Whiteman and The Happiness Boys.
7.30: A Wuritzer organ recital.
7.45: Market reports.
8.0: "Memories of the British Isles."
H.M. Grenadier Guards' Band.
Pipe-Major John MacDonald.
Bow Bells.
Ben Davies, tenor.
Walter Kingsley, baritone.
9.0: "Sun-News" Pictorial" hour.
10.0: Quartettes, choirs, and orchestra.
10.30: Slumber music.
10.40: "Sun-News Pictorial" news.
10.45: God Save the King.

4QG

EARLY MORNING SESSION.

7.43 to 8.30: See Friday.

MORNING SESSION.

1.0 to 2.0: See Friday.

MIDDAY SESSION.

3.0 to 4.30: See Friday.

AFTERNOON SESSION.

6.0 to 7.45: See Friday, 7.45: Lecturette, a talk on "Books," by Mr. J. Doyle (M'Leods).

NIGHT SESSION.

8.0: From the Studio.
The 4QG Mouth Organ Band—
Ten Minutes' (Vauclay).
8.10: Jean Naylor (soprano)—
A short recital, including—
"Summer Night" (Goring Thomas).
"Messe Solemnelle" (G. Rossini).
"Robin Adair" (Irish-Scottish Air).
"Babies' Treasure" (R. Tall).
"Heart's Awakening" (Kettelby).
8.25: The Mouth Organ Band—
Popular Numbers.

8.30: Stefan de Polotynski (Polish Conductor-Composer) and Madame Polotynski (soprano), in a recital, including—
Stefan de Polotynski (pianist)—
"Ballade in E Flat" (de Polotynski).
"Hungarian Lute-mezzo" (de Vauville).
Madame Polotynski (soprano)—
"Ma Curly Headed Babby" (Plantation Song).
"The Sledge-driver" (Gipsy Romance).

Fee Todd (sopranoist)—
Musical Monologues—
"The Little Red Ribbon" (Blascheck).
"Shut Up" (Townsend).
8.51: A. N. Falk (baritone)—
"Farewell in the Desert."
"Invictus" (Hulst).

9.0: Metropolitan weather forecast.
Movements of the Travelling Dental Clinic.
9.5: The Mouth Organ Band—
Another "Ten Minutes' Entertainment."
9.1: Stefan de Polotynski and Madame Polotynski: A Recital, including—
Stefan de Polotynski (pianist)—
"Viennese Melody" (Gaertner).
"Schoen Rosmarin" (Kreisler).
Madame de Polotynski (soprano)—
"The Wind" (Ukrainian Folk-song).
"Hrechanyki" (Ukrainian Folk-song).

9.30: A short recital of Electric Records.
10.0: News supplied by the Metropolitan Dailies.
Weather information. Close down.

5CL

MORNING SESSION.

11.15 to 2.0: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EVENING SESSION.

6.0 to 7.45: See Friday.

NIGHT SESSION.

8.0: Chimes.
8.10: A Studio Concert.
Artists:
The Crescent Trio.
Jean Finlay, pianiste.
Vera Jurs, violiniste.
Guido Giacchino, cellist.
Wilfred Thomas, bass.

9.5: Annual Dinner and Intercollegiate Concert.
10.15: News session.
10.25: Modern dance music.
11.0: Close down.

6WF

10.0: Tune in. Records, 11.0: Close down, 12.30: Tune in, 12.35: Markets, news, etc. 1.0: Time signal, 1.1: Weather bulletin, 1.2: Organ recital by Mr. E. S. Craft, relayed from Wesley Church, 1.20: Community singing relayed from Wesley Church, 1.80: Programme continued from the Studio, 2.9: Close down, 3.30: Tune in, 3.35: Musical programme, Vocal items, 4.30: Close down, 6.45: Tune in, 6.48: Bedtime stories by Uncle Duffy, 7.5: Light music by the Radio Trio, 7.30: Commercial and general information, 7.45: Talk by Professor R. G. Cameron, M.A., 8.0: Time signal, 8.1: First weather bulletin, 8.3: Band concert by the Salvation Army Silver Band, 8.50: Late news items, station announcements, late weather announcement, late weather bulletin, 9.5: Band concert continued from the Studio, 9.45: "Health" talk by Mr. H. Hatton, 10.30: Close down.

