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Wireless Weekly 3^d

INCORPORATING "RADIO IN AUSTRALIA & NEW ZEALAND"

VOL. 13, NO. 6

FRIDAY, FEBRUARY 1, 1929

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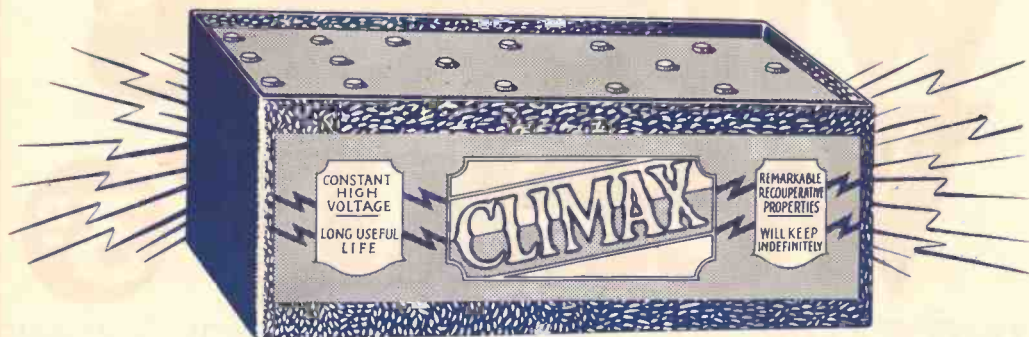
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The "Talkies" Examined

How to Build a Cone Speaker

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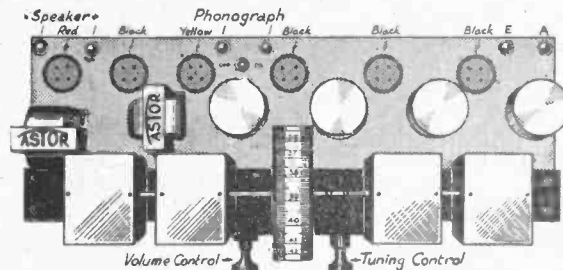
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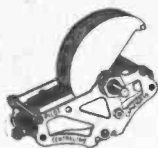
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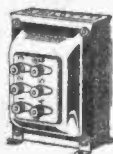
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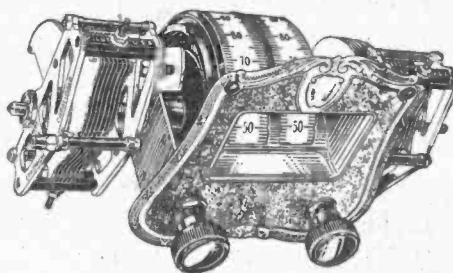


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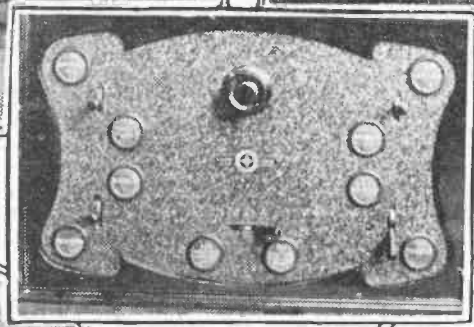
Radio News and Development in Picture



This is the 2FC Studio to-day—three times as large as in 1925, undraped, and scientifically arranged in accordance with acoustic phenomena.



This is the 2FC Studio four years ago. Note draped walls, microphone, and position of artists, and contrast with opposite picture.



No tuning or adjustment is necessary on this self-tuning receiver. The listener simply touches a switch and the necessary station comes in. It is suggested as a development of the future.



The television at the E. Laboratories, U.S.A.
Note scanning disc.



Radio has just been installed at the Woflongong hospital. A patient listening in.

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Uncle Ben (centre), of 4QG, about to "hop-off" on an imaginary trip to Iceland for his listeners.



Clifford Aymoe, youthful operator with the M'Millan Arctic Expedition. Note simplicity of sets used.

BETWEEN YOU AND ME AND THE MICROPHONE

Controversy

FOR the "free discussions" on current affairs that are to feature broadcasting in Great Britain this winter it is said that the following are being matched:—Bertrand Russell and G. K. Chesterton, J. B. S. Haldane and Douglas Jerrold, Bernard Shaw and J. C. Squire, Mrs. Snowden and Lady Astor.

Friend in Knead

"DEAR Mrs. Cranfield," ran the letter, "I would be very grateful if you could give me a recipe for a rich plain pound cake, and also if you will tell me how to preserve peaches. I am very new to housekeeping, and consider the cooking part the greatest of the many mysteries to be solved (Feed the Beast), so you can guess how much I look forward to your talks on the air from 2BL. We should like to hear Husband's views on the greatest mystery. If he were inclined to be uncharitable, he might nominate the eating part. But not, of course, after Mrs. Cranfield has supplied the recipe.



A Sign of the Times

HE was the last word in picturesque rusticity, the gnarled and weather-beaten old man in the potato field—at least, that is what the young novelist thought.

"Good morning!" cried the man of letters. "What a lovely day!"

"Ay," answered the rustic, pausing with his fork and looking up at the sky. "But there's thunder a-coming."

"How do you know?" he asked. "Red sky at morning the shepherd's warning, eh?"

"Dunno nothing about that," replied the ancient. "But it were announced on the wireless last night, an' it's in all the dailies this mornin'."

One Night as Manager

SYDNEY BURCHALL, baritone, who was the bright and particular star at the community singing session broadcast by 3LO on January 28, has played many parts in his time, from Cathedral soloist to the manager of a small touring company. This is the story:—The company of which Mr. Burchall was a member was touring the small country towns of New South Wales, and finally reached Armidale. Funds were particularly low, and, to make matters worse, the manager decamped with the takings. With his usual resourcefulness, Mr. Burchall assembled the little band of players, advertised their plight and necessity, and organised a performance to pay their expenses and return fares. The effort was most successful, and the townspeople responded nobly.

In his capacity as manager, Mr. Burchall took the money at the door, performed in the show, paid all bills and expenses, divided the balance among the company, paid the fares, and departed with flying colors.



No Know?

MR. JACK BARNETT and Miss Dorothy Dewar were rehearsing. "Dearest," cooed Mr. Jack Barnett, "every night I hold your little hand!" "No!" exclaimed the shocked young lady, as Mr. Vern Barnett entered. Mr. Jack Barnett continued the song: "But there's something I can't understand!" "NO!" ejaculated Mr. Vern Barnett, in a tone of shocked surprise.

Parodio

MR. CHARLES LAWRENCE sang the sweet ballad "F.X. 64," a parody on the "Excelsior" of Longfellow, plus Balfe. Soon afterwards a man rang up to yell, among other and unrepeatable things, that "Excelsior" was one of the best poems we have, and look what he had done to it! Had the fellow no respect for the higher things? Mr. Charles Lawrence made his public reply a little later in the evening. He said that, although he didn't write the parody, he wished he had, because he thought it much more suitable to the music than Longfellow's words. "In fact," he said, "Longfellow's wording seems to me rather silly. Here's a maiden asking a young chap to 'stay, O stay, and rest his weary head upon her breast.' And the idiot goes out singing a silly chorus, and obviously without sufficient winter underclothing; because he gets his death of cold in the mountains. And I don't see much sense in being 'lifeless but beautiful.'" From which one may gather that Mr. Charles Lawrence knows his onions.

Reading From the Poets

LITTLE Gladys Harber, twelve years old, came to read poetry during the lunch-hour session for children at 2BL. She read the "Village Blacksmith," "Where the Pelican Builds," and "The Last of His Tribe." She read with long nervous fingers swiftly crossing the page. Because Gladys is blind, and her books are Braille. Her reading was much better than that of a normal child of twelve "I thought it was going to be awful," she said afterwards. "I didn't think anyone could hear me." Everyone heard her quite plainly, we are sure. Too plainly. It is rather pathetic to hear a blind child recite, "They had told me of pastures wide and green."

Fugue A3 Voci

SOMEONE mistook a contralto for a light tenor at 2FC the other night. Which provoked Miss Dulcie Blair, who brings tears in our aged eyes every time she strokes the strings, to remark that contraltos always annoyed her, because it was horrible to think that voices of her own sex could be mistaken for those of the Outrageous Opposite. Members of the Outrageous Opposite grinned quietly when one of them thanked Heaven that very few men's voices could be mistaken for sopranos; and the subject became forgotten.



RADIO TRAGEDY, No 3

*If I were the woman who sings
Over the air each night,
I'd soar like an angel with wings,
And not like that horrible fright.
I'd obey all the statutes of song,
And no one could say I was wrong.*

*If mine were the lot to announce
The news and the weather reports,
I'd cut out all slang-whang and bounce
And take special care with the sports;
I'd be what I am—Natural,
And speak as I'd speak to a pal.*

*If I were a Lecturer, too,
I'd be comprehended by all;
I'd not seek to please just a few;
And the novelty never would pall.
The highbrow with pleasure would
throb,
But I'd also consider the mob.*

*The Programmes, of course, I'd balance,
If I had the programmes in hand;
And Mozart's Concertos would dance
In fugues with Cec. Morrison's Band.
Ah! What a just cause for despair—
I've never gone over the air!*

Artistic Renderings

WHEN things are particularly dull in the control room the bored inhabitants amuse themselves by conducting whatever band is playing. Everyone has his style. Mr. Tom Innes conducts in the manner of a man he calls Bavanyoly. One gathers the impression from his disciple that good old Bas is somewhat impetuous during crescendo passages, although always most effective. But we think he would question the propriety of conducting the "Dead March in Saul" to waltz time. Mr. Jack Barnett has his own style; he is a really-true conductor. Yet he can give a passable imitation of Ted Henkel when the occasion warrants it. His most passionate rendering is of "Just Like a Melody." We have wept to hear—to see . . . Mr. Vern Barnett has a dainty action. He is elegance itself. This master of the art moves only his hand, the forearm being very stiff and rigid, while the index finger describes intricate curves. As soon as he takes up the imaginary baton his expression becomes base, and he looks superciliously, through half-closed eyes, on the absent orchestra—till you begin to laugh. Mr. Vern Barnett's favorite number is Paderewski's "Minuet." Mr. Basil Kirke has been known to weep during his conductorship of the second theme. There are others who attempt to conduct; but they have not sufficient mastery to be worth our notice.



CINE SOUND

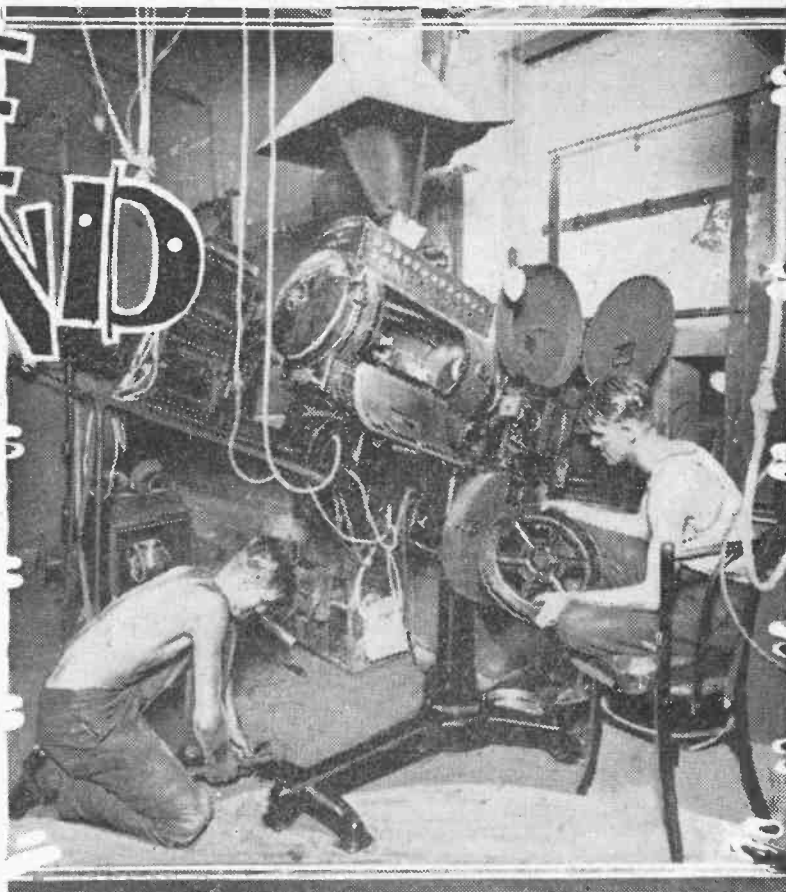
The remarkable progress made in recent years in radio amplification makes possible this application of the "movie-talkie" principle—not mechanical ingenuity alone. Cinesound is here examined and reviewed from a radio point of view. Next week we will examine the other method of talking pictures.

By DON B. KNOCK
(Associate Technical Editor)

ABOUT two years ago I visited a motion picture theatre in Sydney and heard for the first time in my life a synchronised film, depicting a singer indulging in a rendering of the old-time melody, "Home, Sweet Home." Radio engineers did not know what they do to-day regarding true amplification, and whether the fault lay with the system of recording or the amplification I did not trouble to inquire, but I left the theatre with the impression that the singer was suffering from asphyxia. So much was the apparatus in an experimental stage that it would have been far better to have delayed the exhibition to a critical public.

When the systems of Cinesound films were advertised for exhibition in Sydney motion picture theatres, I naturally was prepared for anything, but did not expect the perfect surprise which awaited me. To all intents and purposes an ordinary screen, but a screen on which artists and orchestras came to life, and seemed to impress one with reality. The whole feeling is uncanny, and gave me the idea that only a stereoscopic production is required to bring out the portrayed objects in relief, when the illusion would be complete.

Technical-Supervisor
Lyll,
who came from
America to
install the
"movie-talkies."



Installing the Cinesound synchronous projectors.

Sitting in the theatre, watching the screening of "The Jazz Singer," my thoughts reverted to the years of 1908 to 1910, when the cinematograph or bioscope was beginning to arouse interest in the public of Great Britain. Flickering, dancing, head-achy films were placed before the public, and I well remember how, in most cases a lecturer accompanied the film and explained diligently "how the young curate was trying to turn the girl from her downward path, etc." One film showed Wilbur and Orville Wright's first successful aeroplane in flight, and the lecturer went to great pains to explain that it happened just as we saw it on the screen, which was anything but correct, as no aeroplane flies in jerks.

Memories of these pioneer films flashed across my mind as I marvelled at the Cinesound productions, and, not unnaturally for a radio engineer, the desire to examine the projecting and synchronising apparatus was uppermost. By the courtesy of Union Theatres, Ltd., a comprehensive technical explanation by Technical Supervisor Lyll was my luck. Mr. Lyll has literally lived with the Western Electric Cinesound apparatus since its inception in America, and the words "synchronisation and amplification" are his pets.

The installation at the Lyceum Theatre is in duplicate to meet any emergencies, which, so far have not arisen. The Municipal 240-volt direct current supply provides the source of power, and this is taken through a rotary converter delivering 110 volts alternating current. Exide accumulators provide the filament voltage for the amplifier valve filaments, one bank being continually on charge while the other is in use.

The heart of the whole system actually lies with the unique synchronous AC motor actuating the recording and projecting mechanism. This motor is of special design, and is so efficient that it cannot possibly vary in speed. It is provided with a shaft projecting from both ends of the casing, one end driving the film projector, and the other end the recording disc.

This recording disc rotates at a speed of 33 revolutions per minute, the record (not unlike an ordinary gramophone record in appearance) being made at this speed at the same time the film is "shot." An electrical pickup runs over the record in the usual way, the output from this being shunted by a potentiometer control which is within easy reach of the operators.

These records are not used more than a few times each, and the moment any imperfection occurs, the record is replaced by a replica. It should be obvious that, motor drive to the projector and disc being constant, and the record locked in its correct position on the disc, the synchronisation of the two is perfect, and this cannot be deviated from in the slightest degree.

From the pickup the recorded impulses are fed to a super-amplifier, operating at a plate voltage of 350 volts. This amplifier includes monitoring and overload indicators, and the final output is in push-pull, and uses four Western Electric type 211D valves in parallel push-pull. In appearance they remind one of the well-known American 50 watter, used by so many experimental transmitters.

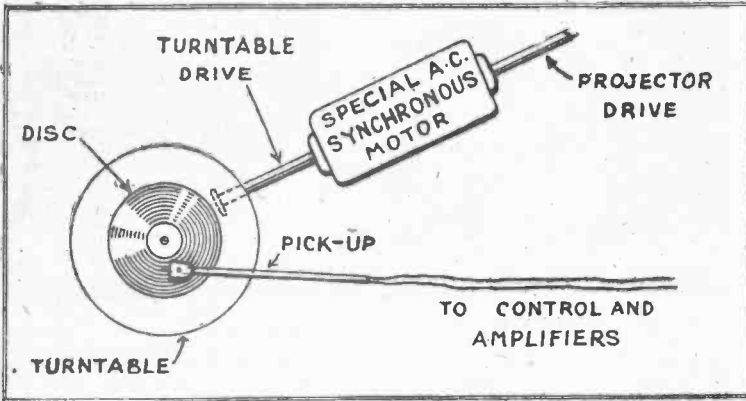
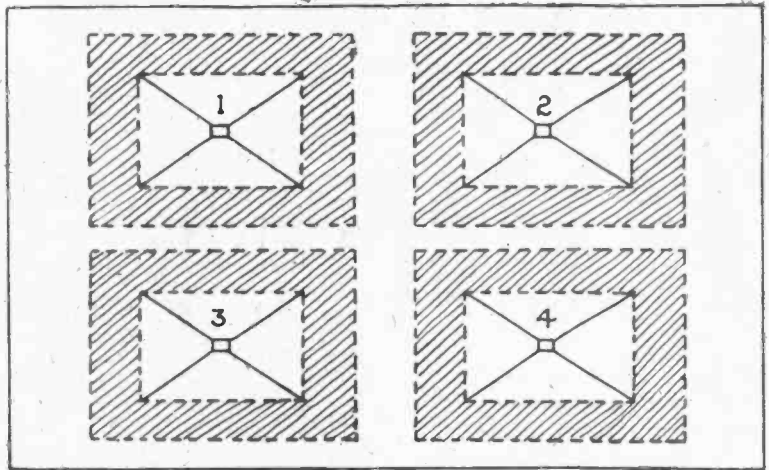
Running from the projecting room to the back of the screen are 10 cables. Eight of these cables supply the speech and music in-

put to the reproducers, and the other two the field voltage. Looking at the screen from the auditorium, it looks the same as any other 'movie' screen, "but thereby hangs a tale." The screen is porous, and behind it are fitted, equally spaced, four Western Electric Exponential moving coil loud speakers, or reproducers.

Each reproducer is fitted with a baffling of acoustic felt, which surrounds the mouth of the horn for a considerable distance. Distortion in this system of amplification is simply non-existent, and the effect of seeing a singer's mouth move and hearing actually at the same time the words the singer renders, is truly remarkable.

In the picture, "The Jazz Singer," Al Jolson seems to sing out directly at one, and it is difficult to realise for a time that he is not there in person. America dubbed the cinema the "movie," and now she has, with her characteristic slang, given the Cinesound the title, "talkie."

One hears that Filmland has gone "talkie" mad, and from my own impressions, it is not surprising. With such perfect repro-



duction it is little wonder that the great film-producing companies have realised the immediate necessity for elocution schools for many of their existing stars, whose voices at present would completely disillusion the audiences of their previously silent drama.

The "talkie" has come to stay, and with it arises the necessity and opportunity for actors and actresses who are able, to speak "The King's English."

Above: Showing how the four exponential moving coil loud speakers are placed behind the porous screen in order to give reality to the synchronisation of lip movement and words.

A schematic diagram, showing how the Cinesound disc and motor operate to give perfect synchronisation.

New Programmes at Interstate Stations

Diana Belmont Returns

DIANA BELMONT, who is about to make her debut at 3LO, is the fortunate possessor of a rich contralto voice, which she uses to great advantage in the broadcasting studio. Her perfect diction and sympathetic interpretation add to the very real artistry of her singing. Miss Belmont has done much good work with the Gilbert and Sullivan Opera Company, and has recently returned from a most successful season at 5CL, Adelaide, where she greatly added to the reputation gained on the operatic stage.

Landscape Gardener to Broadcast

AN interesting talk will be given from 3LO on February 3 by Mr. H. Linaker, who will speak of the arboretum at Mount Dandenong. The Arboretum, which has been the "nursery" of many of the fine trees that line our well-known thoroughfares, is one of the show places of Mount Dandenong, and this talk on the cultivation of young trees and shrubs should appeal to all lovers of forestry and gardening.

Popular Entertainer at 3LO

COURTNEY FORD, who has gained much reputation as a mirth-maker in Adelaide, has come to Melbourne to add to the humor of the programme, and will make his debut at 3LO on February 4 in selections from his repertoire, many of the numbers being the work of his own versatile pen.

Pirate Talker Relieves Brother Bill

CAPTAIN DONALD MacLEAN, who is taking brother Bill's place during the holidays, has prepared a little surprise for his young listeners on Sunday, February 3, when he will give what he calls a "Scorpion Tale"; that is, a story where the little bit of moral advice, or "sting," comes right at the end.

Choral and Organ Recital

A COMBINED choral and organ recital will be broadcast by 3LO from Scots' Church on Tuesday, February 5, when an excellent programme has been arranged. Special selections will be given on the organ by Mansley Greer, and the choir, with the well-known quartet—Miss Annie Cadell (soprano), Mme. Gregor Wood (contralto), Colin Thompson (tenor), and Leslie Paul (bass)—will be heard in three unaccompanied motets by Tertius Noble. The recital will close with the inspiring "Inflammatus" from Rossini's "Stabat Mater," with soprano solo by Miss Cadell, and listeners who are interested in choral and organ work should not miss this splendid programme.



Mr. Mansley Greer.

Harcourt Bailey at 3LO

A BRIGHT and breezy programme is promised by that ever-popular entertainer, Harcourt Bailey, who, in connection with "The Sundowners," will be heard from 3LO on February 9, in a specially selected programme of mirth and melody. "The Sundowners" are too well and favorably known to listeners to need more than a passing mention in these pages, and Mr. Bailey, who can turn at will to subjects grave or gay, is never at a loss to find something that will entertain and amuse his wide circle of admirers.

2FC Competition

THE 2FC Competitions have proved a big attraction to listeners. They will be continued on Thursday of each week, throughout February. Mr. Scott Alexander commenced the series, but he was called suddenly to Melbourne to fill the role of the Portuguese Captain in "White Cargo" (which he played for fourteen months in Sydney), and consequently Mr. Billy O'Hanlon was called on to take up the little "mystery stories" which have so intrigued listeners. The winner of the "Gold Quest" was Mr. P. H. Thomson, of "Golden Milestone," Cattai Road, Glenorie, and the successful entrant in the second competition was Miss Essie Webb, of Broughton Street, Camden.

When Jove Laughs

We have harnessed electrical force in small voltages and we have discovered how the ether may be used to transmit messages. But still the ancient God of Thunder and Lightning laughs at our puny efforts, and every now and again sends a destructive bolt to fill us with awe for his might. But man has refused to recognise his mastery, and war has been declared upon lightning by electrical science; and our preparations for the forthcoming iconoclastic battle are told in this article.

DECLARING that not until science has found an adequate way to combat the ravaging effects of lightning on transmission lines will all the benefits and economies of super-power be available to the electricity consumers of the world, A. L. Atherton, of Pittsburgh, electrical engineer for the Westinghouse Electric and Manufacturing Company, made an urgent plea recently for a mobilisation of the entire electrical industry to wage a gigantic scientific war against the mysterious foe in the skies.

"It is a fact known to all students of the power industry," the speaker declared, "that great benefits can be secured in power distribution if the long-cherished dreams of super-power are fully realised. Super-power, which means the inter-connection of many power systems so that the greatest sources of supply are linked to the greatest demands, is recognised as being capable of improving utility operation tremendously.

"However," Mr. Atherton said, "there is this important point about super-power systems—they must be dependable, far beyond the usual meaning of the word. Twenty-four hours out of every day, 365 days every year, we must rely upon them to give continuous, uninterrupted service. If trouble develops on a super-power system it is not a home or an hotel or a city ward that is



deprived of electricity, but a city, a county, or half a State.

"JOVE LAUGHING UP HIS SLEEVE"

"With our present extent of knowledge, and our present types of protective equipment, the electrical engineering profession cannot guarantee the absolute dependability of high-power transmission lines stretching hundreds of miles. Our inability to do so is spelled by one word—lightning. Although gallant attempts have been made by many able men of our profession, we have yet to conquer our mighty enemy who lurks in the thunder-clouds.

"While we mortals struggle to generate and distribute what seems to us enormous amounts of electricity, Old Jove, seated on his ethereal throne, laughs up his sleeve. We raise hundreds of towers into the air, string thousands of miles of metallic conductors along them, send 220,000 volt current through the wires, and then stand back and think how wonderful it is. But Jove, with a contemptuous snicker, spits out a bolt of a half-million or 20 million volts, and blows our lines galley-west.

"Our big problem, then, is to tame lightning, to build a trap which will transform it from a wild, destructive beast to a docile pet.

NATURE OF LIGHTNING UNKNOWN.

"Heretofore our efforts to stave off the damaging effects of lightning have not been wholly effective because no one clearly understood what lightning is, where it comes from, how long it stays, where it goes, and how it behaves. A knowledge of the nature of a foe is essential before you can fight him, and we have never had that knowledge.

"We are confident that in the war of science versus lightning the same rule will apply as applies in every other war, namely, that for every offence there is a possible defence. Before we can develop a defence, however, we must gain an understanding of the opponent's offence. That is the first step that must be made in our campaign to overcome lightning. We must gain a practical working knowledge of its habits, and then,

with that knowledge as a starting point, plot ways and means to fight it. When we obtain that knowledge, our chances of eventual success will be good. It is the history of American industry that once a problem is clearly defined its solution is not long in forthcoming.

ESTABLISHING AN OUTPOST.

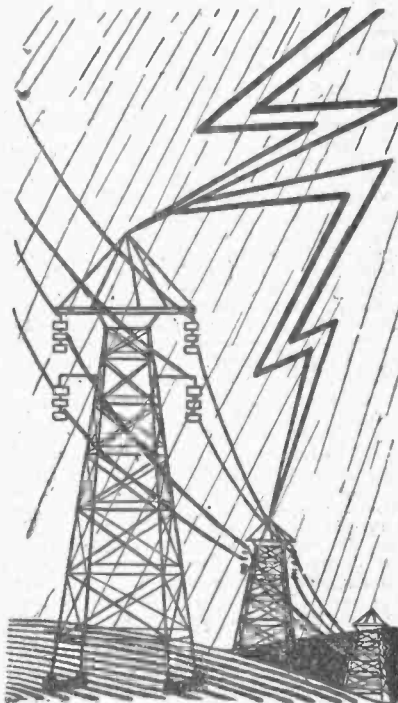
"Now, for the first time in history, we have the means at hand of obtaining the necessary knowledge about the customs, quirks, and moods of lightning. In a lonely mountain spot in Tennessee, said to be the stormiest section in the United States, the Westinghouse Company has, since last spring, been conducting the most comprehensive study of lightning ever attempted, and this study, in addition to revealing several startling and hitherto misunderstood facts about lightning, has given definite assurance that certain scientific instruments developed especially for this purpose are capable of providing all the information necessary to a working knowledge of lightning's characteristics.

"Chief among these instruments is the cathode ray oscillograph, developed after years of research by Dr. Harold Norinder, of the Royal Board of Waterfalls of Sweden, and just recently acquired by the Westinghouse Company. With this device, supplemented by osisols, klydonographs, and cameras, it has been found possible to record instantly, automatically, and accurately the effect of each lightning flash.

"In their researches in Tennessee the Westinghouse engineers have secured data the analysis of which will undoubtedly lead to a fuller knowledge of lightning and its relation to high power transmission lines than has ever before been available.

"These facts, however, apply only to the particular lightning flashes that were measured in that particular section. While of tremendous interest, they are far from sufficient for a complete understanding of lightning in all its phases. Such an understanding can be reached only if similar data are obtained in a hundred testing stations scattered over the country and equipped with the necessary instruments. With such a set-up, we might reasonably hope to secure sufficient facts to enable us to go forth actively against the enemy.

"To carry on such a widespread investigative campaign effectively, efficiently, and properly, the co-operation of every major interest in the electrical industry is needed. It is to secure this co-operation that the proposal is offered for the launching of a vast joint effort, under the direction of an existing organisation or an organisation as yet unformed. It would be the function of this organisation to carry on researches at many different places, and to analyse and collate all the facts thus obtained. When this task has been finished the industry would doubtless be able to proceed from that point to a satisfactory solution of the lightning problem.



GETTING THE AUTOGRAPH OF A LIGHTNING FLASH.

"That the needed facts about lightning can now be obtained is attested by the great success the Westinghouse Company has had in its Chilhowee Mountain investigation, which is still progressing. Early in the investigation there was obtained for the first time in history a complete authentic autograph of a lightning flash on an operating high voltage line. The records show when it occurred, how long it lasted, how far distant the lightning was, its voltage, its effect on the power lines—in fact, everything necessary for full analysis.

"It was found, for example, that the over-voltage on the line continued for 50 millionths of a second. Prior to this actual determination, we have had to guess as to the duration, and the guesses ranged from a few tenths to a few hundred millionths of a second in duration.

"It was found, furthermore, that while many lightning storms may occur in a general locality, only one or at most a very few in a year will have any effect on a power line and that many of the storms near power lines are harmless. However, when they do occur, they may be very harmful. "The shape of the record made by the

lightning may be construed as meaning that the cloud from which it came discharged quite rapidly.

"Facts such as these are of tremendous value to scientists striving to find out how to combat lightning. If they should come in from a hundred investigations in a hundred localities, then, and only then, could we hope for final victory over our ancient enemy, and the consequent benefits of cheaper, more reliable, and more abundant power."

TO TALK OR NOT TO TALK

Capt. Fred. Aarons, whose short five- and ten-minute talks from 2FC have been a popular feature of that station's programmes for some time past, in this article emphasises the necessity for correct enunciation and grammatical accuracy. "It is futile (he says) for the school teacher to endeavor to inculcate the spirit of correct speech into children at school, when they are free to listen for hours each week to word-murder over the air at home."



By
Capt.
Fred.
Aarons

AS a vehicle for public entertainment. broadcasting has now passed beyond the incipient stages of its development. This applies, of course, to the limited ambit of reception within which the great listening public is confined by standards of economy or interest. Beyond this phase of wireless development lies the boundless future and the equally boundless possibilities that baffle contemporary imagination when it attempts to visualise a distant phase of human progress.

In Australia the seed has been sown, germination has succeeded, and the care of the young plant is the next and all-important consideration. The time for that consideration is here. Let us confine our remarks to the above-mentioned ambit, and inquire: wherein lies the efficacy or utility of the wireless set? Is it to supersede the gramophone and the piano-player, and to end there; or is it to grasp all the attributes of these two, and reach out towards higher ideals?

Before these questions can be answered by the listener-in a proper conception of ever-present circumstances is imperative. No instrument of public service, not excluding the press, has such an all-embracing public as wireless. Every form and grade of society from the "mother's darling" to the octogenarian, from the staid spinster to the flapper, from the parson to the punter, these, all of these, pay for service. Therefore, their demands have a claim, moral or material, or both, upon the consideration of those who are responsible for such service.

These are the premises upon which all argument as to the composition of programmes must be based. Such premises are almost too spacious to bear comfortably a commensurate structure. But if the whole range of society, the whole of the extremely uneven surface may not be covered, the listener-in, under some circumstances, might be enabled to say, in the words of the evergreen George Robey, "But what was there was good."

It is a trite saying that the people deserve the government under which they live; or, again, that the standard of national intelli-

gence may be gauged by the quality of the press. How truly may both of these be applied to the wireless programme and the listener-in. No better example of true public appreciation of good service, high ideals, and stability, coupled with regard for social and intellectual progress upon broad pleasant lines, exists, than the press of Australia—where are the "rags" of yesterday?

At the present time programmes consist in the main of musical items, incidental transmissions (including sporting and dramatical items, speeches, etc.), and talks. Of the first class, although there is undoubtedly scope for improvement, both as regards quality and execution, the infallible law of competition may be relied upon to improve execution, leaving the quality of the item itself to the judgment of the station management referred to below. The second class of items calls for little comment, perhaps, except where the following remarks relative to "talks" may be suitably applied to them.

In the strictest application of the term, efficacy talks, whether they be announcements, prelections, narratives, or lecturettes, are the most important features of broadcasting. Without them the wireless set degenerates into a mere mechanical reproducer, and ranges itself alongside the gramophone and the piano-player. This remark is not intended to convey the impression that the speaking part of the programme should be necessarily extended as a reference to the opening paragraphs of this article will reveal.

What is meant, in brief, is that there is decidedly great room for improvement in every phase of this class of items. Notwithstanding the fallacious reasoning of many who are associated with wireless transmission in Australia, to the effect that the public does not want to be educated—a reasoning that is at once discountenanced by the published figures of educational statistics—educational discussion over the air, from a national point of view, is both desirable and necessary. Education, that is, in its widest meaning; education, meaning the enlightenment of old and young alike. It is from this phase of broadcasting that wireless gains its ascendancy over the instruments mentioned above; it is this phase which gives broadcasting a national, if not an international importance; and therefore it is this same phase which demands the closest attention from broadcasting managements, if they have human and national interests at heart.

Having in view these considerations and

others, such as, for instance, the warnings of visiting statesmen regarding the necessity for our keeping in touch with the outside world, it is difficult to understand the apathy of the wireless stations generally in regard to the personal qualifications of speakers and prelectors, and of the types of subject matter.

The primary essential in this department of entertainment is correct speech. This in itself forms a useful and unobtrusive adjunct to education, and therefore especially as regards announcement and prelection, is of the utmost importance. The present state of things in this sphere demands immediate attention. Probably in no other walk of life would so many people, so unfitted for the positions they occupy, be tolerated as there are in the profession of broadcasting. While our schools and colleges are turning out hundreds of well-educated young men and women seeking scope for their accomplishments, some broadcasting stations insist upon leaving the announcing and prelection in the hands of men who are not only devoid of a knowledge of common English usage, who mispronounce the commonest words with all the élan of a pundit, but who are, worse still, sciolists—dangerous know-all, know-nothings.

It is futile for the school teacher, to endeavor to inculcate the spirit of correct speech into children at school when they are free to listen for hours each week to word-murder over the air at home. We are all prone to err in our conversational speech, indeed, nowadays it almost seems priggish to be otherwise, and yet, while the uninitiated announcer may be excused for his confusion over "Warracknabeal" or "Bungalligajung," his blatant mispronunciation of "progress," "economics," or "tribunal" at once stamps him as unfitted for his job.

As regards subjects, undoubtedly these should be limited to the diffusion of sound, general knowledge of the past as well as of the present. Talks on literature, art, social movement, contemporary phases of life beyond our own shores, history and travel, offer the widest field from which to gather and diffuse enlightenment and diversion. Wireless has no place as a lazy man's library; its true forte lies in its power to stimulate a national desire for knowledge, to cultivate a broader and deeper conception of the outside world, and thereby to promote a realisation of our true position, not only within the Empire, but as a unit in the general scheme of social development.

'USH!

A little light on a dark subject which disturbs the classic sleep of listeners.

WHAT is the burning question of the hour? The burning question of the hour is, what will the Government do with the broadcasting stations when it assumes control next July. Everyone is puzzled. Every newspaper is giving out official information, which would be of great interest if each newspaper's information didn't contradict that of the other.

But we have good news for the public. At last WE KNOW! We have DEFINITE INFORMATION! What will the Government do with the broadcasting stations? We laugh carelessly. Nothing could be easier.

The first thing the Government will do will be to take possession of the broadcasting stations. This will be accomplished simply and tastefully. The Hon. Stanley Melbourne Bruce, followed by the members of his Cabinet, the Speaker of the House of Representatives, and representative members of the Opposition, the Senate, the Press, and other nuisances, will proceed with great dignity to each of the "A" class stations, and demand admittance in the name of the People of Australia. Gaining admittance, the procession will march on to the studio, and the Honorable Stanley Melbourne Bruce will tie the Australian Flag to the microphone tripod, while the Speaker of the House of Representatives will occupy the announcer's chair, and take formal possession of the station in the name of the Australian Parliament. The gallant company will then join in the chorus of that grand old song, "Advance, Australian Blare." This will be sung softly, because the voices of members of Parliament.

When every radio station in Australia has been visited, the Honorable Stanley Melbourne Bruce will return with his retinue to the key station (the location of which is not yet decided) and ask the Governor-General to summon Parliament. No one is sure if there will be a debate on the address in reply, or even an address in reply. One thing has been ascertained: the first bill to be brought forward in this extraordinary session will be the Static Bill, or "A Short Bill to Ensure the People of Australia Complete Immunity from Static."

The Government expects to experience some difficulty with this Bill; and the honorable member for Brisbane is expected to get in some dirty work on behalf of the new Garapoozla Static Eliminator.

When the debate is entirely concluded, and the microphones and the whole broadcasting system are smashed beyond repair, the Prime Minister will appoint a Royal Commission to inquire into the nature of the trouble. It is as yet uncertain whether there will be any resumption of broadcasting before the Royal Commission has finished sitting.

Under the circumstances, it is thought that this might be unwise, as Private Ownership might build up another station, thus endangering the Government's Broadcasting Policy. On the other hand, and in other quarters, it is considered that when the private company has built up a new station the Government might take control once more. The latter might seem a sounder view of the matter; but, of course, the question is still in the air.

Many tentative schemes for the betterment of broadcasting have been put forward by the members of the proposed wireless commission. As this new commission has not yet taken evidence, it is impossible to re-

gard the views expressed as authoritative. On the other hand, it is thought that no evidence will be likely to sway these gentlemen from their deep convictions.

It is almost a positive certainty that when the newer and better station has been provided, the Government will invite tenders—making no distinction of rank—for the supply of suitable artists. The specifications, as one high official told us over a glass of lemonade at the Australia, are as follow:—

All artists must be of Australian origin, or, if not, must have their names and country of origin clearly tattooed on their right forearms.

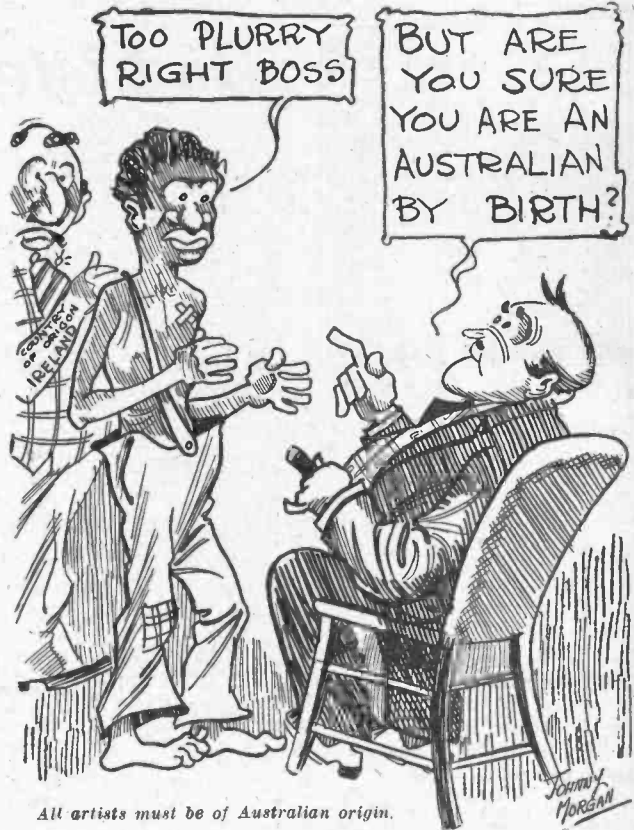
Artists must state clearly the price they are prepared to pay to be allowed to broadcast. Foreign artists must state in red ink and on the required form their out-of-voice price in country of origin, and their invoice price in our own fair land.

All artists will be required to undergo tests. Following the usual Government policy of opening all tenders at once, the programme director will hear all prospective artists at the same time. Artists are to bring their favorite pieces of music; and will be advised to bring cotton wool for their ears. A coffin will be specially prepared for the first programme director; and an assistant programme director will be engaged to take his position at the shortest notice.

As the Government's policy will be essentially democratic, artists will not be allowed to sing either high notes or low notes. Artists doing this will be immediately cautioned, the penalty for a second offence being a harsh glare from the studio announcer. The general opinion is that the Government will ultimately set a standard democratic note for all songs, and will institute a Royal Commission on the tonic scale as soon as possible.

Age of Artists: All artists will be required to supply statutory declarations that they are of the usual tender years, otherwise their tenders will be considered invalid. They will be required to undergo medical examination, and to answer the following questions:—

1. What is your favorite song?
2. Why on earth?
3. Have you sung songs, played the piano, cornet, 'cello, fool, bass drum, violin, clarinet, flute, as the case may be, before? If so, state reasons for so doing.
4. Do you consider that the Government should control broadcasting?
5. Why did you answer YES to the foregoing question?



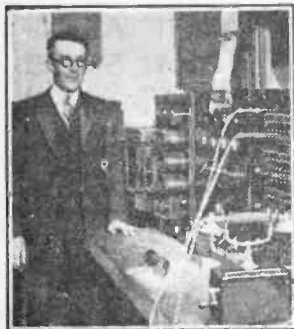
All artists must be of Australian origin.

