

Ray Allsop and Don. B. Knock — Technical Editors

Wireless Weekly

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SYDNEY

INCORPORATING "RADIO IN AUSTRALIA & NEW ZEALAND"

VOL. 13. NO. 12.

FRIDAY, MARCH 15, 1929
(Registered at the G.P.O., Sydney for transmission by post as a newspaper).



TRANSFORMATION

Prospecting By Radio

Who Whistles Best?
A New Competition

An All-Wave Four
Valve Receiver

Proving Radio Clubs

PHILIPS
AUDIO TRANSFORMER

Stromberg-Carlson ELECTRIC 3



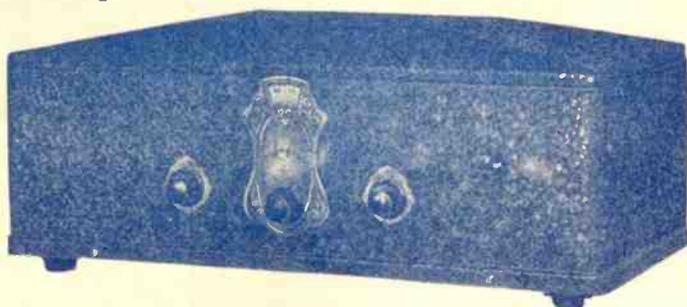
ALL the Highlights of the air are yours with the *New Stromberg-Carlson Electric 3*—yours with a clarity of tone and fidelity of reproduction such as you have never heard before!

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No need to be a mechanical engineer to appreciate the fine workmanship that goes into every detail of construction of the Stromberg-Carlson Electric 3. After you have had an "ear" demonstration, take a peep under the hood. SEE FOR YOURSELF!



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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.

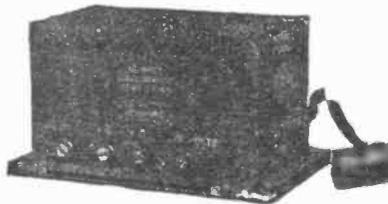
Uniform amplification from 300 cycles upwards. 50 per cent. of maximum amplification, even at 50 cycles.

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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.

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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 ½ 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: 7½in. x 4½in. x 4in.

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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

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IN every street there are homes galore which have not installed a Radio Set, and the people in these homes appreciate Radio—they realise its advantages and enjoy it, but just haven't bothered. As time goes on these people will certainly purchase Sets, but under ordinary conditions you and others who have aided them with advice will not be compensated.

A SPLENDID system has been evolved by Harringtons Ltd. to recognise the efforts of those who are instrumental in interesting their friends in quality Radio. There are no difficult conditions—no long drawn out Agreements—everything is on a simple basis, and the work can be done in your spare time.

IN other parts of the world men and women have made very handsome incomes in this way—many young men previously on small salaries are to-day in a good financial position—more independent—more self-reliant—as a result of devoting a little of their spare time to remunerative and interesting work. Think of the opportunities in

this State—there are in N.S.W. alone over 150,000 homes without Radio. Here is a great fertile field waiting to be tapped—some bright people are going to benefit by linking up with Harringtons Ltd., and during 1929 increase their banking account considerably.

HERE is a real tip. Think it over—are you satisfied? Are you making enough money at work that you like? No matter what your plans are, no matter how much or how little you know about Radio—clip the Coupon below and post to us as soon as possible. This may be the turning point in your career, but in any case you will place yourself under no obligation.

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Will you please forward me all information about the opportunities offering in Radio, and how I can quickly and easily take advantage of them? I understand this request places me under no obligation whatsoever.

Name
(State whether Mr., Mrs., or Miss)

Address

Date

Vol. 13, No. 12
 Friday,
 March
 15,
 1929.

Wireless Weekly

Incorporating Radio in Australia & New Zealand

Address:
 51 Castlereagh St.,
 Sydney.
 Phone: 87148-9.

WHO'S THE BEST WHISTLER?