104.5 METRE TRANSMISSION

Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL

11.30: Musical selections, 11.34: Midlands weather forecast, 11.35: Musical selections, 11.55: Tasmanian stations' 5 a.m. weather report, 12.0: G.P.O. clock chimes the hour, 12.1: Shipping information Ships within wireless range. Mail notices. Housewives' Guide. Commercial news, 12.8: Musical selections, 12.30: Announcements, 12.35: Musical selections, 12.55: News service, British Official Wireless news, Railway auction produce sales, held at Railway, 1.0: Musical selections, 1.30: Close down, 3.0: G.P.O. clock chimes the hour, 3.1: Musical selections, 3.4: Weather information, 3.5: Musical selections, 4.15: A representative of the Child Welfare Association will speak on "A Little Invalid," 4.30: Close down, 6.15: Musical selections, 6.30: Betty Braithwaite will play the piano for the week folk: "There's a Rose That Grows in Your Garden" and Schubert's "Adele," 8.45: Musical selections, 7.0: Answers to letters and birthday greetings, 7.5: "The Story Lady," 7.15: News session, 7.30: Under the auspices of the "Come to Tasmania" Organisation, Phil O'Reilly will speak on "Boxing," 7.45: W. H. Cumine will speak on "Soccer," 8.0: G.P.O. clock chimes the hour, 8.1: Musical selections, 8.15: 7ZL Community Singing—Quartet by E. Rowe, H. Foster, H. Allen, B. Thompson, solos by Fred Kummer, (tenor), Harry Foster (tenor), Mabel Veates (contralto), 8.0: Vivian Whitton will sing "One of his noblest findings," "A Love Passage" by W. W. Jacobs, 9.15: Community Singing (continued), 9.30: News session, 9.45: Musical selections, 10.0: G.P.O. clock chimes the hour, Close down.

Double capacity 60-volt
"B" Batteries, 13/6

Popular Quaker Condensers
—all sizes,
.0005, 7/6; .00035, 7/3;
.00025, 7/.

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Transformers,
6/9

Vitreous Enamel Voltage
Dividers for "B" Eliminators,
14/6

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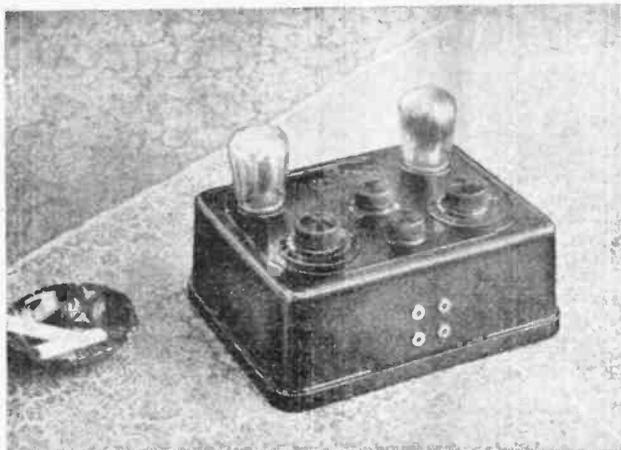
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312 FLINDERS ST., MELBOURNE.

The WIRELESS WEEKLY RADIO INFORMATION SERVICE

Under the direction of Ross A. Hull

F.X. (Kurri Kurri).—This would cost you more to build than if you went out and bought the transformer on the market, and as there are so many complications which would arise under the average man's construction we would not suggest this attempt on your part.

B.A.V. (Norwood).—You have been fortunate enough to get the grounded side of the line, but it will be much safer if you place a condenser in series with this ground to the fire-escape. This won't hurt your set in any way, and the battery will charge as usual.