6. What do you think of the programme director?
7. Why do you dislike the programme director?
8. Have you any personal whims or fancies besides your own natural foolishness? (This is for publicity purposes only.)
9. Do you drink spirituous liquors, smoke, or bet on the tote?
10. Why not? It all adds to Government revenues.

These things, of course, are fairly well known to the cognoscenti in our city; but there were things hinted by the official whom we have mentioned which it would be most dangerous for us to disclose. For instance, there is a desire on the part of the Government to run the stations as efficiently as possible. Programmes are to go strictly to time; and artists are to be warned that if they fail to sing ninety words to the minute, or play twenty-five bars to the minute, they will be disqualified for giving insufficient measure.

Nor is true reverence for the country, Australia—this fair land of ours—and its institutions to be disregarded. Announcers, on mentioning Parliament, will bow their heads, sneer slightly with the left lip, and go to sleep for three minutes. It is thought that this will inculcate the spirit of our governing institution into their minds, and into the minds of their listeners. On speaking of Australia, they will stand, raise their right hands in the Fascist salute, twist their right legs round their left ones, and cheer into the microphone. It is thought that this neat gesture will express Australia's indebtedness to Signor Marconi, at the same time as it will enable the announcers to get a little exercise. It has been stated, by competent authority, that such a motion will conduce very much towards patriotism, as the announcers will be only too pleased to mention the name of Australia and take the resultant or concomitant exercise.

Such clever schemes are the product of true genius, and, as such, are beyond all praise.



By

RAY ALLSOP

(Associate Technical
Editor)

have their radio sets switched on during practically the whole time of transmission, and loudly complain if what they hear during any session is not to their liking. Now, there would be something wrong with broadcasting if any individual listener really enjoyed the whole programme from morning to close-down time.

No one, however, leisured his or her life, ought to listen all the time. Yet, like so many other things, listening to wireless broadcasting may become a habit, the listener fearing that he may be missing something by not having the radio switched on.

RESTRAINT

The first advice that I give to listeners, after the first enthusiasm has worn off, is to exercise as much restraint in the use of broadcasting as is exercised in the enjoyment of any other of the good things of life. To this end an intelligent study of the programmes of the various stations will contribute materially.

Most people simply switch on their sets at an habitual hour, and then praise or blame the broadcasting organisations, according to the measure of their personal appreciation or otherwise of the items they happen to pick up. One should look up the programmes beforehand, and decide what one wishes to listen to, and only that.

ANTICIPATION

It is inevitable, if the programmes are rightly compiled, that there will be many items to which any given listener will have no inclination to listen, and he will be very well advised not to listen at all at such times. But if one listens with discrimination, prepared for what is coming, and anxious to hear it, one will enjoy it very much more than if it is simply heard haphazard. Anticipation affords almost as much pleasure as realisation.

APPEARANCE OF SET

Another point which has a very definite effect is the appearance of one's radio set. The set should be of a pleasing appearance, and artistically arranged in the room where it is located. It should not be set down in the most convenient place, with loose wires trailing under a table to batteries or eliminator.

Do Listeners LISTEN?

WHAT part should the listener play in broadcasting?

The broadcasting stations transmit everything that can usefully or agreeably be put over, but it is the duty of every listener to choose between what he should hear and what he should leave alone.

SELECTION

There are people who

A listener whose receiving apparatus consists of a pair of rusty ear-phones at the end of a tangle of wire will in time come to rate what he hears as cheaply as he rates the gear that brings it to him.

In the same way, a rough baseboard or box with a few valves stuck on it, and other units of the set untidily arranged with loose wire connections, would be difficult to associate with beautiful reproduction. No matter what type the receiver may be, it should not be displeasing to look upon.

Design, or select a design of your radio set, to be of pleasing appearance, with all its unsightly components, such as the "A" battery, "B" batteries, or "B" eliminators, etc., housed in the cabinet work.

Select your loud-speaker with care, not only with regard to its tonal volume, but also its artistic appearance. Never attempt to disguise your radio and speaker as something else, but let it be a beautiful instrument.

There is no reason why a radio set should dominate the room, and there is no reason why it should not be as carefully designed as any other piece of furniture.

LIGHTS OUT

There are many other factors in the proper use of the radio set, which bear upon better listening, tuning, tone, and a hundred and one other technical points. However, they need not be gone into here. We are mainly concerned with indirect and external aids to better listening. Some people, for instance, believe that they can enjoy a programme, especially a dramatic piece or a theatre broadcast, by switching off the lights. This, they state, eliminates the disturbing factors within their range of vision, and helps the illusion of being at the scene of the piece or in the theatre.

NO NOISE

Absolute quietness is often of assistance, although this is not always possible or necessary. On the other hand, of course, disturbing noise is fatal to enjoyment of a musical item.

A background or foreground of noise does not seem to disturb some listeners. A plebiscite taken in America revealed that a large percentage of listeners used radio merely as a background to their activities, such as dinner, a game of cards, or other diversion. This is the attitude which I wish to destroy, since it harms radio by giving it only partial attention

all the time, instead of the whole attention part of the time.

To conclude, listen with care, select the items from the programmes you wish to particularly hear. Remember what unit of the programmes displeases you—it is most probably a pleasure to hundreds of others.



Listening—to what?

How to Build a CONE Speaker.

A Simple Constructional Article for
the Home Builder

By DON. B. KNOCK

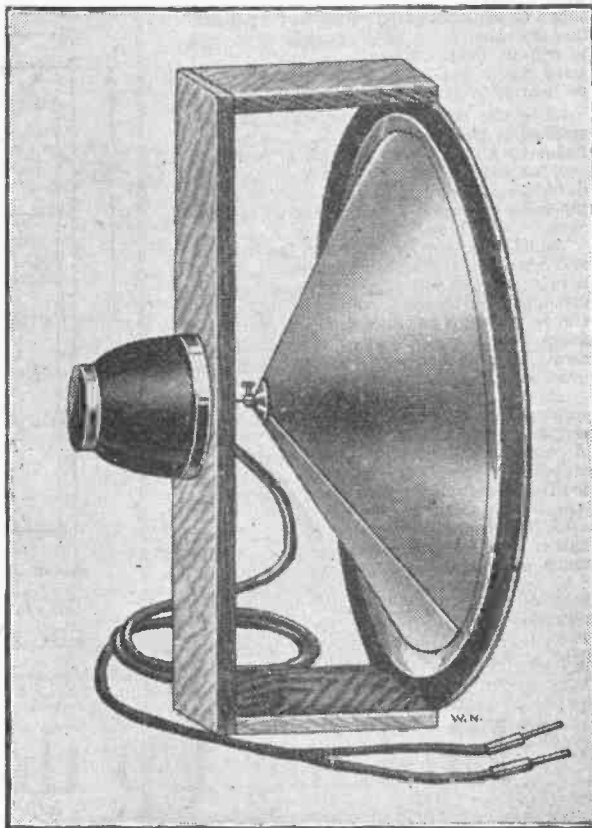
(Associate Technical Editor)

THESE are so many excellent and low-priced cone type loud speakers on the market to-day that it may seem almost unnecessary to place an article like this before our readers. I doubt whether I would ever have considered it but for the fact that my correspondence has of late contained a large number of requests for just such a descriptive article. Even though all wireless commodities are cheap enough for Tom, Dick, and Harry, the love of making things seems to be born in mankind. If this had not been so, we would never have any brilliant engineers, and it would be a case of "let John do it."

Always there seem to be a host of readers who welcome the idea of being able to construct a set in its entirety. I even know men to whom the making of an inter-valve transformer is a real delight. It was never a delight to me, but I can recall the time when wireless was very much an infant, and the depth of my pocket was so shallow that I would think nothing of sailing in with a pair of metal shears and what not, and then developing eye strain through laboriously hand-winding primaries and secondaries, helped along by a large-size reading glass.

The question often arises, What shall I do for a speaker for the portable I am making? Most cone speakers of a standard size are far too large for this purpose, and many constructors would like to make their own, but are a little dubious about tackling the job.

With the aid of a loud speaker unit the handsome and efficient cone speaker illustrated on the right can be built for a few shillings. No great skill is required.



Well, here you are! A good loud speaker unit, a few pieces of wood, paper, screws, and the whole thing will cost you next to nothing. Although I mentioned portable receivers, it should be well understood that this home-made cone speaker may be used with, and is suitable for, any receiver. The simple support behind the cone itself allows the use of practically any actuating unit, so that any of the standard makes may be chosen. I happened to have a Lissen unit lying around, but if you have an Ampillon or any other make, it will serve the purpose equally well.

The first thing to deal with is the support for the complete speaker. This is made from ordinary ply-wood. Cut a sheet of this 11 3-8in. by 13 7-8 inches, and, marking the centre, describe a circle with a pair of dividers 9 1/2 inches in diameter. Just inside this diameter drill a series of small holes and then cut through these with a fret saw, afterward finishing off the rough edges with a wood chisel and file. This hole 3 1/2 inches in diameter is to take the diaphragm. Make sure that the finishing off of this hole is neat, or it will be unattractive in appearance finally.

Next, two pieces of wood are required, 11 3-8in. by 3/4in. by 3-8in. thick. These are screwed to the 11 3-8in. inside of the ply-wood board by means of countersunk brass screws. Screw these strips down with the 3-8in. side against the ply-wood. Next cut a piece of wood similarly to fit along the 13 7-8in. side of the ply-wood. This piece rests across the ends of the other two pieces, and is held in place by one screw at each end. These strips of wood make the ply-wood frame rigid, and will counteract any tendency to buckle or warp.

Three more pieces of wood are needed. These constitute the supporting frame for the speaker unit. One piece is 11 3-8in. by 2 1/2in. by 3-8in. This is the one running along the back, and holds the unit in the

centre behind the diaphragm. The other two pieces fasten the whole to the ply-wood frame and measure 3 5-8in. by 2 1/2in. by 3-8in. The illustrations show how this is arranged.

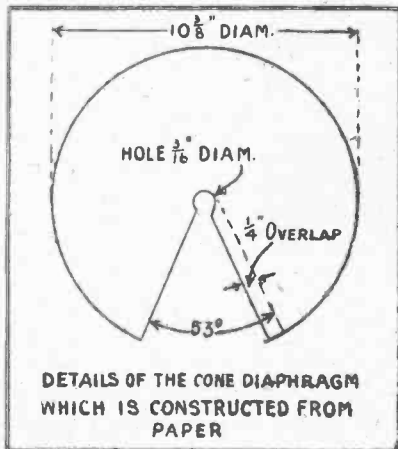
It is advisable before fitting these three to the ply-wood to fit the loud speaker unit in the centre of the longest piece, or difficulty may be experienced later on. As the reader will want to use his own particular unit, no dimensions are given for this.

A cardboard ring of good stiff material is the next item required. This has an inside diameter of 9in., and an outside diameter of 11in. It may be readily cut from the lid of a hat box with a sharp pocket knife, or a pair of tin-snips. This ring is the supporting medium for the paper cone, which is the next item.

If you go to any stationer's you will be able to obtain a sheet or two of stiff paper of the parchment kind. The sketch shows how the cone is made from a sheet of paper. Lay the sheet flat on the table, and draw a circle 10 3-8in. in diameter with a hole 3-16in. diameter in the centre. Using a protractor, mark a sector out as shown in the sketch, this sector having an angle of 53deg. Cut this out with a pair of scissors, and pull the two edges together, allowing 1/4in. overlap. These overlapping portions are simply glued together with seccotine. This procedure forms the cone.

Next cut five or six small pieces of fairly thin paper, and glue these to the inside of the cone about 3-16in. from the edge, leaving about 1 1/2in. projecting outward. These projections are then glued to the cardboard ring in such a manner that the cone is suspended equally all round. It all depends on the speaker unit you may use as to how this is attached to the cone, but the Lissen unit is provided with small coned washers and a locking device similar to the arrangement you see on most cone type speakers.

The cardboard ring supporting the cone may be attached to the supports in two



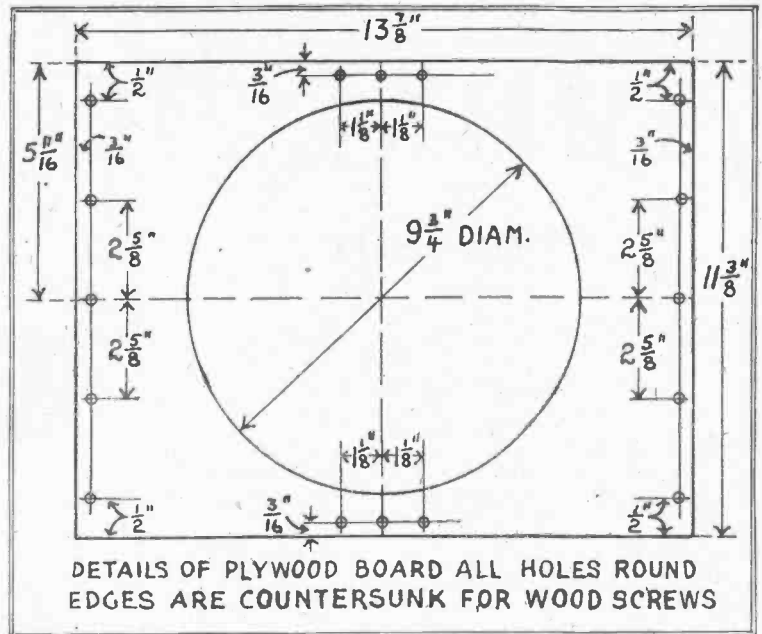
ways. One is to cut slots in the two wooden supports so that the ring will just fit inside, and the other is to cut the ring away so that it will fit flush under the supports. Afterward gluing small strips of cardboard to both to hold it in place.

When this is done and the whole unit assembled it may be attached to the plywood frame by screwing and gluing the cardboard ring to the back of the board. Finally a moulding may be run round the edges of the plywood to give it a "professional" appearance.

Whilst this form of mounting for the unit and cone applies mostly to portable receivers, it may be used with other types of cabinets or supporting boards for home use. For instance, it would be quite an easy matter to adapt such a mounting to a fireplace screen arrangement which would at the same time provide an excellent large-sized baffle.

Anyone constructing a simply-made cone speaker such as this will find it very interesting to experiment with different grades of paper for the cone. If a very heavy grade of paper is used, the reproduction will be muffled and indistinct, particularly on speech. If a thinner and lighter paper is used, the reproduction will be accordingly lighter, and will bring out the higher tones much more easily.

So now, you readers who wanted to make your own cone loud speaker, here is the necessary "dope," and may the performance, when it is finished, bring you as much delight as you may experience in making it.



"Linking Up the World by Radio"

The author of this article was the first announcer and bedtime story Uncle in the British Empire. He early relinquished his position, however, to become Secretary-General of the International Radio Union. The fruits of his work, which bears considerable international importance, are told in this article

(By ARTHUR BURROWS)

THE Union Internationale de Radiophonie was originally created for the purpose of making broadcasters in different countries come together and learn to know each other. In this quality the Union is getting more and more important, as its members are gradually getting more numerous. Already the national broadcasting unions in most European countries are members of the Union Internationale and this year two more countries, the Irish Free State and Roumania, have entered the Union, as they are seriously taking up broadcasting. In many non-European countries, such as Japan, Australia, India, South Africa, and the United States, the national broadcasting unions have equally sought connection with the Union Internationale.

However differently organised these national broadcasting unions may be—some are more or less private, others are closely connected with the respective States' authority—the Union Internationale is a common tie between them, which makes them annually keep in closer touch with one another.

The Union Internationale is dealing with every kind of matter within its concern. The relaying effected from the Union Internationale to the members of various unions is gradually covering a greater number of subjects, but, so far, news and weather bulletins may be said to be two of the central spheres of its activity.

An interesting new point on the Union Internationale's agenda is the exchange of programmes. Here Sweden and Norway have been pioneers, as the national unions of those countries have already for some time been exchanging their programmes between themselves. The scheme has since been car-

ried on between Germany, Poland, and Austria, as far as musical programmes and lectures are concerned. For this purpose overhead lines were originally used, but now we are using cables, an amelioration which is, however, creating quite new problems of a technical character.

Another interesting feature in the recent development of the Union Internationale is the creation of a station of control at Brussels. A "station of observation" would, perhaps, be a more proper name. It is the duty of this station to measure and observe the stability of the different broadcasting stations connected with the Union, and to publish records on the behaviour of these stations from a technical point of view. It is very obvious that this kind of publicity has done much to make these stations keep their stability.

Our members are mutually agreed to help the work of the League of Nations. In accordance with this agreement we relay from Geneva to member States during the annual sessions important speeches delivered at the Assembly. A successful start of this activity was made at Germany's entrance into the League two years ago, when numerous speeches were broadcast all over Europe. During this year's session of the Assembly we have relayed to Finland the introductory speech of M. Procope; the Finnish Foreign Minister. This year the relay took place at the station of Zeesen, outside Berlin, the speech having been sent there from Geneva by telephone. At Helsingfors the relay was received by a special receiver, and afterwards transmitted to the central Finnish broadcasting station at Lahti, north of Helsingfors. This part of the Union's activity is annually increasing, and may well be hoped to play a very conspicuous part in the future.

As international radio is working in the spirit of the League of Nations, it is obvious that strong objections must be raised against broadcasting being utilised for political propaganda, offensive to other States. Unfortunately, in the case of some stations outside the control of members of the Union, this harmful propaganda has taken place. As a consequence of this, the Roumanian delegate called attention to this fact in the sixth Commission of the year's session of the League of Nations Assembly. As an outcome of this, the Sixth Commission passed a draft resolution calling the attention of Governments to the danger of broadcasting, "characterised by a spirit antagonistic to that of the League of Nations." This resolution was subsequently agreed to by the Assembly, and thus for the first time the League has taken a direct and active interest in the problems of international broadcasting.

On the other hand, the Union Internationale has nothing to do with the Swiss proposal for the erection of a long wave broadcasting station at Geneva. Some time ago a committee of experts proposed to the League to install a medium wave station. The Union was indirectly interested in this proposal, as the idea was to adopt a wavelength in the group of wave-lengths set apart for regular broadcasting. The question is now, however, in suspense.

The chief administrative body of the Union is the council, which delegates the technical studies to commissions of specialists, and afterwards examines the reports from a more general point of view. The Office Internationale de Radiophonie at Geneva is the executive organ, and the office together with the commissions, keep in close touch with analogous unions.

Radio Programmes based on GOODWILL

An American explains how American stations exist solely on the goodwill felt by listeners towards the sponsors of the programmes. From a talk broadcast over the air recently.

(By M. OPENSHAW)

(Vice-president of the Pilot Manufacturing Company)

AS a representative American travelling in various parts of the world, I am frequently asked why radio programmes in my own country receive the support they do, in view of the fact that they exist only as indirect advertising for various commercial interests. It seems to puzzle people outside the United States that an excellent broadcasting service is rendered listeners, despite the fact that there is no license system, and, therefore, no revenue from set-owners.

There is one very simple explanation to this, and that is "sponsored programmes." In order to illustrate what a sponsored programme is, let us consider the programme put on by the firm of Dodge Bros. in the United States on the occasion of bringing out their new model automobile.

Well, what did Dodge Bros. do in order to advertise the Victory Six to the public in the United States? Did they take full-page advertisements in all the leading magazines and newspapers of the United States and Canada in order to tell the public about the new car, and did they expend hundreds of thousands of dollars on the newspapers and magazines?

They did not. Instead, they engaged the best entertainment talent in the United States, and arranged a programme for broadcasting, and on a given date they had this programme put on the air, over a nationwide hookup, in which perhaps 130 odd radio stations were linked up, and presented this first-class entertainment with the compliments of Messrs. Dodge Bros. All that the radio announcer who was in charge of the programme did was to say at the beginning of each number: "Ladies and gentlemen, this programme is coming to you through the courtesy of Messrs. Dodge Bros., makers of the New Victory Six, and I now have much pleasure in introducing to you Mr. Will Rogers, who will now entertain you from his home in Berkeley, California."

Will Rogers did entertain the listening public, and when he was finished someone else was introduced, and that was all there was to it. The actual cost to Dodge Bros. of that entertainment was perhaps 60,000dols. It only lasted an hour, but it was good, and it put Dodge Bros.' Victory Six on the map much better than any amount of costly magazine advertising could have done.

Not that magazine and newspaper advertising was entirely dispensed with. By no means, but, with the goodwill created by this radio entertainment, it was possible to keep the newspaper advertising appropriation within reasonable limits.

After all, it's the psychology of the thing

that does it. What do you, the public, get when you read an advertisement of, say, Johnson's coughdrops? Information, nothing else. But what do you get if Johnson's coughdrops should decide to spend part of the money they now spend on newspaper advertising on giving you a toothsome radio programme, say, once a week, at a certain hour? You get a fine entertainment, and you hear the name of the company sponsoring the programme mentioned every now and then. You also hear about Johnson's Coughdrops, and it seems to me to run altogether counter to human nature if, the next time you are plagued with a cough, you don't ask for Johnson's Coughdrops at your chemist, because Johnson's have given you something, have given you a fine entertainment, and if you are halfway a decent fellow you will give them your patronage.

The whole thing is based on the assumption that human beings are fundamentally decent, that if you do something for your fellow-beings one day they will do something for you another day, and it is on that basis that the radio industry in the United States has grown to its present proportions.

There is another aspect of the situation which explains the excellence and variety of the programmes we enjoy in the United States. Great and small corporations, realising the goodwill value created by a good radio programme, vie with each other to provide the very best they can afford, because, if a poor programme is put on the air the corporation who sponsored it would very soon hear about it from the listeners, and if, perchance, some corporation should be so ill-advised as to talk about itself in any way that smacks of pure commercial advertising, they would soon feel the effect of such poor business judgment. Such incidental advertising as we do get is wholly inoffensive, and the commercial sponsor of any given programme who knows his business will always rely on the excellence of the entertainment he provides for a return.

TONE

The importance of tone in modern receivers will be the subject of an authoritative article by Mr. Knock in the next issue of "Wireless Weekly." Mr. Knock will deal with the improvement of this quality in modern receivers.



Mr. Openshaw who is visiting Australia in order to build up the large export business of his firm.

on his outlay than on any advertising talk as such. If people get a good entertainment they will show their gratitude and appreciation all right. Proof of this lies in the fact that time on the air, as it is being sold by the various broadcasting stations in the United States, is gradually becoming more expensive, which proves that the demand for the broadcasting stations' time is growing, and this demand would not grow if present users did not find it profitable to employ the broadcasting stations' services.

But look here now, someone might say, does not all this broadcasting of programmes and its rising cost to the sponsoring companies raise the price of the article they have to sell? In other words, must not this cost be allowed for in the selling price of the article just as the cost of newspaper advertising must be allowed for? This is quite a proper question, but it would not be put by anyone familiar with economic conditions in the United States. Advertising, least of all broadcasting advertising, does not raise the price of the article; it lowers it. Why? Simply because such advertising increases the demand. Increased demand makes possible increased output. Increased output in turn lowers the cost of the unit, for it stands to reason that if, for instance, my company, the Pilot Electric Manufacturing Co., can manufacture 100,000 condensers at a cost of 20,000dols., then 200,000 condensers, provided the demand is there for that quantity, will not cost double, that is to say, 40,000dols.; 200,000 condensers in that case will hardly cost more than 25,000dols., because the plant is all there, and it is only a question of employing it to its full capacity. Doubling the output does not double the cost; every housewife knows that who will tell you that it costs no more to feed seven than to feed five. I believe I am right in that.

Well, now, what is the situation in the United States? Do we maintain the price of any article for which the demand is growing through the use of radio broadcasting, or are we even so infernally silly as to raise it? Never! Whenever we find that we can increase our output, and thereby reduce the average cost of the article produced, we reduce the price of it.

That is the policy of the Pilot company, and it is the policy of all corporations in the United States who have made a success of their particular line. The day of high prices and big profits is gone. We believe in getting the biggest possible turnover at the smallest possible individual profit, and radio advertising, by means of sponsored programmes, has made it possible for us in the United States to do a big business, at a reasonable profit, and to satisfy our customers, the public at large.



Photo
By
Howard
Harris.

PROGRAMME PERSONALITIES

an interval in the eisteddfod concert while the judge added up his marks; and the audience got into the habit of calling out, 'Charles Lawrence here? Come and sing a song.' These intervals were the first times I inflicted humor on people. There was nothing better on offer, you see.

"My first professional engagement was to support Georges Hackenschmidt, a weight-lifter, and we toured Australasia in 1909; 1909—twenty years ago. My God! Think of that! I remember one night in Kalgoolie. Everyone wanted to see Hackenschmidt lifting weights, and my turn came just before his. The stalls and circle gave me an encore, and I was just coming on to sing it when a brawny miner leant forward and said in a hoarse but considerate whisper, 'Make it as brief as possible, old man.'

"After that, I joined Branscombe's Original Jesters at St. Kilda, and during the following season produced an al fresco show, 'The Follies,' for J. and N. Tait at St. Kilda. Then the Taitts placed me with Miss Margaret Cooper, perhaps the greatest artist at the piano I have ever known. We did Africa and Australia. I came back to join Rob Thomas' English Pierrots at St. Kilda in 1913. That show made St Kilda what it is to-day, heaven forgive it!

"I remained there for 11 years, and when Rob Thomas died I bought the show. Had very successful seasons in St. Kilda, took the show over to New Zealand, and then brought it out to Adelaide, where we were unfortunately burnt out. Uninsured, I was worth three or four thousand pounds one minute, and owed eighty pounds the next. Better not use those figures; the people I owed the eighty pounds to might find out."

He continued: "Having passed through purgatory, I did a short season with the Tivoli Follies, and toured the Fuller circuit. My last engagement was with the Luxor Theatre. Then I decided to settle down. Having passed through Sydney so often, and (this is most important) having fallen in love with the 'arbor, I felt that I couldn't live anywhere else. Besides, Sydney needed a little cheering up. Don't get the idea that Sydney people are dull. They're not. But they do love their 'arbor, and their 'arbor always seems so blue . . . sorry; I won't do it again.

"Anyhow, I took a position with Allan's, the music publishers, and stayed there for three years as manager of the professional department. I left 12 months ago for a position at the Capitol under Mr. Perry, the presentation manager, from whom," he spoke with unctious, "I am still learning."

"That brings you up to date, Mr. Lawrence; but how about broadcasting?"

"If people found out the way I got into broadcasting they'd try to block it up. But it was like this.

"After I had been in Sydney 12 months, someone discovered that I'd heard some good humorous artists during my travels, and could give some of their items passably well. Thanks to the New South Wales Broadcasting Company, Limited, I am still paying income tax. I also had some teeth out last week."

Under the flippancy there is a great deal of truth. The humor of Mr. Charles Law-

rence is the humor of many other artists, and the paths of many singers of mid-Victorian ballads—mixed. It is a subtle blending, and you can always hear Charles Lawrence laughing over it. We become tedious.

"Certainly we don't lack for applause here in the summer-time," he remarked. "The sounds of announcers, accompanists, artists, and telephone attendants killing mosquitoes is very welcome at the end of a number. As for the New South Wales stations, you can say they are the best in the world. Easily. And I have heard America, Japan, Java, Holland, England, and New Zealand (all through 2FC); also several women. You can hardly beat the receiving and transmitting powers of maiden aunts. I therefore place them second."

We asked his views on humor. "Ask me about something I can talk on," said Mr. Lawrence. "Good examples of humor are complaints about the programmes. But there are two things to remember about radio humor. The story must be one that can be visualised by the listeners. And there is no market for facial expression. That's where I come in."

That is precisely where he comes in. The humor is in his voice. He seems to be made for radio.

A Jester at the Court of King Radio

WHENEVER and wherever you see Mr. Charles Lawrence he will look as though he had just seen a joke, and wants you to share it. (Notice the picture on the page.) This is an extraordinary thing; because humorists are notorious for their dullness in private life. Charles Lawrence is never dull. His humor on the stage and over the air is Charles Lawrence. It is, therefore, inimitable. Its main and best characteristic is akin to the subtlety which keeps Charles away from the vulgarising influence of Charlie.

So you will see how an interview with this amiable gentleman quickly became an excuse for an evening's hilarity; and if the following remarks are less than you may have expected our only explanation is that in our amusement we forgot our public. Which was wicked, and should be stopped.

"You can tell them," said Mr. Charles Lawrence, crossing his legs, leaning back in a wicker chair, and blowing a beautiful cloud of smoke, "that I hate women; I'm married." We put it down. Mr. Lawrence suddenly became alive to the fact that he was being interviewed. "No!" he exclaimed, "you mustn't put that down. I mean—you see . . ."

We said yes, we saw. "You understand," he said, "it might . . ." We said, of course it might. "So long as you understand," he went on. "And you can say that I hope to retire to a nice, easy job, such as looking after a switch." He smiled sweetly at the girl at the switchboard, who was being driven to desperation by constant request calls for Alfred O'Shea, and wanted to know what more we wanted to know. We said we wanted his life story. He said we couldn't put that in a respectable paper—he'd been in the theatrical business for 15 years. We said we'd risk it; and this is it:—

"I was not ever thus," he said. "I originally pushed a pen and used a billing machine in Melbourne. I remember a summer in Melbourne. I was there for four months, and it didn't rain one day. That's subtle. I had my musical training (if any) in a church choir. Do you want witnesses? And from church choirs I went on to sing in eisteddfods. Sometimes there would be

A Man of the Open Spaces

MR. C. PRICE CONIGRAVE lived for 15 years in the great open spaces of the Northern Territory, where men are men and women—Sydney, can you believe it?—are not.

He did. He did, indeed. Then he came down to tell 2FC listeners all about it; and became very well known for his many talks on little-known parts of this land.

So all those listeners who knew him so well before will have been extremely pleased to hear his recent discussions of Papua, where, as a member of the Nicholls-Conigrave arts and crafts expedition, he spent three months. While there he visited the great Makeo district, and thence, having gathered together an army of native carriers, he set out to conquer the great central mountains of Papua, penetrating for a long distance, with considerable skill and fortitude, but few losses, into the region of the tall ones.

Mr. Conigrave has been favorably impressed by the unostentatious work that is being done by the personnel of the Administration of Papua, many of whom he met in the outside districts. Australia should know more about her uninhabited regions and tropical dependencies; and Mr. Price Conigrave's discussions are doing much for the enlightenment of extremely large Australian audiences in this respect.

He sits in his chair four feet away from the microphone, stretches his legs a long way in front of him, crosses his arms, and speaks calmly, without notes, occasionally closing his eyes to get a better view of the mountains, in a clear voice which goes over remarkably well.

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Mr. C. Price Conigrave.

IN THE AIR and ON THE AIR

2FC—2BL

Next Classical Programme

THE CLASSICAL PROGRAMME on February 13, to be broadcast by 2FC, is arranged by Mr. Alexander Sverjensky. The artists to be associated with Mr. Sverjensky are Clifford Lathlean, Moore M'Mahon, Jules Van der Klei, and Gwen Selvo. In the short interval between the first and second halves of the programme Mr. C. R. Hall will give another of his interesting series of talks—"Out and About Iraq and Persia," and his subject on this occasion will be "Hamadan Days." At the conclusion of the programme of classic music, W. F. Kay will give a vivid cameo of early stage life.



Alexander Sverjensky.

Shy Conductor

THE MANLY BAND will be broadcast through 2BL service during the afternoon and evening of February 10. Mr. J. Pheloung, the indefatigable conductor of the band, has only one failing—he is "microphone shy." "I HATE announcing," he confessed, and it's not often he is called on to perform the—to him—distasteful task; but there are occasions when many last-minute alterations in the programme make it a necessity.

B.M.S. Quartet

THE BRITISH MUSIC SOCIETY QUARTET are giving a recital in the early evening session at 2FC on Sunday, February 10, and again between 8.30 and 10 p.m. The members are now Moore M'Mahon, Ruth Conway, Allison Short, and Bryce Carter—a very fine combination, which broadcasts well. On this occasion their items will include Moussourgsky's "Promenade" and "Serenade," Schumann's "Traumerei," and "Hungarian Dance" (Brahms). A group of negro spirituals will add an unusual touch—"Old Black Joe," "Angel Gabriel," and "Deep River."

Carillon Recitals

THE FIRST SERIES of CARILLON RECITALS, given from the War Memorial Carillon at the University of Sydney by the hon. carillanist, Mr. J. G. Fletcher, have proved of much interest and enjoyment to 2BL listeners. On the evening of Alfred O'Shea's farewell appearance the bells created just the right atmosphere for the famous tenor's group of songs, and many letters of appreciation of the carillon transmission were received. Part of the recital to be held on February 12 will also be broadcast through 2BL service.

The Menin Gate

FRANCIS JACKSON, who is back again after a world tour, has commenced an interesting series of talks woven round his travels. His subject for February 10 is "The Menin Gate," and no one is better fitted than Mr. Jackson to portray the exquisite beauty and the national significance of this everlasting memorial.

The Silver Fox

THE H. W. VARNA COMPANY will produce "The Silver Fox," by Cosmo Hamilton, at 2BL studios, on the evening of Feb-

ruary 13. This play was originally produced at the Maximo Elliott Theatre, New York, and proved one of the most popular in the Laurence Grossmith season here a year or so back. Diana Wilson made a pronounced success in the part of the wife who discovered she had married unwisely, and then, without anger or fury, concentrated her whole effort in freeing her husband from an unsuitable marriage, ensuring, also, that he should not be a sufferer thereby. Thus this made it possible for him to ally his life and interests happily to another woman, and at the same time enabled the wife to satisfactorily pair off with a worthy man, who had wished to make her his wife many years earlier.

The Gold Diggers

W. F. KAY will give two short talks on "Stage Reminiscences," through 2FC service, on February 13 and 27, and then in March he will commence a subject dear to his heart. "The idea has often crossed my mind to submit talks dealing with 'life on the early goldfields,' where I was born in the 'fifties," said Mr. Kay. "Born under canvas, and baptised under the same material. The romance of gold-seeking has always had an infatuation for listeners in real life, and could be made intensely interesting over the air, especially when most of the experiences are first-hand, and not from hearsay.

"It took men of courage and daring to undertake a four months' voyage in a sailing ship, to go they knew not where, except that gold was 'waiting only to be shovelled up and taken back to the dear old land,'" continued Mr. Kay. "It was no undertaking for weak, vacillating men to face the hardships of a pioneer's life amongst uncivilised blacks; consequently, the majority of them were the hardest of the hardy, and fit to face a lion.

"The series of talks I have prepared are brimful of interest, every phase of their lives interwoven with romance, and indelibly imprinted on my memory as only youth can stamp them.

3LO—3AR

"Salome" From 3AR

MISS STEPHANIE DESTÉ, the exotic dancer from "Rose Marie" and "The Desert Song," has often attracted the favorable notice of listeners by her sympathetic reciting of passionate scenes from literature.



Herbert Browne.

"The Desert Song"

IN response to repeated requests from country listeners, the first act of that very popular play, "The Desert Song," will be broadcast from 3LO on February 4, which will be followed by the second act, transmitted from 3AR, thus enabling everyone to hear the whole of this latest musical success by merely turning the dial.

Frederick Hall, Composer

FREDERICK HALL, who is widely known as a brilliant solo pianist and as the conductor of the orchestra at 3LO, has recently been entertaining listeners with some of his own compositions, among which may be mentioned a pleasing little group, "Chanson d'Automne," "Pictures from France," "Viennese Serenade," and "Intermezzo Brillante." Mr. Hall has travelled far—particularly in the musical sense—since he conducted a Sydney orchestra at the age of sixteen, and is recognised as one of the most versatile Australian composers. Everything is fish that comes to his net, and he pens violin, piano, and cello solos, comic operas, orchestral suites, ballads, fox-trots, and part songs with equal ease. Possibly his most successful number was the tuneful "Good-bye, Melbourne Town," which immediately caught the public favor, and established his popularity with the masses. Mr. Hall could easily claim that no other Australian composer has had so many numbers in print, one firm alone having published between three and four hundred of his compositions.



Frederick Hall.

Relays From Adelaide

STATION 3LO has made arrangements for the description of the Fourth Test match, which will commence in Adelaide on Friday, February 1, to be relayed from 5CL, Adelaide, for three hours each day on which the match is in progress. During the week commencing Monday, February 4, 3LO will broadcast three sessions each of one hour. The sessions will be from 1 to 2 p.m., 3.30 to 4.30 p.m., and from 5.30 to 6.30 p.m., all of them being Melbourne time. These times will correspond to the last hour's play before lunch, before tea, and before the end of the day's play.

New Stories

GRAHAM AND MANNING, entertainers, who keep well ahead of the times, and justly boast a host of NEW funny stories—which are really both new and funny—will be heard over the air at 2BL on Wednesday, February 6. Mr. Manning is a boon to any broadcasting programme department; he always seems to have just what is required—short, snappy dialogue, a musical patter act, a sketch of dramatic pretensions. It is only a natural consequence he and his partner, Dorothy Manning, are great favorites with listeners.

Billy and Ted

BILLY AND TED, who will entertain during the 3LO community singing session at the Auditorium on Monday, February 4, are two artists with a great reputation in the world of vaudeville, and who present an original turn. As ventriloquists, they claim to outshine the famous "Valentine Vox" (who is on record as the first ventriloquist), and their paper-tearing is little short of astounding. A sheet of newspaper, a few deft folds, and ingenious manipulation will produce both artistic and fantastic shapes, so their turn, with its smart ventriloquism, quaint humor, and clever paper-tearing, never fails to maintain the interest of the audience.

Wireless Weekly

Incorporating "Radio in Australia and New Zealand."

FRIDAY, FEBRUARY 1, 1929.

A Lesson for the "Talkies"

IT took the motion pictures twenty years to reach photographic and mechanical excellence. But with small consolation to the owners, for not even the finest photography and projection could balance the trifling and puerile subject matter of the films and the resulting waning box-office receipts. In the twenty years during which the camera advanced, almost every conceivable plot, situation, scene, and gag has been shown. The reckless manner in which the movie owners turned to Continental actors, trick photography, and sex-shows, and the huge sums they paid for the scenarios of popular novels and the work of famous authors and playwrights testified to their panic. The movies, always shallow, had become banal even to their regular star-struck patrons.

The "talkies" came as a godsend. Here at last was a novelty which would fill their emptying houses. Radio engineering, which had brought the electrical amplification of voice and music to a high degree of reality, directed them into a new field of development.

It remains to be seen whether the "talkie" magnates will learn their lesson. They possess a new medium of infinite possibilities, but even in their premiere performances they show small idea of arrangement. On one programme there is contrasted the soft-toned enunciation of an educated Englishman and the speech of a harshly accented American who handles the fifth vowel with scant consideration.

There are a number of points here to be taken from the broadcasting studios. It will not only be necessary for the "movie-talkie" actors of the future to have fine figures and fine features, but also fine voices. Even more attention will have to be paid to enunciation than is paid by theatrical artists—as much, indeed, as is paid by the radio actors. For the voices of the "movie-talkie" actors will be registered through a microphone, and there will be some voices which will be peculiarly adapted for the screen and some which are unsuitable—just as in the broadcasting studios. Even "mike-fright" may be expected, and it is interesting to note traces of self-consciousness in some of those actors appearing to-day.

The Results of Co-Ordination

THE co-ordinated management of some of the broadcasting companies has now been in practice long enough to prove whether it has been successful or not. The incidents which led up to the institution of the combining of the energies and resources of the companies may not be well known to listeners. And the listeners should know the reason for the co-ordination, as it was in the interests of listeners that the method was adopted.

After two or three years' experience of broadcasting, the Commonwealth Government had the position generally investigated by a Royal Commission, which visited all the States, and took evidence of a searching character. The commission reported, among other things, that some change was necessary in the method of distribution of the licence fees. It was found that, while certain companies had made profits out of their undertakings, others—and the majority of them—had been unable to square the ledger.

Although it was not specifically stated, it was understood that the commission considered that some of the companies failed to succeed, both in pleasing their audiences and in making profits, because they were not sufficiently experienced in the business. They did not have the requisite organisation to enable them to succeed as broadcasters, as it was found that qualifications of a special character were needed to make a broadcasting service a success.

The Government acted on that idea—it was not the particular recommendation of the Commission—and asked the companies in the various States to pool their resources and energies in the endeavor to improve the

services in States where success had not attended the efforts of the individual companies. The proposal was that the companies should amalgamate and co-ordinate their activities so that the advantages of successful management, as was the case of 3LO, would be felt in Western Australia and other States.

Naturally the unsuccessful companies were in favor of the helpful idea; and it was not surprising that the 3LO company objected to the revenue obtained from Victorian listeners being spent in say Tasmania or Perth. But the company was prepared to extend its service as far as practicable in the interests of listeners in all States, and eventually the effects of co-ordination were to be experienced in South Australia and Tasmania.

Just as the process of amalgamating all the companies was reaching fruition the Government very surprisingly changed its plans, and the complete scheme of general improvement in all States could not be established. Hence the benefits for distant listeners aimed at could not be gained.

In South Australia and Tasmania, as well as in New South Wales, the co-ordination and centralising of main management has been in operation—part of the complete scheme. The results have been very satisfactory, particularly in South Australia and Tasmania, where the services have undergone a complete change. The appreciation of the public of the improvements is reflected in the increases in the listeners. The most marked increases have been in New South Wales, South Australia, and Tasmania.