LES. AUSTIN



HARRY CROOT



HARRY GRAHAM



PHIL MOUNTAIN



FRANKIE STOTT



CARLTON FAY

£2/2/- if You Guess Correctly

THE Pied Piper of Hamelin will have nothing on these people next Monday night, March 18. 2BL is holding a whistling contest. The six well-known artists above will compete to see who is the best whistler. Listeners-in will be the judges, and the winner will be the artist who receives the largest number of first votes on the coupon at the right. A prize of two guineas will also be awarded to the listener who guesses or most nearly guesses, the order of vot-

WHISTLING COMPETITION

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> LES AUSTIN | <input type="checkbox"/> PHIL MOUNTAIN |
| <input type="checkbox"/> HARRY CROOT | <input type="checkbox"/> FRANKIE STOTT |
| <input type="checkbox"/> HARRY GRAHAM | <input type="checkbox"/> CARLTON FAY |

FROM

ing. In the event of there being several successful voters, lots will be drawn for the prize.

All you have to do is to listen to 2BL on Monday night (see programme for exact time), hear the whistlers, vote for them in the order of your favor, and forward the coupon to "Wireless Weekly," 51 Castlereagh Street, Sydney, endorsed "Whistling Competition."

The prize-winner will be announced in an early issue. Here is an easily-won £2-2-0 for someone—why not you?

WARNING! Listeners are requested not to suck lemons during the competition.

All photographs on this page by courtesy of HOWARD HARRIS STUDIOS, King Street.

BETWEEN YOU AND ME AND THE MICROPHONE

More About Flattery

A WOMAN writes to Captain Stevens saying some very nice things about his morning Peace Hour session. "I am in my seventy-ninth year," she concludes, "so you will know I am sincere, as I am too old to flatter." Personally, we don't agree. Every year in life adds its lessons to prove that no one can withstand flattery; and at the age of seventy-nine we hope, not to be too old for it, but to be perfect in the art.

Artists Appear

CZNC, Toronto, Canada, has its studio in one of the busiest streets of that town. Full-width plate-glass windows give passers-by a complete view of artists and announcers.

The idea might have been practised out here; but plate-glass, unfortunately, is not quite so efficient as steel and brick as a protective agent. Besides, it costs a great deal to replace it. The artists at Toronto must be exceptionally good; or perhaps the public lacks correspondents of the calibre of some of our Safety Valvers.



Competition

WE were interviewing Mr. Browning Mummery when we heard the sound of a voice raised in singing, coming nearer and nearer down the passageway at 2FC. It was a sweet song. Cec. Morrison's Jazz Band had just finished playing it. The voice came up to the door, and Mr. Halbert pushed in, singing lustily, and paused as he saw Mr. Browning Mummery. He was before the Master. The singing ceased.

Indications

A FOREIGN correspondent advises us to take a look at the barometer before settling down to an evening's radio entertainment, since the pointer of mercury will often tell whether reception will be good or poor. The idea is that a change in the weather, either for good or bad, as invariably accompanied by an attack of atmospherics. And, indeed, we have often wept floods of tears after an attack of sopranos.



These Memories

TWO FC have received expert criticism of their transmission of the "Wrecker." "It made one think of a time when I used to visit an outback railway station," says Mr. Done. "The talk of signal men brings back the days when I used to hear induction from railway telephone lines when working a telephone exchange in the same little old western town." Of course, when we say this is expert criticism we do not mean it to refer in any way to the title of the play.

Wedding Bells

RAYMOND ELLIS, whose departure for the Old-country last year left such a regrettable gap in the musical circles of Sydney, is to be married on March 11. A radiogram to the manager of the New South Wales Broadcasting Company conveyed the glad tidings. "Let all my 2FC friends know," says Mr. Ellis, "and tell them, too, I'm pining for Australian sunshine."

This Gay Abandon

"AM going to speak to-night," said the astolic voice, "on the Preservation of Wild Life; and I am sure you will all be extremely interested." "Too right," murmured Mr. Thomas Innes, as he turned the amplifier switch two points nor-nor-east, "but you'd hardly think he had it in him, would you?" Mr. Thomas Innes, let us explain, doesn't generally really mean what he says. He is not really bad; but he is young; and he is not so much used as we are to being extremely precise in his statements.