P.N.A. (Darlinghurst).—This kit has given excellent results when wired correctly. One of the secrets in getting good reception from kits is to follow the instructions carefully, especially as to the different parts required. Often a fan will substitute another make part and then blame the poor results on the kit itself.

L.A.T. (Borewood).—The first thing to do would be to test out the valve. This should be done by some one in a radio store with the proper metres. If you find the valve O.K., have the eliminator tested with an eliminator meter. Perhaps the trouble is in your unit itself. If so, you will have to have it repaired.

P.N. (Christchurch).—If the receiver delivers a large amount of volume to the first stage audio amplifier, this type of amplifier will handle it with good success as far as clarity is concerned. The volume is divided so that the two valves handle it with ease. As the audio circuit is designed right, the push-pull will deliver music to the speaker without any trace of distortion. It is not necessary to have push-pull amplification, but is a decided advantage in handling heavy volume.

D.A.F. (Leichhardt).—The first thing to do would be to shorten the aerial, and if you have an unusually long lead in, try to trim it so that it would be shorter. If the aerial is shortened and does not overcome it entirely, try a small condenser in series with the aerial lead in. This will often sharpen up tuning. Sometimes a counterpoise in place of the regular ground will aid you in getting rid of broad tuning. This is nothing more than another aerial, which can be either underneath the other one or just wire run around the room. If you try all of these suggestions and still are bothered, a wave trap will have to be installed, which should help you get rid of the undesired station.

H.I. (King's Cross).—The dynamic speaker can be used with success with either type of current. It is natural that the AC type will give less trouble and will not cause any additional strain on your storage battery. Some of the six-volt type gives perfect reception, while the AC type has a smoky hum. This is mainly personal opinion, however, as we have noticed either type giving good satisfaction.

T.N.A. (Adelaide).—It would not be advisable to do this with this unit, as the cost would be greater than the good derived from the charge. It would be better to leave it as it is or sell the old unit and purchase a modern A and B eliminator.

D.B. (Bronze).—You would require a two-stage amplifier to make this set operate a loud speaker. It would not require any changing of your one-valve set; just add the amplifier to the phone terminals on your set. The loud speaker connections are taken to the amplifier. The parts needed would be connection wire, binding posts, two B cells, two rheostats, loud speaker, ninety volts "B" battery, a 4½-volt "C" battery and two additional valves. You would also need additional "A" batteries to supply the two extra valves which you would use now. It would be a good plan to look into one of the radio shops and see if you could purchase a ready-made amplifier entirely built. This would probably be reasonable as buying the parts and putting it together yourself. The wiring diagram has appeared in this paper many times.

F.K. (Ballina).—We are holding two letters for you, also two QSL cards (worth having!). Please send stamped addressed envelope.

A REGULAR READER (South Australia).—See above.

H.C. (Glennel).—See remarks to F.K. (Ballina).

VALVES (Newtown).—Try rejuvenating them yourself. Multiply the normal filament voltage of the valve by three. This will be the flashing voltage. Easy for instance, B7C is to be rejuvenated. Filament voltage of this valve is 6.5. Flashing voltage will be 19.5. A.C. from a bell transformer can be used. Leave 12 volts on the filament for three seconds, then reduce to 6 volts for two seconds, then burn at rated filament voltage (termed the ageing process) for half an hour, or longer, depending on the condition of the valve. A valve that has totally

lost its emission or that has a broken filament cannot be rejuvenated.

GENERAL.—"I see in your 'Radio Information Service Columns' there are several inquiries for back numbers of your paper. I have WIRELESS WEEKLY from 1927, and these can be had by anyone paying for postage. I have seen several inquiries for back numbers of RADIO also. As I have quite a number of these any reader may obtain same under above arrangement."—Arthur M'Lauren, "Delmont," Mort Street, Toowoomba.

J.E. (no address).—Midget condensers cannot be used unless coils are adjusted. If you wish to use midget condensers suggest you follow out instructions given in the "S.G. Midget R.F. Four" article. Other components O.K. "Impedance coupled" is merely a highbrow way of saying "choke coupled."