Rev. F. Gorman---Vaudeville Artist

TEN years ago Rev. Frank Gorman came to Australia under a 26 weeks' contract. But he met with such measure of success that contract after contract had to be extended, with the result that his picturesque personality remains with us, and will shortly be seen again in the studios of 3LO.

Apart from his success as a vaudeville artist, in which his fine, well-trained baritone voice has played an outstanding part, Rev. Frank has produced his own revues, and has been associated with these two immensely popular plays, "The Fighting Parson" and "The Silence of Dean Maltland," which broke all records at every town, visited.

Ever since he can remember he has always had a singing voice; his mother, Jessie Dodd, was a distinguished English vocalist, and he received his early tuition under her guidance, and also in the choir of the little Devonshire church he attended as a boy.

In due time he embarked upon what proved to be a very chequered career, for, after obtaining a post at the Tamar Brewery, he became a blacksmith at Devonport dockyard; he then distinguished himself in

the political field as agent to Lord Roberts for the East Bodmin division, and finally entered Cliff College, near Sheffield, where he commenced to study for the ministry.

After graduating he was appointed to the East London Mission, under the direction of the Wesleyan Methodist Church, subsequently transferring to the Methodist Episcopal Church of America. Soon after he landed in America, Alexander Pantages, one of the theatrical magnates of the States, discovered Rev. Frank's ability as an entertainer, and persuaded him that, in such a capacity, he could add a great deal to the brightness of the world, with the result that another entertainer was added to the vaudeville stage.

For some years Rev. Gorman made a thorough study of the dialect and habits of the American negro, capturing the keen sense of humor and the ready wit of the "darkie," and will tell many "darkie" stories during his season at 3LO.

Miss Sadie M'Donald, who will be associated with Rev. Frank for his broadcasting season, is a brilliant violinist, who, in addition to some very fine classical solo work, will be heard in some tuneful duets arranged for violin and voice, with her versatile partner.



The Rev. Frank Gorman.

The Safety Valve



Editor assumes no responsibility for statements made by readers and published on this page, as opinions of correspondents do not represent our editorial policies or beliefs. Anonymous letters are not considered.

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

Too Much Classical Music

Dear Sir,—Don't you think listeners are getting a surfeit of so-called classical music from the two "A" class stations 2BL and 2FC? 2FC especially seems to cater for (in the word of "The Song of the Prune") our highbrow brothers. Horace plays it. Vern. plays it. Ewart plays it, the New South Wales Broadcasting Company's Orchestra play it, we get it on records, and the Dinner Quartette play it. Just fancy a chap trying to balance a few peas on a knife and listening to that stuff. Some of it is like a child playing the scales. Why not give us more popular music? By popular, I do not necessarily mean Jazz. There are plenty of popular tunes. The royalty on the highbrow numbers must be pretty low, when they play so much of it. Candidly speaking, we get better musical numbers from the "B" class stations, who do not participate in the huge fees the "A" class stations enjoy. I venture to say that a vote on Classical v. Popular would result in the popular votes looking like the Prohibition returns.

When a man comes home after a long day, and gets out his pipe and armchair for a quiet evening's listen-in, he wants something in lighter vein, not these heavy and ponderous pieces. Perhaps some of your readers would express their opinion.

Yours, etc.

J. C. B.

Five Dock.

Church Service Roster

Dear Sir,—In reference to my letter, which you kindly published in your issue of December 28, I now desire to put forward a suggestion regarding Sunday night services broadcast by the "A" class stations, to take the form of a round robin (or roster), stations to be numbered in the following order:—

- No. 1, 4QG, Brisbane.
- No. 2, 2FC, Sydney.
- No. 3, 3LO, Melbourne.
- No. 4, 5CL, Adelaide.
- No. 5, 3AR, Melbourne.

(Note: 2BL Sydney not included).

The first week of the roster, No. 1 to broadcast the Church of England service from Brisbane.

No. 2 to broadcast the Roman Catholic service from Sydney.

No. 3 to broadcast the Presbyterian service from Melbourne.

No. 4 to broadcast the Methodist Service from Adelaide.

No. 5 to broadcast the Congregational or Baptist service from Melbourne.

The following week, No. 1 to broadcast Congregational or Baptist Service; No. 2, the Church of England service; No. 3 the Roman Catholic service; No. 4, the Presbyterian service; No. 5 the Methodist service; and so on, each week in turn.

By this means the principal churches of the different States are broadcast each week, 2BL Sydney to broadcast sacred and first-

class music during the usual hours of night service, and then take up the usual Sunday night programme. The above would not prevent the local "B" class stations broadcasting their particular service.

I believe if this suggestion was given a trial it would give general satisfaction. Most set owners will tell you that they have no trouble in receiving inter-State stations.

Yours, etc.

CONSTANT READER.

Kuring-gal.

43 Letters Answered S.O.S.

Dear Sir,—In "Wireless Weekly," dated December 28, you printed my S.O.S. for back issue, containing circuit of "All Empire S.W. Receiver." The response has been simply wonderful. To date I have received 43 letters, and over 20 "Wireless Weeklies." I have answered just on 27 letters, and I had hopes of replying to every missive when I received more letters from Victoria this morning.

Well, this task of replying to all these letters is beyond me, so I take this opportunity of thanking every reader who sent me a copy of "Wireless Weekly," and hope to repay if possible each person at some later date—but that is a huge task.

This incident has certainly brought home to me the far-reaching effects of the journal. It is certainly a very different journal today when compared to the issues of some fifteen months ago. The "Wireless Weekly" of those days was certainly the poorest wireless journal in Australia, but to-day it ranks with the highest wireless magazines in circulation.

Yours, etc.

F. GOGGIN (jun.).

Manly.

The Laughing Competition

Everyone must agree that the laughing competition was an undoubted success, in so far as it provided a great deal of amusement for a number of people—if only the competitors.

However, the entries, which had already started to arrive as this issue went to press, indicate that the enjoyment was not confined to the studio, and many listeners are loud in their praises of this novel competition. In the next issue we will publish progress results, and in the following hope to announce the winner.

2BL to Blame

Dear Sir,—I wish to correct Mr. East's version ("Wireless Weekly," 18/1/29) of what happened at St. Mary's Cathedral two years ago. He says that an "A" class station... one Sunday night did broadcast the service from St. Mary's, and we decided to listen-in, mostly for the music, but all we heard was someone who, for one solid hour, preached in a heated manner... If Mr. East had perused 2BL's programme as published in the press, he would have noticed that there was no intention of broadcasting the usual service that night, but—well, let me quote 2BL:—7.15 p.m.: From St. Mary's Cathedral, lecture on 'The True Church,' by Father M'Carthy."

I consider that 2BL was wholly to blame in arranging for such a contentious subject to be discussed over the air. Could one imagine a more controversial subject? The lecturer had no intention of offending his non-Catholic hearers, but when one remembers the matter under discussion, it would be a matter of impossibility—even if discussed from any other viewpoint—of not offending the susceptibilities of a large number of listeners.

4QG broadcasts a Catholic service (not lectures) once a month without any complaints being made. Here the Catholics if they desire their service broadcast must pay a "B" class station to do it, notwithstanding they pay their license fees to the "A" stations. It is to be hoped that the forthcoming rearrangement of broadcasting will remedy this injustice.

Yours, etc.

A. YATTE

Clovelly.

Rest Cure

Dear Sir,—Perhaps "Non-Egotist" needs a rest cure for nerves. In January 11th issue he comments on 2BL's early morning announcer. To my idea, his little synopsis on certain records shows that he is really taking an interest in what he broadcasts to listeners, thereby holding their interest. He is far better than some of these "any-anything-will-do" announcers.

Yours, etc.

SATISFIED.

Croydon.

Not Egotism

Dear Sir,—May I venture to remonstrate with your correspondent, "Non-Egotist." The 2BL early morning announcer is looked forward to as a friend by my wife and I, and we have only found in his "not lengthy speeches"—as "Non-Egotist" has it—but in his few well-chosen remarks and explanations, an added interest and pleasure in the various musical items, etc., he presents with such an obvious desire to give pleasure to his listeners. It seems quite the opposite spirit in which "Non-Egotist" writes from which our old friend broadcasts in his kind and cheery way each morning.

Yours, etc.

"VERITAS."

Mosman.

OUT THEY GO!

Here's a drastic clearance of lines which we do not propose to stock in future.

LOOK THIS LIST OVER

There may be something you are specially in need of, only limited quantities available.

AND THE PRICES! WELL, SEE FOR YOURSELF

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- Various sizes in Best Bakelite Fixed Condensers, including Micamold Sangamo, etc., 1/9 to 3/9
- Variable S.L.F. Condensers, 00025 8/6
- 3 Gang Pantagraph Condensers 52/-
- Silicon Mounted Crystals 3d
- Three Crystals in box 6d
- Coils for Improved Reinartz ... 3/9
- 4in. Black Condenser Dials ... 1/-
- Dialier Vernier Dials 1/5
- Emmco Rear Panel Dials 3/-
- Ajax Aerial Insulators 1d
- Filament Control Jacks, D.C. ... 2/9
- Double Circuit Jacks 1/11
- Silver Knight Shortwave Kits ... 29/6
- Econocoil Shortwave Kits 42/-
- 3in. and 4in. Pigtailes ... 3 for 2d
- Double 'Phone Plugs 1/3
- 3in. and 3½in. Wooden Rotors ... 2d
- Imperia Toggle Switches 1/-
- Crescent Transformers 11/-
- W.D. 12 Valves 3/6
- A.W.A. 199 Valves 6/-

PARTS FOR THE MARCO 4, IN THIS ISSUE.

	s.	d.
1 Polished Hard Rubber Panel, 21 x 7 x 3-16	7	6
3 Continental Condensers, .0005, 8/6	25	6
3 Dora Vernier Dials, 6/3	18	9
1 Double Circuit Jack	1	11
1 Single Circuit Jack	1	7
1 Imperia Toggle Battery Switch	1	0
4 30 ohm Rheostats, 3/6	14	0
1 Mignon Cub Transformer, 3½ to 1	9	6
1 Mignon Cub Transformer, 5 to 1	9	6
1 Wetless .00025 Condenser, with clips	1	9
1 Wetless .0001 Condenser	1	6
1 Wetless .002 Condenser	1	6
1 2 megohm Gridleak	1	0
4 Alpha V.X. Valve Sockets, 1/3	5	0
2 3in. Card Tubes, 6d	1	0
1 ½lb. Reel 24 D.C.C. Wire	2	6
£5/3/6.		

DIAGRAMS MARCO 4

The Eco Marco 4 Diagram shows the exact layout and clear connections for a well tried circuit.

PRICE 1/-

This amount will be refunded on the purchase of 10/- worth of parts.

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COUNTRY CLIENTS.—Our parts are absolutely guaranteed to give satisfaction. Send your orders to us conditionally that your money is refunded if you are not satisfied with the goods upon receipt of same. Goods must be returned to us within ten days. We pay Carriage on All Orders of 10/- and over. Valves and goods specially procured cannot be exchanged. Terms Cash. No discounts.

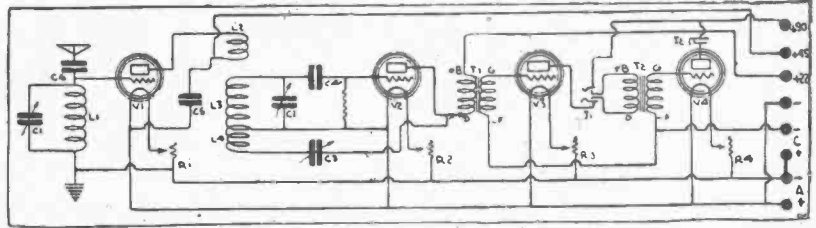
SYDNEY
25 New Royal Arcade,
near
Palace Theatre.
'Phone, M6138.

NEWCASTLE
13 Union Street,
off
Hunter Street West.
'Phone, New. 1622.

PARRAMATTA
Corner Church and
Macquarie Streets.
'Phone, UW 9601.

ORANGE
120A Summer Street.
'Phone, Orange 735.

How to Build



The Circuit Diagram—a Simple Reinartz with a Stage of R.F.

THE MARCO FOUR

Probably the most popular four valve receiver ever published in "Wireless Weekly," and here reprinted for the second time in answer to hundreds of requests from readers, The Marco Four is simple to build, not hard to operate, and although the front panel looks somewhat out-of-date these days it is still efficient and can be remodelled by the builder if necessary,

IN "Wireless Weekly" of November 5, 1926, there was described the Marco four-valve receiver. It proved a very successful circuit, so successful, in fact, that many owners proclaimed it a much better all-round receiver than the Browning-Drake. Copies of this issue were sold out within two days. In order to satisfy the demands of many readers, the circuit was again published on November 4, 1927, and once again every available copy was sold within a few days.

Demands for an improved receiver of the Marco Four type led us to publish the Improved Marco Four, and later the One-control Marco Four, and still later the Marco Special.

Readers who follow the Information Service pages will see that there is still a large demand for this circuit. There are still, however, numerous readers who desire to see the whole article in print again, and so we make no apology in reproducing the original article. Incidentally, since the article was first published a Marco Four kit is now available (such has been the fame of this receiver), but instructions are given here for winding your own coils.

The circuit is simply a three-valve Reinartz, with a stage of R.F. added. Looking at this circuit, the usual Reinartz will be recognised in coils L3 and L4, tuned with variable condensers C2 and C3. Preceding this is found the R.F. valve (V1), the coil L2 being the coupling coil transferring the R.F. energy to L3, and the V2, which is the detector valve. Aerial condenser C6 is a constant aerial tuning condenser of .0001 mfd., and assists greatly in selectivity. Condenser C5 is the

Shopping List For Marco Four

- 1 Panel, 21 x 7 x 3-16 in.
- 3 .0005 Condensers.
- 3 Vernier Dials.
- 1 D.C. Jack.
- 1 S.C. Jack.
- 1 Battery Switch.
- 1/2 50 ohms. Rheostats.
- 1/2 Valve Sockets.
- 2 Audio Transformers, 1 5 to 1 and 1 3 1/2 to 1.
- 1 .00025 End Condenser.
- 1 .0001 Condenser.
- 1 .002 Condenser.
- 8oz. No. 24 D.C.C. Wire.

standard by-pass condenser, having a capacity of .002. The three variable condensers each have a capacity of .0005 mfd., whereas C4 is the usual .00025 mfd grid condenser.

COILS

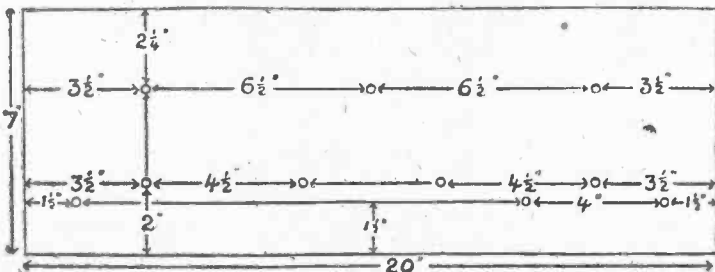
Looking at the back-of-panel diagram, it will be seen that L1 is so arranged that it is at right angles to the other coils. The most important feature in this receiver is the position of the radio frequency plate coil, L2. This is inductively coupled to L3, but its position is most critical. If it is brought too close, the selectivity is not so great as when it is kept away. There is a certain position at which this coil gives the greatest signal strength on weak signals, with noticeably sharper tuning, and, as will be explained later, this position can only be determined

by experiment. In the receiver illustrated herewith the best position was found to be when the edge of L2 was 2 1/2 in. away from L3; that is to say, the actual coil itself, not the former.

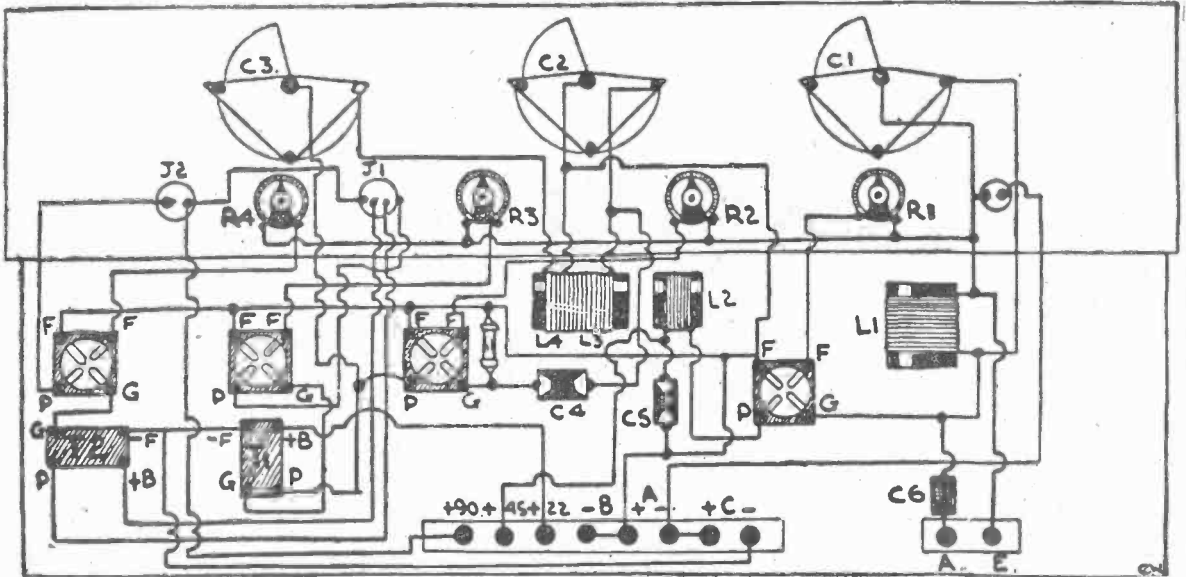
The construction of this receiver will now be proceeded with. The coils themselves should, firstly, be wound. For L1, 47 turns of No. 24 D.C.C. wire is necessary. Proceed to wind this, first of all drilling two small holes, through which the end of the wire has to be threaded, in order that it will be held securely. Wind on the 47 turns of wire, and finish off by securing in a similar manner. One of the 3/8 in. lengths of tubing is required for this purpose, but if this size tubing is not available 3/8 in. or 1/2 in. tubing will be found perfectly satisfactory. Another of the same pieces of tubing has to be wound with coils L3 and L4. Grid coil L3 has 45 turns of wire, whereas L4 has 20 turns of the same gauge wire. Both these coils are wound on the same former, the distance between L3 and L4 being 1/4 in. The third coil, that is, the R.F. plate coil, comprises 25 turns of No. 24 gauge D.C.C. wire, wound on the remaining portion, that is, the 1 1/2 in. length of tubing. Take a little care and a few pains over the winding of these coils, as when correctly built they look very nice and neat.

LAYOUT

Leave these coils on one side while you attend to your panel layout and drilling. The diagram given herewith will show you the exact measurement suited to your different panel components. To understand this clearly, a consultation with the front view of the receiver reproduced here will be of great value. There can be seen the three condenser dials, which it will be noted are of the vernier type, and also the four rheostat knobs underneath these condensers. The battery switch is placed at the extreme left of the panel, while the single circuit S.C. jack is on the extreme right. Midway between the two audio valve rheostats is found the D.C. jack. Lay your panel on a flat surface, and mark out the various positions. Never use lead pencil for this purpose; rather measure each particular position with a rule, and make a small scratch at the correct position, and centre punch immediately. Pencil lines provide a path for radio frequency currents, and, as we wish to confine



MARCO FOUR IS THREE VALVE REINARTZ WITH STAGE OF R.F. ADDED



them to the circuit itself, and not the front of the panel, we stress the necessity of not using pencil lines. In drilling, don't forget the golden rule that a light pressure and a high speed quickly bores the panel. When everything is drilled, mount your components on the panel, and then prepare for the baseboard layout.

As mentioned before, too much importance cannot be attached to the position of the R.F. plate coil L2, with relation to the detector grid coil, L3. To achieve the maximum efficiency from this receiver lay out the audio end of this receiver. Follow closely our own layout, and you can then be assured of maximum results. There is nothing whatever to stop you from mounting the aerial coil, L1, and the grid and reaction coils, L3 and L4, provided you leave sufficient room for experimenting for the correct position of R.F. plate coil, L2. Certainly screw down your valve sockets and transformers, and temporarily

lay in a near position the R.F. plate coil, L2.

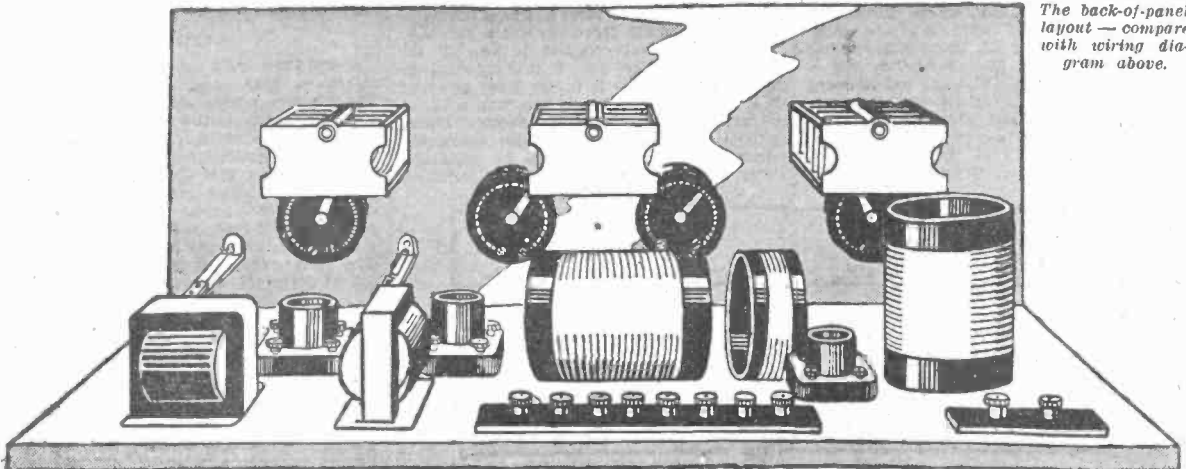
WIRING

In the wiring it is always advisable to start off at the audio end of your receiver. Back-of-panel wiring diagram will give sufficient detail of the wiring to enable you to proceed. Square busbar is ideal for this purpose, and make certain that each joint is tight, and, when soldering is required, is carefully soldered. When you come to wiring the connections of L2, use some ordinary flexible wire, in order that you may be in a position to vary the situation of this coil on actual tests.

After everything is wired correctly, you are now in a position to test your receiver on the air. Connect up your A, B, and C batteries, 4½ volts being sufficient for the C battery. Insert your valves in their sockets, and hook on your aerial and earth. Insert your phones and jack, J1, and turn up your valve filaments. Leave condenser C3 at a position when the movable plates are half-way en-

meshed into the fixed plates, and tune with condenser C1 and C2, using the right hand for tuning the middle condenser, C2. This condenser is very critical of adjustments, and should be rotated in unison with condenser C1. Presently you will hear one of the local stations, and, by the careful adjustment of C2 and a final adjustment of C3, you will hear them at an excellent volume. Bear in mind that this time you have the R.F. plate coil, L2, approximately 2in. away from L3. Without moving this coil in any way, tune through all the local stations, listening to each in turn, and bringing each up to maximum volume, keeping in mind all the time that if too much of condenser C3 is used a certain amount of distortion may occur. Watch this carefully. Now seek the distant station. Go for Brisbane, for example, and note the strength of this station. Plug your phones into jack J2, thereby including all four valves of the circuit. We must needs turn up rheostat R4, tune Bris-

(Continued on page 24.)

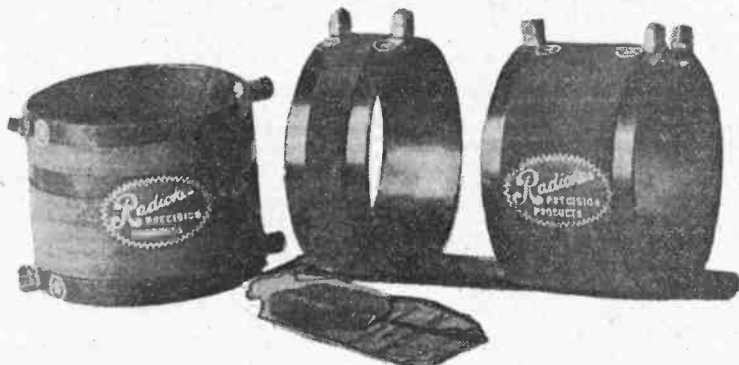


The back-of-panel layout — compare with wiring diagram above.

THIS WEEK'S RECEIVER:

The MARCO FOUR

SPECIFIES the

RADIOKES MARCO COIL KIT

This receiver is an old favorite, and during the last couple of seasons has enjoyed remarkable popularity. Very simple of construction and operation, and low in cost, make this one of the finest fours yet presented to the Australian Radio Public.

The certainty of operation and ease of assembly are assured if you employ the parts as used in this laboratory receiver. Radiokes Master Marco Coil Kit is unquestionably the heart of this fine little set, and if you are to duplicate the results obtained with the receiver described in this issue, you must employ this famous Radiokes Kit.

Radiokes Master Marco Coil Kit represents the finest and latest in coil design and construction. The windings are carried out in brilliant green silk covered wire on highly polished and accurately machine-cut genuine Bakelite tubing. This assures a coil which will retain its original characteristics, irrespective of age, use, or weather conditions.

The detector coils are mounted on an adjustable Bakelite mounting frame, metal fittings are polished nickel finish, and screw terminals are plainly designated, which allows for quick and easy wiring.

Price of RADIOKES MARCO COIL KIT is 30/- as Illustrated.

Amperite is also required for successful operation of this little receiver. Beware of imitations.

RADIOKES PRODUCTS are obtainable from all high-grade Radio Stores everywhere.

If your Local Dealer is out of stock, write direct to—

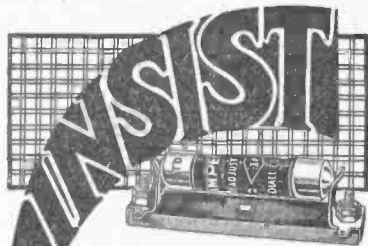
METROPOLITAN ELECTRIC CO. LTD.,

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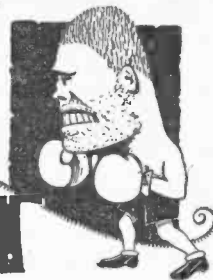
AMPERITE is the only automatic filament control that keeps the temperature or voltage of the valve filament constant despite variations in the L. T. Battery Voltage. It guarantees improved valve performance and increased valve life through always operating valves at their proper filament temperature. Simplifies wiring, panel design, valve control, tuning. Eliminates hand rheostats. Do not confuse with fixed filament resistors which attempt to imitate AMPERITE but are entirely different in principle and operation. Insist upon AMPERITE. For sale by all dealers.

Price complete with mounting.

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AMPERITE
The "SELF-ADJUSTING" Rheostat

HITTING BELOW the BROADCAST BELT



Short-wave and Amateur Notes by VK2N

SHORT-WAVE listeners of my acquaintance are all agreed that they have never known anything quite so exasperating as the behaviour of the higher frequencies just lately. Everywhere is the same story—rapid high speed fading, static—or the signal is just not there at all. It doesn't matter much, so far as the short-wave broadcast listener is concerned, but it is often more than annoying from the "ham's" point of view.

One morning about 5 o'clock, a German or Swedish station may be hooked up with and worked "solid" for an hour and a half. A schedule is made for the following day at the same time, same place, same signal, etc., and after the alarm has told you that the DX is calling, you stagger down to the shack, sleepily switch on the King of Short Wave Receivers, call him, call him again, and keep on calling him, but just nothing but silence. He might be able to hear you or he might not, but it is obvious that you don't hear a sound of him, although you thought just then you could make out a whisper of a sound which might have been his RAC note. Just another of the little tricks these short-waves love to play on us.

We put it down to all sorts of things, angles of reflection, skip distance, and the like, and it's too near breakfast to go to bed again, anyway! In this respect the experimental transmitter "has" it over the broadcast listener, because he can look around and see if any of his local colleagues are up with the lark also and yarn away until shaving and "eats" time. The poor BCL, he has got out of bed for nothing, there is not even a semblance of a carrier to be heard, and all he can do is to listen impotently to the ceaseless morse chatter of countless commercial telegraphy stations.

This seems like a black picture, doesn't it? As I have said before, there are good and bad occasions of short-wave reception, and when they are good, they are often amazing to a degree, but when they are bad they are like the proverbial little girl—positively horrid.

With the kind assistance of Mr. Russell Crane, I have been able to compile a faithful log which shows the listener exactly what to expect at this time of the year, so there is a ray of sunshine through the gloominess.

FRIDAY MORNING, DECEMBER 28,

At 5.40 a.m. G5SW was only just audible, and static bad, but there was a saving grace, as he was well clear of the beam stations. At 5.52 a.m. PCJ was very loud through heavy static. There was at this time the usual announcement and a xylophone item. The announcer seemed to have a very clear American accent. "The next and concluding item will be the march, New York." This and the following music was good loud speaker strength. The announcer then called British India and South Africa. (not Australia) and said he was closing down until to-night at 6, and then continuing until three Friday morning GMT (i.e., 1 o'clock afternoon, Sydney). G5SW. The carrier in evidence up to 8.30 a.m., but can hear nothing now.

Same Friday evening. At 10.30 p.m. a lot of static and beam interference very close to G5SW's wavelength. Did not hear Big Ben on this occasion, and the music is the

weakest heard for some time. Ye screen grid valves—wherefore this thyness?

Java. One of the Javan stations calling Kootwijk and Amsterdam. Seems like ANE, but the wavelength is a little higher than usual. G5SW. Improved a little, but static still bursting in. The bulletin regarding his Majesty the King easily copied with 'phones, but not strong enough to justify extra audio and loud speaker. Also slight morse interference. Most of the intervening week in my last log.

SATURDAY, JANUARY 5

Morning conditions bad, weather hot and very sultry. Could not hear G5SW at 6.45 a.m., and I did not look for PCJ this morning as even the alarm overslept. Conditions just now make reception very uncertain, practically no rain for six months, and the ground very dry and parched. Nothing else was heard during this day, and the receiver not used at night.

SUNDAY, JANUARY 6

Nothing of interest all day. Static bad.

MONDAY, JANUARY 7

Very heavy static. At 4.30 p.m. heard Java on 15 metres, evidently testing for the official start of telephony with Kootwijk. The music was very loud on the speaker, coming through static well.

These stations were working right on to 1.30 a.m., Tuesday. From 8 to 10.30 p.m. they were very strong with heavy static. Java strong enough to come through well, but Holland killed by static. G5SW: 10.30 to 10.40 p.m. A great deal of morse interference, both slow and high speed automatic. Only moderate earphone strength. Radio Paris: This station very strong indeed, and beautifully modulated. No music transmitted, which seems a pity. TLO not working to schedule.

TUESDAY, JANUARY 8

A stormy day. Java LS strength at night. G5SW good speaker strength, but static spoiling reception. Not worth the trouble. I closed down at 11 p.m.

WEDNESDAY, JANUARY 9

3.50 a.m. No stations on the air. TLO not transmitting. 2ME: This station had a strong carrier at 4.15, and soon after this time all our electric lights failed, and, as I was working from an eliminator, nothing more could be done.

Evening.—G5SW: This has been a terrible day. A heat record. 110 in the shade. It is interesting to note that, in spite of the bad conditions, the bulletin was quite easy to take, and the music from 5SW good loud speaker strength. Surging is bad, also static, but the music quite strong.

Java is also loud again, in spite of the weather. Still going at 11.30 p.m.

THURSDAY, JANUARY 10

ANE: This station seemed to be cut out at times by what I take to be picture transmission on 15 metres. No other stations heard up to 10.30. 5SW at 10.30, this station badly interfered with by a morse station not sending, only a series of dots. 5SW was not strong and the interference bad. I closed down at 10.45.

FRIDAY, JANUARY 11

5SW: Fairly strong, but surging badly, and a good deal of static, no morse interference.

First half-hour organ music. 11 o'clock. King's bulletin very clear, easily copied. Lunch-time music followed, marked improvement as the time went on.

SATURDAY, JANUARY 12

At 3 a.m. no stations audible. TLO, 4.45 a.m. This station very weak, and surrounded with morse, making it difficult to tune; static also bad. Piano solo, followed by English announcer, could not make consecutive copy. PCJ, 5 a.m., only just audible. TLO, 5.15 a.m., gave bulletin re King, followed by music. 5.55 a.m., this station at strongest for to-day, but very poor and fading and surging. PCJ, 5.55 a.m. This station improved to audibility, but impossible to copy. Bad interference just before closing. 5SW, 6 a.m. and onward: Only just audible. Carrier to 8 a.m., but could not get modulation. Note: This morning very disappointing. Last week good loud speaker on all stations, to-day barely audible on 'phones. No stations heard during the day, and at night the only one I got was RFN. This station was not strong, but was on the air all the evening. ANE: Not as strong as usual, playing dance music, 10.15 p.m. Duplex telephony was quite strong; apparently PCL was using two wavelengths, but could not quite clear up the 40 metres.

SUNDAY, JANUARY 13

2ZAF: Listened at 9 a.m. on 31 metres, but no carrier even. A bad morning, dry and hot.

MONDAY, JANUARY 14

5SW: 10.30 p.m., moderate loud speaker on both sets, slight morse interference, and decidedly touchy. 11 p.m.: Bulletin quite clear, and organ music following to 11.30, very good and clear of interference. ANE: This station very loud to-night after 11 o'clock, no static or interference usual two-way with PCL, who were only just audible. ANE is, I take it, still at Bandong, but several times I heard Sourabaya calling very clearly. The man in charge does not confine his remarks to Dutch, e.g. I heard him say a lot in Dutch, then "Oh, very good all right, merci. . . . Tiga bias." The last is the Javanese and Malayan for the numeral 13, and pronounced Teegar bias, to rhyme with the English word mass.

TUESDAY, JANUARY 15

5SW: This station only just audible, morse interference at 5.30. ANE and PCL both only fair, owing to static (they were re-broadcast). 5SW: Much spoiled by static, and first ten minutes by morse. 5SW: Static fairly bad, and could not get full bulletin re King. The music that followed was quite strong through static.

WEDNESDAY, JANUARY 16

TLO: Transmission quite loud and strong, but smothered in morse, heavy and broad. Announcement at 3.30 very good, and following music very good, and free of morse interference, but surging a bit. Morse again during announcement at 3.35 a.m. Educational record. Static now bad. 4.20 a.m.: Still fair strength, but surging, HS fading, and static spoiling reception. Could make nothing of the morse. Got CY8 and gozhs. Probably commercial code.

PROVING RADIO

No. 6 Continuing the discourse on magnetism this week, we deal with polarity in the case of electrical currents. The direction of the current is also described.

I DARESAY many of my readers have heard quite a lot of "induction," but have not fully grasped what induction is. Last week I discussed some experiments with magnetism, so this week I intend to describe to you some simple experiments with Inductive Magnetism. You will understand better

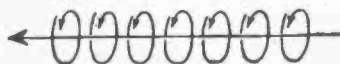
the duck will move away. The effect is greatly enhanced if a piece of bread is placed on the end of the magnet that attracts the duck.

I have told you that a magnet will pick up a needle because it "attracts" it. You have proved this for yourself. You may have noticed that if the magnet is slowly brought towards the needle, the latter leaps to meet the magnet.

When a current of electricity flows through a wire, a large part of its energy is changed into closed magnetic lines of force, which rotate at right angles to the wire (Fig. 5). Now when a wire is wound into a coil, the lines of force are concentrated inside and around it, and this is called the magnetic field. If you slip a bar of soft iron (such as a large wood screw) into the coil of wire, the lines of force will be further concentrated, for iron conducts magnetic lines of

determining the direction taken by the magnetic lines of force. This rule is quite simple, and needs no special instrument. It is called the "Right-hand Rule." Remember this, it is important. It is that if we grasp a current-carrying wire in our right hand, with

FIG. 5.



the fingers around the wire and our thumb lying along it, pointing in the direction in which the current is flowing, the lines of force will extend in the direction which the fingers take.

Next let us coil the wire so that it will be thrust several times through the paper. We will find that this makes the lines of force stronger and more numerous. The next step will be to place a soft iron bar (a big nail will do) inside the coil. If we take a compass and bring it close to the iron it is strongly deflected, showing the lines of force act upon the iron.

TRANSFER OF POWER.

To carry the experiment a stage further, we take two coils, wound in the same direction, and put them close together, as in Fig. 3. We arrange a battery and key in conjunction with the first or primary coil, and a sensitive current indicating device, such as a galvanometer, across the terminals of the other or secondary coil. Closing the key, we will find the pointer on the galvanometer deflects, then returns to normal. Opening the key, we find the needle deflects again. We see from this phenomenon that a surge of current in the primary induces a current in the secondary, and further experimentation will prove that either a rapidly pulsating direct current or an alternating current will produce this effect. Next let us take a few nails tied in a bunch, and lay

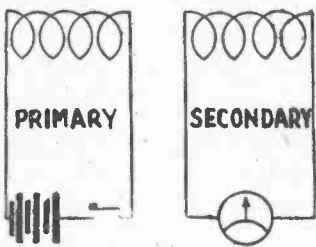


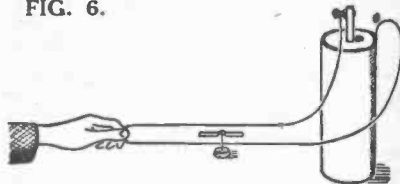
FIG. 3

force better than air, which is a good insulator.

To tell the direction in which a current is flowing, take a magnetic compass, and hold it between a loop of fine cotton-covered wire that is about a foot long, and connected with a battery, as shown in Fig. 6. Instantly the needle will be deflected in exactly the same way as if it had been brought close to a magnet, owing to the magnetic field. Indeed, the magnetic field set up in both cases is identical, though that round a wire is, naturally, much weaker than a magnet, owing to the resistance of the wire.

Next let us take a piece of wire and thrust it through a sheet of paper, connecting its ends to a battery. Again we sift iron filings onto the paper, and we find the lines of force are as in Fig. 2. We have a rule of

FIG. 6.



them so that they extend through both coils. We will find the effect of induction previously noticed is much increased, more energy being transferred into the secondary. We then understand why metal cores are used to audio frequency transformers, where a high degree of coupling is desired, and why an air core is used in radio frequency transformers.

A permanent magnet or a wire that is carrying current, or a temporary magnet within the field of such a wire or coil, has a magnetic field about it. If another wire (or coil) cuts this field (or if the field "surges") a surge of current is developed in the second wire. The closer two coils are together the greater the transfer of power. The introduction of a material (such as an

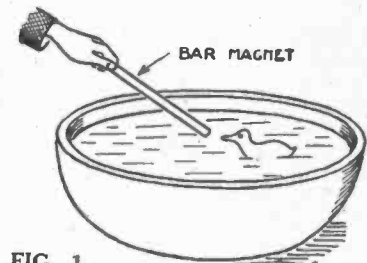
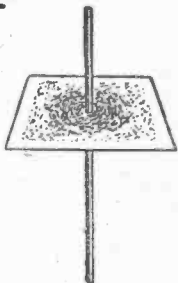


FIG. 1.

when you see these effects for yourself. Strictly speaking, it is not possible to see "induction"—but we shall see the effects of induction.

Place a book on a table, and on this lay a small nail so that one end of it projects a little over the side of the book. Now lay a magnet on the book in such a position that the ends, i.e., the poles of the magnet, come within 1-8 inch of the head of the nail. If the magnet is particularly strong, place it just far enough away from the nail in order that the latter will not be attracted to it by magnetic effect (discussed in Part 5). Next sprinkle some iron filings over the projecting end of the nail, and you will find these filings will be attracted to the nail. Since the magnet does not touch the nail, and the nail has become magnetic, the inference deduced from

FIG. 2



our experiment is that the magnetic lines of force have bridged the gap between the pole of the magnet and the end of the nail. This is what is called "magnetic induction."

A very clever toy that has been on the market for many years is based on the foregoing experiment. Make a hollow duck of sheet tin, as shown in Fig. 1, and weight it down a little with some solder, so that it will float on the water. When making the duck, conceal in the bill a little steel bar magnet. If now you hold the north pole of a bar magnet close to the duck's bill, the duck will follow it, and if you hold the south pole of the magnet close to the duck's bill,

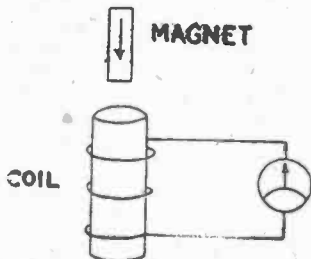


FIG. 4

iron rod) which is a good conductor, into the fields of the primary and secondary coils increases the degree of coupling; i.e., the transfer of energy. If a wire is thrust sideways through lines of force, or vice versa, electrical energy will be developed in the wire.

The foregoing should give the reader a basic idea of why transformers work, and why direct current cannot be stepped up by means of them.

Next let us take a coil of wire and drop a bar magnet through it. (Fig. 4.) If a galvanometer is connected across the coil we will notice a deflection of the pointer as the coil cuts the lines of force. This is the

principle of the dynamo or generator as used in radio transmission and for other purposes. If we wind a coil of wire tightly around an iron rod and revolve it rapidly between the poles of a horseshoe magnet, so that the ends of the rod approach the north and south poles of the magnet, a current will be generated. The stronger the magnetic field and the more wire on the coil or armature, and the faster it revolves, the greater will be the power produced. Motors work on the reverse of this principle, but it is not necessary to describe their action here.