Funny

MISS LENORE GOTSCH, Miss Amy Ostinga, Mr. Peter Sutherland, and Mr. Vern Barnett were rehearsing the trio from "The Tales of Hoffman," which was to be performed at Mr. Barnett's classical concert. Miss Gotsch suddenly stopped singing, and began some horribly unmusical noise-making. "Good heavens!" exclaimed Mr. Vern Barnett, "What on earth are you doing?" "Being artistic," answered Miss Gotsch, "I'm a consumptive." Because, of course, her part was that of the poor young, consumptive singer, who died because she was drawn on to sing a song whose power was bound to kill her. Miss Gotsch will have her little joke.

No Pain Guaranteed

HERE'S one the dentist told me as he cheerfully extracted a large molar:—"Teacher of algebra (to inattentive student): 'Johnny Jones! What is the result if I add minus A to plus A?' Johnny (whose dad is a set builder): 'I know, Miss Cyphers! A short circuit!'" Ah, that's better; the bowl is on your left; take a little water.

"*!?!*%," he exclaimed.

"IN your readings from 2BL," says a correspondent, "which otherwise are extremely interesting, why is the name of God so often used as an exclamation? It is to many thousands of your listeners a sacred name, and the practice is both obnoxious and offensive." Which, of course, may seem to be the last word on the matter. But one must remember that it is not the announcer who utters the imprecation; nor is it the author of the book, but the character in the book. The only thing the announcer can be accused of is: That he keeps low company. Therefore, let the character say what he must say at all costs. Such is the law of all good literature. The compromise of changing "My God!" into "Good Heavens!" during the readings, as is now being done in deference to the request of this listener, may alter the whole atmosphere of the scene; or situation and would certainly change the character. No; if it is not desirable to utter "My God!" over the air then readings should be chosen from works which do not contain the exclamation.

Another Wager

WRITING from Auckland, Mr. Charles H. Hayward confides in 2FC. "Having made a bet of five pounds (£5) that I could receive 2FC any time it was turned on, I am now writing to get your verification of my reception. When I tuned in between 9 and 1 a.m. you announced, 'The letter goes on to itemise a 2FC early morning programme, and concludes: 'I should be very glad to get a verification of this report, or I'll lose my fiver.'" We notice the "O.K." mark of 2FC on this letter; and suppose that by this time a fiver will have changed hands.

Russian Radio

OPEN-AIR radio concerts at all hours of the day and late into the night are a characteristic feature of life in Moscow. Powerful loud-speakers are installed in a dozen or more public squares in the capital, and the people can listen to music, vaudeville sketches, and Communist propaganda. That is, music, vaudeville sketches, and more vaudeville sketching.