GENERAL.—Can any reader please forward Mr. R. L. Angus, 27 Dawson Street, Ararat, Victoria, a copy of WIRELESS WEEKLY dated February 1, and copy dated February 8, 1929, for which inquirer will pay postage and cost of copies?

R.L.A. (Ararat).—See above.

R.R.T. (Leichhardt).—Sorry, we have no copies. See below.

GENERAL.—Can any reader please supply Mr. R. Thompson, 53 Tebbutt Street, Leichhardt, with copy of WIRELESS WEEKLY dated February 1, 1929? Inquirer will pay cost and postage.

D.W. (Canterbury).—There is no connection between the primary and secondary. The former coil should be placed about a quarter or half an inch from the latter coil.

H.H.D. (Gippsland).—The Kug crystal receiver.

BZZER (Sydney).—We do not reply by post. The circuit is that of a Hartley transmitter. Condensers C1 C2 and C3 will have a capacity of .0005 mfd. Tappings will depend on wavelength being used, and size of coils. C1 and C2 adjust the aerial and counterpoise. C3 (with assistance of tapings) alters the wavelength. Different coils will have to be used for different wavelengths. Cannot give you data on coils unless you give coil sign and full address.

T.G. (Riverstone).—Yes, transformer could be used in the amplifier. See "Proving Radio" article on amplifiers, 90 volts.

"AERIAL" (Wingham).—Valve arrangement O.K. Yes, eliminator mentioned will be suitable.

H.I. (Abermain).—The output would vary as the input varied. Half an ampere, 100 feet, including lead-in.

J.B. (Rose Farm).—Both good batteries. Advise you to write to dealer W. H. Wiles, who will give you any further information required.

H.D. (Aibury).—Build "All-Enquire," which is a Go-Getter with S.G. R.P. stage added. Try a 0-100-000 ohm variable resistance across secondary of last transformer. S.G. valve used would depend on type at present being used in the set. Thank for offer of copies. See below.

GENERAL.—Mr. H. Dixon, 477 Olive Street, Albany, N.S.W., advises he has back numbers of WIRELESS WEEKLY from March 7, 1929, which may be had by readers calling at his address.

R.G. (Mayfield).—Probably a faulty valve, detector, or R.P., or incorrect windings for reaction. Try a .001 fixed condenser across primary of first transformer.

GENERAL.—Would any reader having a copy of WIRELESS WEEKLY or RADIO containing the article on the Martin Screen Grid Five kindly sell same to Mr. Jack Rice, River Street Ballina?

J.R. (Ballina).—O.K. See above.

W.N.S. (Clarence River).—To alter Reinartz to one control, a fixed condenser of .00025 mfd. could be used in reaction, but a Bradelyohm should be used in detector filament in order to control reaction. Connect aerial to top of secondary, and earth to bottom of secondary to broaden tuning, leaving primary disconnected. Lengthen aerial. Maxprice was intended only for strong reception of local stations.

B.G.L. (Queensland).—See supplement of stations to be heard on long and short waves recently given away with WIRELESS WEEKLY.

W.C.S. (Brisbane).—75 turns on a two-inch former. **J.C.B. (Parramatta).**—They can be obtained from Washington H. Soul, Elliott's, and other manufacturing chemists. However, they are very expensive, and you could easily make one for a few shillings, as described in "Proving Radio" several issues back.

R.C. (Auburn).—Primary, 15 turns. Space, quarter-inch. Secondary, 47 turns. Space three-eighths of

an inch. Reaction, 25 turns. 24 gauge D.C.C. 3-inch diameter former. Transformer ratio, 5-1. Main tuning condenser .0005, reaction condenser .00025.

R.P. (Victoria).—Eliminator O.K. Up to 150 volts. No. condensers will not give greater output. Condensers merely steady the output and filter the ripple. Good results. Voltage of this type eliminator can be increased by using special rectifying valve instead of 20A.

W.L.C. (Sydney).—Wrong grid bias, valve lost its emission; flat batteries, or faulty transformer.