I have mentioned a galvanometer. This is a very sensitive instrument, used to detect the presence of very minute currents. You may have read in "Wireless Weekly" of tests

for "field strengths" on 2FC. This was done with a galvanometer. Next week I shall tell you how to make one for yourself; it will cost about 6d.

Readers following this series will be pleased to hear that a "Proving Radio" Club is being formed by Mr. C. Y. Hook, 29 Blairgowrie Street, Dulwich Hill. Mr. Hook started off with four members, who pay a small fee weekly in order to defray the cost of experiments. The club intend to meet every night for a week or so, until all experiments are up to date, after which they will meet once or twice weekly. Readers interested in joining should get in touch with Mr. Hook at once.

The MARCO FOUR

(Continued from Page 20.)

bane to its loudest pitch, and then move R.F. plate coil L2 just a fraction away from L3, take away your hand, and notice if result is stronger or weaker. Spend half an hour moving this coil closer to, or farther away, from L3, until the position is reached where the maximum volume from Queensland is obtainable. At this stage you can make a permanent fixture of coil L2, which need never be disturbed again, and which will respond to all stations, both inter-State and local.

Perhaps it may happen that a slight distortion is perceptible through all reception. If this is so it points out the necessity for the insertion of the radio frequency choke coil in the plate circuit of the detector valve. This has to be inserted between the two points marked with a cross on the P. lead of transformer T1. To make certain of this, one end of your choke is to be connected to the P. of this transformer, and the other end at the point where the busbar is running from the condenser C3 to the plate lead of the valve. Of course, that portion between the two crosses has to be broken, and to be left in such a position that the radio frequency choke coil completes a circuit itself. This coil may take the form of a 200-turn honeycomb coil, or, if this is not available, use 40z. of a No. 24 cotton-covered wire, wound in any old fashion, on a cotton reel. In actual practice, however, this choke coil was dispensed with, and a receiver illustrated herewith, and no detriment was found with this exclusion.

Again, it may happen that a slight difficulty may be experienced in controlling oscillation. If this is the case, it will be advisable to take the grid return lead, that is, the lead which comes from the join of L3 and L4, to the moving plates of condenser C2, and to the bottom of grid lead; take this lead from the A positive where it is fixed in wiring diagram, to the A negative. A dotted line on the circuit diagram shows this alteration, which, if it is necessary, means that that portion which is joined to the filament of valve V2 is taken to the A minus battery wire lead, to which are connected all the rheostats. This alteration will be plain to you, and may even be necessary in order to hold in the oscillations, which may be produced in this receiver. A word about valves will not be out of place. In actual practice, UX201A valves were used to advantage, and the R.F. plate coil has been designed for this particular valve. Should, of course, UX199 or UV199 valves be used, it may be necessary to wind coil L2 with 50 turns of No. 32 gauge of D.C.C. wire.

Before closing this article it may be worth while mentioning that the most suitable aerial for this receiver was found to be one which did not exceed 50ft. long, that is, including the lead end. A short indoor aerial not exceeding 40ft. long gave excellent results

Uncle Peter Closes Down

LISTENERS-IN to 2BL will feel as sad as it is possible for listeners-in to feel when they hear that Mr. J. Knight Barnett is soon to give up his position with the station. He joined the staff over twelve months ago as announcer, after eighteen months' connection with the station's musical transmissions. During his stay in the studio he has done much towards brightening the programmes, and his wit and shrewdness have made him extremely popular as Uncle Peter, of the children's session. His versatility has led him through many fields of the radio selection. He has accompanied singers, played in trios and orchestras, and has sung the Topical Chorus, spoken many monologues, and played piano-forte solos.

The Capitol Theatre gains what the New South Wales Broadcasting Company loses. This clever young man is a brilliant organist, and has made a close study of the Wurlitzer, which very few people in Sydney can play. You may see him seated one day at the organ during the morning or early evening session under the blue skies of the Capitol Theatre. And you may turn to your (assumed) companion and say, in the manner of showgoers: "See that chap playing the organ? That's Jack Barnett. He used to be at 2BL, and has often spoken to me."

So Uncle Peter will soon close down (sounds better than "shut up"), and we think we express the feelings of most listeners when we hope that the new morning session may be as cheery for him as his past association with 2BL has been for us.

at Marrickville, the Melbourne station, 3LO, entertaining all present at excellent loud-speaker strength. But my remarks of previous weeks must still be borne in mind with regard to inter-State stations.

Evil Associations

CAPTAIN STEVENS' short readings during the morning sessions have earned him many delightful letters of appreciation; but one of these warns him against the bad company he keeps. "Women like her, though they do not actually commit any sin, must have a depraved spot in their composition; and she was selfish and ungrateful, and I am sure if I were a man I should find it hard to forgive those two things." It seems a pity that Captain Stevens should let such a character escape over the air. Perhaps he had found her out, and wanted to get rid of her.

Kept Faith

PLEASANT greetings to 2FC's Racing Commissioner, Mr. Ferry, came by courtesy of the G.P.O., and were as follows:—"I have been listening in to you every Saturday for the past two, or, I think, three, years since I first heard you on the Newcastle Cup; and I think it is a very good record on your part that to-day you missed a race for the first time. I know you have had some very bad weather to put up with, and you have seen it through, and have always kept faith with race listeners like myself; so I thought a line to you after the only race you had the bad luck to slip in would go a little way towards expressing what many listeners think of your good work." We have seen a great number of appreciative letters; but this, in the circumstances, is the best so far.

After THIRTY YEARS

Re-united by Radio.

MEMBERS of a big Bendigo family had drifted apart through the West Australian gold rush in the 'nineties, and various other causes. The father died some years ago, and the mother went to live with a married daughter in Tasmania. The family had become scattered all over Australia—the sons had married, and their children were growing up quickly, but most of them had never seen their grandmother and uncles and aunts. The dear old lady had not heard from some of her children for many years, and did not, in fact, know of their whereabouts. Way out on the West Coast of Tasmania she was listening in to 3LO one evening, when she heard during the children's hour a birthday greeting broadcast by "Billy Bunny" to a child who bore the name of her late husband. "Why," she said, "that must be Dan's boy." She straightaway wrote to the address given by 3LO, and the result was a reunion of most of the family in Melbourne at Christmas time. The old lady had not seen or heard of her children for over 30 years. Such is one of the many blessings of wireless.

How They Backed the Favorite

WAY out back at a railhead near the centre of Australia, where mails and newspapers only arrived at very long intervals, the men have no way of knowing the starters in racing events, except by wireless. Previous to the last Melbourne Cup a couple of hundred men could be seen gathered round a loud speaker—most of them with pencil and paper, taking down the names of the starters. One of their number showed enterprise by opening a book, and the odds were laid and taken with just as much gusto as on the racecourse. And when the big race was run the great desert railway construction came to a halt whilst 3LO and allied stations belched out into the ether a running description of the Melbourne Cup.

Beating the Press

NEW ZEALAND newspaper owners, take note. "The splendid service provided for New Zealand listeners with the Test cricket is making 2FC a very real thing in the lives of all lovers of the game here. To know the scores, and how they were made is good; but to a great many (myself included), the fact of beating the Press 'hands down' is something which causes the greatest satisfaction." Although we fail to see why New Zealanders should have such a grudge against the press. The press has its usefulness. Where would YOU be, gentle reader, without your "Wireless Weekly"?

Improve Your Radio Reception!

THESE ACCESSORIES INSURE PERFECTION

*Terms can be arranged if preferred.
Small Deposit. Easy Instalments.*



BRITISH MADE FERRANTI TRANSFORMERS

A.F.3.

(As illustrated.)

Uniform amplification from 100 cycles upwards. Over 80 per cent. amplification at 50 cycles.

PRICE 45/-

A.F.4.

Uniform amplification from 300 cycles upwards. 50 per cent. of maximum amplification, even at 50 cycles.

PRICE 34/-

A.F.5.

Uniform amplification from 100 cycles upwards. Over 90 per cent. amplification at 50 cycles. One can almost say uniform amplification from 50 cycles upwards.

PRICE 57/-

THE FERRANTI BRITISH MADE PERMANENT TRICKLE CHARGER

For charging accumulators at home from the Alternating Current Mains. Suitable for use on voltages from 200 to 250 and 40 to 60 cycles.

OUTPUT: The Charger will supply $\frac{1}{2}$ ampere continuously to 2 volt, 4 volt, or 6 volt cells.

The FERRANTI Trickle Charger consists of a step-down Transformer designed for operation from Alternating Current Mains having any voltage from 200 to 250, and frequencies from 40 to 60 cycles, feeding a Westinghouse patent metal rectifier. The Unit is silent in operation, and will last indefinitely. The Charger is simple and safe.

Dimensions: 7 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in. x 4in.

PRICE £4/15/-

THE FERRANTI BRITISH MADE TRUE EXPONENTIAL SPEAKER

The Ferranti Speaker is capable of giving good reproduction from any ordinary set.

It consists of a tone conduit of true exponential shape, suitably mounted, and connected to a FERRANTI Speaker Unit. The Unit, which has been carefully designed, has a large and flexible diaphragm, capable of good response to a wide range of frequencies. The shape of the sound box in conjunction with the tone conduit is such that there is no objectionable resonance

PRICE £5/5/-

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HOME RECREATIONS (Australia) LTD.
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List of World's Broadcasting Stations Which Can be Received in Australia on Long and Short Waves

AUSTRALIA.		Metres. Watts.		Metres. Watts.		Metres. Watts.	
New South Wales.		nness College, Melbourne		2103. Silent		JAPAN.	
Metres. Watts.		Queensland.		Tues. day		JOAK—Tokio Central	
2FC—N.S.W. Broadcasting Co. Ltd. Market St., Sydney. 0700-2230	442	4QG—Queensland Govt. Radio Service, Brisbane. 0800-2200	255	47A—Radio Broadcasting Co. of New Zealand. Dunedin. 1700-2200. Silent days Mon. and Thurs.	294	600	Broadcasting Co. Tokio, Japan. Jap. stations received best about midnight on Sunday
2BL—N.S.W. Broadcasting Co. Ltd. Market St., Sydney. 0800-2330	353	4GR—Gold Radio Service, Margaret St., Toowoomba	385	600	750	JOBK—Osaka Central Broadcasting Co., Osaka	
2GB—Theosophical Broadcasting Station, 29 Bligh St., Sydney. 1000-2200	316	4SA—South Australia. 6CL—Central Broadcasters, Ltd., 59 Franklin St., Adelaide. 1100-2310	294	100	600	JOCK—Nagoya Central Broadcasting Co., Nagoya	
2KY—Trades and Labour Council, Goulburn St., Sydney. 0900-2200	280	6DN—5DN Pty., Ltd., 24 Montpellier St., Adelaide	409	5000	3000	375	
2UW—Radio Broadcasting Ltd., Palling's Building, Ash St., Sydney. 1230-2230	267	6KA—Sport Radio, Ltd., 51 Kintore Av., Prospect	213	600	10000	380	
2UR—Electrical Utilities Ltd., 619 George St., Sydney. 0730-2330	293	6WF—Commonwealth Government Broadcasting Station, Perth. 1230-2230	1250	5000	10000	345	
2MK—Mockler Bros., Ltd., Hawick St., Bathurst	278	6ZL—Tasmania. 7ZL—Tasmania Broadcasters Pty., 95 Elizabeth St., Hobart. 1130-2200	100	3000	5000	1000	
2ED—H. A. Douglas, King St., Newcastle	288	100	100	5000	5000	1000	
2BE—Rurgin Electric Co., 340 Kent St., Sydney. At present off the air	318	100	100	5000	5000	1000	
3LO—Dominions Broadcasting Co., 120A Russell St., Melbourne. 0715-2340	371	100	100	5000	5000	1000	
2AR—Dominions Broadcasting Co., 120A Russell St., Melbourne. 1000-2200	484	100	100	5000	5000	1000	
3UZ—O. J. Nilson and Co., Bourke St., Melbourne	319	100	100	5000	5000	1000	
5DB—Drnielech Sust.							

International Short Wave Stations: Times Stated are S.M.T.

AUSTRALIA.		Metres.		Metres.		Metres.	
2ME—A.W.A. (Syd.) relays		from 0930	65.04	2400 Sat.: 0100-0400 Sun.	21	2300 Mon.: 0620-0700.	
2FC, times irregular, usually Mon. from 0430-0800	28.5	WBZ—Springfield, Relays WBK	70	PCP—Rotterdam, Wed. and Fri. 0300-0600; Sat. 0900-2400; Sun., 0100-0400	27	Wed.: 0900-0930. Sun. Picture transmissions, 0900-1100. Tues. and Sat.	40.12
2YG—Ray Allsop (Syd.), relays 2BL times various	32.5	2XAF—Schenectady, Tues. 0900-1500; Wed., 0900-1430; Fri., 0900-1500; Sun., 0900-1500	32.4	PCY—The Hague, 0100-0600, Wed. and Fri.; 0900-2400, Sat.; 0100-0400, Sun.	42	OKK2—Vienna, 70	
2ME—A.W.A. (Melb.) relays 3LO, times various. Usually heard about 0430-0630	32	WLW—Ohio, 0900, except Sat. and Mon.	52.02	UNION OF SOVIET SOCIALIST REPUBLICS.		OKK2—Vienna Mon., 0400-1100	70
2AG—W. E. Coxon (Perth), relays 6WF, times various. Usually 2130-0200 daily	32.9	KDKA—East Pittsburg, Daily from 0800	43.35	RPN—U.S.S.R., Moscow 29. 60. 30		SPAIN.	
2NW—Marconi Co. (London), relays 2LO, 0400-0800, daily, except Sun. and Mon. From 0330 on alternate Saturdays, and 2100-2200 daily	25	WIZ—New Brunswick, irregular, usually after 0800	43.38	RFM—U.S.S.R., Siberia	60. 30	FRANCE.	
2YT—Marconi Radio, Poldhu, Times various 25. 32. 92. 94	25	7XAO—Portland, Oregon, Daily from 0900-2300	63.54	ITALY.		GC—Paris	61
2NM—Gerald Marcuse, Catherham, Surrey, 1700-0400-0600 (Sun.), 1000, Thurs. and Sat.	32.5	2NG—Rocky Point, from 2400 Mon. and Fri.	16.02	IMI—Milan	45	YB—Lyon, Daily, 0230-0400	40
GLW—Beam Station, all times (Dorchester)	16.7	2NE—Richmond Hill, Relays WABC daily, from 0800	22.1	IDO—Italy	33.5	FL—Paris, Time signals, 1756-0556	32
GLQ—Beam Station, all times throughout day (Ongar)	24.5	WOWO—Fort Wayne, Indiana, Relays Columbian stations daily, 0800	22.8	IAX—Rome, 0700 Sun.; 0300-0530, Mon.	34.5	FW—Ste. Assise, At odd times throughout day, Radio Vita, Paris, 0700-0900	14.28
GBH—Beam Station, Grimsby (Beam Station), All times	28.9	8XK—E. Pittsburg, Relays KDKA, 0300-0600, Tues. and Wed.	26.8	IWA—Rome, 0700 Sun.; 0300-0530, Mon.	34.5	Radio Aen. France, 0700-0900	37
UNITED STATES.		2XAL—New York, Relays WNY 0900-1400 Tues.; 1100-1500 Wed.; 1200-1300 Sat.	30.91	SOUTH AFRICA.		Radio Aen. France, Wed. and Sat., 0800-0915	39.75
2XAD—G.E.C., Schenectady Relays WAB, 0830-1300 Mon., 0430-0800 Tues. and Fri., 0800-1300 Thurs. and Sat.	21.96	2XAO—Detroit, Mich. Relays WTB daily	32	JAPAN.		SWITZERLAND.	
2XZAR—San Francisco, 1000, daily	33	WCVG—Brooklyn, Daily 0900	64	JPR—Tokyo	37.5	EHXD—Zurich, Relay work Tues., Thurs. and Sun.	85. 32
2XL—Boundbrook Relays WJZ	59.96	2XE—New York, Relays WABC and WBOQ daily, 0900	68.5	JTAA—Yokohama	79	EH90C—Berne, 0500-0600	32
2XU—Council Bluffs, Relays Columbian Broadcasting Stations	61.06	2XAA—Houston, Transatlantic telephony	22.99	JKZ—Tokyo	20	MALAY STRAITS.	
2XBA—Newark, N.J., Relays WAAM, 1000-1600 Wed., Fri., and Sat.; 0900-0400 Sun.	65.18	INDO-CHINA.		GERMANY.		6XW—Singapore, 1200-1400	28.5
2XF—Cleveland, daily from 1500	66.04	HVA—Hanoi, No information available	31.85	AGC—Nauen, Daily, 0500-0600	56.7	JAVA.	
2XAL—Inglewood, daily		HOLLAND.		POX—Nauen, Press and news, reports to ships 19	26.4	ANP—Batavia, 2240-2440, Sat.	16.93
		PCL—Kootwijk, 2240-2400 Tues.; and from 0200 Thurs.	21.98	AGC—Nauen, Press and news, daily	25.3	INDIA.	
		PCM—The Hague, Irregular	25	AGC—Nauen, Throughout day	17.2	VWZ—Poona, Beam station	16.3
		PCJ—Eindhoven, 0300-0800, Wed. and Fri.; 0800-2400 Sat.; 0100-0400 Sun.	31.4	APK—Doehertz, Tues., Thurs., Sat., 0500-0600 (Call sounds like "Ar-er-Car")	37.65	FINLAND.	
		PCT—Kootwijk, 0300-0600 Wed. and Fri.; 0900-		NORWAY.		SPM—Helsingfors, 1930-0630	47. 31.6
				LGN—Bergen, 0900, Irregular	30	BELGIUM.	
				Stavanger, News bulletins, 0400	12.14	IGG—Brussels, Almost daily, 0600-0900	34.7
				DENMARK.		4OU—Brussels, Almost nightly, 0800-0900	43.8
				7MK—Copenhagen, Irregular	39.3	TUNIS.	
				IRL—Copenhagen	42.12	KR—Constantine, Sun. only, 0800-1000	42.8
				Motala, Tests irregularly after midnight	41	MOROCCO.	
				EDTRL—Copenhagen, 2130-		AIN—Casablanca, 1930-0630. Weather report	61

Local Programmes, Friday, February 1

2FC

EARLY MORNING SESSION.

Announcer: A. S. Cochrane.
7.0: "Big Ben" and announcements. 7.2: Official weather forecast; rainfall; river reports; temperatures; astronomical memoranda. 7.7: "Sydney Morning Herald" summary. 7.12: Shipping intelligence; mail services. 7.15: Studio music. 7.25: Investment market; mining sharemarkets; metal quotations; wool sales; breadstuffs markets; inter-State markets; produce markets. 7.40: Studio music. 8.0: "Big Ben." Close down.

MORNING SESSION.

Announcer: A. S. Cochrane.
10.0: "Big Ben" and announcements. 10.2: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.45: A talk on "Home Cooking and Recipes," by Miss Ruth Furst. 11.0: "Big Ben." A.P.A. and Reuter's cable services. 11.5: Close down.

MIDDAY SESSION.

Announcer: A. S. Cochrane.
12.0: "Big Ben" and announcements. 12.1: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Studio music. 12.10: Summary of news, "Sydney Morning Herald." 12.15: Rugby wireless news. 12.18: A reading. 12.20: Cricket scores, fourth Test match, England v. Australia, played at Adelaide. 12.22: A reading continued. 12.30: Studio music. 12.35: Cricket scores, fourth Test match, England v. Australia, played at Adelaide. 12.37: Studio music. 12.50: Cricket scores, fourth Test match. 12.52: Studio music. 1.0: "Big Ben." Weather intelligence. 1.3: "Evening News" midday news service. Producers' Distributing Society's report. 1.5: Cricket scores, fourth Test match. 1.7: "Evening News," etc., continued. 1.20: Cricket scores, fourth Test match. 1.22: Studio music. 1.28: Stock Exchange, second call. 1.30: Popular studio music. 1.35: Cricket scores, fourth Test match. 1.37: Studio music. 2.0: "Big Ben." Close down.

AFTERNOON SESSION.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
2.30: Programme announcement. 2.32: Record recital of world-famous artists. 2.35: Cricket results, fourth Test match, England v. Australia, played at Adelaide. 2.37: Record recital continued. 2.50: Cricket results, fourth Test match. 2.52: Record recital continued. 3.0: Pianoforte reproduction. 3.5: Cricket results, fourth Test match. 3.7: Pianoforte reproduction continued. 3.15: A play by the students of the MacCunn School, under the direction of H. W. Varma. 3.20: Cricket results, fourth Test match. 3.22: Hilda Nelson (contralto). 3.29: Studio music. 3.35: Cricket results, fourth Test match. 3.37: Studio music. 3.45: A reading. 3.50: Cricket results, fourth Test match. 3.52: Reading continued. 4.0: "Big Ben." Hilda Nelson (contralto). 4.5: Cricket results, fourth Test match. 4.7: Studio music. 4.15: A play by the students of the MacCunn School, under the direction of H. W. Varma. 4.30: Popular music. 4.35: Cricket results, fourth Test match. 4.45: Stock Exchange, third call. 4.47: Studio music. 4.50: Cricket results, fourth Test match. 4.52: Studio music. 5.0: "Big Ben." Close. Note: Cricket results through 2BL service at 5.5, 5.20, 5.35.

EARLY EVENING SESSION.

Announcer: A. S. Cochrane.
5.40 The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man." Letters and stories. Music and entertainment. 5.50: Cricket results, fourth Test match. 5.52: Music and entertainment for children continued. 6.5: Stumps drawn, fourth Test match. 6.7: Music and entertainment continued. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.45: Weather and shipping news. 6.48: Rugby wireless news. 6.50: Late sporting news. 7.0: "Big Ben." Late news service. 7.10: Special dinner recital.

EVENING SESSION.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
7.40: Pianoforte reproduction. 7.45: Programme announcements; cricket results, fourth Test match, for the benefit of country listeners. 7.53: Popular music. 8.0: "Big Ben." A song recital by Browning Mummy; this is the first of a short series of appearances extending over one week, prior to Mr. Mummy's departure for America. 8.15: The Studio Dance Band, conducted by Cec. Morrison. 8.30: The second part of Mr. Browning Mummy's recital. 8.45: The Studio Dance Band, conducted by Cec. Morrison. 9.0: "Big Ben." Weather report. 9.1: Gwladys Fimister (soprano). 9.8: Livingstone Gill (trumpet solo). 9.15: R. A. Bartleman (baritone)—(a) "The Witch of Bowden" (Smith). (b) "The Four Cross Roads" (Phillips). 9.22: The Studio Dance Band, conducted by Cec. Morrison. 9.37: Gwladys Fimister (soprano). 9.44: The Studio Dance Band, conducted by Cec. Morrison. 9.58: R. A. Bartleman (baritone)—(a) "A Deep Sea Chantey" (Wargrave). (b) "Friendships" (Lohr). 10.0: The Studio Dance Band, conducted by Cec. Morrison. 10.13: Late weather report; to-morrow's programme. 10.15: The Studio Dance Band, conducted by Cec. Morrison. 10.30: National Anthem. Close down.

AFTERNOON SESSION.

Announcer: Basil Kirke.
Accompanist: Kathleen Roe.
3.45 p.m.: G.P.O. clock and chimes. Popular music. 3.50: Cricket results, fourth Test match, England v. Australia, played at Adelaide. 4.0: From Romano's—Romano's Dance Orchestra, conducted by Bennie Abrahams. 4.10: From the Studio—A talk, by Captain A. C. Stevens. 4.25: From Romano's—Romano's Dance Orchestra, conducted by Bennie Abrahams. 4.30: From the Studio—Ann Stuart Gurr, contralto. 4.35: Cricket results, fourth Test match. 4.37: "Sun" news service. 4.40: From Romano's—Romano's Dance Orchestra, conducted by Bennie Abrahams. 4.50: From the Studio—Cricket results, fourth Test match. 4.52: Ann Stuart Gurr, contralto. 5.0: Our serial story. 5.5: Cricket results, fourth Test match. 5.7: Serial, continued. 5.10: Billie Cresswell, in popular songs. 5.17: "Sun" news service. 5.20: Cricket results, fourth Test match. 5.22: Billie Cresswell, in popular songs. 5.29: Poultry report; "Sun" news service. 5.35: Cricket results, fourth Test match. 5.37: Features of the evening's programme. Note—Cricket scores, fourth Test match, will be given from 2FC at 5.40, and 6.5.

EARLY EVENING SESSION.

Announcer: J. Knight Barnett.
5.40 p.m.: Bedtime stories; songs, melody, and mirth. Diver descends from Coogee Pier, and describes the breakers and denizens of the deep, from the bottom of the Pacific; Father Neptune visits the pier. 6.30: Community singing by the radio nieces and nephews. 6.40: Special dinner music recital. 7.10: 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: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: J. Knight Barnett.
Accompanist: G. Vern Barnett.
8.0: Special programme, broadcast from Coogee Pier; dance music. 8.10: Concerted numbers, by the Charles Lawrence Revue Company. Assisting artists: Miss Dorrie Ward, Mr. W. E. Lewis, Miss Ivy Saxton, Miss Amy Ostinga. 8.20: Dance music. 8.24: Description of Coogee Pier. 8.40: Sketch by the Charles Lawrence Revue Company. 8.50: Dance music. 9.0: Revue presented by the Charles Lawrence Revue Company. 9.20: Dance music. 9.30: Song, by Miss Dorrie Ward. 9.35: Song, by Mr. W. E. Lewis. 9.40: Dance music. 9.50: Novelty nonsense at the piano, by Charles Lawrence. 10.0: Dance music. 10.30: Miniature revue. 11.0: National Anthem. Close down.

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. 2.0: Music. 2.5: Women's radio service, by Mrs. Dorothy Jordan. 2.50: Music. 3.30: Cookery demonstration. 4.30: Close down.

EVENING SESSION

5.30: Children's session, by Uncle George. 7.0: Stock and market reports, by New Zealand Loan and Mercantile Agency, Ltd. 7.15: Music. 8.0: Violin solos by Mr. Cecil Berry. 8.10: Songs by Mr. Leslie Herford. 8.20: A humorous interlude, by Mr. Jack Win and Mr. Heath Burdock. 8.25: Instrumental music. 8.35: Songs by Miss Heather Kinnaird. 8.45: Pianoforte solos by Miss Ada Brook. 8.55: A humorous interlude. 9.0: Weather report. 9.3: Address. 9.15: Songs by Mr. Leslie Herford. 9.25: Violin solos by Mr. Cecil Berry. 9.35: Songs by Miss Heather Kinnaird. 9.45: Instrumental music. 9.55: A humorous interlude, by Mr. Jack Win and Mr. Heath Burdock. 10.0: Orchestral music. 10.30: Close down.

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2BL

MORNING SESSION.

Announcer: A. C. C. Stevens.
8.0 a.m.: G.P.O. clock and chimes. Metropolitan weather report. 8.1: State weather report. 8.2: Studio music. 8.15: G.P.O. chimes; news from the "Daily Telegraph Pictorial." 8.25: Studio music. 8.30: G.P.O. clock and chimes; studio music. 8.35: Information; mails; shipping, arrivals, departures, and sailings. 8.38: News from the "Daily Telegraph Pictorial." 8.45: G.P.O. chimes; studio music. 9.0: G.P.O. chimes; studio music. 9.30: Half an hour with silent friends. 10.0: G.P.O. clock and chimes.

MID-DAY SESSION.

Announcer: Basil Kirke.
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. 12.0: G.P.O. chimes. Special ocean forecast and weather report. 12.3: Studio music. 12.20: Cricket scores, fourth Test match, England v. Australia, played at Adelaide. 12.22: Studio music. 12.30: Shipping and mails. 12.35: Cricket scores, fourth Test match. 12.37: Market reports. 12.50: Cricket scores, fourth Test match. 12.52: "Sun" mid-day news service. 1.5: Cricket scores, fourth Test match. 1.7: Studio music. 1.20: Cricket scores, fourth Test match. 1.22: Studio music. 1.30: Talk to children, and special entertainment for children in hospital. 1.35: Cricket scores, fourth Test match. 1.37: Talk to children, continued. 2.0: G.P.O. chimes. Close down.



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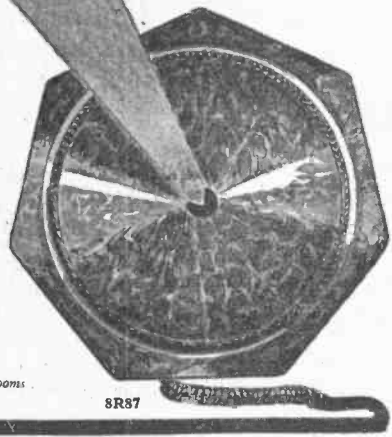
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February 1

5CL

MORNING SESSION.

11.0: G.P.O. chimes. 11.1: Station Quartet. 11.15: "Economist." 11.30: Station Quartet. 12.0: G.P.O. chimes. 12.1: Description of the International cricket, England v. Australia, fourth Test match. 12.15: News session. 12.35: British official wireless news. 12.40: Description of the fourth Test match, England v. Australia. 12.50: S.A. Railway information. 12.51: S. C. Ward and Co.'s Stock Exchange information. 12.58: Meteorological information. 1.0: G.P.O. chimes. 1.1: Description of the fourth Test match, England v. Australia. 1.30: Meteorological information. 1.31: Close down.

AFTERNOON SESSION.

"A prudent man is like a pin, his head prevents him going too far."—Jerrold.
3.30: Description of the fourth Test match, England v. Australia. 4.0: M. A. Noble will give a resume of the play. 4.15: Description of the fourth Test match, England v. Australia. 4.55: S. C. Ward and Co.'s Stock Exchange information, from studio. 5.0: Description of the fourth Test match, England v. Australia. 6.0: Birthday greetings; correspondence; songs and stories, by "Miss Wireless." 6.30: Close down.

EVENING SESSION.

7.0: G.P.O. chimes. 7.7: Stock Exchange intelligence, by S. C. Ward and Co. 7.5: "General market" report. 7.10: 5CL's sporting service, by "Gili-vius." 7.22: Road notes, supplied by the Automobile Association of South Australia. 7.30: M. A. Noble on the fourth Test. 7.45: P. H. Nicholls—Another month with Shakespeare, "The Tempest."

NIGHT SESSION.

8.0: G.P.O. chimes. 8.1: Station Orchestra. 8.7: Victoria M. Wilson, soprano. 8.13: Stephen Dunks, entertainer. 8.10: A. V. Noske, flautist. 8.24: Senia Chostakoff, Russian tenor. 8.30: Station Orchestra. 8.30: Eric Wickens, basso. 7.42: A pianoforte recital, by Irene Kemp, L.A.B. 9.0: G.P.O. chimes. 9.1: Meteorological information. 9.2: Overseas grain report. 9.3: Victoria M. Wilson, soprano. 9.3: Station Orchestra. 9.14: Senia Chostakoff, Russian tenor. 9.20: Station Orchestra. 9.32: Stephen Dunks, entertainer. 9.38: Station Orchestra. 9.46: Margaret Pirie, contralto. 9.52: Station Orchestra. 10.0: G.P.O. chimes. 10.1: Eric Wickens, basso. 10.6: Station Orchestra. 10.10: Margaret Pirie, contralto. 10.15: "Advertiser" general news service; 5CL's sporting service; meteorological information. 10.30: Modern dance numbers, by the famous Radi-o-Aces. 11.0: God Save the King.

7ZL

MIDDAY SESSION.

11.30: Records. 11.34: Midlands weather forecast. 11.35: Records. 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. 12.2: Records. 12.11: British official wireless news. 12.20: Records. 12.29: Announcements. 12.33: Records. 12.58: News service. 1.10: Records. 1.30: Close down. 2.48: Description of the Fourth Test Match, at Adelaide.

AFTERNOON SESSION.

3.0: G.P.O. clock chimes the hour. 3.1: Records. 3.4: Weather information. 3.5: Description of Fourth Test Match, at Adelaide. 4.30: Gramophone recital with James Liddy, Drury Lane Theatre Orchestra, Elsie Cergly, the Silver Stars Band, Rena Male Quartette, and Kenneth Walters. 4.55: Description of Fourth Test Cricket Match, at Adelaide. 5.30: Close down.

EARLY EVENING SESSION.

6.15: Records. 6.25: "The Story Lady" will tell a story to the children. 6.40: Records. 7.0: Answers to letters and birthday greetings by "Uncle David." 7.5: Request numbers by the Discus Ensemble.

EVENING SESSION.

7.15: A. M. O'Leary will speak on "Australia's Position in the Fourth Test Match, giving stump scores." 7.30: A studio concert by the Discus Ensemble, and 7ZL artists, Leila Read and Orchestra. 7.33: Katie Rothwell, contralto. 7.40: Aus. Commonwealth Band. 7.43: Geo. Muir, tenor. 7.50: Guitar duet. 7.53: Doreen Ellison, soprano. 8.0: Paul Whiteman and his Orchestra. 8.3: Fred Heraud, baritone. 8.10: Guitar duet. 8.13: Katie Rothwell, contralto. 8.20: Aus. Commonwealth Band. 8.23: Geo. Muir, tenor. 8.30: Leila Read, piano solo. 8.33: Doreen Ellison, soprano. 8.40: Paul Whiteman and his Orchestra. 8.43: Fred Heraud, baritone. 8.48: J. M. Counsel, "A Musical Hour with the Old Masters." 9.30: E. Sorell will speak on "Rowing." 9.45: News session: British official wireless news, news service, railway auction produce sales, weather information, Hobart Stock Exchange quotations, market reports from Messrs. Roberts and Co., and Messrs. Wise and Stillins. Stump scores Fourth Test Match. 10.0: G.P.O. clock chimes the hour. Close down.

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Local Programmes, Saturday, February 2

2FC

EARLY MORNING SESSION.

Announcer: A. S. Cochrane.

7.0: "Big Ben" and announcements. 7.2: Official weather forecast; rainfall; river reports; temperatures; astronomical memoranda. 7.7: "Sydney Morning Herald" summary. 7.12: Shipping intelligence; mail services. 7.15: Studio music. 7.25: Investment market; mining sharemarkets; metal quotations; wool sales; breadstuffs markets; inter-State markets; produce markets. 7.40: Studio music. 8.0: "Big Ben." Close down.

MORNING SESSION.

Announcer: Laurence Halbert.

10.0: "Big Ben" and announcements. 10.2: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service; 10.25: Studio music. 10.30: Last-minute sporting information by the 2FC Racing Commissioner. 10.40: Studio music. 10.45: Talk on gardening, by "Red-gum" (J. G. Lockley). 11.0: "Big Ben." A.P.A. and Reuter's cable services. 11.5: Close down.

MIDDAY AND AFTERNOON SESSIONS.

Announcers: Laurence Halbert, Ewart Chapple.

12.0: "Big Ben" and announcements. 12.2: Stock Exchange information. 12.4: Studio music. 12.10: "Sydney Morning Herald" news service. 12.15: Rugby wireless news. 12.20: Cricket scores, fourth Test match, England v. Australia, played at Adelaide. 12.22: Studio music. 12.35: Cricket scores, fourth Test match. 12.37: Studio music. 12.50: Cricket scores, fourth Test match. 12.52: Studio music. 1.0: "Big Ben." Weather intelligence. 1.3: "Evening News" midday news service. 1.5: Cricket scores, fourth Test match. 1.7: "Evening News," etc., continued. 1.20: Cricket scores, fourth Test match. 1.22: Studio music. Races: During the afternoon events at the Rosehill Races will be described by the 2FC Racing Commissioner. Cricket: Scores of the fourth Test match, England v. Australia, played at Adelaide, will be given at 1.35, 2.35, 2.50, 3.5, 3.20, 3.35, 3.50, 4.5, 4.35. During sporting intervals musical items will be given from the studio by the Tuneful Three. 4.45: From the studio. Complete sporting resume. 4.50: Cricket scores, fourth Test match. 4.52: Sporting resume continued. 5.0: "Big Ben." Close down. Note: Cricket scores will be given through 2BL at 5.5, 5.20, 5.35.

EARLY EVENING SESSION.

Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man." Letters and stories. 5.50: Cricket results, fourth Test match. 5.52: Music and entertainment for children. 6.5: Stumps drawn, fourth Test match. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.45: Weather and shipping news. 6.48: Rugby wireless news. 6.50: Late sporting news. 7.0: "Big Ben." Late news service. 7.10: The 2FC dinner quartette, conducted by Horace Keats. (a) "Ciribiribin" (Bucalossi). (b) "Tea Leaves" (Nicholls). (c) "A Dream Garden" (Phillips). (d) "Pagliacci" (Leoncavello). (e) "Chiquita" (Wayne).

EVENING SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Pianoforte reproduction. 7.45: Programme announcements. 7.48: Announcement with reference to the concert by the Sydney Male Choir, to be held at the Conservatorium to-night. The first half-hour will be broadcast through 2BL service, and the remainder through 2FC service. 8.0: "Big Ben." Carlton and Shaw in Musical Memories. 8.10: Kathleen Roe, pianoforte solos. 8.20: Carlton and Shaw, in Musical Memories. 8.30: From the Conservatorium, the first of a series of subscription concerts, to be given by the Sydney Male Choir. 9.10: From the Studio: Late weather. Kathleen Roe, pianoforte solos.

9.20: From the Conservatorium, the second part of the subscription concert given by the Sydney Male Choir.

10.15: From the Studio: The Studio Dance Band.

10.30: Arthur Wright, banjo solos.

10.37: Studio Dance Band.

10.57: To-morrow's programme and announcements. 10.59: Studio Dance Band.

11.30: National Anthem. Close down.

2BL

MORNING SESSION.

Announcer: A. C. Stevens.

8.0 a.m.: G.P.O. clock and chimes. Metropolitan weather report. 8.1: State weather report. 8.2: Studio music. 8.15: G.P.O. clock and chimes; news from the "Daily Telegraph Pictorial." 8.25: Studio music. 8.30: G.P.O. clock and chimes; studio music. 8.35: Information; mails; shipping, arrivals, departures, and sailings. 8.38: News from the "Daily Telegraph Pictorial." 8.45: G.P.O. clock and chimes; studio music. 9.0: G.P.O. clock and chimes; studio music. 9.30: Half an hour with silent friends. 10.0: G.P.O. clock and chimes.

MID-DAY SESSION.

Announcer: Basil Kirke.

11.0 a.m.: G.P.O. clock and chimes. Women's session, conducted by Mrs. Cranfield; what's on at the pictures and theatres; novel suggestions to listeners; week-end specials. 11.30: Advertising hints. 12.0: G.P.O. clock and chimes; special ocean forecast and weather report. 12.3: Pianoforte reproduction. 12.20: Cricket scores, fourth Test match, England v. Australia, played at Adelaide. 12.22: Pianoforte reproduction. 12.30: "Sun" news service. 12.35: Cricket scores, fourth Test match. 12.37: "Sun" news, continued. 12.42: Studio music. 12.50: Cricket scores, fourth Test match. 12.52: Studio music. 1.5: Cricket scores, fourth Test match. 1.7: Studio music. 1.20: Cricket scores, fourth Test match. 1.22: Studio music. 1.30: "Sun" mid-day news service. 1.35: Cricket scores, fourth Test match. 1.37: "Sun" mid-day news service. 1.42: Studio music. 2.0: G.P.O. chimes; close down. Note.—Race results from Rosehill.

AFTERNOON SESSION.

Announcer: Basil Kirke.

3.45 p.m.: G.P.O. chimes; popular music. 3.50: Cricket results, fourth Test match. 3.52: Popular music. 4.0: From Romano's—Romano's Dance Orchestra, under the direction of Bennie Abrahams. 4.5: From the Studio—Cricket results, fourth Test match. 4.7: The Happy Trio, instrumentalists. 4.17: "Sun" news service. 4.20: From Romano's—Romano's Dance Orchestra, under the direction of Bennie Abrahams. 4.30: From the Studio—The Happy Trio, instrumentalists. 4.35: Cricket

results, fourth Test match. 4.37: "Sun" news service. 4.40: From Romano's—Romano's Dance Orchestra, under the direction of Bennie Abrahams. 4.50: From the Studio—Cricket results, fourth Test match. 4.52: The Happy Trio, instrumentalists. 5.0: G.P.O. chimes; "Sun" news service. 5.5: Cricket results, fourth Test match. 5.7: Popular music. 5.20: Cricket results, fourth Test match. 5.22: Complete sporting resume. 5.35: Cricket results, fourth Test match. 5.37: Features of the evening's programme.

EARLY EVENING SESSION.

Announcers: Basil Kirke, J. Knight Barnett.

5.40 p.m.: Children's session; letters and stories. 5.50: Cricket results, fourth Test match. 5.52: Children's session, continued. 6.0: Music and entertainment, 6.5: Stumps drawn, fourth Test match. 6.7: Music and entertainment, continued. 6.30: "Sun" news service. 6.40: 2BL Dinner Quartette—(a) "El Tango de Amor" (Fillipucci), (b) "Chang Sans Paroles" (Tschaikowsky), (c) "The Grand Duchess" (Offenbach), (d) "Barcarolle" (Offenbach), (e) "Extase d'amour" (Roze). 7.10: Complete sporting resume; complete racing resume. 7.30: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: J. Knight Barnett.

Accompanist: G. Vern Barnett.