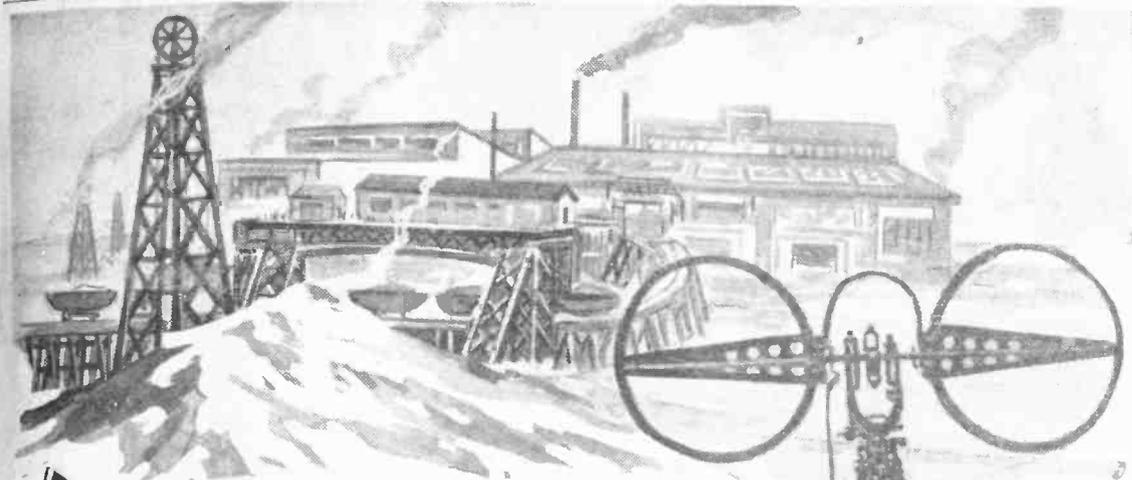
Birthday Calls

AN analysis of the birthday book at 2BL and 2FC for the month of February disclosed the fact that 1000 entries had been received from young radio listeners, in addition to those previously recorded for that month. Obviously, the popularity of the children's session is not waning, but the point presents itself that a great deal of time is devoted to personal messages to the kiddies, which might be employed in entertainment, which would prove attractive to young and old alike.

Autograph

2FC has microphones which have been autographed by Mr. Jack Hobbs and Mr. M. A. Noble. 2FC is not a little proud of the fact; and 2BL not a little envious of 2FC. So when Mr. Browning Mummery paid a Sunday visit to 2BL, Mr. Eric Bessemer conceived the bright idea that Mr. Mummery should autograph a microphone. "Go on, Chas.," he said to Mr. Charles Youngson, who was operating the switches that night. "You're on duty. Go and ask Mr. Mummery to sign it." Eventually the blushing Charles disappeared into the studio; and Mr. Eric Bessemer had the satisfaction of watching through the control-room window while Mr. Mummery signed the marble microphone. The signature now decorating the marble is plain for all folk to see; and if the young gentlemen at 2BL don't come down from their high and mighty perch very soon we shall have to complain to the management.





PROSPECTING WITH RADIO

By H. B. HUTCHISON

A new process for locating metal Lodes by the use of the direction finding properties of radio apparatus.

RADIO prospecting, a scientific method of locating hidden ore bodies by means of electricity and logarithms, has been introduced into the zinc and lead mining fields of the United States. On one tract where a mine operator assigned the crew to prospect on land which he already knew contained commercial bodies of ore the findings of the radio prospectors were only two feet at variance with data already possessed by the company.

The legendary prospector of the bewhiskered, burro-prodding, pick-swinging type undoubtedly would jeer if he could gaze upon his inanimate successor—a thing of wires, vacuum tubes, and coils. The manoeuvres of these modern prospectors, resembling a combination of automobile cranking and surveying, would appear to him as foolish antics compared with the back-breaking toil exacted of the men who sought for the earth's mineral treasures a few decades ago. But a comparison of results in the two methods would evoke equal amazement. Where the old-timer labored for months digging one hole, a spadeful at a time, the radio prospector covers three to six acres in a day, and then adjourns to his office to work out his findings by means of geometrical formulas.

RADIORE PROCESS DESCRIBED

The radiore process, as it is termed, is based upon the fact that electrical currents can be induced in electro-conductive bodies below the surface of the earth by operating a broadcasting set, or oscillator, on the surface above these bodies. These high-frequency currents induce a secondary electromagnetic field, whose axis can be determined by means of a radio receiving set, also operated on the surface. The location of the underground conductor can be calculated approximately by application of geometry to the problem.

Engineers using the radiore process do not pretend to locate commercial bodies of ore. They merely guarantee to locate a conductor if one of sufficient magnitude exists below the scene of operations. The engineers frankly admit that the apparatus could not locate zinc ore, because only ore bodies containing metallic sulphide in sufficient quantities to render them conductive to high-frequency currents are amenable to the process. Zinc ore, they point out, is the only sulphide that is not a conductor. However, lead sulphide is a conductor, and as zinc ore is often associated with lead ore, the location of a conductor would usually imply the presence of both lead and zinc ore. Neither does the radiore process determine the character or value of the underground conductive body. These facts must be obtained by subsequent drilling. The process, however, does eliminate the drilling of non-mineralised areas, whose exploration has cost hundreds of thousands of dollars in the past.

In the apparatus used by the radiore crew the oscillating unit is actuated by a hand generator. The loop antenna, or direction finder, is approximately six feet square. This transmitter broadcasts on a wave length of 10,000 metres.

The receiving apparatus consists of a simple three-valve receiver, similar to any radio receiver, a set of ear-phones, and two circular direction-finding loops coupled together and wound so as to function as a single directional loop. All of this receiving apparatus is mounted compactly on a surveyor's transit.