C.L.W. (Wahroonga).—Try the Renown Three. Wave-trap mentioned will not be necessary, as Renown incorporates a wave-trap in the circuit.

W.R. (Stanmore).—Think you will find speaker is faulty, that there is a loose connection somewhere (look in connections on accumulator), that valve or valves are not seated properly, that condenser plates touch, that speaker cord is frayed, or that there is dust between plates of condensers. Any of these would cause the trouble. It is quite O.K. for inter State stations to fade.

W.R.C. (Auburn).—Suggest Marnock Five or Martin Screen Grid Five. See below.

GENERAL.—Can any reader please supply W. R. Clarke, "Lillian," Albert Road, Auburn, N.S.W., with the following copies of WIRELESS WEEKLY: No. 2 (January 4), No. 4 (January 18), No. 5 (January 25), No. 7 (February 8), and No. 12 (March 15, 1929)? Inquirer will pay for all copies.

H.M. (Homebush).—Sorry, no room at present for circuits. May start giving questions and answers with circuits, etc., in few weeks now. Bell transformer and two 201A's in parallel with filter will give approximately 50 mls. Approximate cost of transformer giving 250 volts either side of centre tapped secondary, and filament centre tapped winding, would be about £5, depending on current required.

"MARCOS" (Hurstville).—Has not appeared yet. Faulty valve. The Phillips A425 is an R.F. valve.

W.C.R. (Wallsend).—A complete list of all the latest radio books was recently published in queries. Suggest you write to Messrs. Angus and Robertson, Castlereagh Street, Sydney who will be pleased to forward you a list.

U.C.S. (Concord).—24 gauge wire. A415. See below.

GENERAL.—Can any reader please supply Mr. R. C. Searle, 58 Burwood Road, Concord, with a copy of WIRELESS WEEKLY containing the Countryman's One Valve?

GENERAL.—Can any reader please supply Mr. F. Goggin, 18 Quinlan Road, Manly, with a copy of WIRELESS WEEKLY dated February 1, 1929 (Vol 13, No. 6)?

DISTRACTED (Maryborough).—You will probably find that the partial connection of the condenser is worn, or that a loose connection is present. Perhaps also, the plates of the condenser are slightly bent.

QUERY COUPON

If you are in difficulties about reception or set-construction, let us know, and we will endeavor to help you, if you are in any way unable to do so. Make your questions brief to the point, and, where possible, show lay-out and wiring design. Under no circumstances will we send answers to queries by letter or by telephone. All answers will appear in the columns of this department of this paper in the order in which they are received.

The Radio Information Service
WIRELESS WEEKLY
Please answer the accompanying queries in this coupon in order to facilitate our information service department in our efforts to help you.
This coupon is a bona-fide reader.

C.P.O. Sydney

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'Phone M3004

A.C.H. (Hunter's Hill).—Sorry we have no room for circuits at present. Suggest, instead of your idea, you follow out the Marnock Five circuit, or, if you intend to stick to the Neurodync, build the R.F. stages as per the Marnock.

"HAM" (Essendon).—This method of modulation requires a speech choke in series with plate or modulator (other side of choke to B plus). Suggest you place microphone, battery and switch in primary of modulation transformer, so that pick-up or microphone can be used at will. Ham notes are now appearing. Earnestly advise you to spend a few hours with the A.R.R.L. Handbook and a few QST's.

L.A.A. (Waverley).—Parts all O.K. Reception of interstate stations during daytime is always more difficult than night reception. Eliminator O.K. Yes, eliminator could also be used on Renown Three. No, would not advise you to change. Reaction condensers O.K.

K.M. (Mackay).—Yes, the Repown. No need to alter circuit. Merely add wave-trap. 3½-1 transformer could be used in place of 5-1. Yes, .0035 condenser O.K. for reaction. Slight loss in volume using transformer with lower amplification ratio. Re request for back number, see below.

GENERAL.—Can any reader please supply Mr. K. Mitchell, Paradise St., Mackay, with a copy of WIRELESS WEEKLY dated January 4, 1929?