8.0: G.P.O. clock and chimes; from the Conservatorium of Music, the first of a series of subscription concerts, arranged by the Sydney Male Choir.

8.30: Popular Studio programme.

9.45: Weather report; Josef Kaartinen, saxophonist.

9.52: J. Knight Barnett and Dorothy Dewar, entertainers.

10.2: Josef Kaartinen, saxophonist.

10.9: J. Knight Barnett and Dorothy Dewar, entertainers.

10.19: From Romano's—Romano's Dance Orchestra, under the direction of Bennie Abrahams.

10.30: From the Studio—late weather and announcements.

10.32: From Romano's—Romano's Dance Orchestra, conducted by Bennie Abrahams.

10.57: From the Studio—To-morrow's programme.

10.59: From Romano's—Romano's Dance Orchestra, conducted by Bennie Abrahams. Between dance groups, "Sun" news will be broadcast.

11.30: National Anthem. Close down.

2GB

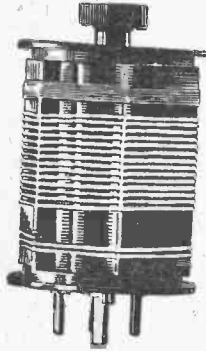
5.30: Children's session, by Uncle George. 7.0: Music, from studio. 7.20: Dance programme. 8.0: Request evening. 9.0: Grown-up bedtime stories. 10.0: Close down.

TEST CRICKET SCORES

Progress scores in the Fourth Test Match at Adelaide will be announced from 2FC and 2BL during the day. Use this space to jot down the figures as announced.

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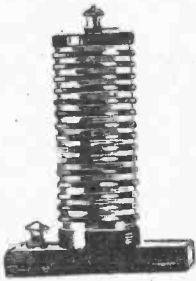


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READ THIS EXPERT'S OPINION:

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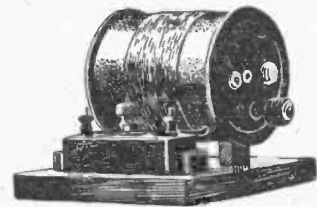
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Interstate Programmes, Saturday,

3LO

EARLY MORNING SESSION.

7.15 to 8.15: Same as Friday.

MORNING SESSION.

11.0: The Station Orchestra—Selection, "Kalinka" (Frimi). 11.10: Bernard Manning, bass-baritone—"Friar of Orders Grey"; "Friend o' Mine" (Sanderson). 11.17: Eric Welch, Epsom Turf Club races. 11.27: The Station Orchestra—Selected. 11.37: Freda Northcote, contralto—"Cradle Me Low" (Brahe); "Good Morning, Brother Sunshine" (Lehmann). 11.44: The Station Orchestra—"Hunyady Laszle" (Erkel); selected.

MIDDAY SESSION.

12.0: Melbourne Observatory time signal. 12.1: Metal prices received by the Australian Mines and Metals Association from the London Stock Exchange this day; British official wireless news from Rugby; Reuter's and the Australian Press Association cables; "Argus" news service. 12.20: The Station Orchestra—"An Angel's Song" (Sammons); "Dance of the Dervishes" (Bendix). 12.30: Adelaide Meulman, soprano—"The Swan" (Grieg); "Hidden Love" (Grieg). 12.37: Stock Exchange information. 12.40: The Station Orchestra—Selection, "Lakme" (Delibes). 12.50: Adelaide Meulman, soprano—"Solveig's Song" (Grieg); "The Little Brown Owl" (David). 12.57: Meteorological information; weather forecast for Victoria, South Australia, New South Wales, and Tasmania; ocean forecasts; river reports; rainfall. 1.0: Description of fourth Test match, England v. Australia, relayed from Station 5CL, Adelaide. 2.0: Close down.

AFTERNOON SESSION.

2.13: Description of Two-year-old Handicap, 4½ furlongs, Epsom Turf Club races, by Eric Welch. 2.20: Description of Pennant cricket match, Melbourne v. St. Kilda, at Melbourne Cricket Ground, by Rod McGregor. 2.43: Description of Epsom Plate, six furlongs, at Epsom Turf Club races. 2.50: Description of Pennant cricket match, Melbourne v. St. Kilda, at M.C.G. 3.13: Description of British Steeplechase, 2 miles 15 chains, at Epsom Turf Club races. 3.20: Description of Pennant cricket match, Melbourne v. St. Kilda, at M.C.G. 3.30: Description of fourth Test match, England v. Australia, relayed from Station 5CL, Adelaide. 3.43: Description of Epsom Handicap, one mile, at Epsom Turf Club races. 3.50: Description of fourth Test match, England v. Australia, relayed from Station 5CL, Adelaide. 4.30: Description of Pennant cricket match, Melbourne v. St. Kilda, at M.C.G. 4.43: Description of Apprentices' Handicap, one mile, Epsom Turf Club races. 4.50: Description of Pennant cricket match, Melbourne v. St. Kilda, at M.C.G. 5.0: "Herald" news service. 5.10: Description of Pennant cricket match, Melbourne v. St. Kilda, at M.C.G. 5.30: Description of fourth Test match, at Adelaide, relayed from 5CL, Adelaide. 6.30: Stumps scores. Note—During the afternoon results of the Gunbow races and progress scores of the Sheffield Shield cricket match, Queensland v. Victoria, will be broadcast as they come to hand.

EVENING SESSION.

6.35: Answers to letters and birthday greetings, by "Little Miss Kookaburra."

NIGHT SESSION.

7.0: Stock Exchange. 7.10: Market reports. 7.20: News session; stumps scores, cricket matches, England v. Australia, at Adelaide, and Queensland v. Victoria, at Brisbane. 7.30: Birthday greetings. 7.35: Out of the Past. 7.34: Frederick Chapman, A.L.S., F.G.S., Commonwealth Palaeontologist—"A Talk About Starfishes." 7.49: A Maker of History. 7.50: Dr. J. A. Leach, "Bellbirds." 8.5: Programme announcements; Tasmanian letter to 3LO, of the "Courier," Launceston. 8.10: The Station Orchestra—Overture, "Oberon" (Weber). 8.20: Bernard Manning, bass-baritone—"The Floral Dance"; "Father O'Flynn" (request items). 8.2: Actress in time, piano—"Nocturne in G Minor" (Chopin). 8.34: The Station Orchestra—"La Reine de Saba" (Gounod). 8.40: Molly Mackay and Bernard Manning, soprano and baritone—"Still As the Night"; "Dear Love of Mine." 8.47: The Station Orchestra—"Oracolo Suite" (Leon). 8.57: The record feature of the week. 9.0: Eric Welch will describe the night's events at the Stadium. 9.15: The Station Orchestra—"Maytime" (Romberg). 9.25: The Radio Melody Makers—"Thirty Minutes of Melody." 9.35: Eric Welch will again describe the night's events. 10.10: The Station Orchestra—"Peer Gynt Suite No. 2" (Grieg). 10.15: Molly Mackay, soprano—"Charmante Oiseau"; "The Rose Enslaves the Nightingale" (Rimsky-Korsakov) (flute obbligato by J. Baille). 10.22: The Station Orchestra—"The Last Waltz" (Strauss). 10.32: Jack Lumsdaine, the "Radio Rascal"—"Popularities." 10.42: Late sporting news. 10.45: The Radi-o-Aces—"Forever More" (Burmet); "Newark" (Revel); "Ramona" (Wayne); "I Love to Dunk a Hunk of Sponge Cake" (Castill); "Because My Baby Don't Mean Maybe Now" (Donaldson). 11.1: The Radi-o-Aces—"Beloved" (Kahn); "Just Like a Melody Out of the Sky" (Donaldson); "Lazy Feet," piano solo (Masman); "That's What You Mean To Me" (Davis); "Chloe" (Kahn); "Lenora" (Gilbert); "That Stolen Melody" (Fisher); "Sweetheart" (Hall); "Old Man Sunshine" (Dixon); "Guess Who's in Town" (Razay); "My Dream." 11.30: God Save the King.

3AR

MORNING NEWS SESSION.

10.0: G.P.O. clock says "Ten." 10.1: "Age" Stock Exchange reports; London metal markets. 10.10: "Age" market reports; farm and station produce, fruit, fish, vegetables. 10.25: "Age" shipping reports; ocean forecast. 10.30: Mail notices; express train information. 10.35: "Age" news service, exclusive to 3AR. 10.59: Weather forecast.

MORNING MUSICAL SESSION.

11.0: Ned Tyrrell's Radi-o-Aces—"Because My Baby Don't Mean Maybe Now" (Donaldson); "Just Like a Melody Out of the Sky" (Donaldson); "Rain" (Frod). 11.15: Jack Lumsdaine, whispering baritone, by permission J. C. Williamson, in all the "Cutest Catches." 11.22: Ned Tyrrell's Radi-o-Aces—"Mine, All Mine" (Ruby); "Dolores" (Kassell); "Down Where the Sun Goes Down" (Jones); "All Day Long" (Cross); "Happy Go Lucky Lane" (Lewis). 11.44: Jack Lumsdaine, the Radio Rascal—"Cute Catches" continued. 11.51: British official wireless news; announcements. 12.0: Close down.

AFTERNOON SESSION.

3.0: Johnston's Studio Boys—Selection, "Comic Opera." 3.10: Gramophone records. 3.18: Johnston's Studio Boys—"Marches." 3.26: Gramophone records. 3.38: Johnston's Studio Boys—Selection, "Grand Opera." 3.50: Announcements. 3.53: Gramophone records. 3.59: Johnston's Studio Boys—"Waltzes." 4.8: Gramophone records. 4.15: Johnston's Studio Boys—Selection, "Fox Trots." 4.25: Gramophone records. 4.31: Johnston's Studio Boys—Selection, "Comic Opera." 4.41: Announcements. 4.45: Gramophone records. 4.51: Johnston's Studio Boys—"Fox Trots." 5.0: Close down.

EVENING SESSION.

8.0: A bravura of beautiful ballads and the works of the master musicians. 8.0: Results of fourth Test match, Adelaide; announcements; sporting results.

NIGHT SESSION.

8.30: Coburg City Band—March, "National Guard" (Lithgow). 8.40: Alma Pike, soprano—"A Heart That's Free" (Robyn); selected. 8.47: Coburg City Band—Descriptive fantasia, "Alpine Echoes" (Truman). 8.57: Captain Donald McLean will speak on—"Those that go down to the sea in ships." 9.12: Piano recital, Victor Stephensen—"Menuetto in B Flat" (Schubert); "The Blue Bird" (Rossini); "Geraldine-Liszt"; "Scherzo in G Minor" (Schumann). 9.37: Coburg City Band—Selection, "Gems of Italian Opera." 9.47: Rosalind Hartnung, contralto—"The String of Pearls" (H. Lyall); "Here in the Quiet Hills" (Herald Garne). 9.54: Coburg City Band—"Waltz, 'Senta'" (Raymond). 10.1: Alma Pike, soprano—"Una Voce Poco Fa" (Rossini); "Dan Cupid" (Zucchi). 10.8: Coburg City Band—March, "Narworth Castle" (Hunt). 10.15: Rosalind Hartnung, contralto—"A Hundred Moonlit Miles" (Herbert Ivey); "The Wild Rose" (Schubert). 10.20: "Age" news service, exclusive to 3AR; results of fourth Test match, Adelaide. "God Save the King."

4QG

EARLY MORNING SESSION.

7.43: Time signals. 7.45: News service. 8.0: Some electric records. 8.15: News service. 8.30: Close down.

AFTERNOON SESSION.

Race meeting—The race meeting will be described direct from the course. Transmission will commence with the start of the first race. Between races music from the studio will be relayed. 5.0: Close down.

EARLY EVENING SESSION.

6.0: Mail train running times; special "Queenslander" bi-weekly news service for distant listeners. 6.30: Post-time stories, conducted by "Uncle Ben." To-day's race results in brief. 7.20: General sporting notes. 7.30: Sailing notes, by Mr. Fred Smith.

NIGHT SESSION.

8.0: Orchestral music. 8.20: Motor cycle races. 8.45: Orchestral music. 9.0: Dance music and descriptions of the races. 10.0: The "Sunday Mail" news; weather news. Close down.

5CL

MORNING SESSION.

11.45: The "Advertiser" general news service. 11.55: Last-minute selections of Victorian racing. By Mr. Eric Welch, of 3LO, Melbourne. 12.0: M. A. Noble will give a resume of the play. 1.40: Test match, England v. Australia. 1.30: M. A. Noble will give a brief resume of the play. 1.40: Close down.

AFTERNOON SESSION.

2.30: Victorian race results. 2.31: Description of the fourth Test match, England v. Australia. 4.0: M. A. Noble will give a resume of the play. 4.15: Description of the fourth Test match, England v. Australia. 5.0: Resume of Victorian race results. 5.5: Description of the fourth Test match, England v. Australia. 6.0: Resume of late sporting. 6.5: Birthday greetings, or responses, or songs and stories, by "The Watlie Lady." 6.30: Close down.

February 2

EVENING SESSION.

7.0: G.P.O. chimes. 7.1: S. C. Ward and Co.'s Stock Exchange information. 7.2: International cricket scores. England v. Australia, fourth Test match. 7.10: Rev. G. E. Hale, B.A. talk on "Hypnotism and Suggestion." 7.25: M. A. Noble (International cricketer), a talk on the fourth Test match. 7.40: C. G. Riley, talk, "Items of Interest." 7.50: SCL's sporting service, Epsom race results; international cricket scores.

NIGHT SESSION.

8.0: G.P.O. chimes. 8.1: S.A. Railway Band—March, "Constellation" (Clark); overture, "The Bohemian Girl" (Baile). 8.14: Senia Chostiakoff, Russian tenor—Selections from his repertoire. 8.20: George Horton, humorist—In selected comedy. 8.25: S.A. Railways Band—Scene in Maoriland, "Rotorua" (Hume). 8.30: A one-act play by Ray Walsh. 8.50: Victoria M. Wilson, soprano. 9.56: Hilda Riemann, violinist. 9.2: Senia Chostiakoff, Russian tenor. 9.8: S.A. Railways Band. 9.20: George Horton, humorist. 9.26: S.A. Railways Band. 9.32: Lionel Clarke, baritone. 9.38: Hilda Riemann, violinist. 9.44: Victoria M. Wilson, soprano. 9.50: S.A. Railways Band. 10.0: G.P.O. chimes. 10.1: Lionel Clarke, baritone. 10.15: SCL's sporting service. 10.31: Modern dance numbers, by the famous Radi-o-Aces. 11.0: God Save the King.

7ZL

MIDDAY SESSION.

11.34 to 1.30: Close down. See Friday. 2.15: Running description of Two-Year-Old Handicap, 4½ furlongs, run at Epsom racecourse, Epsom, Victoria. 2.45: Running description of Epsom Plate, six furlongs, run at Epsom racecourse, Epsom, Victoria. 2.50: Description of Fourth Test match, English XI v. Australia, at Adelaide.

AFTERNOON SESSION.

3.15 to 5.35: Starting relays from SCL and 3LO.

EARLY EVENING SESSION.

6.0: All sporting results to hand. 6.15: Selections by the Melody Masters. 6.30: "Uncle David" will entertain the wee folk. 7.0: Answers to letters and birthday greetings by "Uncle David." 7.5: Request numbers by the Discus Ensemble. 7.15: News session.

EVENING SESSION.

7.30: Mrs. Robert Hall will speak on "The Foundation of Life." 7.40: H. R. Peacock will speak under the auspices of the Hobart Regatta Association, on "Yachting." 7.50: Rev. Robert Williams, hon. naval chaplain, will speak on "Church and the Navy." 8.0: G.P.O. clock chimes the hour. 8.6: Selections by the Melody Masters. 8.30: Transmission from the Continental, Macquarie Street, Hobart, Theo Pipping and his Continental Orchestra. 10.20: Starting results, news service. Close down.

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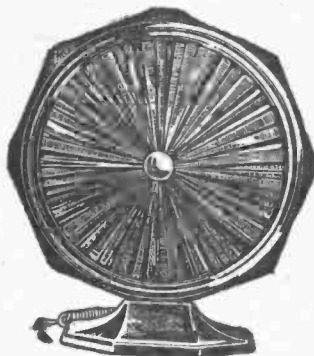
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Local Programmes, Sunday, February 3

2FC

MORNING SESSION.

Announcer: A. S. Cochrane.

- 10.0: "Big Ben" and announcements.
- 10.2: Studio music.
- 10.15: News service.
- 10.30: Studio music.
- 11.0: "Big Ben." From the Methodist Church, Oxford Street, the morning service, conducted by Rev. Thomas Jenkin.
- 12.15 approx.: Close down.

AFTERNOON SESSION.

Announcer: A. S. Cochrane.

- 2.30: Programme announcements.
- 2.32: Children's session, conducted by the "Hello Man."
- 3.0: "Big Ben." Record recital from the Studio.
- 3.30: From the Band Rotunda, d Manly Beach, concert programme by the Manly Municipal Band, conducted by James Phe-loung.
- 5.0: "Big Ben." Close down.

EVENING SESSION.

Announcer: A. S. Cochrane.

- 6.0: "Big Ben." Programme announce-ments.
- 6.2: Francis Jackson will deliver his second talk of the series. Subject: "Flanders After Ten Years of Peace."
- 6.20: A programme by Wilfrid Thomas (basso) and Kathleen Roe (pianist).
- 7.0: "Big Ben." From St. Stephen's (Presbyterian) Church, the evening service, conducted by Rev. John Walker, of Can-berra. Organist: Harry Chandler, M. A.
- Sanctus.
- Invocation.
- Psalm 121.
- Lesson.
- Prayer.
- Hymn 205.
- Lesson.

- Anthem.
- Prayer.
- Hymn 175.
- Sermon by Rev. John Walker.
- Prayer.
- Hymn 371.
- 8.15: From the Studio, musical items.
- 8.30: From the Band Rotunda, Manly Beach. Concert programme, by the Manly Municipal Band. Conductor: James Phe-loung.
- 9.30: From the Studio, Muriel O'Malley, contralto.
- 9.37: Mischa Dobrinski, violinist.
- 9.45: Muriel O'Malley, contralto.
- 9.52: Mischa Dobrinski, violinist.
- 10.0: "Big Ben." Record recital.
- 10.30: National Anthem. Close down

2BL

MORNING SESSION.

Announcer: A. C. C. Stevens.

- 10.55: From the Randwick Presbyterian Church.
- The Morning Service, conducted by Rev. W. J. Grant.
- Cholmaster: Mr. George W. Sherring.
- Organ Voluntary.
- 11.0: Hymn.
- Invocatory Prayer.
- Anthem by choir.
- Scripture lesson.
- Prayer and Lord's Prayer.
- Hymn.
- Scripture lesson.
- Solo.
- Address to children.
- Children's hymn.
- Announcements and offertory.
- Anthem by choir.
- Prayer.
- Psalm.
- Sermon.
- Brief prayer.
- Hymn.
- Benediction.
- 12.15: From the Studio, "Sun" news ser-

- vice.
- 12.30: Studio music.
- 2.0: G.P.O. clock and chimes. Close.
- AFTERNOON SESSION.**
- Announcer: Basil Kirke.
- 3.0: G.P.O. clock and chimes.
- 3.30: From the Methodist Church of Aus-tralasia, Haberfield—Pleasant Sunday after-noon service, arranged by Rev. Richard Piper.
- Organ solo, Nellie Felton.
- Hymn and short prayer, Ashfield District Band.
- Solo, "Sea Fever." Stanley Clarkson.
- Ashfield District Band, cornet solo, by bandsman.
- Solo, boy soprano.
- Address, topical subject.
- Ashfield District Band.
- Vocal solo.
- Vocal quartette.
- 8.30: From the Studio, record recital.
- 8.0: G.P.O. clock and chimes. Close.

EVENING SESSION.

Announcer: Basil Kirke.

- 6.0: G.P.O. clock and chimes.
- Children's session, conducted by Uncle Bas.
- 6.20: Letters and stories.
- 8.30: Studio music.
- 7.0: From the Petersham Baptist Church, the evening service, conducted by Rev. G. A. Craike.
- 8.30: From the Rose Bay Winter Garden Theatre (by courtesy of the management), vocal and orchestral concert, arranged by the New South Wales Broadcasting Com-pany, Limited.
- Note.—During the evening listeners will be afforded an opportunity of hearing Brown-ing Mummery, the famous tenor (a member of the recent J. C. Williamson Melba Grand Opera Company).
- 9.57 (approx.): From the Studio, weather forecast.
- 10.0: G.P.O. clock and chimes. National Anthem. Close.

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Interstate Programmes, Sunday, February 3

3LO

MORNING SESSION

10.30: Bells from St. Paul's Cathedral. 10.45: Express train information. British Official Wireless News from Rugby. News from yesterday's papers. 11.0: Morning service from the Auburn Methodist Church—Opening Exercise; Hymn 13; Prayer, Lord's Prayer, chanted; Te Deum (Jackson); First Lesson, Psalm 103; Anthem, "The Woods and Every Sweet Smelling Tree" (West); Second Lesson, or Children's Address; Children's Hymn, 876; pulpit notices; collection, voluntary; Hymn, 567; sermon, Rev. E. W. Wynn Kernick, M.A.; Hymn, 585; Benediction. 12.15: Close down.

AFTERNOON SESSION

2.0: Sonora Recital of the world's most famous records. 3.0: Pleasant Sunday Afternoon Service, Central Mission, Wesley Church. Chairman, Rev. J. H. Cain; Hymn No. 25, "I Heard the Voice of Jesus Say"; Prayer; orchestral selection, Mr. G. M. Williams conductor; Hymn No. 31, "In Loving Kindness Jesus Came"; solo, Miss May Alberta; orchestra; solo, Miss May Alberta; notices; offering; orchestra; address; National Anthem; Benediction. 4.30: H. Linsaker will speak on "The Arboretum at Mt. Danconong." 4.45: Close down.

EVENING SESSION

5.45: Shipping information. 5.47: Answers to letters and birthday greetings by "Billy Bunny." 6.25: Captain Donald Maclean will tell you "A Scorpion Tale." 6.45: Adult birthday greetings and programme announcements. 6.47: Bells from St. Paul's Cathedral.

NIGHT SESSION

7.0: Evening Service from St. Paul's Cathedral. Harvest Thanksgiving, Sexagesima Sunday; Evening choral. Hymn, 352, A. and M., "Come Ye Thankful People, Come"; sentence; exhortation; general confession; absolution; The Lord's Prayer; verses and responses; Psalm 145; First Lesson, 1; Magnificat; Second Lesson; Unc' Dimitis; The Apostles' Creed; the Collects; Anthem, "Awake the Harp"; Prayers (from Haydn's "Creation"); Hymn 353, "We Plow the Fields"; Sermon, Hymn 386, "The Sower Went for the Sowing"; Benediction. 8.30: Brunswick City Band. Selection, "Masaniello" (Auber). 8.40: Rene Brodizzo, violin. "First Sonata," 1st Mot. (Bach-Joachim), with piano accomp. by Rod. Schumann. "La Preceuse" (Couperin-Kreisler). 8.50: Olive Painter, contralto, "Ave Maria" (Gounod); "Beautiful Isle of Somewhere." 8.57: Brunswick City Band. Fantasia, "Squire's Bruns" (Hume). 9.7: Herbert Browne, tenor (by permission of J. C. Williamson, Ltd.). Selections from his repertoire. 9.14: Rene Brodizzo, violin, "Valse A Ma-

ior" (Brahms), "Pasquinate" (Tirindelli). 9.21: Olive Painter, contralto. "Lead, Kindly Light"; "The Cradle Song" (Kreisler). 9.28: Brunswick City Band. Glee, "Hours of Beauty" (Round). 9.35: Herbert Browne, tenor. Selections from his repertoire. 9.42: Brunswick City Band. Hymn "Sandon"; march, "Palmer House" (Pette). 9.50: "Argus" news service. Announcements. Our Great Thought: "Hope is such a bait, it covers any hook" (Ben Johnson). 10.0: God Save the King.

3AR

11.0: Morning service from Collins Street Baptist Church. Sanctus. Call to Worship. Invocation and Lord's Prayer. Hymn, "Now Thank We All Our God." Scripture reading from St. John, Chap. XVI. Anthem. Notices. Offertory. Prayer. Hymn, "My Faith Looks Up to Thee." Sermon. Text, St. John, Chap. XVI. 32, 33. "The Solitary Rock," being No. 1 of a series of "Seaside Studies of Christ." Hymn, "Thou Hidden Source of Calm Repose." Benediction. 12.15: British official wireless news. 12.20: Close down.

AFTERNOON SESSION

3.0: Service from Scots Church, Collins Street, Melbourne. A special church service, under the auspices of the Babies' Home, Landsdowne and Gray Streets, East Melbourne. Rev. D. A. Cameron, director of social services of the Presbyterian Church, will preside. Dr. Argyle, chief secretary, and Dr. Dale, City Health Inspector, will also speak. Mr. Mansley Green will preside at the organ, and there will be special singing. The public are cordially invited.

EVENING SESSION

5.0: "Brer Rabbit." Stories for the children. 5.30: Close down.

NIGHT SESSION

8.0: The Strad Trio. Cecil Parkes, violin; May Broderick, piano; Frank Johnstone, 'cello. D Minor, Op. 49 (Mendelssohn). Molto allegro ed agitato. Scherzo. Finale. 8.27: Winifred Basch, soprano, "He Shall Feed His Flock" (Handel), "I Will Sing of Thy Great Mercies" (Mendelssohn). 8.34: A special representation of "Salome" (Oscar Wilde). Produced by Stephanie Deste. Cast: Stephanie Deste, Herbert Browne, Coline Crane. 8.44: J. Alexander Brown, baritone, "Lovely Smile of Sister Kind" (Gounod), "How Lovely Are Thy Dwellings" (Liddle). 9.1: Interlude. A. S. Kenyon will speak on "The Ethnology of the Australian Aboriginal: Rites and Ceremonies." 9.16: Winifred Basch soprano, "Peace and Rest" (Landon Ronald), "The Dove" (Landon Ronald). 9.23: Cecil Parkes, violin, "Melody" (Tchaikowsky), "Deutzer Tanz" (Dittersdorf), "Zigeunerweisen" (Sarasate). 9.34: J. Alexander Browne, baritone, "At Gredon Fair" (Paul Marie), "The Farmer's Pride" (K. Rus-

sell). 9.41: The Strad Trio, "Norwegian Folk Song" (Svendsen), "Menuett" (Haydn), "Menuett" (Bocherini-Parke). 9.50: "Age" news service, exclusive to 3AR. Announcements. Close down.

4QG

MORNING SESSION

11.0: The complete morning service will be relayed from St. Stephen's Roman Catholic Cathedral. 12.15: Close down.

AFTERNOON SESSION

3.15: Excelsior Band—The concert by the Excelsior Band (Conductor, G. Holmes) will be relayed from the Botanic Gardens. 4.30: Close down.

EARLY EVENING SESSION

6.30: A session for little listeners—greetings and replies to letters.

NIGHT SESSION

7.30: The complete evening service will be relayed from St. Stephen's Roman Catholic Cathedral. From Wickham Park—Band concert. 9.30: Close down.

5CL

MORNING SESSION

10.45: Carillon of bells from Adelaide Town Hall. 11.0: G.P.O. chimes. 11.1: Divine service from Stow Memorial Church. Preacher, Dr. G. H. Wright, M.A. 12.15: British official wireless news. 12.20: Close down.

AFTERNOON SESSION

3.0: G.P.O. chimes. 3.1: A pleasant Sunday afternoon from Maughan Church, Franklin Street (Central Mission). Preacher, Rev. W. H. Cann. 4.0: G.P.O. chimes and close down.

EVENING SESSION

6.0: G.P.O. chimes. 6.1: S.A. Railways information. 6.2: Children's happy moments—Birthday greetings, correspondence, songs and stories by "Miss Wireless." 6.30: A choral and story interlude by the "Bird Lady" and Sunshine Songsters. 7.0: G.P.O. chimes. 7.1: A religious service from Pirie Street Methodist Church. Preacher, Rev. J. G. Jenkin. 8.25: Station orchestra. 8.33: Fred Williamson, tenor. 8.39: Tom King, pianist. 8.45: Margery Walsh, soprano. 8.51: Station orchestra. 8.57: Eric Wickens, basso. 9.3: Lizzette Poggia, violinist. 9.9: Fred Williamson, tenor. 9.15: Station orchestra. 9.22: Margery Walsh, soprano. 9.28: A. V. Noske, flautist. 9.32: Erick Wickens, basso. 9.38: Station orchestra. 9.45: P. H. Nicholls. 9.59: Meteorological information. 10.0: G.P.O. chimes and God Save the King.

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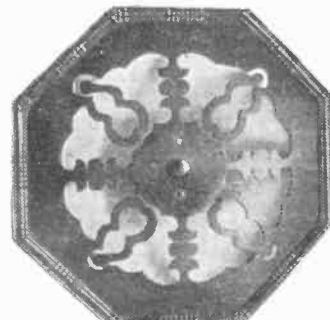
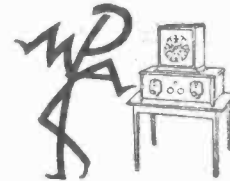
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Local Programmes, Monday, February 4

2FC

EARLY MORNING SESSION.

Announcer: A. S. Cochrane.
7.0: "Big Ben," and announcements. 7.2: Official weather forecast, rainfall, river reports, temperatures, astronomical memoranda. 7.7: "Sydney Morning Herald" summary. 7.12: Shipping intelligence, mail services. 7.15: Studio music. 7.25: Investment market, mining share markets, metal quotations, wool sales, breadstuffs markets, inter-State markets, produce markets. 7.40: Studio music. 8.0: "Big Ben." Close down.

MORNING SESSION.

Announcer: A. S. Cochrane.
10.0: "Big Ben," and announcements. 10.3: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.30: 2FC Racing Commissioner; latest sporting news. 10.45: A talk on Home Cooking and Recipes, by Miss Ruth Furst. 11.0: "Big Ben." A.P.A. and Reuter's Cable services. 11.5: Close down.

MIDDAY SESSION.

Announcer: A. S. Cochrane.
12.0: "Big Ben," and announcements. 12.1: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Studio music. 12.10: Summary of news, "Sydney Morning Herald." 12.15: Rugby wireless news. 12.20: Cricket scores, Fourth Test Match, England versus Australia, played at Adelaide. 12.22: A reading. 12.30: Studio music. 12.35: Cricket scores. 12.37: Studio music. 12.50: Cricket scores. 12.52: Studio music. 1.0: "Big Ben"; weather intelligence. 1.2: Studio music. 1.5: Cricket scores. 1.7: "Evening News" news service; Producers' Distributing Society's report. 1.20: Cricket scores. 1.23: Studio music. 1.28: Stock Exchange, second call. 1.30: Studio music. 1.35: Cricket scores. 1.37: Studio music. 2.0: "Big Ben." Close.

AFTERNOON SESSION.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
2.30: Programme announcements. 2.32: Educational session for the school; a short musical recital. 2.35: Cricket scores, Fourth Test Match. 2.37: Educational session continued. 2.45: Miss B. Macaulay will speak on "Your Son—School in General." 2.50: Cricket scores, Fourth Test Match. 2.52: Talk continued. 3.0: "Big Ben"; pianoforte reproduction. 3.5: Cricket scores, Fourth Test Match. 3.7: Pianoforte reproduction continued. 3.15: Popular music. 3.20: Cricket scores, Fourth Test Match. 3.30: Miriam Pope, soprano. 3.35: Cricket scores, Fourth Test Match. 3.37: Florence Yates, contralto. 3.44: A reading; (cricket score at 3.50). 4.0: "Big Ben" popular music. 4.5: Cricket scores, Fourth Test Match. 4.7: Popular music. 4.15: Miriam Pope, soprano. 4.22: Florence Yates, contralto. 4.29: Popular music. 4.35: Cricket scores, Fourth Test Match. 4.37: Studio music. 4.45: Stock Exchange, third call. 4.47: Studio music. 4.50: Cricket scores, Fourth Test Match. 4.52: Studio music. 5.0: "Big Ben." Close down. Cricket scores, through 2BL, at 5.5, 5.20, 5.35.

EARLY EVENING SESSION.

Announcer: A. S. Cochrane.
5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man." Letters and stories. 5.50: Cricket scores, Fourth Test Match. 5.52: Music and entertainment, for the children. 6.5: Stumps drawn, Fourth Test Match. 6.7: Music and entertainment continued. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.45: Weather and shipping news. 6.48: Rugby wireless news. 6.50: Late sporting news. 7.0: "Big Ben"; late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats: (a) "Tokio" (Condor) (b) "Gavotte Caprice" (Bortlewicz), (c) "The Blue Mazurka" (Lehar), (d) "Meditation" Thais (Massenet), (e) "Only a Rose" (Friml).

EVENING SESSION.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
7.40: Pianoforte reproduction.
7.45: Programme announcements.

7.48: Cricket scores, 4th Test Match, England v. Australia, played at Adelaide. Popular music.

8.0: Musical programme arranged by Leo Packer.

9.0: Weather report and talk by Rev. F. H. Raward, "Tales by a Traveller."

9.15: Studio production of "Floradora."

10.28: To-morrow's programme.

10.30: National Anthem. Close down.

2BL

MORNING SESSION.

Announcer: A. C. C. Stevens.

8.0: G.P.O. clock and chimes; metropolitan weather report; State weather report. 8.2: Studio music. 8.15: G.P.O. chimes; news from the "Daily Telegraph Pictorial." 8.30: G.P.O. chimes; news service continued. 8.40: Information; mails; shipping, arrivals, departures, and sailings. 8.45: Studio music. 9.15: Half an hour with silent friends. 9.45: Studio music. 10.0: G.P.O. chimes. Close.

MIDDAY SESSION.

Announcer: Basil Kirke.

11.0: G.P.O. clock and chimes; 2BL Women's Sports Association session, conducted by Miss Gwen Varley. 11.15: "Women on the Land," by Miss L. Byrne. 11.30: Advertising hints. 11.40: Women's session, conducted by Mrs. Cranfield. 12.0: G.P.O. clock and chimes; special ocean forecast and weather report. 12.3: Studio music. 12.20: Cricket scores of the fourth Test match, England v. Australia, played at Adelaide. 12.22: Studio music. 12.30: Shipping and mails. 12.35: Cricket scores. 12.37: Market reports. 12.47: Studio music. 12.50: Cricket scores. 12.53: "Sun" midday news service. 1.0: Studio music. 1.5: Cricket scores. 1.7: Studio music. 1.20: Cricket scores. 1.23: Studio music. 1.30: Talk to children, and special entertainment for children in hospital. 1.57: Cricket scores. 2.0: G.P.O. chimes. Close.

AFTERNOON SESSION.

Announcer: Basil Kirke.

Accompanist: Kathleen Roe.

3.45: G.P.O. clock and chimes. 3.46: Pianoforte reproduction. 3.50: Cricket results, fourth Test match. 3.52: Pianoforte reproduction. 4.0: G.P.O. clock and chimes. From Romano's: Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.5: From the Studio, cricket results, fourth Test match. 4.7: From Romano's, Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.10: From the Studio, Captain Fred Aarons will give a talk on "Ancient Trade Routes and Commerce." 4.25: Fred Amis, violinist. 4.32: "Sun" news service. 4.35: Cricket results, fourth Test match. 4.37: "Sun" news ser-

vice. 4.40: From Romano's, Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.50: From the Studio, cricket results, fourth Test match. 4.52: Irene Duncan, soprano (a) "Dawn" (Curran), (b) "I Did Not Know" (Vanderpoll), 4.57: "Sun" news service. 5.0: Our serial story. (Cricket results, fourth Test match. 5.5.) 5.10: Fred Amis, violinist. 5.17: Irene Duncan, soprano (a) "Pale Moon" (Logan), (b) "Laugh and Sing" (Drummond). 5.24: Cricket results, fourth Test match. 5.26: Pianoforte reproduction. 5.34: Complete racing resume. 5.37: Features of evening's programme.

EARLY EVENING SESSION.

Announcer: J. Knight Barnett.

5.40: Children's session, conducted by Uncle Peter; music and entertainment. 6.0: Letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette, (a) "Penelope's Garden" (Ancliffe), (b) "Full Moon" (Wolmer), (c) "A Waltz Dream" (Strauss), (d) "Chanson Napolitaine" (D'Ambrosio), (e) "The Tin Parade" (Whiting). 7.10: Cricket scores. 7.12: 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: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: J. Knight Barnett.

Accompanist: G. Vern Barnett.

8.0: G.P.O. clock and chimes; topical chorus.
8.3: From the King's Cross Theatre—The King's Cross Theatre Orchestra, under the direction of E. J. Roberts.
8.20: From the Studio: Ray Benton, baritone.
8.27: George Ellis, saxophone solos.
8.34: Our novelty programme, description from Tattersall's swimming pool.
8.54: From the Studio: Weather report.
8.55: Foster and Finlay, instrumentalists.
9.5: Charles Lawrence, comedian.
9.15: The Savoyans Dance Band.
9.30: Foster and Finlay, instrumentalists.
9.40: Ray Benton, baritone.
9.47: Cello solos.
9.54: The Savoyans Dance Band.
10.5: From the King's Cross Theatre: The King's Cross Theatre Orchestra, under the direction of E. J. Roberts.
10.27: From the Studio: Late weather report.
10.29: The Savoyans Dance Band.
10.57: To-morrow's programme.
10.59: The Savoyans Dance Band.
11.30: National Anthem. Close down.

TEST CRICKET SCORES

Cricket scores at the Fourth Test Match at Adelaide will be announced from 2FC and 2BL during the day. Use this space for your figures.

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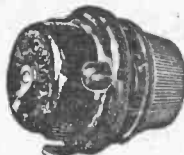
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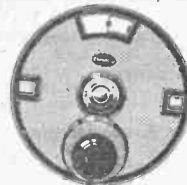
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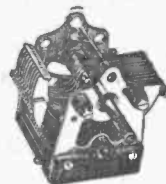
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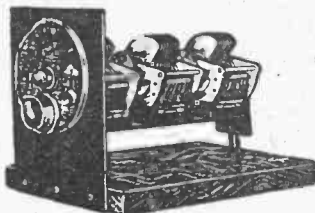
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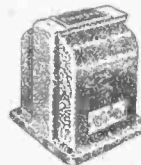
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3LO

EARLY MORNING SESSION

7.15 to 8.15: See Friday.

MORNING SESSION

11.0: 3LO's different dainties for the daily dinner. Oiga Parker will speak on "What some famous poets have written for the Children—Longfellow." 11.20: Musical Interlude. 11.25: Under the auspices of the St. John Ambulance Society, Miss Edith Wells will speak on "Home Nursing." 11.40: Musical Interlude. 11.45: Under the auspices of the Safety Council of Victoria, H. J. Book will speak on "Some Aspects of Safety." 12.0: Melbourne Observatory time signal. Express train information. 12.1: British Official Wireless news from Rugby. Reuter's and the Australian Press Association cables. "Argus" news service. 12.15: Newmarket stock sales. Entries for the market for Tuesday, Wednesday, and Thursday, by the Associated Stock and Station Agents, Bourke Street, Melbourne. 12.30: Community singing, transmitted from the King's Theatre, Russell Street, Melbourne. Conductor, G. J. Mackay. Courtney Ford, humorist: "The Sea Captain" (Harold Montagu); "Teddling Home"; Billy and Ted will out-Valentine Valentine Vox; also see their tear up paper! Courtney Ford, humorist: "Cupid" (Pelter), "Dr. Shelley" (Bateman). 12.40: Stock Exchange information. 12.45: Community singing, transmitted from the King's Theatre, Russell Street, Melbourne. 1.45: Meteorological information. Weather forecast for Victoria, New South Wales, Tasmania, and South Australia. Ocean forecast. River reports. Rainfall. 1.55: Close down.

AFTERNOON SESSION

2.15: The Strad Trio (Cecil Parkes, violin; Frank Johnstone, cello; and May Broderick, piano). "Opus 93, No. 5" (Hummel); Allegro con brio; Larghetto; Rondo Scherzando. 2.25: Diana Belmont, contralto. "The Blind Ploughman" (Clarke); "Weeds" (M'Geoch). 2.42: Cecil Parkes, violin. "Andante Cantabile and Rondo from Concerto, D Major" (Mozart). 2.55: John Byrne, bass. "Son of Mine" (Walace); "Invictus" (Bühner). 3.3: Frank Johnstone, cello. "Melodie" (Charpentier); "Tarentelle" (Rossini). 3.8: The Strad Trio. "Extract from Rosamunde" (Schubert); "Westmoreland Menuet" (Shields). 3.14: Jack Lumsdaine, the Radio Bascall. "A Few Frivolous Songs." 3.24: The Station Orchestra. Overture, "Princess Jaune" (Saint-Saens). 3.30: Description of the Fourth Test Match, England v. Australia, to be played at Adelaide, relayed from SCL Adelaide. 4.30: The Station Orchestra. "Souvenir" (Geehlf). 4.35: Diana Belmont, contralto. "A Summer Night" (Goring Thomas); "A Spirit Flower" (Tipton). 4.42: The Station Orchestra. Selection, "Rose of Araby" (Morgan). 4.52: John Byrne, bass. "Two Songs of Travel" (Vaughan Williams). 5.0: The Station Orchestra. Fantasia, "Pique Dame" (Tschakowsky). 5.10: "Herald" news service. Stock Exchange information. 5.17: The Station Orchestra. "Grosses Potpourri" (Kalmann). 5.30: Description of the Fourth Test Match, England v. Australia, played at Adelaide, relayed from Station 5CL Adelaide.