In operation, the two sets are placed 100 or more feet apart on the tract to be pros-

pected. One of the two men assigned to the broadcasting set turns the hand generator while the other manipulates the directional antenna and the instruments on the sending panel. The engineer in charge handles the transit at the receiving end. As the radio waves flow from the antenna the oscillations of the primary field set up a secondary field around the underground conductor. The engineer manipulates the receiving loop, which is pivoted on the transit so that it can be moved from a position horizontal to an almost vertical position. At that point where impulses from the secondary field register a minimum of sound in the ear-phones, he ceases manoeuvring the loop and jots down the reading. Because fewer lines of force cross the coil when it is in a position at right angles to the secondary field, he can tell almost to a certainty when the loop is in that position. Then it is merely a problem in geometry to figure out the approximate direction of the ore body from the position of the transit. By changing his position, and obtaining similar data from other points, he ultimately can map the underground conductor and determine its approximate distance below the surface.

The underground conductor must be of reasonable length, not less than 150 feet, and at a depth of not more than 500 feet.

Conductivity of the earth is not a factor, because the system works equally well in wet and arid regions.

"We had only one miss in Canada in a year and a half," said one engineer. "And during that time we eliminated all 'dead ground' in Ontario and Quebec. In other words, we pointed out definitely where it would be useless to mine for ore. At the Abana copper mine in Quebec Province, subsequent mining proved out exactly as we had mapped it. Canada is ideal for radio prospecting because the ore lies in veins and fissures and there is good continuity. Here it is not so amenable to the process because the ore lies in pockets with some fissures and sheets. Pockets are all right if they are large enough, but many are too small.

COST OF OPERATION

This engineer declared the radiore process would eliminate approximately two-thirds

of the prospecting with drills. Some idea of the saving that would be effected by elimination of two-thirds of the drilling may be gained when it is considered that the cost of drilling in that district is approximately 7/6 a foot, ranging upward to 1 a foot in Canada. The depth of drilling in this field at the present time ranges between 300 and 400 feet and from 100 to 200 holes are required to prospect a forty-acre tract thoroughly. Estimating the cost at between £8000 and £20,000, depending on the character of the formation, it can be seen that a saving of two-thirds would be a considerable item.

The charge by the radio prospectors is £40 a day for the first ten days and £30 a day thereafter, with the cost of transporting men and equipment to be paid by the mine operator. It is estimated that four days are required for a preliminary survey of a 20-acre claim.

Although the radiore process has been

improved gradually during the two and a half years of work in the laboratory and in the mining fields it will not reach perfection until some means is found to eliminate the primary field. At the present time tests are being made with new apparatus. This new apparatus is designed to do away with the primary field and concentrate on the secondary.

Like the average radio fan, the engineer operating a radiore set has his troubles with interference. Some of this interference, such as that from high tension power lines, is vexatious, while other types, such as those from nearby telephone lines, furnish amusement. The operator of the receiving set often tunes in on a private telephone conversation. Although only one side of the conversation can be heard at a time, sometimes these conversations are "rich" enough to make a day's work worth while even when the prospecting fails to show results.

RADIO NEWS from BRITAIN and EUROPE

THE BRUSSELS SCHEME

THE wave-lengths of European broadcasting stations have once again undergone alteration. The previous scheme, formulated at Geneva in 1927, proved almost entirely unsuccessful. Some countries had too many wave-lengths, others too few, and a tremendous amount of heterodyning was experienced. Accordingly, another conference met in Brussels towards the close of last year, and brought out another scheme, which, it is hoped, will entirely do away with the heterodyne bane. The "Plan de Bruxelles" came into operation at the middle of January, and already a large number of stations have changed to their new wave-lengths. It is too early yet to see what is going to happen, but the indications are that it will be a distinct improvement on the old scheme.

By the Brussels scheme all the British relay stations are to work on a common wave-length, thus leaving a number of wave-lengths for other stations. As before, ten kilocycle spacing is observed where possible, but in some cases the spacing is as low as four kilocycles.