G.E. (Ararat).—201A's are working under rated filament voltage. Will harm valves in time. 24-gauge wire for Countryman's One coil.

R.T. (Forbes).—Yes, it is quiet possible. The Japs. are coming through well at present. It is more than likely that the station you heard was JOAK.

A.H.M. (Bexley).—Glad the receiver exceeded your expectations. Try the .0001 condenser in series with the aerial, the two 1 mfd. condensers connected in series and placed in parallel with the "B" battery, the .006 condenser across the primary of the first transformer, or across the secondary of the last transformer, and the .00035 condenser across the loud-speaker.

D.D. (Glenisland).—Yes, see the article on the "Peridyne" or "Gloomchaser".

N.E.C. (Gurley).—A circuit that would fulfil your requirements was published three or four weeks ago.

W.T. (Mascot).—You say "Will you kindly let me know through WIRELESS WEEKLY which is the best set to build—Marco Four or a Reinartz Four?" It was letters such as these that started Mr. Hull on his recent article "Common Sense about Circuits". The Reinartz Four is a Marco Four, in the same way that a "Peridyne Five" is a "Gloomchaser Five".

E.G. (Waverley).—Faulty resistor. It is not necessary to place insulating tape between the coil windings.

D.T. (Barraba).—It is a harmonic of 2FC which you hear.

A.G. (Mullumburra).—25 turns will be O.K.

W.L. (Mackay).—No, there are many waiting such jobs. You might have to wait at least five years.

GENERAL.—Can any reader please supply Mr. William Fryer, 76 Shaftsbury Road, Burwood, with circuit of the Inter-State Three?

GENERAL.—Can any reader please supply the query-answer with a copy of RADIO for September, 1928? Will pay cost and postage for same.

H.C.R. (Maroubra).—Yes, as per Marco Four. Use the A415.

"MEWLO" (Sydney).—Try Sunday evening from 10 p.m. till 3 a.m.

J.K.H. (West Ryde).—24 gauge O.K. Colville Moore or Economic Radio may be able to supply blue prints.

I.G.S. (Inverell).—Aerial coil, 20 turns, R.F. plate-roll 25 turns, Detector secondary 47 turns, Reaction 25 turns, Condensers—R.F., .0005, detector, .0005, reaction, .00035.

"BERT" (Rockdale).—Sorry, don't know the set. What circuit is used?

L.A.R. (Punchbowl).—Yes, from Swales Ltd., Pitt Street, Sydney.

W.I.M.P. (Paxton).—Glad my advice enabled you to get your set operating. However, as a great many letters are answered each day, cannot remember what your query was about, and therefore cannot advise further. Please give full details. You did not even name the set.

C.J.D. (Cessnock).—The R.F. Booster Unit, published recently.

L.H. (Belmore).—Remove about ten turns from secondary, and eight turns from primary.

A.P. (Brisbane).—Merely reverse connections to primary of first transformer.

A.M. (Melbourne).—See A.R.R.L. Handbook.

H.A. (Victoria).—No, conditions are very different in America one has merely to apply for a License if unable to sit for the examination, and providing a certificate is supplied stating that morse can be sent and received at the rate of twelve words per minute, the temporary license will remain valid for one year.

A.D.C. (Burwood).—Depends on type valves and type "A" battery used. Please advise. Also state how many hours per day set is in use.

GENERAL.—Can any reader please supply D. Parkley, 21 Donnelly Road, Naremburn, New South Wales, with copy of WIRELESS WEEKLY containing "Proving Radio" article on noise code outfit for transmitting messages 100 yards. Inquirer willing to pay postage and cost of copy.

"ALPHA" (West Maitland).—No, condensers cannot be gauged in this case as filament returns are not common. Yes, S.G. could be used in R.F. stage, as per Marnock Five. Yes, A.C. You ask what I think of the layout, but you didn't enclose a drawing of layout. Circuit O.K. Speaker, No. 1. No, coils would not match. May be able to publish list of intermediates in a later issue.