EVENING SESSION

6.30: Answers to letters and birthday greetings by "Billy Bunny."

NIGHT SESSION

7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. Stumps scores of the Fourth Test Match, England v. Australia, at Adelaide. 7.43: Birthday greetings. 7.45: Out of the Past. 7.45: Under the auspices of the Department of Agriculture, R. T. Archer, Senior Dairy Inspector, will speak on "Lucerne Hay and Pig Feeding." 8.0: A Maker of History. 8.1: "The Desert Song," Act 1. The 175th performance in the world. Music by Maurice Strakosky. Music by Sigmund Romberg. Book by Otto Harbach, Oscar Hammerstein 2nd, and Frank Mandell. Produced by George Highland. Cast: Sid El Kar (The Red Shadow's Lieutenant), Herbert Browne; Mandar, Cecil Foley; Hassi, Colin Crane; Neil (first appearance in Australia), Maud Pomeroy; Hadji (first appearance in Australia), John Ronald; Benjamin Kidd (first appearance, Society Correspondence Paris "Daily Mail"); Herbert Munding; Pierre Strakosky (The Red Shadow). Lance Fairfax; Capt. Paul Fontaine, Sidney Burchall; Azuri, Stephanie Deste; Lieutenant Du Bassac, Robin Blair; Margot Bonalette (first appearance in Australia), Virginia Perry; General Bracour, Pop Cory; Susan (his ward), Renee Murphy; Edith, Ellen Perival; All Ben Ali (Caid of a Riff Tribu); Douglas Herald; Clementina (a Spanish lady), Maud Zimbia. Synopsis of Scenes: Scene 1: Retreat of the Red Shadow into the Rif Mountains—evening. Scene 2: Outside General Bracour's House—same evening. Scene 3: A room in General Bracour's House—a few minutes later. Musical Numbers—Act 1: 1. Prelude and Drinking Song. 2. "Hoi"—riding song of the Rifas—Lance Fairfax, Herbert Browne, and chorus; 3. "Margot," Sidney Burchall and chorus gentlemen; 4. "I'll be a Buoyant Girl," Renee Murphy; 5. Ensemble (a) "Why did you marry Goldie" (b) "French Marching Song"—Virginia Perry and chorus, ladies and gentlemen; 6. "Romance," Virginia Perry and chorus ladies; 7. Trio. (a) "Then You Will Know," Lance Fairfax and Virginia Perry; (b) "I Want a Kiss," Sidney Burchall, Virginia Perry, and Lance Fairfax; 8. "It," Herbert Munding, Renee Murphy, and ladies of the ballet; 9. "The Desert Song," Lance Fairfax and Virginia Perry; 10. Finale. 8.30: Captain Donald MacLean will continue his series the Pirate Tales. 8.45: The Station Orchestra. Overture, "William Tell" (Rossini). 9.55: Gertrude Gray, mezzo-soprano. "Bird Lullaby" (Sanderson); "The Early Morning" (Peel). 10.2: The Station Orchestra. "Prelude" (Saint-Saens); "Caprice," 10.12: "Argus" news service. Meteorological information. British Official Wireless news from Rugby. Announcements. 10.22: Jack Lumsdaine, whispering baritone.

"Modern Melodies." 10.29: The Station Orchestra. "Selection of Haydn Wood's Songs." 10.79: Courtney Ford, humorist. "Married Life." "The Cautious Lover." 10.85: The Radio-Aces. "I Just Jog Along" (Rose). "I Can't Do Without You" (Berlin); "Mississippi Mud" (Harris); "Tin Pan Parade" (Whiting); "Day Dreams" (Hallam). 11.1: The Radio-Aces. "Jeannine" (Gilbert). "Dreams" (Foxe). "Mother, I Still Have You" (Jolson). "Out of the Dawn" (Donaldson). "Get Out and Get Under the Moon" (Tobias). "Sleepy Baby" (Kahn). "The Prune Song" (Crumit). "Sincerely, Do's" (Frankly Rose) (Friend). Slumber Music: "Goodnight Waltz" (Libbo); "Good Night Chorus." 11.40: God Save the King.

3AR

10.0: C.P.O. clerk says "Ten." 10.1: "Age" market reports—farn and station produce, fruit, fish, vegetable, etc. 10.25: "Age" shipping reports. Ocean forecast. 10.30: Mail notices. Express train information. 10.35: "Age" news service, exclusive to 3AR. 10.59: Weather forecast.

MORNING MUSICAL SESSION

11.0: A recital of popular English ballads and traditional airs. 12.20: British official wireless news from Rugby. 12.30: "Age" news service, exclusive to 3AR. Adelaide. Test mach. England v. Australia, at Adelaide.

EVENING SESSION

6.0: A bravura of beautiful ballads, and a recital of the works of the Master Melicians. 7.15: News service. Results of fourth Test match. Graphophone recital continued. 7.25: Results of fourth Test match, played in Adelaide.

NIGHT SESSION

Accompanist, Reg Brown. 8.0: J. Howlett Ross. Great Australians. "Dr. C. E. Morrison. 8.15: Under the auspices of the Historical Society of Victoria. A. W. Gray will speak on "The First Settlements at Port Phillip and Western Port." 8.30: Alfred Firmman. "Epicks of Yesterday, To-day, and To-morrow." 8.5: Ned Tyrrell, Radi-o-Aces. "Blue-Berry Land" (Bryan); "Delirium" (Schutt); "Japansy" (Klennen). 8.50: Diana Belmont, contralto. "The Winds are Calling" (Ronald). 8.55: Ned Tyrrell's Radi-o-Aces. "Bell the Cat" (Naustrau). "In the Woodshed She Said She Would" (Johnson). "Polly" (Wells). 9.3: Diana Belmont, contralto. "Forethought" (Lambert). 9.6: Ned Tyrrell's Radi-o-Aces. "Back in Your Own Back Yard" (Jolson). "Smile" (C. M. Arledge) (Fair). "Tell Me to-night" (Little). 9.16: Diana Belmont, contralto. "Weeds" (M'Geoch). 9.19: Ned Tyrrell's Radi-o-Aces. "When You Know Me" (Boden). "I'm Sorry, Bally" (Kahn); "Dream House" (Fox). 9.30: Act 2. "The Desert Song." For cast of characters, see 3LO. Scenes: 1. The Harem of All Ben Ali, afternoon; 2. A corridor, a few minutes later; 3. The room of the sultan couch; 4. The edge of the desert the following morning; 5. half an hour before sunrise; 5. Courtyard of General Bracour's House, two days later. Musical numbers: "Song of the Brass Key," Maud Zimbia and chorus ladies and gentlemen; "One Good Boy Came to the Court Munding and Maud Zimbia. "Eastern and Western Love" (a) "Let Love Go" Douglas Herald and chorus, gentlemen; (b) "One Flower in Your Garden," Herbert Browne and chorus, gentlemen; (c) "The Desert Song," Lance Fairfax and chorus, gentlemen. "The Sabre Song," Virginia Perry. "Dramatic Finalette." "Farewell," Lance Fairfax and chorus, gentlemen. "Introduction, Scene v. Virginia Perry and chorus. "Reprise of 'It,' Lorna Helms, Herbert Munding, and ladies of the ballet. "Dance of Triumph." Stephanie Deste. Finale. 10.45: News session. Close down.

4QG

EARLY MORNING SESSION

7.43 a.m.: Time signals. 7.45: News service. 8.0: Some electric records. 8.15: News service. 8.30: Close down.

MORNING SESSION

11.0 a.m.: Music. 11.5: Social news. 11.15: Lecture. 11.30: Music. 11.35: More social news. 11.45: Wuriltzer organ. 11.45: Music. 12.0: Close down.

MIDDAY SESSION

1.0 p.m.: Market reports and other information. 1.20: Lunch-hour music. 2.0: Close down.

AFTERNOON SESSION

3.0 p.m.: A programme of electrically-reproduced records. 3.30: Mail train running times. 4.15: This afternoon's news. 4.30: Close down.

EARLY EVENING SESSION

6.0 p.m.: Mail train running times and other information; shipping news. 6.5: Diner music. 6.25: Commercial announcements. 6.30: Bedtime stories conducted by "The Sandman." 7.0: News in brief. 7.5: Stock Exchange news. 7.6: Metal quotations. 7.7: Market reports. 7.25: Fenwick's stock report. 7.30: Weather information. 7.40: Announcements. 7.45: Standard time signals. 7.45: Lecture/re, "Pork Products in the Dinner Menu," by Mr. E. J. Shelton (instructor in pig raising).

NIGHT SESSION

Half an hour's programme by the Brisbane Operanto Society. 8.0 p.m.: Speakers. Mr. C. J. Kidd, D.B.E.A.; Mr. Maurice Hyde, F.B.E.A.; Stri Quintre, overture. "Doge's March" (M. M. chant of Venice Suite, Rosse); Internatio Anthem, Choir. "La Espero" ("The Hope," De M. Zamenhof); Eva Bowen, mezzo-soprano, "Sib Larkant" ("Siberian Lullaby," Gmmer); M. L. tenor, "Gardu Vin Angela" ("Angel's Guard T. Godard); Rose Macpherson, elocutionist, "F (Faith); Madame de Poloyinski, soprano, "Sia" (Song); H. H. Hutson, violinist, "Roms (from "Viola Suite," Dale); Mrs. James, barri "La Transor de la Baro" ("Crossing the Bar," I rend-Tennyson); Grace Brown, soprano, "Kiel t

February 4

ma) ("How Lovely Are Thy Dwellings," Liddle); Eva Brown and M. Young, Jack Lord and H. H. Hutton, quartette "La Soldata Adiau" ("The Soldier's Farewell," kinkly); Nellie Money, elocutionist. "Autungemo" (with violin accompaniment); Mrs. T. Benussi, soprano, "Robin Adair"; String Quartette, "Interlude in Olden Style" (Giazounov); Choir, "Najtingalo" (Alabieff). 8.30: Announcement of "Guess the Item" Programme; metropolitan weather forecast. Part II—A Radio Pot Pourri, "Four and Twenty Blackbirds." "Four and Twenty Blackbirds" takes the form of a radio revue, and is the outcome of an effort to provide listeners with an evening's entertainment on "different lines." It is customary for listeners to be advised of the name and nature of the items to be presented. To-night, however, listeners will not be told what is coming next; and beyond the information that the programme will comprise musical items interspersed with short, humorous, and dramatic sketches, satirical skits and dialogues, it will, perhaps, make for the greater enjoyment of listeners if they be kept "in the dark" as regards the nature of the programme, and also the names of the contributing artists. 8.35: Radio Pot Pourri, "Four and Twenty Blackbirds." 10.0: The "Daily Mail" news; the "Courier" news; weather news; close down.

5CL

MORNING SESSION.

11.0: G.P.O. chimes. 11.1: Station Quartet. 11.15: "Economist," Kitchen Craft and Menu talk. 11.30: Station Quartet. 12.0: G.P.O. chimes. 12.1: Description of the fourth Test match, England v. Australia, by 5CL's special commissioner. 12.15: General news service. 12.35: British official wireless news. 12.40: Description of the fourth Test match, England v. Australia. 12.52: From studio: S.A. Railway information, S. C. Ward and Co.'s Stock Exchange information. 1.0: G.P.O. chimes. 1.1: Description of the fourth Test match, England v. Australia. 1.30: M. A. Noble, International cricketer: A brief resume of the play. 1.40: Close down.

AFTERNOON SESSION.

2.30: Description of the fourth Test match, England v. Australia. 4.0: M. A. Noble, International cricketer, will give a resume of the play. 4.15: Continued description of the fourth Test match, England v. Australia. 4.55: S. C. Ward and Co.'s Stock Exchange information. 5.0: G.P.O. chimes. 5.1: Description of the fourth Test match, England v. Australia. 6.0: Children's happy moments: Birth-day greetings, correspondence, songs and stories by "Auntie Peggy." 6.30: Close down.

EVENING SESSION.

7.0: G.P.O. chimes. 7.1: S. C. Ward and Co.'s Stock Exchange information. 7.5: General market reports. 7.10: Mr. A. T. Jéfferies (State Agricultural Chemist, Roseworthy College): An address under the auspices of the Government Agricultural Department. 7.30: Entertainment by "The Twinkler," Mr. F. J. Mills.

NIGHT SESSION.

8.0: G.P.O. chimes. 8.1: M. A. Noble (International cricketer) will give a resume of the fourth Test match. 8.10: Holden's Silver Band. 8.18: Bernard Manning, bass-baritone. 8.24: Vera Jurs, violinist. 8.30: Victoria M. Wilson, soprano. "Black Roses," "Invitation" (Barry). 8.36: Holden's Silver Band. 8.44: George Horton, humorist. 8.49: Holden's Silver Band. 8.53: Herbert King, tenor. 8.56: Vera Jurs, violinist. 9.0: G.P.O. chimes. 9.1: Meteorological information. 9.2: Overseas grain report. 9.3: International cricket scores, fourth Test match, England v. Australia. 9.5: Holden's Silver Band. 9.12: Bernard Manning, bass-baritone. 9.18: Jean Finlay, pianiste. 9.22: Victoria M. Wilson, soprano. 9.28: Holden's Silver Band. 9.40: George Horton, humorist. 9.46: Holden's Silver Band. 9.49: Herbert King, tenor. 9.55: Holden's Silver Band. 10.1: Bernard Manning, bass-baritone. 10.7: Holden's Silver Band. 10.15: General news service; meteorological information; International cricket scores. 10.30: Modern dance numbers by the famous Radi-o-Aces. 11.10: God Save the King.

7ZL

MID-DAY SESSION.

11.30 to 1.30: See Friday. 2.45: Description of cricket match, England v. Australia, at Adelaide, South Australia.

AFTERNOON SESSION.

3.0: G.P.O. clock chimes the hour. 3.1: Official opening of the new wing of the Y.M.C.A., Liverpool Street, Hobart, by Commodore Roberts. 3.10: Description of cricket match, England v. Australia, at Adelaide, South Australia. 3.30: Records. 4.15: "Aunt Edna" will give a talk on "Race Fashions." 4.30: Description of cricket match, England v. Australia, at Adelaide, South Australia. 5.30: Close down.

EARLY EVENING SESSION.

6.10: Cricket, stump scores, fourth Test match. 6.15: Records. 6.30: Little Sheila Carrol will recite for the children. 6.45: Records. 7.0: Transmission from the Hobart Regatta Ground. Description of eight-oared rowing championship of Tasmania, by "Olympus." 7.15: News session.

EVENING SESSION.

7.30: Geo. Collis, Tasmania's champion wrestler, will speak on "Is Alcohol Detrimental to Health?" 7.45: H. M. Owen will speak on "The Trans-Derwent Struggle for the 7ZL Cup." 8.0: G.P.O. clock chimes the hour. Transmission from the Prince of Wales Theatre, Macquarie Street, Hobart. Ted McCann and his Orchestra. 9.0: A ghost story, by Barbara Storey. 9.15: Ted McCann and his Orchestra. 9.50: News session. 11.0: G.P.O. clock chimes the hour. Close down.

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Local Programmes, Tuesday, February 5

2FC

EARLY MORNING SESSION.

Announcer: A. S. Cochrane.

7.0: "Big Ben" and announcements. 7.2: Official weather forecast, rainfall, river reports, temperatures, astronomical memoranda. 7.7: "Sydney Morning Herald" summary. 7.12: Shipping intelligence, mail services. 7.15: Studio music. 7.25: Investment market, mining sharemarkets, metal quotations, wool sales, breadstuffs markets, inter-State markets, produce markets. 7.40: Studio music. 8.0: "Big Ben," close.

MORNING SESSION.

Announcer: A. S. Cochrane.

10.0: "Big Ben" and announcements. 10.3: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.30: Last-minute sporting information by the 2FC Racing Commissioner. 10.40: Studio music. 10.50: Pianoforte reproduction. 11.0: "Big Ben," A.P.A. and Reiter's cable services. 11.5: Close.

MIDDAY SESSION.

Announcer: A. S. Cochrane.

12.0: "Big Ben" and announcements. 12.1: Stock Exchange, first call. 12.5: Official weather forecast, rainfall. 12.5: Studio music. 12.10: Summary of news. "Sydney Morning Herald." 12.15: Rugby wireless news. 12.20: Cricket scores, fourth Test match England v. Australia, played at Adelaide. 12.22: A reading. 12.30: Studio music. 12.35: Cricket scores. 12.37: Studio music. 12.50: Cricket scores. 12.52: Studio music. 1.0: "Big Ben," weather intelligence. 1.2: Studio music. 1.5: Cricket scores. 1.7: "Evening News" midday news service; Producers' Distributing Society's report. 1.20: Cricket scores. 1.22: Studio music. 1.28: Stock Exchange, second call. 1.30: Studio music. 1.35: Cricket scores. 1.37: Studio music. 2.0: "Big Ben," close.
Note.—Race results will be given as received.

AFTERNOON SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

2.30: Programme announcements. 2.32: Educational session for the schools; a short musical recital. 2.35: Cricket scores, fourth Test match. 2.37: Educational session continued. 2.45: A talk by Freda Sternberg, "India Crowded into Six Weeks" (Cricket scores, fourth Test match, at 2.50). 3.0: "Big Ben," pianoforte reproduction. 3.5: Cricket scores, fourth Test match. 3.7: Pianoforte reproduction. 3.15: Popular music. 3.22: Cricket scores, fourth Test match. 3.22: Popular music. 3.30: Philippa Alston, contralto. 3.35: Cricket scores, fourth Test match. 3.37: Miriam Pope, soprano. 3.44: A reading. (Cricket scores, fourth Test match, at 3.50). 4.0: "Big Ben," popular music. 4.5: Cricket scores, fourth Test match. 4.7: Popular music. 4.15: Philippa Alston, contralto. 4.22: Miriam Pope, soprano. 4.29: Popular music. 4.35: Cricket scores, fourth Test match. 4.37: Studio music. 4.45: Stock Exchange, third call. 4.47: Studio music. 4.50: Cricket scores, fourth Test match. 4.52: Studio music. 5.0: "Big Ben," close down.

Note.—Cricket scores through 2BL at 5.5, 6.20, 5.35.

EARLY EVENING SESSION.

Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man"; letters and stories. 5.50: Cricket scores, fourth Test match. 5.52: Music and entertainment for the children. 6.5: Stumps drawn, fourth Test match. 6.7: Music and entertainment continued. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.45: Weather and shipping news. 6.48: Rugby wireless news. 6.50: Late sporting news. 7.0: "Big Ben," late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats—(a) "Valse de Alouettes" (Drigo), (b) "Reminiscences of Grieg," (c) "Serenade Pasionnee" (Las Silesu), (d) "Full Moon" (Woolmer), (e) "O, Star of Eve" (Wagner).

EVENING SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Pianoforte reproduction.
7.45: Programme announcements.
7.48: Cricket scores, fourth Test match, England v. Australia. Popular music.
8.0: The New South Wales Tramway Band, conducted by J. J. Herron.
8.20: Theadore Atkinson, baritone—
(a) "Come to the Fair" (Martin).
(b) "In Summertime on Bredon" (Peel).
8.27: Sketch by R. D. Maunsell—"The Experiment."
8.39: Vincent Aspey, violinist—
(a) "Andante and Allegro" (Vivaldi).
(b) "Pale Moon" (Logan).
8.48: New South Wales Tramway Band, conducted by J. J. Herron.
9.0: "Big Ben," weather report.
9.1: Theadore Atkinson, baritone—
(a) "Mate o' Mine" (Ellott).
(b) "So Fair a Flower" (Lohr).
(c) "Choose Me Your Valentine" (Clarke).
9.8: Sketch by R. D. Maunsell—"Marriages are Made in Heaven."
9.20: Vincent Aspey, violinist—
(a) "Menuet" (Porpora).
(b) "Largo" (Dvorak-Kreiker).
9.27: New South Wales Tramway Band, conducted by J. J. Herron.
9.47: Maurice Arlen, pianist.
10.0: "Big Ben," Studio Dance Band, conducted by Cec. Morrison.
10.30: Late weather report.
10.32: Studio Dance Band, conducted by Cec. Morrison.
10.57: To-morrow's programme.
10.59: Studio Dance Band, conducted by Cec. Morrison.
11.30: National Anthem; close down.

2BL

MORNING SESSION.

Announcer: A. C. C. Stevens.

8.0: G.P.O. chimes; metropolitan weather report. 8.1: State weather report. 8.2: Studio music. 8.15: G.P.O. chimes; news service from the "Daily Telegraph Pictorial." 8.30: G.P.O. chimes; news service, continued. 8.40: Information; mails; shipping arrivals, departures and sailings. 8.45: Studio music. 9.15: Half an hour with silent friends. 9.45: Studio music. 10.0: G.P.O. chimes. Close.

MIDDAY SESSION.

Announcer: Basil Kirke.

11.0: G.P.O. clock and chimes; 2BL Women's Sports Association session, conducted by Miss Gwen Varley. 11.15: "Health Talk," by Miss Gwen Varley. 11.30: Advertising hints. 11.40: Women's session, conducted by Mrs. Cranfield. 12.0: G.P.O. clock and chimes; special ocean forecast and weather report. 12.3: Pianoforte reproduction. 12.30: Cricket scores of the fourth Test match, England v. Australia, played at Adelaide. 12.32: Studio music. 12.30: Shipping and mails. 12.35: Cricket scores. 12.37: Market reports. 12.47: Studio music. 12.50: Cricket scores. 12.52: "Sun" midday news service. 1.0: Studio music. 1.5: Cricket scores. 1.7: Studio music. 1.20: Cricket scores. 1.22: Studio music. 1.30: Talk to children, and special entertainment for children in hospital. 1.57: Cricket scores. 2.0: G.P.O. chimes. Close.

AFTERNOON SESSION.

Announcer: Basil Kirke.

Accompanist: Kathleen Roe.

3.45: G.P.O. clock and chimes. 3.46: Popular music. 3.50: Cricket results, fourth Test match. 3.52: Popular music. 4.0: G.P.O. clock and chimes. 4.5: Cricket results, fourth Test match. 4.7: Popular music. 4.10: Mab Fotheringham, soprano. 4.17: Pianoforte solos, by James Pedal. 4.24: "Sun" news service. 4.30: Popular music. 4.35: Cricket results, fourth Test match. 4.37: "Sun" news service. 4.40: From Romano's: Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.50: From the Studio: Cricket results, fourth Test match. 4.52: Mab Fotheringham, soprano. 4.57: Pianoforte solos, by James Pedal. 5.4: Our serial story. (Cricket results, fourth Test match, 5.5). 5.14: Pianoforte reproduction. 5.20: Cricket results, fourth Test match. 5.22: Popular music. 5.30: Poultry report; complete racing resume. 5.35: Cricket results, fourth Test match. 5.37: Features of the evening's programme.

EARLY EVENING SESSION.

Announcers: Basil Kirke.
J. Knight Barnett.

5.40: Children's session, conducted by Uncle Bas; music and entertainment. 6.0: Letters and stories. 6.30: "Sun" news, and late sporting. 6.40: 2BL Dinner Quartette—(a) "Forest Fancies" (Haines), (b) "Pierrette" (Chaminade), (c) "Hindu Moon Star" (Cariton), (d) "Cantilene" (Ganne), (c) "Sefira" (Siede), (f) "Gipsy Love Song" (Herbert), (g) "Song of the Vagabonds" (Friml). 7.10: 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: Mr. Pim and Miss Pam in advertising talk and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: J. Knight Barnett.

Accompanist: G. Vern Barnett.

8.0: G.P.O. clock and chimes; topical chorus.
8.3: The Music Makers—
(a) "Andante Cantabile" (Cui).
(b) "Berceuse" (Cui).
(c) "Serenata della Laguna" (Beccini).
8.12: From the Rose Bay Wintergarden—The Rose Bay Orchestra, under the conductorship of Lionel Hart.
8.30: From the Studio: Lillian Gibson, contralto.
8.37: The Music Makers—
Selection, "Mignon" (Thomas).
8.47: Rex Harrison, baritone.
8.54: Talk, by "Bringa."
9.9: Weather report.
9.10: The Music Makers—
Suite, "Ballet Moderne" (Armandola).
9.20: Lillian Gibson, contralto.
9.27: The Music Makers—
Overture, "Rosamunde" (Schubert).
9.34: From the Rose Bay Wintergarden—The Rose Bay Orchestra, under the conductorship of Lionel Hart.
9.54: From the Studio: Rex Harrison, baritone.
10.1: The Music Makers—
"Dubnuschka" (Schumann).
10.27: To-morrow's programme.
10.30: National Anthem. Close down.

TEST CRICKET SCORES

Scores during the third day's play at the Fourth Test Match at Adelaide will be broadcast from 2FC and 2BL during the day. Use this space for your figures.

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3LO

EARLY MORNING SESSION

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

MORNING SESSION

11.0: 3LO's different dainties for the daily dinner. To-day's radio recipe, pig's cheek (to be served cold the next day). 11.5: Miss Noble will speak on "Gas Cookery." 11.20: Musical Interlude. 11.25: Mrs. Dorothy Silk will speak on "Homecrafts." 11.25: Musical Interlude. 11.45: Dr. Loftus Hills, "Life's Facts and Fancies." 12.0 to 12.15: Mid-day news session. 12.20: The Station Orchestra, selection, "Brahmsiana" (Brahms). 12.25: John Byrne, bass, "I Will Not Grieve" (Schumann). "The Old Plaid Shawl" (Haynes). 12.37: Stock Exchange Information. 12.40: The Station Orchestra, fantasia, "Heldenstück" (Wagner). 12.53: John Byrne, bass, "How Gently Here" (Schumann). "The Two Grenadiers" (Schumann). 1.0: Description of the fourth Test match, England v. Australia, relayed from Station 5CL, Adelaide. 2.0: Meteorological information; weather forecast for Victoria, South Australia, New South Wales, and Tasmania; ocean forecasts; river reports; rainfall.

AFTERNOON SESSION

2.15: The Radi-o-Aces, "Little Log Cabin of Dreams" (Harley), "Last Night I Dreamt You Kissed Me" (Kahn), "Who Knows?" (Dixon). 2.24: Courtney Ford, humorist, "My Wedding Anniversary." "I Naturally Resented" (Peller). 2.31: The Radi-o-Aces, "To-day, To-morrow, for Ever" (Nichols), "A Sweet Mystery of Life" (Herbert), "Saskatchewan" (Leslie). 2.40: Diana Belmont, contralto, "The Ships of Arcady," "Beloved." 2.47: The Radi-o-Aces, "Down Home Road" (Sweetser), "Lucky in Love" (Henderson), "The Best Things in Life are Free" (Henderson). 2.58: Jack Lumsdaine, whispering baritone, "Wireless Whispers." 3.3: The Radi-o-Aces, "In a Bamboo Garden" (Donaldson), "Any, thing You Say" (Donaldson), "That Melody of Love" (Donaldson). 3.12: Courtney Ford, humorist, "The One-man Band" (Mayo), "Shall Us? Let's!" (Laurier). 3.19: The Radi-o-Aces, "Constantinople" (Carlton), "Maybe I'm Wrong" (Harris), "Hum and Strum" (Meyers). 3.30: Description of the fourth Test match, England v. Australia, relayed from Station 5CL, Adelaide. 4.30: Diana Belmont, contralto, "A Blackbird Singing" (Head), "Nocturne." 4.37: The Radi-o-Aces, "Lady of Love" (Nausbaum), "Jazz Master," piano solo (Mayeral), "In My Bouquet of Memories" (Lewis). 4.47: Jack Lumsdaine, whispering baritone, "Whimsical Whispers." 4.54: The Radi-o-Aces, "Fancies" (Nichols), "Red Head" (Embury), "Jeanette" (Gilbert). 5.0: News session. 5.10: Close down.

EVENING SESSION

5.30: Description of the fourth Test match, England v. Australia, relayed from Station 5CL, Adelaide. 6.30: Answers to letters and birthday greetings, by "Bobby Bluegum."

NIGHT SESSION

7.5: Stock Exchange Information. 7.15: Market reports. 7.30: News session. Stumps scores of the fourth Test match, England v. Australia, at Adelaide, also Sheffield Shield cricket, match, Queensland v. Victoria, at Brisbane. 7.43: Birthday greetings. 7.45: "Out of the Past." 7.46: Under the auspices of the University Extension Board, Hon. S. Mauger, J.P., will speak on "James Russell Lowell: The Foot and the Man." 8.0: "A Maker of History." 8.1: Prahran City Band, march "1st Artillery" (Code), part-song "Sweet and Low" (Pinsuti). 8.10: Grace Jackson, contralto, "My Zither" (Gray), "I Love You Truly" (Jacobson). 8.17: Prahran City Band, overture "The Barber of Seville" (Rossini). 8.24: John Byrne, bass, "Oh, But to Hear Thy Voice" (Tschairowsky), "Here's a Health Unto His Majesty" (Old English). 8.30: Scots' Church Choir, organist and director, Mansley Greer, three unaccompanied motets by Tertius Noble. (1) "Come, O Thou Traveller Unknown." (2) "Souls of the Righteous." (3) "Let All the World, 'Till Consummation" (Rossini). "Hall Gladdening Light" (Sir George Martin). 8.55: Professor R. J. A. Berry, "And What Shall the Verdict Be?" 9.15: Prahran City Band, selection "Souvenirs of the Opera" (Rimmer). 9.25: Courtney Ford, humorist, "Olive, Courtney, Bennett Scott," "The Alphabet" (Courtney Ford). 9.32: Prahran City Band, "Casina Tanze" (Gungl). 9.40: Jack Lumsdaine, the Radio Rascal, "Random Rhymes." 9.47: Mabel Nelson, piano, "Polonaise, Op. 26" (Chopin), "Eccosaisses" (Chopin). 9.54: Grace Jackson, contralto, "Wait" (d'Ardelet), "Four Ducks on a Pond" (Needham). 10.1: "Argus" news service; British Official Wireless news from Rugby announcements; Eric Welch's selections for the Bendigo races. 10.10: Prahran City Band, selection, "Coppella" (Delibes). 10.20: John Byrne, bass, "Uncle Rome" (Delibes), "How's My Boy?" (Homer). 10.27: Courtney Ford, humorist, "How Do You Do?" "Jazbo." 10.34: Prahran City Band, "Chanson Triste" (Tschairowsky), "March Incomitable" (Rimmer). 10.44: The Radi-o-Aces, "The Dance of the Blue Danube" (Fisher), "I Goes Like This" (Cesar), "Roses of Yesterday" (Berlin), "Forever More" (Runnett), "Nebraska" (Aitken). 11.1: The Radi-o-Aces, "That's My Weakness Now" (Steph), "Get Out and Get Under the Moon" (Tobias), "In a Baritone" (Donaldson), "Anything You Say" (Donaldson), selected. 11.40: "God Save the King."

3AR

10.0: G.P.O. clock says "Ten." 10.1: "Age" market reports—farm and station produce, fruit, fish, vegetable, etc. 10.15: "Age" shipping reports. Ocean forecast. 10.30: Mail notices. Express train information. 10.35: "Age" news service, exclusive to 3AR. 10.50: Weather forecast. 11.0: A recital of the works of the Master Craftsman. 12.20: British official wireless news. 12.30: Close down.

EVENING SESSION.

8.0: A bravura of beautiful ballads, interspersed with orchestral selections. 9.15: "Herald" news service. 7.25: Gramophone recital continued. 7.50: Results of fourth Test match, from Adelaide.

NIGHT SESSION.

8.0: A talk under the auspices of the Royal Automobile Club of Victoria. 8.15: A. G. Keelson, of 3AR, Stamp Club. Postage Stamps. 8.30: "The Station Orchestra, Overture, "Rakoczy" Keiler Bela). 8.45: Vera Thomson, soprano, "Star of Fate," from "Catherine" (Tschairowsky), "The Nightingale and the Rose" (Rubenstein). 8.52: Victor Stephenson, piano, "Sonata in G Major" (Schumann). Allegro. Assai. Andantino. Rondo. 9.7: The Station Orchestra, selection, "Rose of Araby" (Morgan). 9.17: Capt. Donald McLean. 9.32: The Station Orchestra, Prelude (Saint-Saens) (Schumann). Allegro. contralto, "The Nut Tree" (Schumann). "To the Sunshine" (Schumann). 9.44: The Station Orchestra, "Caprice" (Moszkowski). 9.54: Vera Thomson, soprano, "Love in Spring" (Liszt), "Lech Lombard" (Scottish air). 10.1: The Station Orchestra, "Petite Suite de Concert" (Coleridge Taylor). 10.13: Rosalind Hartung, contralto, "The Silver Ring" (Chambers). "The Early Mornings" (Peel). 10.20: News. Close down.

4QG

EARLY MORNING SESSION.

7.43 a.m.: Time signals. 7.45: News service. 8.0: Some electric records. 8.15: News service. 8.30: Close down.

MORNING SESSION.

11.0 a.m.: Music. 11.5: Social news. 11.18: Talk on "Home Crafts." (By Mr. R. L. Reid. 11.30: Music. 11.35: More social news. 11.45: Music. 12.0: Close down.

MIDDAY SESSION.

1.0 p.m.: Market reports and weather information. 1.20: Wurlitzer organ. 2.0: Close down.

AFTERNOON SESSION.

3.0 p.m.: A programme of electrically-reproduced records. 3.30: Mail train running times. 4.18: This afternoon's news. 4.30: Close down.

EARLY EVENING SESSION.

6.0 p.m.: Mail train running times; mail information; shipping news. 6.5: Wurlitzer organ. 6.25: Commercial announcements. 6.30: Bedtime stories conducted by "Uncle Ben." 7.0: News in brief. 7.5: Stock Exchange news. 7.6: Metal quotations. 7.7: Market reports. 7.28: Fenwick's stock report. 7.30: Weather information. 7.40: Announcements. 7.43: Standard time signals. 7.45: Letteurette, "Poultry Talk," by Mr. P. Rumball (poultry instructor).

NIGHT SESSION.

8.0 p.m.: Part song, "Welcome Heroes of Renown" (Mendelssohn); W. L. Burch, bass—"The Bandoleiro" (Stuart). Agnes Kerr, contralto—"One Morning, Oh, So Early" (Scott Gatty), John Steele, tenor—"The Hills of Donegal" (Sanderson), Quartette—"Waltz from Faust" (Gounod). Lou Lambert, baritone—"Close Propp" (Charles). Jill Manners, soprano—"I Walk Alone" (Liszt). Part song—"Adieu Juliet" (Gounod). Part song—"Bridal Chorus" (from "Lohengrin" Wagner), Jack Land, tenor—Recit., "If People Rend Your Hearts"; air, "If With All Your Hearts" (Mendelssohn). W. L. Burch, bass—"Rose of My Heart" (Lohr). Vera Parker, contralto—"Ye Banks and Braes" (Burns). Part song—"Scottish Melodies" (Bramcombe). Pat McOnigley, soprano—"The Little Brown Owl" (Sanderson); "Here's to Love and Laughter" (Rubens). John Steele, tenor—"O Mistress Mine" (Quilter); "To Daisies" (Quilter). Agnes Kerr, contralto—"Robin Gray" (Lindsay). Part song—"Adelaide, Australia Fair" (Amieux). Lou Lambert, baritone—"For You Alone" (Geehl). Pat McOnigley, soprano—"The Flower Song" (from "Faust," Gounod). Quartette—"Songs of the Volga" (from the Volga" (Bantock). Vera Parker, contralto—"Kashmiri Song" (Pinden); "Less than the Dust" (Pinden). Jill Manners, soprano—"Lullaby" (Scott). Part song—"Anvil Chorus" (from "Il Trovatore," Verdi). Jack Land, tenor—"The Garonne" (Adams). Agnes Kerr, contralto—"Dream o' Nights" (Coates). Jill Manners and Lou Lambert—Duet, "Awake" (Pellisser). Part song—"Come With My Love Lies Dreaming" (Foster). 10.0: The "Daily Mail" news; "The Courier" news; weather news; "Queenslander" bi-weekly news service for distant listeners. Close down.

5CL

MORNING SESSION.

11.0: G.P.O. clock. 11.1: William Davey, xylophonist. 11.6: Marion Davey, contralto. 11.12: Jean Finlay, pianiste. 11.15: "Economist." Kitchen Craft and Menu talk. Vocal and Instrumental Interlude. (continued). 11.30: Bernard Manning, bass-baritone. 11.36: William Davey, xylophonist. 11.42: Marion Davey, contralto. 11.48: Jean Finlay, pianiste. 11.51: Bernard Manning, bass-baritone. 11.57: William Davey, xylophonist. 12.0: G.P.O. chimes. 12.1: Description of the International Test cricket, England

February 5

v. Australia. Specially described by 5CL's sporting commissioner. 12.15: News session. 12.40: Description of the International cricket match, England v. Australia. 12.52: S.A. Railway information. 12.53: S. C. Ward and Co.'s Stock Exchange information. 12.57: Meteorological information. 1.0: G.P.O. chimes. 1.1: Description of the fourth Test match, England v. Australia. 1.30: M. A. Noble (International cricketer) will give a resume of the match. 1.40: Close down.

AFTERNOON SESSION.

2.30: G.P.O. chimes. 2.31: Description of the fourth Test match, England v. Australia. 4.0: M. A. Noble (International cricketer) will give a resume of the play. 4.15: Description of the fourth Test match (continued). 4.55: S. C. Ward and Co.'s Stock Exchange information. 5.0: Description of the fourth Test match, England v. Australia. 6.0: Birthday greetings, correspondence, songs and stories by "The Wattle Lady." 6.30: Close down.

EVENING SESSION.

7.0: G.P.O. chimes. 7.1: S. C. Ward and Co.'s Stock Exchange information. 7.5: General market reports. 7.10: 5CL's sporting service by "Silvius," including Amateur Turf Club acceptances. 7.20: Miss Laurie M'Leod: Talk on "The Art of Dancing." 7.30: M. A. Noble (International cricketer) will give a brief resume of the fourth Test match. 7.40: Dr. Herbert Basedow, M.P.: "An Australian Talk."

NIGHT SESSION.

8.0: G.P.O. chimes. 8.1: Tom King, pianist. 8.5: Holden's Male Voice Choir. 8.12: James Glennon, violinist. 8.18: Victoria Wilson, soprano, "Over the Mountains." Down in the Forest." 8.24: Will Runge, humorist. 8.34: Tom King, pianist. 8.42: Bernard Manning, bass-baritone. 9.0: G.P.O. chimes. 9.1: Meteorological information. 9.2: Overseas grain report. 9.3: Victoria Wilson, soprano. 9.10: A one-act play by Ray Walsh and Company. 9.30: Tom King, pianist. 9.35: Holden's Male Voice Choir. 9.45: James Glennon, violinist. 10.10: Holden's Male Voice Choir. 10.1: Bernard Manning, bass-baritone. 10.6: James Glennon, violinist. 10.10: Holden's Male Voice Choir. 10.15: News session. 10.31: Modern dance numbers by the famous Radi-o-Aces. 11.0: God Save the King.

7ZL

MORNING SESSION.

10.30: Transmission from the Hobart Regatta Ground. Results of events and progress results of Trans-Derwent swimming race, for 7ZL Cup and Medallion. 10.50: Musical selections. 11.0: Progress results of swimming race, motor boat races, greasy pole championship naval swimming race for championship of Fleet.

MID-DAY SESSION.

12.0: G.P.O. clock chimes the hour. 12.1: Shipping information. Ships within wireless range. Mail notices. Housewives' guide. British official wireless news. 12.5: Description of cricket match, England v. Australia, at Adelaide. 1.0: "Mercury" news service. 1.1: Description of fourth Test match. 1.30: Close down. 2.45: England v. Australia, at Adelaide.

AFTERNOON SESSION.

3.0: G.P.O. clock chimes the hour. 3.1: Progress results and description of events at Hobart Regatta. 3.30: England v. Australia. 4.15: Progress results and description of regatta. 4.30: Description of cricket match, England v. Australia. 5.30: All sporting results. 5.35: Close down.

EARLY EVENING SESSION.

6.10: Results of fourth Test match, stump scores. 6.15: Musical selections. 6.25: Doreen Elsey (15 years of age). 6.30: "The Story Lady" will tell a story to the wee folk. 6.45: Musical selections. 7.0: Answers to letters and birthday greetings. 7.5: Musical selections. 7.15: News session.

EVENING SESSION.

7.30: Presentation of 7ZL Cup to winner of Trans-Derwent swimming race. Winner to reply and give his experiences. 7.45: W. E. Fuller will speak on "Literary Lapses and Library Lists." 8.0: G.P.O. clock chimes the hour. 8.5: A popular programme by Theo Pipkin and his Orchestra. 8.15: John Brownlee, baritone. 8.22: Theo Pipkin and his Orchestra. 8.29: Harry Denton, bass. 8.36: Theo Pipkin and his Orchestra. 8.45: Rachael Morton, contralto. 8.52: Theo Pipkin and his Orchestra. 8.59: The Gresham Singers. 9.6: Theo Pipkin and his Orchestra. 9.15: The Gresham Singers. 9.22: Theo Pipkin and his Orchestra. 9.29: Ernest M'Kinley, tenor. 9.36: Theo Pipkin and his Orchestra. 9.43: Evan Williams, tenor. 9.50: News session. 10.0: G.P.O. clock chimes the hour. Close down.



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Local Programmes, Wednesday, February 6

2FC

EARLY MORNING SESSION.