A.P. (Brisbane).—Questions and answers will probably start again in about two weeks' time.

O.S.L. (Wagga).—See Go-Getter article.

T.G.T. (Cessnock).—Metropolitan Electric Co. can supply metal cans for screening coils.

E.G. (North Coast).—May be frayed speaker cord, or frayed power flex to receiver. See that all house light and power switches are tight. However, the "bonking" may be due to fluctuating power mains, or to the switching on and off of electric lights, etc., in the neighbourhood. There is no remedy for this.

C.B. (Cessnock).—Yes, this was 77L Hobart, One of their sets was "Boys of the Old Brigade."

T.S. (Sydney).—Perdriau Rubber Co., or Dunlop Rubber Co.

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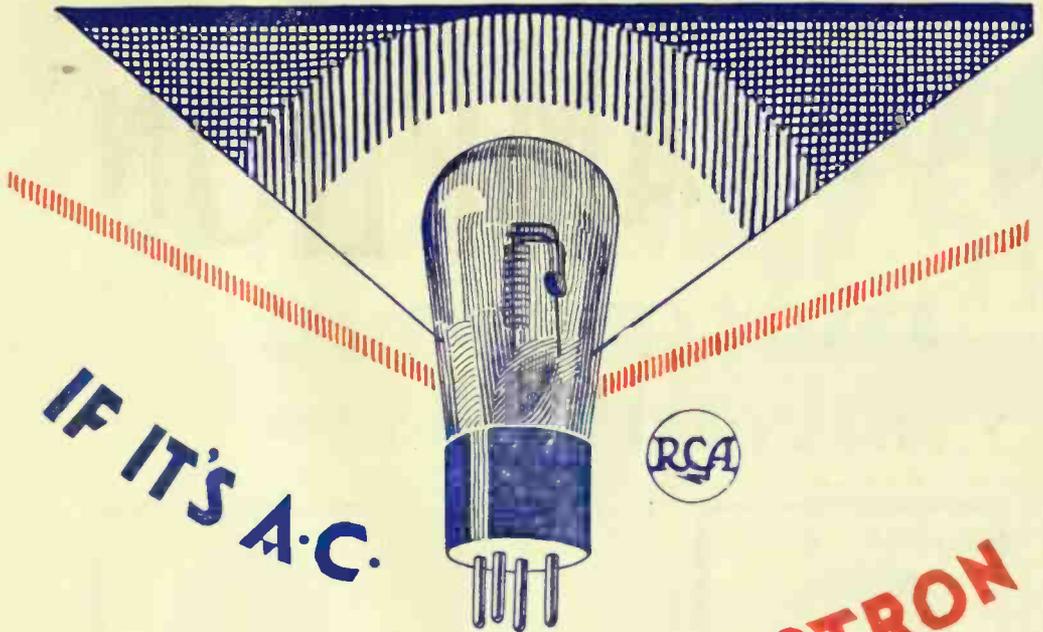
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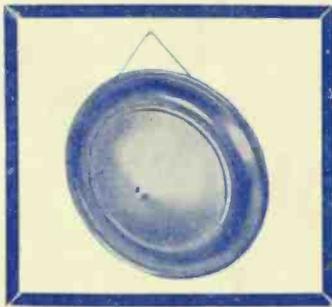
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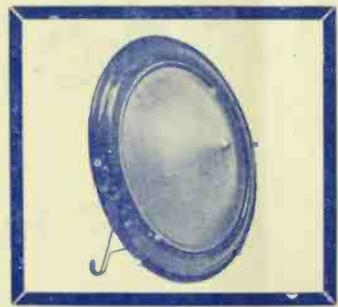
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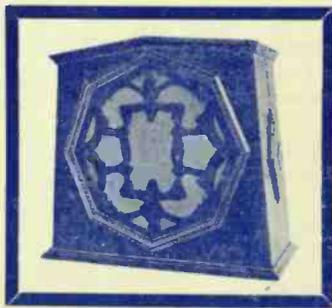


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