Announcer: A. S. Cochrane.
7.0: "Big Ben" and announcements. 7.2: Official weather forecast, rainfall, river reports, temperatures, astronomical memoranda. 7.7: "Sydney Morning Herald" summary. 7.12: Shipping intelligence, mail services. 7.15: Studio music. 7.25: Investment market; mining sharemarkets, metal quotations, wool sales, breadstuffs markets, Inter-Statc markets, produce markets. 7.40: Studio music. 8.0: "Big Ben," close.

MORNING SESSION.

Announcer: A. S. Cochrane.
10.0: "Big Ben" and announcements. 10.2: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.45: A talk on Home Cooking and Recipes by Miss Ruth Furst. 11.0: "Big Ben." A.P.A. and Reuter's cable services. 11.5: Close.

MIDDAY SESSION.

Announcer: A. S. Cochrane.
12.0: "Big Ben" and announcements. 12.1: Stock Exchange, first call. 12.3: Official weather forecast, rainfall. 12.5: Studio music. 12.10: Summary of news, "Sydney Morning Herald." 12.15: Rugby wireless news. 12.20: Cricket scores, fourth test match, England v. Australia, played at Adelaide. 12.22: A reading. 12.30: Studio music. 12.35: Cricket scores. 12.37: Studio music. 12.50: Cricket scores. 12.52: Studio music. 1.0: "Big Ben," weather intelligence. 1.2: "Evening News" midday news service. 1.7: "Evening News" midday news service; Producers' Distributing Society's report. 1.20: Cricket scores. 1.22: Studio music. 1.28: Stock Exchange, second call. 1.30: Studio music. 1.35: Cricket scores. 1.37: Studio music. 2.0: "Big Ben," close.

AFTERNOON SESSION.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
2.0: Programme announcements. 2.32: Educational session for the schools; a short musical recital. 2.35: Cricket scores, fourth test match. 2.37: Educational session continued. 2.45: Raymond G. Watt will speak on the "League of Nations." (Cricket scores at 2.50). 3.0: "Big Ben;" pianoforte reproduction. 3.5: Cricket scores, fourth Test match. 3.15: Popular music. 3.30: Ruby Lesley, soprano—(a) "My Cinamon Tree" (Monckton), (b) "Lilies of Lorraine" (Connor), (c) "Two Little Shoes" (d'Hardelot). 3.35: Cricket scores, fourth Test match. 3.37: Winifred M'Bride, contralto—(a) "Auld Scotch Mither Mine" (Stevens), (b) "Five Little Piccaninies" (Anthony), 3.44: A Reading. (Cricket scores, 3.50). 4.0: "Big Ben;" popular music. 4.5: Cricket scores, fourth Test match. 4.7: Popular music. 4.15: Ruby Lesley, soprano—(a) "Just Love Me" (Phillips), (b), selected. 4.22: Winifred M'Bride, contralto—(a) "The Auld Nest" (Longstaffe), (a) "Love's Old Sweet Song" (Molloy), 4.29: Popular music. 4.35: Cricket results, fourth Test match. 4.37: Studio music. 4.45: Stock Exchange, third call. 4.47: Studio music. 4.50: Cricket scores, fourth test match. 4.52: Studio music. 5.0: "Big Ben;" close down.

EARLY EVENING SESSION.

Announcer: A. S. Cochrane.
5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man," assisted by Uncle Ted and Sandy; letters and stories. 5.50: Cricket scores, fourth Test match. 5.52: Music and entertainment for the children. 6.5: Stumps drawn, fourth Test match. 6.7: Music and entertainment continued. 6.30: Chat about the Cheer-up Society by Uncle Frank. 6.35: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.45: Weather and shipping news. 6.48: Rugby wireless news. 6.50: Late sporting news. 7.0: "Big Ben;" late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats—(a) "The King's Daughter" (Fetras), (b) "Melodie" (Moskowsk), (c) "L'Africaine" (Meyerbeer), (d) "Le Cygne" (Saint-Saens), (e) "Sextette and Lullaby" (Smetana), (f) "Marche Militaire" (Schubert).

EVENING SESSION.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
7.40: Pianoforte reproduction.
7.45: Programme announcements.
7.48: Cricket results, fourth Test match, England v. Australia, played at Adelaide, Popular music.
8.0: "Big Ben;" classic programme, arranged by Vern Barnett.
9.0: Weather report. A talk by C. R. Hall.
9.15: The second half of the classic programme, arranged by Vern Barnett.
10.15: Talk by J. G. Lockley on "Old Sydney."
10.28: To-morrow's programme.
10.30: National Anthem; close down.

2BL

MORNING SESSION

Announcer: A. C. Stevens.
8.0: G.P.O. chimes; metropolitan weather report. State weather report. 8.2: Studio music. 8.15: G.P.O. chimes; news service from the "Daily Telegraph Pictorial." 8.30: G.P.O. chimes; news service, continued. 8.40: Information; mails; shipping, arrivals, departures and sailings. 8.45: Studio music. 9.15: Half an hour with silent friends. 9.45: Studio music. 10.0: G.P.O. clock and chimes. Close down.

MIDDAY SESSION.

Announcer: Basil Kirke.
11.0: G.P.O. clock and chimes; 2BL Women's Sports Association session, conducted by Gwen Varley. 11.30: Advertising hints. 11.40: Women's session, conducted by Mrs. Cranfield. 12.0: G.P.O. clock and chimes; special ocean forecast and weather report. 12.3: Pianoforte reproduction. 12.20: Cricket scores of the fourth Test match, England v. Australia, played at Adelaide. 12.22: Studio music. 12.30: Shipping and mails. 12.35: Cricket scores. 12.37: Market reports. 12.47: Studio music. 12.50: Cricket scores. 12.52: "Sun" midday news service. 1.0: G.P.O. clock and chimes; studio music. 1.5: Cricket scores. 1.7: Studio music. 1.20: Cricket scores. 1.22: Studio music. 1.30: Talk to children, and special entertainment for children in hospital. 1.57: Cricket scores. 2.0: G.P.O. clock and chimes. Close.

AFTERNOON SESSION.

Announcer: Basil Kirke.
Accompanist: Kathleen Roe.
3.45: G.P.O. clock and chimes. 3.46: Popular music. 3.50: Cricket results, fourth Test match. 3.52: Popular music. 4.0: From Romano's: Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.5: From the Studio: Cricket results, fourth Test match. 4.7: Talk by Basil Kirke, "Arts and Crafts of the Melanesians." 4.21: From Romano's: Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.30: From the Studio: H. C. Gilson, tenor. 4.36: Cricket results, fourth Test match. 4.38: "Sun" news service. 4.40: From Romano's: Romano's Dance Orchestra, under the direction of Bennie Abrahams. 4.50: From the Studio: Cricket results, fourth Test match. 4.52: Ida Horwood, mezzo soprano, (a) "Homing" (Del Riego), (b) "What a Wonderful World It Would Be" (Lohr). 4.57: "Sun" news service. 5.0: Our serial story, (Cricket results, fourth Test match, 5.5.)

5.10: H. C. Gilson, tenor. 5.17: Ida Horwood, mezzo soprano (a) "Whatever Is—Is Best" (Lohr), (b) "Just A-Wearyin' For You" (Jacobs-Bond). 5.24: Cricket results, fourth Test match. 5.30: Racing resume, Ascot ponies. 5.35: Cricket results, fourth Test match. 5.37: Features of the evening's programme.

EARLY EVENING SESSION

Announcer: J. Knight Barnett.
5.40: Children's session, conducted by Uncle Peter; music and entertainment. 6.0: Letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette—(a) "In Your Own Back Yard" (Jolson), (b) "Waltz Scherzo" (Strauss), (c) "Primrose" (Gershwin), (d) "Sweet Suzanne" (Gilbert), (e) "Bolero" (Moskowsk), (f) "In a Bamboo Garden" (Donaldson). 7.10: 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: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: J. Knight Barnett.
Accompanist: G. Vern Barnett.
8.0: G.P.O. clock and chimes; topical chorus.
8.3: The Savoyans Dance Band.
8.15: Edward Barraclough, baritone.
8.22: A sketch, by the Players' Club—
• "The Burglar and the Girl."
• The Burglar, Francis Chivers.
The Girl, Janet North.
8.34: Miriam Pope, soprano—
(a) "Waltz Song from Tom Jones" (German).
(b) "Fairy Shopping" (Day).
8.41: Leila Lee, xylophonist.
8.51: Graham and Manning, music entertainers—
(a) "If Things Were Really What They Ought To Be" (Rose).
(b) "They All Toddle Up To London" (Rose).
9.1: Weather report.
9.2: Andrew Madden, euphonium.
9.9: The Savoyans Dance Band.
9.19: Claude Corbett will give a talk on general sporting.
9.35: The Savoyans Dance Band.
9.45: Edward Barraclough, baritone.
9.51: A sketch by the Players' Club—
"Light and Shade."
Feggie, Francis Chivers.
Delia, Janet North.
10.3: Miriam Pope, soprano—
(a) "Il Bacio" (Arditi).
(b) "Lament of Isis" (Bantock).
10.10: Graham and Manning, music entertainers—
(a) "The Fact Is" (Ayer), Harry Graham.
(b) "Dream Time and You" (Nicholls), Dorothy Manning.
(c) "When Father Fixed the Wireless on the Roof" (Rose).
10.20: The Savoyans Dance Band.
10.30: Late weather report.
10.32: The Savoyans Dance Band.
10.57: To-morrow's programme.
10.59: The Savoyans Dance Band.
11.30: National Anthem. Close down.

TEST CRICKET SCORES

(Fourth Day's Play.)

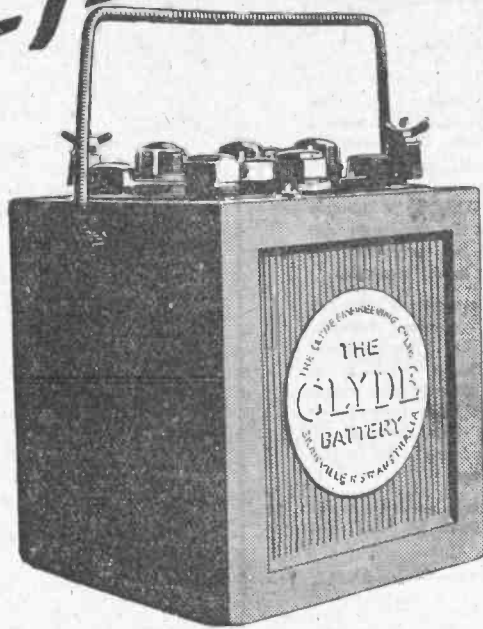
Note these points

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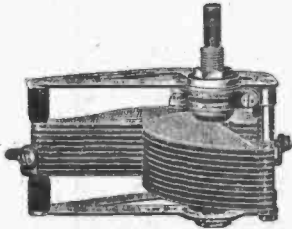
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D.

3LO

7.15 to 8.15: See Friday.

MORNING SESSION

11.0: 3LO's different dainties for the daily dinner. To-day's radio recipe, tomato aspic. 11.5: Mrs. Henrietta C. Walker, "The Art of Being a Setter: Pot Plants." 11.20: Musical Interlude. 11.25: Mrs. M. Callaway Mahood, "Color in Decoration." 11.40: Musical Interlude. 11.45: Clarence Weber, physical culture expert, "Physical Culture for Women." 12.0 to 12.15: Mid-day news session.

MID-DAY SESSION

12.20: The Radi-o-Aces, "Sally Rose" (Friend), "Sincerely I Do" (Davis), "The Prune Song" (Crumit). 12.29: Courtney Ford, humorist, "Success of the Dance" (Cliff), "Current Pans" (Reglow). 12.36: Stock Exchange information. 12.39: The Radi-o-Aces, "Sleepy Bbby" (Kahn), "Get Out and Get Under the Moon" (Tobias), "Out of the Dawn" (Donaldson). 12.48: Jack Lumsdaine, whispering baritone, selections from his repertoire. 12.55: Meteorological information, weather forecast for Victoria, New South Wales, South Australia, and Tasmania; ocean forecasts; river reports; rainfall. 1.0: Description of the fourth Test match, England v. Australia, relayed from Station 5CL Adelaide. 2.0: Description of Turf Race, two miles, at Bendigo races, by Eric Welch.

AFTERNOON SESSION

2.15: The Station Orchestra, overture, "Sakuntala" (Goldmark). 2.25: Gertrude Gray, mezzo-soprano, "I Attempt from Love's Sickness to Fly" (Purcell), "Since First I Saw Your Face" (Ford). 2.32: The Station Orchestra, selection "The Love Song" (Offenbach). 2.39: The Bendigo Race Plate, six furlongs, Bendigo races. 2.45: Courtney Ford, humorist, "All Dressed Up" (Silvio Heli), "On My Ukulele" (Herscher). 2.54: The Station Orchestra, "Four Chivalria Dances" (Lohr), 3.4: Diana Belmont, contralto, "Before the Dawn" (The Enchantress" (Hullah). 3.12: Description of Hospital Handicap, one mile, Bendigo races. 3.20: The Station Orchestra, "March Solonelle" (Tschakowsky). "Romance" (Rubinstein). 3.27: Gertrude Gray, mezzo-soprano, "Open Thy Blue Eyes" (Massenet). 3.30: Description of the fourth Test match, England v. Australia, by "Willow," relayed from Station 5CL Adelaide. 3.43: Description of Novice Handicap, five furlongs and a half, Bendigo races. 3.50: Description of the fourth Test match, England v. Australia, by "Willow," relayed from Station 5CL Adelaide. 4.13: Description of Handicap Trot, mile and a quarter, Bendigo races. 4.20: Description of the fourth Test match, England v. Australia, by "Willow," relayed from Station 5CL Adelaide. 4.30: The Station Orchestra, "Prelude" (Saint-Saens), "Caprice" (Mozzkowski). 4.42: Description of Jumpers' Flat, mile and a quarter, Bendigo races. 4.50: The Station Orchestra, selected. 5.0: "Herald" news service. Stock Exchange information. During the afternoon progress scores of the Sheffield Shield cricket match, Queensland v. Victoria, will be broadcast as they come to hand. 5.10: Close down.

EVENING SESSION

5.30: Description of the fourth Test match, England v. Australia, by "Willow," relayed from Station 5CL Adelaide. 6.30: Answers to letters and birthday greetings, by "Mary Mary."

NIGHT SESSION

7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. Stumps scores, fourth Test match, England v. Australia, at Adelaide, and Sheffield Shield cricket match, Queensland v. Victoria. 7.43: Birthday greetings. 7.45: "Out of the Past." 7.45: Under the auspices of the Department of Agriculture, Mr. R. Crowe, exports superintendent, will speak on "Marketing Methods." 8.0: "A Maker of History." 8.1: The Station Orchestra, selection, "Tangerine" (Sanders). 8.10: Mona Nugent, soprano, "Romance" (Debussy), "Is the Moon Tired?" (Swinstead), "Two Brown Eyes" (Grieg). 8.20: Tasman Tiersman, cello, "Meditation," from "Thais" (Massenet). 8.27: Concert play, "A Story of Waterloo," by Conan Doyle; Characters—Corporal Brewster (aged 89) (Maurice Dudley), Sergeant McDonald, Royal Artillery (Frank Hatherley), Colonel Jas. Midwinter, Scots Guards (E. M. Hill), Norah Brewster, the corporal's grand-niece (Mrs. Maurice Dudley); scene, the living-room in Brewster's cottage, near the barracks; produced by Maurice Dudley. 8.37: Piano recital. 8.57: Mona Nugent, "Sonatina," second movement (Ravel), "Arabesque" (Debussy). 9.7: J. Howard King, bass-baritone, "The Carpet" (Sanderson), "Quiet" (Sanderson). 9.14: The Station Orchestra, "Petite Suite de Concert" (Coleridge-Taylor). 9.23: Gertrude Gray, mezzo-soprano, "Who is Sylvia?" (Schubert), "I Will Not Grieve" (Schumann). 9.30: A. J. Gill, secretary, Victorian Police Association, will speak on "The Police Force of To-day." 9.45: The Station Orchestra, overture, "Sicilian Vespers" (Verdi). 9.55: J. Howard King, bass-baritone, "Oh, Could I But Express in Song" (Malachukin), "Sacrament" (M'Dermid). 10.2: The Station Orchestra, suite, "Cobweb Castle" (Lehmann). 10.7: Jack Lumsdaine, whispering baritone, "Modern Melodies." 10.14: "Argus" news service; British Official Wireless news; from Rugby; meteorological information. 10.24: The Station Orchestra, selection, "She's a Good Fellow" (Kern). 10.30: Gertrude Gray, mezzo-soprano, "The Arrow and the Song" (Balfie), "Big Lady Moon" (Coleridge-Taylor). 10.37: The Station Orchestra, "The Post" (MacDowell). 10.42: Jack Lumsdaine, the "Radio Rascal," "A Good-night Song." 10.49: The Radi-o-

Aces: "Old Man Sunshine" (Dixon), "My Dream Sweetheart" (Hall), "Guess Who's Town" (Razalf), "That Steien Melody" (Fisher). 11.2: The Radi-o-Aces, "Lenora" (Gilbert), "Japanese Mammy" (Donaldson), "There's a Ricketty Racketty Shack" (Turk), "That's What You Mean to Me" (Davis), "Lazy Feet," piano solo (Masman), "Just Laid," Melody Out of the Sky" (Donaldson), "Beloved" (Kahn), "Because My Baby Don't Mean Maybe Now" (Donaldson), "I Love to Dunk a Hunk of Sponge Cake" (Castili). 11.30: "God Save the King."

3AR

10.0: G.P.O. clock says "Ten." 10.1: "Age" market report—farm and station produce, fruit, fish, vegetables, etc. 10.25: "Age" shipping reports. Ocean forecast. 10.30: Mail notices. Express train information. 10.35: "Age" news service, exclusive to 3AR. 10.59: Weather forecast. 11.0: A bravura of beautiful ballads, interspersed with orchestral selections. 12.20: British official wireless news. 12.30: Close down. 12.35: Transmissions from the Freemason's Hall, Collins Street, Melbourne. Speeches from the Rotary Club luncheon. 2.0: Close down.

EVENING SESSION.

6.0: A bravura of beautiful ballads and the orchestral works of the master musicians. 7.15: "Herald" news service. 7.25: Gramophone recital, continued. 7.50: Results of fourth Test match, from Adelaide.

NIGHT SESSION.

8.0: P. W. Pearce, "Swimming as an Exercise." 8.15: Rev. W. Bottomley, Eugen Sue's "Wandering Jew." 8.30: Coburg City Band, Overture, "Silverdale" (Allen). 8.40: John Byrne, "The Puppet Showman" (Molloy), "The Vicar of Bray." 8.47: Capt. Donald M'Lean. 9.2: Coburg City Band, Waltz, "Sunset on the St. Lawrence" (Haller). 9.10: Jack Lumsdaine, whispering baritone, by permission of J. C. Williamson, Ltd., in the latest hits. 9.17: Coburg City Band, March, "Ballarat City" (Code). 9.24: Diana Belmont, contralto, "Unfolding" (Liza Lehmann), "June" (Liza Lehmann). 9.30: Coburg City Band, Fantasy, "Rustic Festival." 9.41: John Byrne, bass, request items. 9.48: Coburg City Band, March, "Honcat Toli" (Himmer). 9.53: Jack Lumsdaine, the Radio Rascal, "Rascallities." 10.0: Coburg City Band, Selection, "Songs of the Past." March, "The Great Little Army" (Alford). 10.13: Diana Belmont, contralto, "The White Dawn is Stealing" (Wakefield Cadman), selected. 12.20: News session. Close down.

4QG

EARLY MORNING SESSION.

7.43 a.m.: Time signals. 7.45: News service. 8.0: Some electric records. 8.15: News service. 8.30: Close down.

MORNING SESSION.

11.0 a.m.: Musical. 11.5: Social news. 11.55: Talk on "Artistic Uses of Sealing Wax and Crepe Paper," by "Denise." 11.30: Music. 11.35: More social news. 11.45: Wurlitzer organ.

MIDDAY SESSION.

1.0 p.m.: Market reports and weather information. 1.20: The Postal Institute Orchestra. 2.0: Close down.

AFTERNOON SESSION.

3.0 p.m.: A programme of electrically-reproduced records. 3.30: Mail train running times. 3.31: J. recital by Mr. George Tompson, F.R.C.O. (city organist). 4.0: Afternoon news.

EARLY EVENING SESSION.

6.0 p.m.: Mail train running times; mail information; shipping news. 6.5: Dinner music. 6.25: Commercial announcements. 6.30: Bedtime stories conducted by Little Miss Brisbane. 7.0: News in brief. 7.5: Stock Exchange news. 7.8: Metal quotations. 7.8: Market reports. 7.25: Fenistie's sport report. 7.30: Weather information. 7.40: Announcements. 7.43: Standard time signals. 7.45: Lecture arranged by the Queensland Agricultural High School and College.

NIGHT SESSION.

9.0 p.m.: Alf. Featherstone and his Orchestra—Foxrot, "Toki Toki," "Where the Cot-Cot-Cotton Grows" (Le Solr). 8.10: The Albert Trio—Ten minutes' music and mirth. 8.10: Alf. Featherstone and his Orchestra—Foxrot, "My Sugar" (Brett); foxrot, "My Angel" (Rapne). 8.20: Etta Monte, soubrette—"Dream Kisses" (Jerome); "In a Little Garden" (Wiltmore). 8.30: Alf. Featherstone and his Orchestra—Foxrot, "Get Out and Get Under the Moon" (Tobias); foxrot, "That's My Business Now" (Green). 8.40: J. P. Cornwell, bass—"Hope for the Dawn" (Grant); "The Fisherman of England" (Phillips). 8.50: Alf. Featherstone and his Orchestra—Foxrot, "I Never Dreamt" (Elli); foxrot, "Every Little White" (Steel). 9.15: Jean M'Dougall, soprano—"Songs My Mother Taught Me" (Dvorak); "Dream Boat" (Nevello). 9.20: Alf. Featherstone and his Orchestra—Jazz-waltz, "Nicolette" (Borner). 9.25: The Albert Trio—Ten minutes' music and mirth. 9.40: Alf. Featherstone and his Orchestra—Foxrot, "All That I Want" (Wilson); foxrot, "Summer Rain Brings Roses Again" (Myers); foxrot, "To Music" (Schubert). 9.55: Alf. Featherstone and his Orchestra—Jazz-waltz. 10.0: The "Daily Mail" news; the "Warrior" news; weather news. 10.15: Alf. Featherstone and his Orchestra—Three-quarters of an hour's dance music. 11.0: Close down.

February 6

5CL

MORNING SESSION.

11.0: G.P.O. chimes. 11.1: Station quartette: Orchestral and vocal. 11.11: Bernard Manning, bass-baritone: Selections from his repertoire. 11.16: "Economist," Talk on Menus and Kitchen Craft. 11.30: Station Quartette. 11.42: Bernard Manning, bass-baritone. 11.48: Station quartette. 12.0: G.P.O. chimes. 12.1: International Test cricket, England v. Australia, described by 5CL's commissioner. 12.15: "Advertiser" news service. 12.35: British official wireless news. 12.40: A description of the fourth Test match, England v. Australia. 12.52: S.A. railway information. 12.53: Stock Exchange, intelligence. 12.58: Meteorological information. 1.0: G.P.O. chimes. 1.1: International cricket, England v. Australia, fourth Test match progressive description. 1.30: M. A. Noble (International cricketer): A resume of the play. 1.40: Close down.

AFTERNOON SESSION.

2.30: G.P.O. chimes. 2.30: Clare racing results, Port Lincoln race results, Bendigo race results. 2.31: A progress description by 5CL's sporting commissioner on the fourth Test match, England v. Australia, with a special talk at 4 p.m. by Mr. M. A. Noble (International cricketer) on the play. 4.53: Stock Exchange intelligence. Clare racing results, Port Lincoln race results, Bendigo race results. 5.0: G.P.O. chimes. 5.1: A description of the last hour's play for the day, International cricket, England v. Australia. 6.0: Children's happy moments: Stories and songs and greetings by "Miss Wireless." 6.30: Close down.

EVENING SESSION.

7.0: G.P.O. chimes. 7.1: Stock Exchange intelligence. 7.5: General market report, Dalgety's stock market reports. 7.10: Rev. E. S. Kiek, M.A., B.D., "Talk on British History." 7.25: Boy Scouts' corner. 7.40: M. A. Noble (International cricketer), resume on the International cricket, fourth Test. 7.52: 5CL's Bluebird Girls' Club: Entertainment by "Bird Lady."

NIGHT SESSION.

8.15: A night of novelty by the Humphrey Bishop famous English Comedy and Operatic Company, by courtesy of J. C. Williamson's. 9.30: Meteorological information; overseas grain report. 9.33: Bernard Manning, bass-baritone: Selections from his repertoire. 9.40: Night of novelty (continued), by Humphrey Bishop and his famous English Comedy and Operatic Company. 10.30: "Advertiser" general news service; meteorological information. 10.40: Our goodnight thought. 10.41: On with the dance, music from 3LO, Melbourne. 11.0: God Save the King.

7ZL

MID-DAY SESSION.

11.30 to 1.30: See Friday. 2.0: Running description of Hurdle Race, 2 miles, run at Bendigo Racecourse, Bendigo, Victoria. 2.5: Close down. 2.40: Running description of Bendigo Plate, 6 furlongs, run at Bendigo Racecourse, Bendigo, Victoria. 2.45: Close down.

AFTERNOON SESSION.

3.0 to 5.0: See Friday.

EARLY EVENING SESSION.

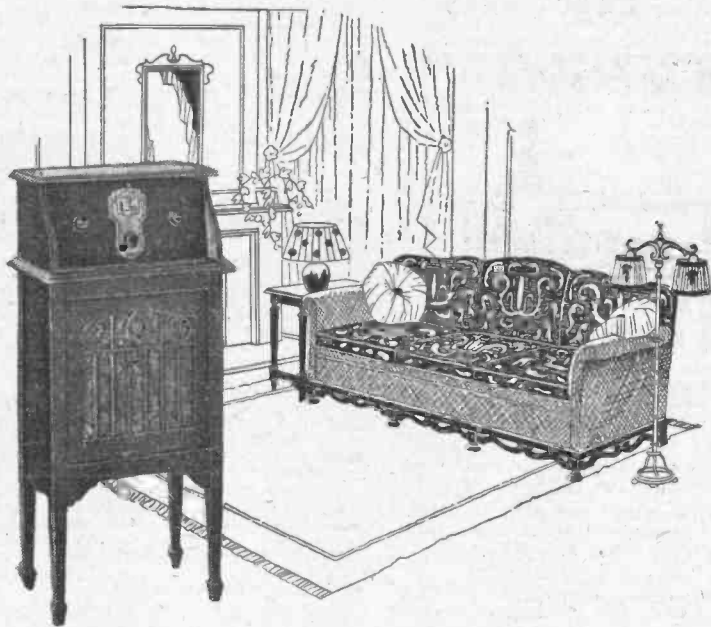
6.10: Bendigo race results. Fourth Test cricket results. 6.15: Records. 6.30: Bertha Southey Brammall will tell a Tasmanian Fairy Tale. 6.40: Little Teddy Richardson will sing to the children. 6.45: Request numbers. 7.0: Answers to letters and birthday greetings, by Bertha Southey Brammall. 7.5: Records. 7.15: News session.

EVENING SESSION.

7.30: Geo. Nation will talk on "Gardening." 7.45: J. M. Counsel will speak on "Europe and its Problems." 8.0: G.P.O. clock chimes the hour. 8.6: Recital of instrumental and vocal items by leading international artists, specially arranged by Findlay's Music Warehouse. 9.45: "Mercury" news service. British official wireless news. Ships within wireless range. Tasmanian district report. 10.0: G.P.O. clock chimes the hour. Close down.

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PITT, MARKET AND GEORGE STREETS, SYDNEY

Local Programmes, Thursday, February 7

2FC

EARLY MORNING SESSION.

Announcer: A. S. Cochrane.

7.0: "Big Ben" and announcements. 7.2: Official weather forecast, rainfall, river reports, temperatures, astronomical memoranda. 7.7: "Sydney Morning Herald" summary. 7.12: Shipping intelligence, mail services. 7.15: Studio music. 7.25: Investment market; mining sharemarkets, metal quotations, wool sales, breadstuffs markets, inter-State markets, produce markets. 7.40: Studio music. 8.0: "Big Ben," close.

MORNING SESSION.

Announcer: A. S. Cochrane.

10.0: "Big Ben" and announcements. 10.2: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.30: Last-minute sporting information by the 2FC Racing Commissioner. 10.45: Studio music. 11.0: "Big Ben;" A.P.A. and Reuter's cable services. 11.5: Close.

MIDDAY SESSION.

Announcer: A. S. Cochrane.

12.0: "Big Ben" and announcements. 12.1: Stock Exchange first call. 12.3: Official weather forecast; rainfall. 12.5: Studio music. 12.10: Summary of news. "Sydney Morning Herald." 12.15: Rugby wireless news. 12.18: A Dickens' reading by A. S. Cochrane. 12.30: Studio music. 1.0: "Big Ben;" weather intelligence. 1.3: "Evening News" midday news service; Producers' Distributing Society's report. 1.20: Studio music. 1.28: Stock Exchange, second call. 1.30: Studio music. 1.50: Last-minute sporting information by the 2FC Racing Commissioner. 2.0: "Big Ben;" close.

AFTERNOON SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

2.30: Programme announcements. 2.32: Educational session for the schools; a short musical recital. 2.35: Cricket scores, fourth Test match. 2.37: Educational session continued. 2.45: A talk. 2.50: Cricket scores, fourth Test match. 3.0: "Big Ben;" pianoforte reproduction. 3.5: Cricket scores, fourth Test match. 3.7: Pianoforte reproduction. 3.15: This afternoon's novelty transmission—a description from the Zoo. Listeners will be entertained with a description direct from the Zoo with all the attendant atmosphere of roaring lions and chattering monkeys. (Cricket scores, fourth Test match, at 3.20, 3.35). 3.40: Ann Luciano, soprano. 3.46: A reading. (Cricket scores, 3.50). 4.0: "Big Ben;" Carlos Fakola, novelty pianist. 4.5: Cricket scores, fourth Test match. 4.7: Ann Luciano, soprano. 4.14: Carlos Fakola, novelty pianist. 4.21: Studio music. 4.35: Cricket scores, fourth Test match. 4.37: Popular music. 4.45: Stock Exchange, third call. 4.47: Studio music. 4.50: Cricket scores, fourth Test match. 4.52: Studio music. 5.0: "Big Ben;" close down.

Note.—Cricket scores, 5.5, 5.20, 5.35.

EARLY EVENING SESSION.

Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man;" letters and stories. 5.50: Cricket scores, fourth Test match. 5.52: Music and entertainment for the children. 6.5: Stumps drawn, fourth Test match. 6.7: Music and entertainment continued. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.45: Weather and shipping news. 6.48: Rugby wireless news. 6.50: Late sporting news. 7.0: "Big Ben;" late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats—(a) "Minuet in F" (Logan), (b) "The Mikado" (Sullivan), (c) "Everywhere I Look" (Carew), (d) "Serenade" (Widow), (e) "Moroccan Patrol" (Jessel).

EVENING SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Pianoforte reproduction. 7.45: Programme announcements. 7.48: Cricket scores, fourth Test match, England v. Australia. 8.0: From the Capitol—The Capitol Unit Entertainment. 8.20: From the Studio—Norman Wright, tenor—
(a) "A Song of Autumn" (Elgar).
(b) "The Poet's Life" (Elgar).

8.27: To-night's competition. 8.42: Two pianos recital by Ewart Chapple and Horace Keats. 8.51: Miriam Pope, soprano. 8.54: Weather forecast. 9.5: Jules Van de Klei, 'cellist. 9.12: Norman Wright, tenor—
(a) "Eleanor" (Mallinson).
(b) "Love's Atonement" (Thomson). 9.19: From the Capitol. 9.37: From the Studio—Two pianos, recital by Ewart Chapple and Horace Keats. 9.52: Miriam Pope, soprano. 10.0: "Big Ben;" Jules Van de Klei, 'cellist. 10.7: From the Hotel Australia. Cec. Morrison's Dance Band. 10.30: From the Studio, late weather. 10.32: From the Hotel Australia, Cec. Morrison's Dance Band. 10.57: From the Studio; to-morrow's programme. 10.59: From the Hotel Australia, Cec. Morrison's Dance Band. 11.30: National Anthem; close down.

2BL

MORNING SESSION

Announcer: A. C. C. Stevens.

8.0: G.P.O. chimes; metropolitan weather report. State weather report. 8.2: Studio music. 8.15: G.P.O. clock and chimes; news service from the "Daily Telegraph Pictorial." 8.30: G.P.O. clock and chimes; news service, continued. 8.40: Information, mails, shipping, arrivals, departures, and sailings. 8.45: Studio music. 9.15: Half an hour with silent friends. 9.45: Studio music. 10.0: G.P.O. chimes. Close.

MIDDAY SESSION.

Announcer: Basil Kirke.

11.0: G.P.O. clock and 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. 12.0: G.P.O. clock and chimes; special ocean forecast and weather report. 12.3: Pianoforte reproduction. 12.30: Shipping and mails. 12.35: Market reports. 12.45: "Sun" midday news service. 1.0: G.P.O. clock and chimes; studio music. 1.30: Talk to children, and special entertainment for children in hospital. 2.0: G.P.O. clock and chimes. Close.

AFTERNOON SESSION.

Announcer: Basil Kirke.

Accompanist: Kathleen Roe.

3.45: G.P.O. clock and chimes. 3.46: Popular music. 3.50: Cricket results, fourth Test match. 3.52: Popular music. 4.0: From Romano's: Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.5: From the Studio: Cricket results, fourth Test match. 4.7: Talk, by Captain Fred Arons, "The Story of Democracy." 4.22: From Romano's: Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.30: From the Studio: Roy Scrivener, baritone. 4.37: Cricket scores, fourth Test match. 4.39: From Romano's: Romano's Cafe Dance Orchestra, under the direction of Bennie Abrahams. 4.50: From the Studio: Cricket scores, fourth Test match.

4.52: Roy Scrivener, baritone. 4.57: "Sun" news service. 5.0: G.P.O. clock and chimes. Our serial story. (Cricket results, 5.5.) 5.10: Pianoforte reproduction. 5.20: Cricket results, fourth Test match. 5.22: Popular music. 5.35: Cricket results, fourth Test match. 5.37: Features of the evening's programme.

EARLY EVENING SESSION.

Announcers: Basil Kirke.

J. Knight Barnett.

5.40: Children's session, conducted by Uncle Bas. 5.50: Cricket results, fourth Test match. 5.52: Music and entertainment. 6.0: Letters and stories. 6.5: Stumps drawn, fourth Test match. 6.7: Letters and stories, continued. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette—(a) "Love's Enchantment" (Brooke), (b) "Pierrot Asleep" (Fantom), (c) "Chiquita" (Wayne), (d) "Floradora" (Stuart), (e) "Beautiful" (Shay), (f) "Valse" (Cul). 7.10: 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: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: J. Knight Barnett.

Accompanist: G. Vern Barnett.

8.0: G.P.O. clock and chimes; topical chorus. 8.3: North Sydney Tramway Band. 8.18: Rowell Bryden, baritone—
(a) "An Idyll" (Atkinson).
Morning, Noon, Night.
(b) "Ideale" (Tosti). 8.25: Pianoforte solos, by Ida Tier—
(a) "Arabesque" (Debussy).
(b) "Tocatta" (Saunt Saens). 8.32: Elsie Finlay, soprano. 8.39: North Sydney Tramway Band. 8.54: Sketch, by Ethel and James Kendall. 9.4: Weather report and forecast. 9.5: Moore MacMahon, violinist—
(a) "Adagio" (Mozart).
(b) "Menuet" (Mozart). 9.12: Aida Haywood, contralto—
(a) "Divinites Du Styx" (Gluck).
(b) "See Where My Love Amaying Goes" (Lidgely). 9.19: The North Sydney Tramway Band. 9.34: Rowell Bryden, baritone—
(a) "Tally-Ho" (Leoni).
(b) "Mudeteer of Malaga" (Trottere). 9.41: Ida Tier, pianoforte solos—
(a) "English Dance" (Agnew).
(b) "Country Dance" (Agnew).
(c) "Sing a Song of S'pence" (Livens).
(d) "Merry Andrew" (Ireland). 9.51: Elsie Finlay, soprano. 9.59: The North Sydney Tramway Band. 10.10: Sketch by Ethel and James Kendall. 10.20: Moore MacMahon, violinist—
(a) "On Wings of Song" (Mendelssohn).
(b) "Gintarre" (Moskowski). 10.27: To-morrow's programme. 10.30: National Anthem. Close down.

TEST CRICKET SCORES

(Fifth Day's Play.)

Interstate Programmes, Thursday, February 7

3LO

EARLY MORNING SESSION

7.15 a.m. to 8.15: See Friday.

MORNING SESSION

11.0: 3LO's Different Dainties for the Daily Dinner-to-day's radio recipe, biscuit pudding. 11.5: Rev. P. L. Fraser will speak on "The Claims of the Baby." 11.20: Musical interlude. 11.25: Sister Purcell will speak on "Infant Welfare." 11.40: G.P.O. chimes. 12.00: Middle news session. 12.20: Community singing-old-time choruses, transmitted from the King's Theatre, Russell Street, Melbourne; conductor, Frank Hatherley. 12.40: Stock Exchange information. 12.43: Community singing, continued. 1.35: Meteorological information; weather forecast for Victoria, New South Wales, South Australia, and Tasmania; ocean forecasts; river reports; rainfall. 1.58: Description of the Trial Handicap, 6 furlongs. Bendigo races, by Eric Welch. 2.5: Close down.

AFTERNOON SESSION

2.15 p.m.: The station orchestra-overture, "Drame Ignore" (Gabriel-Marie). 2.25: John Byrne, bass-"Kashmiri Song" (Woodford-Finden). "Simon the Ceilidhr"-Old English. The station orchestra-"Suite Classique" (Fancher). 2.38: Description of the Asylum Handicap, one mile, Bendigo races. 2.45: Gertrude Gray, mezzo-soprano-"If My Songs Were Only Winged" (Hahn). "Fieurette" (M'Geoch). 2.52: The station orchestra-"Adagio from Symphony No. 18" (Haydn). "The Selection" (S. J. John Burne, bass-"All thro' the Night" (Welsh air). "Stonecracker John" (Coates). 3.12: Description of the Brush Steeplechase, 2 miles, Bendigo races. 3.20: Tom Masters, tenor-"All Joy Be Thine" (Sanderson). "I Hear a Lullaby" (Cadmian). 3.27: The station orchestra-"Suite of Four" (Primi). 3.36: Tom Masters, tenor-selected. 3.43: Description of the Encourage Mile, Bendigo races. 3.50: Rev. William Bottomley-"The Loom of the Lord," by J. R. Cairns. 4.5: The station orchestra-"Quartet" (Haydn). 4.13: Description of the Flying Handicap, 5 furlongs, Bendigo races. 4.20: Gertrude Gray, mezzo-soprano-"A Swan" (Grieg). "The First Primrose" (Grieg). 4.27: The station orchestra-"Fugue Dame" (Tchaikowsky). 4.35: News session; Stock Exchange information. 4.45: Evening song, transmitted from St. Paul's Cathedral, Melbourne. 5.30: Acceptances and barrier positions for the races to be held at Williamstown on Saturday, February 9. 5.35: Close down.

EVENING SESSION

8.0: Answers to letters and birthday greetings by "Bobby Bluegum." 8.25: Musical interlude. 8.30: "Bobby Bluegum"-songs and stories for the children.

NIGHT SESSION

7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the past. 7.46: Bunce now appearing in "Pigs" at the New Comedy Theatre, will speak in his dressing-room, by permission of J. C. Williamson, Ltd. 8.0: A Maker of History. 8.1: Rod M'Gregor will speak on "Cricket." 8.15: The Radi-o-Aces-"The Radi-o-Aces" (Condon). "Ready for the River" (Moret). "Dawning" (Silver). 8.24: Courtney Ford, humorist-"A Cannibalistic Love Song" (Pelissier). 8.27: The Radi-o-Aces-"My Inspiration Is You" (Nichols). "Do You Play" (Plantados). "High Up on a Hill" (Baber). 8.36: Jack Lumsdaine-"Modern Melodies" (The Radi-o-Aces). "The Radi-o-Aces" will whisper his latest. 8.39: The Radi-o-Aces-"Colombo" (Nichols). "Under the Burma Moon" (Davis). "You're a Real Sweetheart" (Friend). 8.48: Diana Belmont, contralto-"Love, I Have Won You" (Landon Romson). 8.51: The Radi-o-Aces-"Tokio" (Condon). "Where the Cot-Cot-Cotton Grows" (Klender). "Cinnamon Cake" (Bernard). 9.0: John Byrne, bass-"Route Marchin'" (Stocks). 9.3: The Radi-o-Aces-"Paradise" (Zamecnik). "Avalon Town" (Brown). "You Are Wonderful" (Ash). 9.12: Courtney Ford, humorist-"Sing a Song of Nonsense" (Murray). 9.15: The Radi-o-Aces-"Just Like a Melody Out of the Sky" (Donaldson). "Chiquita" (Wayne). "Hot Ivorys" (Sinastra). 9.24: Jack Lumsdaine, the Radi-o-Aces-"Modern Melodies" (The Radi-o-Aces). "There Ought to be a Law Against That" (Friend). "Oh, Ya Ya" (Frich). "I Just Roll Along" (Trent). 9.36: Diana Belmont, contralto-"That's All" (Brane). 9.39: The Radi-o-Aces-"Can't Do Without You." "My Radi-o-Aces" (Gilbert). "The Radi-o-Aces" (Friend). "Dream House" (Fox). 9.48: John Byrne, bass-"On the Road to Mandalay" (Speaks). 9.51: The Radi-o-Aces-"Japanay" (Klenner). "Constantinople" (Carlton). "In the Woodshed She Said She Would" (Johnson). 10.0: "Argus" news service. British official wireless news from Rugby; meteorological information; announcements; sporting notes by "Olympus." 10.15: The Radi-o-Aces-"The Dance of the Blue Danube" (Fisher). "Minnetonka" (Wallace). "Just Keep Singing a Song" (Sissel). 10.24: Courtney Ford, humorist-"The Old Bassoon" (Ashlyn). 10.27: The Radi-o-Aces-"If Goes Like This" (Caesars). "Roses of Yesterday" (Berlin). "Forever More" (Burnet). 10.36: Jack Lumsdaine, whispering baritone-selections from his repertoire. 10.38: The Radi-o-Aces-"Nebraska" (Sissel). "That's My Weakness Now" (Stept). "Get Out and Get under the Moon" (Tobias). 10.48: Diana Belmont, contralto-"Caprice" (Furrell). 10.51: The Radi-o-Aces-"Jo Ann" (Ward). "Gypsy" (Gilbert). "Alabama Stamp" (Creamer). 11.1: The Radi-o-Aces-"One Alone" (Romberg). "The Desert Song" (Romberg). "Wabaly Walk" (Green). "Because My Baby Don't Mean Maybe Now" (Donaldson), selected and request songs. "Bright Waltz" (Bibo). "Good-night Song." 11.30: Close down.

3AR

10.0: G.P.O. clock says "Ten." 10.1: "Age" market reports-farm and station produce, fruit, fish, vegetables, etc. 10.25: "Age" shipping report. Ocean forecast. 10.30: Mail notices. Express train information. 10.35: "Age" news service, exclusive to 3AR. 10.39: Weather forecast. 11.0: A recital of popular English ballads and traditional airs. 12.20: British official wireless news from Rugby. Announcements. 12.30: Close down. 1.0: Re-broadcast from 5CL, Adelaide, cricket, fourth Test match, England v. Australia. 2.0: Close down.

EVENING SESSION

6.0: A bravura of beautiful ballads. 7.15: "Herald" news service. Announcements. M'Phail, Anderson, and Co., Pty., market reports. 7.25: Gramophone recital continued. 7.50: Results of fourth Test match, at Adelaide.

NIGHT SESSION

8.0: Under the auspices of the Health Association Dr. F. P. Byrne will speak on "Oral Hygiene." 8.15: Under the auspices of the Nurserymen and Seeds-men's Association of Victoria, W. R. Warner will speak on "Climbing Plants." 8.30: The Station Orchestra. Overture, "Maid of Orleans" (Rawlinson). "Hungarian Serenade" (Jonckers). 8.45: One-act play, "The Perfect Butler" (R. Arkell). Produced by Winifred Moverley. The Butler, T. Bernard Lambie. His Wife, Winifred Moverley. His Master, Norman E. Brackler. His Mistress, Adeline Strain. Scene: Dining-room of a London flat. Time, nine o'clock in the evening. 9.5: The Station Orchestra. Selection, "The Love Birds" (Romberg). 9.15: Captain Donald M'Lean. 9.30: J. Alexander Browne, baritone, "Trooper Johnny Ludlow" (Temple). "Cavalry Catch" (Neilson). 9.37: The Station Orchestra. Andante from Octet (Schubert). 9.42: The Radio Melody-makers in a surprise item. 10.2: The Station Orchestra. Selection, "La Forna del Destino" (Verdi). "Aorazion" (Borwick). 10.7: J. Alexander Browne, baritone, "King Charles" (White). "Drake Goes West" (Sanderson). 10.14: The Station Orchestra. Phantasy, "The Selfish Giant" (Coates). 10.20: News session. Close down.

4QG

EARLY MORNING SESSION

7.43 a.m.: Time signals. 7.45: News service. 8.0: Some electric records. 8.15: News service. 8.30: Close down.

MORNING SESSION

11.0 a.m.: Music. 11.5: Social news. 11.15: Lecture, a Gardening Talk by "Tecoma." 11.30: Music. 11.35: More social news. 11.45: Music. 12.0: Close down.

MIDDAY SESSION

1.0 p.m.: Market reports and weather information. 1.15: From the Constitutional Club-A lunch-hour address. 2.0: Close down.

AFTERNOON SESSION

3.0 p.m.: A programme of electrically-reproduced records. 3.30: Mail train running times. 3.31: A recital by Mr. George Sampson, F.R.C.O. (city organist). 4.0: Afternoon news. 4.30: Close down.

EARLY EVENING SESSION

6.0 p.m.: Mail train running times; mail information; shipping news. 6.5: Wurritzer organ. 6.25: Commercial announcements. 6.30: Bedtime stories conducted by "The Sandman." 7.0: News in brief. 7.5: Stock Exchange news. 7.6: Metal quotations. 7.7: Market reports. 7.25: Fenwick's stock report. 7.30: Weather information. 7.40: Announcements. 7.43: Standard time signals. 7.45: Announcements. Talk on Books," by Mr. J. Doyle (M'Leod's).

NIGHT SESSION

8.0: From the Studio-To commemorate the birth of the great English novelist and humorist, Charles Dickens, a special programme has been arranged by Mr. H. Humphreys. The programme will open with a talk on Dickens's life, followed by a poem specially written for the occasion by Jack Mathieu, Brisbane's blind poet, entitled "Dickens in Braille." The Clarwin Orchestra-"Reminiscences of England. Dulcise Scott-"A Scene from Dickens." Ivy Rogers and Ray Bruce-Vocal duet. "What are the Wild Ways Saying?" (Iron Dombey and Son"). The Clarwin Orchestra-"Reminiscences of France." One-act Radio play-"Sydney Carton's Sacrifice"; adaptation from Charles Dickens's "A Tale of Two Cities." Cast-Sydney Carton, Harry Humphreys; Charles Darnay, Charles Cowan; The Seamstress, Dulcise Scott; The Spy, Gualors, etc., the Company. Part II-Studio concert, 9.30: Metropolitan weather forecast; movements of Dental Clinic. 9.33: The Clarwin Orchestra-Selection, "Lilac Time" (Schubert). 9.40: Mabel Cormac, elocutionist-"The Birth of the Opera." 9.43: The Clarwin Orchestra-Popular numbers. 9.50: Ernest Harper, baritone-"A Bachelor Guy" (Tate). "Three for Jack" (Squire). 9.55: The Clarwin Orchestra-March, "King Sol" (Irogan). 10.0: The "Daily Mail" news; the "Courier" news; weather news.

5CL

MORNING SESSION

11.0: G.P.O. chimes. 11.1: Lynnie Gilbert, soprano. 11.6: Fred Brown, cornetist. 11.12: Bernard Manning, bass-baritone. 11.15: "Economist"; Kitchen Craft and Menu Talk. 11.30: Katie Voerger, violiniste. 11.36: Lynnie Gilbert, soprano. 11.42: Fred Brown, cornetist. 11.48: Bernard Manning, bass-baritone. 11.54: Katie Voerger, violiniste. 12.0: G.P.O. chimes. 12.1: Description of the fourth Test match, England v. Australia, by 5CL's sporting commissioner. 12.15: "The Advertiser" general news service. 12.35: British official wireless news. 12.40: Description of the fourth Test match, England v. Australia, by 5CL's sporting commissioner. 12.52: Our commercial corner. S.A. Railway information; S. C. Ward and Co.'s Stock Exchange information; meteorological information. 1.0: G.P.O. chimes. 1.1: Description of the fourth Test match, England v. Australia, by 5CL's sporting commissioner. 1.30: M. A. Noble (International cricketer) will give a brief resume of the play. 1.40: Close down.

AFTERNOON SESSION

2.30: G.P.O. chimes. 2.31: Bendigo race results. 2.32: A progress description of the fourth Test match, England v. Australia, by 5CL's sporting commissioner, interspersed with Bendigo race results. 4.0: M. A. Noble (International cricketer) will give a brief resume of the play. 4.15: Description of the fourth Test match, England v. Australia, by 5CL's sporting commissioner. 4.55: S. C. Ward and Co.'s Stock Exchange information; Bendigo race results. 5.0: Description of the fourth Test match, England v. Australia, by 5CL's sporting commissioner. 6.0: Birthday greetings, correspondence, songs and stories by "Miss Wireless." 6.30: Close down.

EVENING SESSION

7.0: G.P.O. chimes. 7.1: S. C. Ward and Co.'s Stock Exchange information. 7.5: General market reports. Dalgety and Co.'s wheat and wool report; S.A. Farmers' Co-operative Union, poultry and dairy produce. 7.10: Mr. Edwin Messer will give an introductory address under the auspices of the Australian Model and Experimental Engineers' Society. 7.25: Miss N. Moore: Talk on "Famous Love Stories." 7.45: Mr. A. M. Whittenbury: A talk on "Poetry."

NIGHT SESSION

8.0: G.P.O. chimes. 8.1: M. A. Noble (International cricketer) will give a resume on the fourth Test match. 8.15: A modern dance programme: Fifteen minutes with Pau Whiteman's Orchestra (H.M.V. recordings). 8.30: Bernard Manning, bass-baritone: Selections from his repertoire. 8.36: On with the dance to the music by Jack Hylton's Orchestra (H.M.V. recordings). 8.55: Bernard Manning, bass-baritone: Selections from his repertoire. 9.0: G.P.O. chimes. 9.1: Meteorological information. 9.2: Overseas grain report. 9.3: Modern dance music from 3LO, Melbourne: The Radi-o-Aces. 9.6: Diana Belmont, contralto. 9.9: The Radi-o-Aces. 9.18: John Byrne, bass. 9.21: The Radi-o-Aces. 9.30: From 5CL Studio: "The Advertiser" general news service; British official wireless news; meteorological information; announcements; sporting notes by "Silvius." 9.45: The Radi-o-Aces. 9.54: Courtney Ford, humorist. 9.57: The Radi-o-Aces. 10.6: Jack Lumsdaine, whispering baritone. 10.9: The Radi-o-Aces. 10.18: Diana Belmont, contralto. 10.21: The Radi-o-Aces. 10.31: The Radi-o-Aces. 11.0: God Save the King.

7ZL

MID-DAY SESSION

11.30 to 1.30: See Friday. 2.0: Running description of Trial Handicap, run at Bendigo Racecourse, Victoria. 2.5: Close down. 2.40: Running description of Asylum Handicap, run at Bendigo. 2.45: Close down.

AFTERNOON SESSION

3.0: G.P.O. clock chimes the hour. 3.1: Records. 3.4: Weather information. 3.5: Records. 3.15: Running description of Brush Steeplechase, 2 miles, run at Bendigo Racecourse, Bendigo, Victoria. 3.20: Records. 3.45: Running description of Encourage Handicap, 1 mile, run at Bendigo Racecourse, Victoria. 3.50: Records. 4.15: Running description of Flying Handicap, run at Bendigo Racecourse, Bendigo, Victoria. 4.20: A representative of the Child Welfare Association will speak on "The Good Night Food." 4.35: All sporting results. 4.45: Close down. During the afternoon progress results will be given of the cricket match, England v. Australia at Adelaide, South Australia.

EARLY EVENING SESSION

6.10: Results of Bendigo races. 6.15: Records. 6.25: "The Story Lady" will tell a story to the wee folk. 6.40: Betty Brathwaite will play for the children. 6.45: Records. 7.0: Answers to letters and birthday greetings, by Uncle David. 7.05: Records. 7.15: News session.

EVENING SESSION

7.30: F. J. Batt will speak on "A Yachting Paradise." 7.45: Sir John Evans will speak on "Literature for Tasmanian Lighthouses and the Good Night Food for the Wee Folk." 8.0: G.P.O. clock chimes the hour. 8.6: Records. 8.15: Lella Read and Orchestra. 8.20: All. 8.23: Gwen Davidson, soprano. 8.26: All. 8.29: Fred Hesaud, baritone. 8.32: All. 8.35: Gwen Davidson, soprano. 8.38: All. 8.41: Fred Hesaud, baritone. 8.44: All. 8.47: Gwen Davidson, soprano. 8.50: All. 8.53: Fred Hesaud, baritone. 9.8: All. 9.11: Lella Read and Orchestra. 9.16: All. 9.20: Mille Columbus broadcasts. 9.50: News session. Close down.

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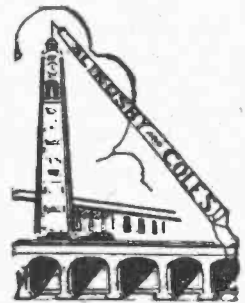
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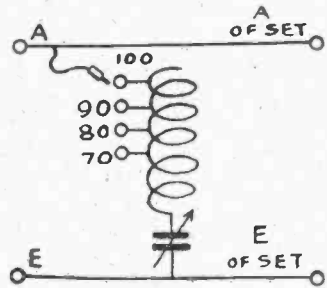
Under the direction of Ray Allsop and Don B. Knock (Associate Technical Editors)

Service

Correspondence Answered only through these Columns (See Coupon Below)

C.F.R. (Blaxland).—"Will you please give me details of the Marco Four coils, for the circuit recently published in Queries columns?"
Answer: See reply to "Inquirer" in last week's issue.
G.L. (Lithgow).—"Would you oblige me with a back number of 'Wireless Weekly', containing the Marco Four. If you have no copies, perhaps some reader may care to exchange, or I am willing to buy the copy."
Answer: We have no copies, unfortunately. The circuit was published in these columns on 4th January. The Improved Marco Four (modernised) may be published within a few weeks. If any reader can oblige our querist, the address is Mr. G. Lloyd, 54 Vale Road, Lithgow.
J.P. (Marrickville).—"I should be pleased if you could tell me the address of Station 3BY, Melbourne."
Answer: 3BY is owned and operated by H. Holst, 27 Bamra Road, Caulfield.
R.H.F. (South Kensington).—"I would be very much obliged if you could tell me where I could obtain a blue print for a four-valve Neutrodyne receiver. I am now on holidays, so would be very pleased if you would forward the information as soon as possible."
Answer: No replies will be sent by post. Colville Moore can satisfy your requirements.
A.M. (Ersikineville).—"I wish to build the short-wave adaptor that appeared in last week's 'Wireless Weekly' query columns, and would like to know the number of turns for each coil."
Answer: See reply to J.D.G. (Dungos) in last week's issue.
(2) The adaptor is to take the place of the R.F. stage in a Browning Drake receiver. Could it be possible for the rheostat of this stage to take the place of that used in the adaptor without taking it from the receiver?"
Answer: No. You must not plug the adaptor into the R.F. socket. The R.F. valve must be removed entirely; the detector valve must also be removed and plugged into the adaptor. The adaptor plug is placed into the detector socket.
(3) I have read many of the questions which have appeared in the Radio Information Service columns, and can say they are well answered."
Answer: Thanks.
A.H.V. (Oatley).—"I have made the 'Barron' low loss set from the enclosed circuit, and found that it does not work. Could you tell me, through 'W.W.', whether this circuit is correct or not, because I am sure I have wired the set as shown in the circuit."
Answer: Unfortunately, I cannot see through things mystic. If you could give me some small details, I might have been able to help you. Can you hear a hum when the set is on? Does no symptom suggest itself? You wouldn't tell the family doctor you had been injured without stating where—would you? Though you probably are not aware of the vicinity of the trouble, you should have given me some symptoms. All I can suggest under the circumstances is that you have connected some component for that component is making contact with the aluminium shield. Only the A plus should be connected to the shield. See that no metallic parts, such as condensers, etc., are making contact with the aluminium plate. If you have no luck, write again, giving me some symptoms.
M.E.L. (Stammore).—"I am contemplating building the 'Air Scout Five', published in January 4th issue of 'Wireless Weekly'. Being an amateur, I would be grateful for detailed information regarding connecting up of the terminals. The diagram shows terminals for B negative, B plus 45, B plus 90, B plus 135, and B plus 180."
Answer: Procure four "B" batteries of 45 volts each, and number them 1, 2, 3, and 4, respectively. Connect the B negative terminal to the negative terminal of No. 1 "B" battery. Now connect B plus 45 to the B plus 45 tapping on No. 1 battery, and also connect this tapping to the B negative terminal on No. 2 battery. Connect B plus 90 terminal to the B plus 45 volt tapping of No. 2 battery, and also connect this terminal to the B plus 135 terminal, and also to the negative terminal of No. 4 battery. Next connect B plus 180 to the B plus 45 tapping on the No. 4 battery.
W.A.B. (Rushcutters' Bay).—"Will you have a look at the enclosed circuit, and let me know what type it is?"
Answer: What circuit? All you enclosed was a drawing of the layout of parts, which were not even connected together. May be a Reinartz, Old Reliable, Schnell, etc.
W.E.P. (Stockton).—"Will a stage of screen-grid radio frequency amplification in place of radio frequency amplification as a first stage in the

standard set be of any advantage? Is it worth while."
Answer: Certainly. The screen-grid valve will amplify R.F. to a far greater extent than is possible with the three electrode valve, if used correctly.
H.C. (Toowoomba).—"I wrote you a week or so ago re the 'Browning Drake circuit,' but so far have seen no answer in your query column. I noticed afterwards that I had omitted to send in the Query coupon. If you have still got my letter and drawing, please reply, as I am now enclosing coupon."
Answer: Almost weekly I have to stress the fact that where reference is being made to overdue queries these queries should be repeated. Other readers please note. As you have not repeated your queries, and as we have no record of your previous letter, please write again, and comply with these conditions.
A.S. (Singleton).—"If you have a page to spare in your 'Wireless Weekly,' will you explain the characteristic curves of receiving valves, and also how to find out how to get the correct plate voltage?"
Answer: Yes, we have no spare pages—but we have 'Proving Radio,' and a special article dealing with valve and transformer curves will appear at a later date.



The wave-trap circuit requested by A.O. (Wahroonga).

A.C. (Wahroonga).—"I have built the Minimax Three, which appeared in your paper a few weeks ago, and I have logged the following stations:—2FC, 2BL, 2GB, 2KY, 2UE, 2UW, 3LO, 3AR, 4QG; and I get Morse code signals on point 5 of the dial; but I suffer from interference (2FC) on all wavelengths, as I am only about three miles from Penant Hills. I tried the 0001 condenser in the aerial lead, but it did not cure it. I have an aerial 45ft. long, and the earth is about 5ft. from the set, being a length of water pipe driven 6ft. into the ground. I have since tried a counterpoise, with good, clear results on 2FC, but the other stations are still shadowed by this station, though not so bad as before. I am using Mullard valves, PM3 and two PM4's, and I added two 30-ohm rheostats, one to control the detector valve, and the other for the two audios. Could you publish a wave-trap that will reject all waves but the one wanted?"
Answer: Above is the circuit. Wind 100 turns of 24-gauge wire on a 3in. former, and tap at the 70th, 80th, and 60th turns. Use a variable condenser of .00035 mfd.
(2) "Could this set be used for S.W. with an adaptor? If so, what alterations would be necessary?"
Answer: Yes, your receiver could be used on short waves by using an adaptor. No alterations will be necessary. Merely plug the adaptor into the detector socket of your Minimax—first placing the detector valve into the socket of the adaptor. A suitable circuit appeared in these columns on January 4, 1929.
E.P.D. (Canley Vale).—"Find enclosed circuit of a three-valve Filadyne. (1) Is this circuit correct, and could it give Inter-State loud-speaker reception?"
Answer: The circuit is correct. You should get fair speaker strength in your locality.
(2) "Would S.L.F. condensers be an improvement? Will 3 1/2-1 transformers be suitable for both stages?"

Answer: S.L.F. condensers will help selectively by spacing stations evenly over the dial. However, you should not be bothered with interference. The transformers are O.K.
(3) "Will an Emmco eliminator (not the super) be suitable for this set?"
Answer: Yes.
W.J.C.S. (Dyraaba).—"1) 'Can the carbon taken from an old dry 'A' battery be used again, and can the black material surrounding it also be used for making 'A' batteries?'
Answer: The carbon rods are O.K., but it will be necessary to make up fresh active material. I have discussed this in 'Proving Radio,' part three.
(2) "How can I tell one condenser from another? Is it by the number of plates?"
Answer: The capacity of a condenser depends not only upon the number of plates, but also the thickness of the dielectric (insulating substance), which in variable condensers is usually of air—and the area of the plates.
(3) "I have a Harrington Popular Five. Can this be altered to a short-wave receiver by changing the coils?"
Answer: No. Your tuning condensers would have too large capacity.
(4) "How can I make a 'Kite Aerial'?"
Answer: Treat the kite as the aerial mast, using the aerial wire for a kite wire. Attach insulators to each end of the kite aerial, and tie the free end to a post by means of a rope, taking the lead in off the end of the aerial near the inner insulator. See 'W.W.' January 18th, for diagram. Look out for sparks!

W.S. (S.A.).—"I would be pleased if you would insert a line in your 'Radio Information Service' page in relation to two 'Wireless Weekly' back numbers which I require. The numbers in question are: (1) The issue containing the Pentavox. (2) The issue containing the Ultimax Three. The numbers will be paid carriage and value by me if your reader encloses his name and address."
Answer: Your request appears above. The address (for information of readers) is Mr. William Silva, Montpeller Street, Exeter, South Australia.
S.S. (Exeter).—"Is there any hum if these sets are worked with an eliminator?"
Answer: A very slight hum is usually noticeable, but this is so small as to be negligible.
A.L. (Rendwick).—"I am the owner of an R.C.A. Model 18 electric receiver. I have been receiving 4QG and 3AR, but cannot get 3LO through interference from 2BL. Would you suggest a wavetrapp? If so, what type?"
Answer: Yes, try a wavetrapp. See circuit and reply published for A.C. (Wahroonga).
Mr. V. A. Maidment, Cedar Point Post Office, via Casino, advises us he has back numbers from May 6th, 1927, and he is willing to dispose of any copies under the usual conditions, i.e., postage forwarded with request.
Answer: Thanks, Mr. Maidment. We are greatly obliged.
(Continued on page 56.)

QUERY COUPON
If you are in difficulties about reception or set-construction, let us know, and we will endeavor to set you right. Make your questions brief to the point, and, where possible, show lay-out and wiring design. Under no circumstances will answers to queries be made by letter or by telephone. All answers will appear in the columns of this department in the order in which they are received.
The Radio Information Service, WIRELESS WEEKLY.
Please answer the accompanying queries in the information Service Department, at your earliest convenience. I enclose this coupon in order to indicate that I am a bona-fide reader.

Our Trouble-finding Chart

The "WIRELESS WEEKLY" Trouble-finding Chart is intended to save your time and ours. If you have any trouble with your radio set, first look through the chart, and try the remedies suggested therein, and if the trouble still persists, then write to our Radio Information Service.

GENERAL SYMPTOM.	PART AFFECTED.	CAUSE AND HOW TO REMEDY THE DEFECT.	GENERAL SYMPTOM.	PART AFFECTED.	CAUSE AND HOW TO REMEDY THE DEFECT.
No signals when 'phone is connected in detector jack.	Aerial or earth.	Aerial or earth lead may be disconnected. Often caused by terminals working loose. Unclean connections to earth or lead in. Clean with sandpaper. Solder connections.		Condensers.	Condensers may be wrongly connected. Moving plates should be connected to the earth part of the circuit. Fibre ends on condensers are subject to leakage, and are hard to locate. The pigtail connection may have become broken. Condensers may be poorly insulated. Use only condensers with good insulation. Try a .001 fixed condenser across the primary of the first transformer—i.e., between the plate of the detector valve and "B" plus, in order to assist oscillation.
	Lightning arrester.	Lightning arrester may be short-circuited, thus earthing the aerial. Remove arrester and test receiver without it. If signals O.K. replace with new arrester. Do not attempt to repair it.		Valve socket.	Valve prongs not making good contact in socket. Clean valve prongs and socket contact springs and bend up the latter slightly to ensure good contact.
	Tuning coils.	Open circuit in the windings. This usually occurs where taps are taken from the coils; also where connections are made to the ends of the coil windings. Solder connections. If break is in coil, re-wind coil rather than solder the break. Coils may also be shorting. Usually caused by soldering flux getting on to the windings; also due to broken or defective insulation—re-wind coils.		Grid condenser.	Short-circuited. This is often caused when soldering leads to the mica grid condenser, the flux flowing between the metal leg and over the edges. Discard condenser and use small bolts as contact studs for connecting up the new one, inserting the studs through the small holes in the condenser, and connecting the leads under the nuts of the bolts.
	Valve socket.	Valve prongs not making contact with the arms of the socket. Clean bottom of valve prongs, also contact springs, and bend up the latter slightly with a button-hook in order that good contact is made.		Grid-leak.	Resistance too low. If this is the case it allows the charges of the grid to leak off too fast, and full volume of signal is not obtained. Try different values of resistance, and test for best results.
	"B" battery voltage.	Too much "B" battery may paralyse the detector valve, making it inoperative. Try various voltages until best results are obtained. Usually about 22½-30 volts.		"B" battery.	Too much "B" battery voltage on plate or valve may paralyse it. Try various voltages for best signals. Test batteries to see that they are giving at least two-thirds of maximum voltage.
	Grid condenser.	Sometimes the heat of the soldering iron will cause an open circuit in the condenser by melting off the internal connections. Replace with new condenser. Also the heat of soldering may remove the insulation wax, causing a short-circuit between the plates. Same remedy.		Excessive filament voltage.	Keep filament voltage as low as possible. Burning valves too brightly causes loss of sensibility.
	Exhausted "B" battery.	Check the "B" batteries with a voltmeter, and if they have dropped to two-thirds of their rated voltage they should be discarded. Never connect half-dead "B" batteries to others, new or old, owing to internal resistance.		Grid-condenser open-circuited.	Sometimes in soldering to the grid condenser the heat melts the internal connections. A new grid condenser must be used.
	Grid coil disconnected.	Test for open circuit between grid-condenser and filament leads.		Batteries in general.	Discard dry batteries that show a reading less than two-thirds of normal voltage. Test "A" battery (if wet) with a hydrometer or voltmeter. If low have accumulator recharged. "C" batteries sometimes the cause of poor and distorted reproduction. Replace.
	Fixed condenser across 'phones.	This condenser may be shorted. If amplifiers are used it may be the condenser across the primary of the first transformer. Replace condenser.		'Phone plug.	Defective or shorted. Replace.
	Speaker or 'phones.	May be burned out or short-circuited. Take to manufacturer to be re-wound or repaired. Adjusting screw may require turning in order to get correct distance between diaphragm and magnets.		'Phone terminals reversed.	Cord with red thread woven through it should go to the "B" plus terminal.
	Phone plug.	Defective or short-circuited. Replace.	Scraping, scratching, or knocking sound when 'phones are connected to detector jack.	Aerial.	Aerial swaying against conducting objects partially or wholly grounded. Keep aerial away from trees and corners of the house.
	Telephone or speaker terminals reversed.	The majority of 'phones and speakers using magnets acting directly upon the diaphragm have one of the cords marked with a red thread in the insulation covering. This marked cord should be connected to the "B" battery plus terminals, whilst the other will go to the plate of the valve. A reversed connection will cause the "B" current to demagnetise the 'phone magnets, and make them inoperative. Reverse the leads. If results are poor or distorted take speaker or 'phones to have them re-magnetised.		Tuning coils.	Coils loose or vibrating. Will honeycomb coils open out the legs with a small screwdriver or pocket knife. Flimsy construction of apparatus allows relationship of coils to change with the least vibration. Use thicker base-board and panel.
				Switch levers.	Poor connections at switch points of switch levers. Use a switch with panel bushing, having snug fitting shaft with spring tension. Clean switch occasionally.
				Variable condensers.	Dust gets between the plates of the variable condensers. Remove with a piece of silk. Plates sometimes touch, causing loud clicks and sometimes sparks. If bending or buckling is bad replace condensers with new ones.
Signals weak when 'phone is connected to detector jack.	Primary circuit not tuned.	When tuning is broad it is due usually to the coupling between the primary and secondary windings of the tuning coils being too close together, or it may be due to too many turns on the primary. Space primary and secondary coils farther apart, and remove some of the wire from the primary winding.		Grid-leak.	Resistance too high. The grid leak is intended to allow the charges on the grid to leak off slowly. If too high the charge collects, and makes the grid too negative, thus stopping the action of the valve. Use grid leak with a lower resistance. Usually about two megohms will be correct for a broadcast receiver, and five megohms for a short-wave receiver.
	Reaction coil reversed.	If the receiver uses regeneration the reaction of tickler coil may be reversed. In some makes of three-coil tuners it is hard to tell which terminal should be connected to the plate of the valve. Reverse tickler leads for best results.			

GENERAL SYMPTOM.	PART AFFECTED.	CAUSE AND HOW TO REMEDY THE DEFECT.	GENERAL SYMPTOM.	PART AFFECTED.	CAUSE AND HOW TO REMEDY THE DEFECT.
Humming or buzzing sounds.	Valve elements vibrating.	When rigidly attached to the base of the set, slight vibrations will cause the valve elements to vibrate. The remedy is to use shock absorber sockets or place the sockets on sponge rubber. Rubber feet underneath the cabinet often help.		Variable condenser Leads reversed.	If the variable condenser is improperly connected, the signal will fade when the hand is removed from the dial, due to "hand capacity." The fixed plates of the condenser should be connected to the grid circuit.
	Aerial.	Aerial too close to alternating current electric wires. Sometimes reduced by running aerial at right angles to such lines. Sometimes caused by leaky transformer on nearby electric pole, in which case notify the power station.		Rheostat.	A loose connection in the rheostat gives an unsteady current, and, accordingly, signals are caused to vary in intensity. Replace or repair rheostat.
	Aerial lead.	Aerial lead running too near electric light wires in home. Electrical gadgets, such as bells, coffee pots, etc., will cause hum. Keep lead well away from such fixtures.		Natural phenomena.	For unknown reasons, signals fade under certain conditions, due apparently to some condition of nature, probably the Heaviside Layer, existing between the transmitting and the receiving. To date there is no known remedy.
Fading or waverling signals.	Aerial insulators.	Leaky, due to rain, soot, or dirt. Lead-in touching side of house, aerial touching tree, etc. Use glass insulators and clean periodically. Keep aerial well away from earthed objects.		"A" battery.	Weak "A" battery causes unsteady flow of current, resulting in change of intensity in the signals. Replace or re-charge batteries.

RADIO INFORMATION SERVICE (Continued from Page 53.)

W.J.N. (Injune, Q.)—"With reference to the Pentavox lately described in 'Wireless Weekly,' Are the coils the same as those described in 'Wireless Weekly' for the Solodyne? Could I expect to get daylight reception with this set?"

Answer: The Pentavox coils consist of a Solodyne Aerial Coupler and a Radlokes Silt Secondary. You should receive 4QQ O.K. in daylight, but it is doubtful if you will get inter-State during daylight.

G.W. (Brazkineville).—"Could you please supply me with full particulars of the Marco Four receiver published in Correspondence column, Friday, January 4th, 1920 (Vol. 13, No. 2), or could you let me know where I could obtain this information?"

Answer: I think you will find the whole article has been republished in this issue.

R.N.E. (Weston).—"I had a strange experience with my 'A' battery for week ago. I got it charged as usual, and before three days had gone (only running the set about four hours per day) the battery went bung. I got it charged again, with the same result. I was told it was the 'A' battery, so I bought a new one. I ran this until I thought it wanted to go to the doctor's—sent it along—and, being a bit of a stickyback, thought I would try the old one. To my surprise I got the set going good on sarnphons. I may state that I cleaned the battery out, and also put acid in it, and let it stand for fourteen days. Is it possible for me to get it charged again? If not, what should I do with the battery? I have had it for two years."

Answer: You ask what you should do with the old battery. Our advice is to discard it. An accumulator gives good service for approximately eighteen months—and you have had it two years.

G.H. (Maroubra Bay).—"Would you kindly send me a plan of 'how to make a crystal set' as soon as possible—headphones preferred. If you have not a plan, will you ask some kind reader to send me one."

Answer: We do not keep blue prints, and we do not reply by post. Colville Moore keeps blue prints. Advise you to watch this paper for an excellent little crystal set (which is accurately simple), to be published within the next few weeks. I have pleasure in publishing your address in case some reader has a good circuit. Mr. C. Mann, Bond St., Maroubra Bay.

"RADIX" (Woolahra).—"Could I use the rectifier published in 'Proving Radio,' 18/1/20, to light the filaments of my valves?"

Answer: No, because you would experience hum. Besides, the voltage would be too great for the filaments of your valves. You could use a bell-transformer for stepping down the voltage for the auditor, but it is advisable to use batteries for the detector.

H.C.P. (No Address).—"I am working a Harrington Popular Three from the power socket, and when a hot water jug is put on the power is taken from the set."

Answer: Unfortunately, the further you are away from the power station the less will be the pressure or voltage, owing to resistance of the cable wires. There is no remedy unless your house is supplied with separate mains for electric light and power, in which case you could work the receiver from the electric light socket.

D.D. (Sans Souci).—"Please forward me a circuit of the latest Reinartz receiver; also circuit for a home-made Eliminator."

Answer: The latest Reinartz arrangement appears in this issue. It is a modernised form of Marco Four. The Economist Eliminator will suit your requirements. We have no copies left, so I shall be pleased to make a request for you. The stamps you mentioned were not enclosed.

General: If any reader has a spare copy of 'W.W.' containing the Economist Eliminator, or an inexpensive Eliminator, will he please forward same to Mr. D. Dellas, Access Road, Sans Souci, N.S.W.

G.H. (Queensland).—"Having built the Marco Four, I can get excellent strength and good results from it, but only when the moving plates of the aerial tuning condensers are right out clear of the fixed plates. This condenser is a passenger, and has no effect on the tuning. I am using two .0005 and one .0025 condensers."

Answer: It seems that the aerial coil is a trifle

too large. Try moving a few turns. Three condensers of .0005 mfd. should be used. Presume you are using the .0025 for reaction.

W.A. (Parkes).—"Thanks for your reply, which proved helpful. I built a receiver, and desire to know what causes a continuous whistling noise whilst the set is in operation. I am using a six-volt accumulator with 201A valves. I have tried changing the valves about without success. When I take the last valve out the noise stops. When the filament supply is turned down to about 3 volts the whistling still continues but I cannot get any volume. When more juice is put into the valves the volume is there, with the whistling."

Answer: Several things might be causing this. First try reducing the voltage on the detector. If this has no result, try reversing the primary of one of the transformers (especially if the transformers are of different makes). Try a .002 fixed condenser across the secondary of the last transformer, as a bypass condenser. Have you an R.F. choke in series with the plate lead to the first transformer? If not, try one. See that the "B" battery is not run down. See that transformers are placed at least four inches apart, and mounted at right angles. Keep plate and grid leads well apart. The last audio valve may be faulty. The grid condenser and leak may be faulty, or there may be an open circuit in the grid portion of the receiver.

General: Those readers who forwarded letters for Mr. B. O'Brien will be pleased to hear that we now have his address. It is 268 Henderson Road, Alexandria, Sydney.

A.B.C. (Hurstville).—"My loud speaker will only take a limited amount of volume without rattling. At times it chokes. The receiver is O.K. Re the R.F. Booster Unit. It does not appear to make any appreciable difference in my range, using a PM3. Is the screen grid variable?"

Answer: I think you will find that you have spoilt the magnets of the speaker by reversing the connections to the Jack or speaker plug at some time or another. The remedy is to have the magnets attended to. There may be a fracture in one of the windings—or the speaker cord may be damaged. The PM3 is a four-volt receiving valve, not a S.G. valve. Use the UX222. Details given by you are meagre. Experiment with S.G. voltage. Try about 80 volts on the S.G., and 120 on the plate of the S.G. valve.

V.Y.H. (Dulwich Hill).—"Re the 'Proving Radio Club,' I now have three recruits, and we four have formed a club. We had our first meeting on Friday last, and decided to meet all next week in order to catch up with present experiments, then meet once or twice weekly. We should like to get some members."

Answer: Perhaps some readers may see this. The idea of the club (for those interested) is for members to pay a small amount weekly, this money going towards cost of 'Proving Radio' for the experiments in the 'Proving Radio' series. Thus, with four members, each one pays only a quarter of the cost. It stands to reason that the more members signing up will mean less cost to individuals. Mr. Hook's address is C. Y. Hook, 29 Blairgowrie Street, Dulwich Hill.

R.L. (North Sydney).—"Could you please inform me of a way to improve my crystal set? I can get 2PC, 2BL, and 2QB with good volume, but 2KY is only faint, and the rest of the 'B' stations cannot be heard. The wiring is shown in the diagram. Please build the 'Kag' crystal receiver. It has been tested at North Sydney and Randwick, and found that all local 'A' and 'B' class stations can be received at good volume. This receiver will be published in a week or so."

A.D. (Sydney).—"I have an Eagle Triekle Charger. The transformer becomes too hot to touch after two hours' charging. What might be the cause of this?"

Answer: The aluminium plate of the rectifier, as shown in your drawing, is possibly not properly formed. See 'Proving Radio,' part 4.

H.C.W. (Concord).—"Could you kindly furnish me (and I am sure it will be of great interest to many other readers) the details for adding a stage of radio frequency amplification to the Reinartz? Will you also please publish the coil data for the Marco Four, as I desire to roll my own."

Answer: A three-valve Reinartz with a stage of R.F. is a Marco Four. Full details are published in this issue. You can get the R.F. stage from this, or you can build the Marco Four straight out. Thanks for your kind remarks.

NOVICE (Auburn).—"I have recently purchased a five-valve Chapin receiver, but I am not getting enough volume from the set, and seeing that you advise you have given other readers of 'Wireless Weekly,' I thought you might be able to help me out also. I am using five UX-201A R.O.A. valves and a Mozart speaker with the set. The aerial is 35 feet long, 20 feet high, of Iron wire. Should I be able to get inter-State on this set?"

Answer: Increase the length of the aerial to sixty or seventy feet. See that it is well insulated. Make certain the earth connection is good, and keep the earth lead short. Rest batteries and valves.

F.M.M. (Glebe).—"I would like to know what gauge wire is used for the coils of the Extraordinary One Valve. Re the T.K.D. Pentatron Reinartz—could a .00035 or a .00025 variable condenser be used instead of a .0005? I must congratulate you on the enlarged 'W.W.' Weekly and on the Technical Articles. I would like to know if you have a copy of 'W.W.' 10th August, 1928, left."

Answer: 24-gauge D.C.C. will be O.K. Use the .00025 condensers, and wind ten more turns on the reaction coil. Sorry we have no copies left of that issue. Perhaps some reader can oblige. The address is Mr. F. M'Manus, 72 Darghan Street, Glebe, Sydney, N.S.W.

H.F.R. (Coonamble).—"I have built the 'Go-Getter' short-wave receiver, and having an Emmocoast No. 4, I used it in place of the Royalty Resistor as specified. Would this have any effect on set?"

W. DICKINSON, Cambridge Parade, Manly, Queensland, writes: "I have a three-valve wireless set, and live about thirteen miles from Brisbane. I have received many stations on my set, and am desirous of adding to this list. For this reason, I should be very pleased if some of the New South Wales and Victorian Amateur transmitters would write to me stating their wave-length and hours of broadcast. I would like to add like to any station that is received by me will receive a report on transmission. Hoping that some of the amateurs will accede to my request."

Answer: Here is your request. Amateurs don't get much time to arrange regular transmissions. Hours of transmission usually vary a great deal. Further, an amateur likes to carry out schedules with another amateur transmitter, so that he can get a report immediately. You do not state whether your set is built for broadcast or for short-wave work. If the former, you will not (at present, anyhow) hear many amateurs on the 200-metre band. If your receiver is for short waves, your best plan would be to listen for stations, and send a report.

A.B. (South Coast).—"I have built several crystal sets, and I am disappointed in your splendid paper with great success and every satisfaction. The last being the 'Hamil,' from which I obtained remarkable results while living at Collaroy; but since moving down here—39 miles from Sydney—I find I am out of range, so I am thinking of building a small valve set for all local stations, and get inter-State stations on 'phones. I wish to still use a crystal detector. I have a leaning toward the Elstrifex Two, of which you spoke so highly in 'W.W.' of January 14th, 1927. From May last until two months ago I had a break in 'W.W.' owing to illness, so I may have missed newer circuits."

Answer: The Elstrifex Two will be quite O.K. (2) "In the list of parts required for above is a 'Marco Super-Vernier Condenser.' I am told these are not obtainable now, so that could I use?"

Answer: Use an Emmco Vernier dial. R.P. (Brookvale).—"Using a Gillilan three-coil tuner with a Philips B105 valve as detector. I can get fairly good results. Can you tell me what first audio valve I could use with the same circuit, using Philips B406 valves, good loud speaker strength is obtainable down here, and I want loud-speaker strength with a lower voltage valve, if possible."

Answer: Use a Philips A106.



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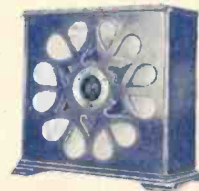
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