At the same time, the Brussels Conference coined a new word, "kiloherzt." This means "kilocycles per second," which we usually call merely "kilocycles." But the joke is that no one seems to know whether "kiloherzt" is singular or plural. Is it "one kiloherzt and two kiloherzt" or "one kiloherzt and two kiloherzten"? Nobody knows!

THE B.B.C.

THE B.B.C. has for a long time published two weekly papers, "The Radio Times" and "World Radio." The former is concerned only with broadcasting in the British Isles, and contains the full programmes for the week of all the B.B.C. stations, together with general notes on the programmes. The latter is primarily for "DX fiends," and gives (in brief) the chief Continental and American programmes, and any changes of wave-length, etc., that may have taken place during the week. It also gives a few semi-technical articles for the "home constructor." Both these papers are excellently run, are very useful to listeners, and it is clearly right that the B.B.C. should publish them.

But now the B.B.C. have commenced publication of another journal, "The Listener," which is concerned with the musical side of the programmes, and gives explanations of the music to be played during the week. The appearance of "The Listener" was

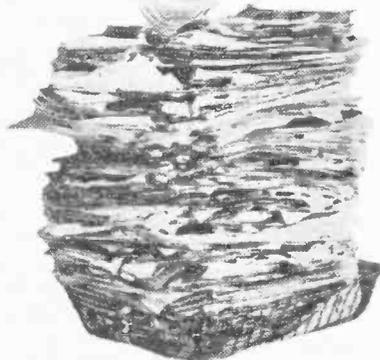
greeted by a storm of protest from the press, delegations waited on the P.M.G., questions were asked in the House of Commons—in fact, it created quite a stir! It seems that people think the B.B.C. are overstepping their privileges in publishing so many papers—"The B.B.C. should communicate with the public by means of the microphone, and not through propagandist periodicals," is the present cry. However, once again the B.B.C. gets its own way, and "The Listener" continues to appear weekly.

A MYSTERY TRANSMITTER

JUST after Christmas a mystery transmitter, suffering, no doubt, from an excess of good feeling towards his fellows, commenced operations in or near London. He chose a wave-length very near that of 2L0, and thus a great many London listeners heard him. Thus far, not much harm was done. But when the "mystery man" started transmitting vulgar and obscene messages, there was a general outcry. An immediate search was made, but the offender showed his sense by closing down before he was discovered.

THE BEAM STATIONS

THE beam stations seem to be doing quite well financially, for it has just been announced that the accounts for 1928 show a



One of our readers asks "for a photograph of one week's quertes to cheer some of us beggars up a bit." Well, here's the photograph. Note how the basket is beginning to give way under the strain. However, our technical staff is rapidly making inroads in this accumulation of questions, and readers are assured of answers in the "Radio Information Service" in early issues.

net profit of about £90,000. So now, perhaps, they'll be able to get to work on the England - Australia wireless telephone that we need so much. I see that the Amalgamated Wireless have conducted some very successful telephony with New York, so a London-Sydney service should not present much difficulty—especially if the existing beam stations are used.

By
J. E.
GRAHAM
(London
Correspondent
of "Wireless
Weekly")

THE PHYSICAL SOCIETY'S EXHIBITION

THE Physical Society have recently held their annual exhibition in London, and a quantity of new apparatus was on show there.

Marconi showed a new direction-finder, with two screened grid R.F. stages and semi-tuned tuning. This is intended for use on ships. Another Marconi product was a signal strength measuring unit, with a range of 14-5000 metres—constructed in the usual robust Marconi style.

One of the most interesting exhibits was by Isenthal and Co., who had on view a number of remote control relay schemes, suitable for switching of "A" batteries, moving coil field current, etc. These switches consist of glass tubes containing an inert gas, some mercury, and several metal cups let in to the sides of the tube, and filled with mercury. If the tube is tilted in one direction, the free mercury forms a bridge between two of these cups (which are also the external contacts), and the circuit is closed. Note that there is always a mercury-to-mercury connection. If the tube is tilted in the other direction, the mercury flows along the tube, opens the first circuit, and perhaps closes another one. To operate the single-pole single-throw switch it is only necessary to tilt the tube through an angle of 6deg., and for the single-pole double-throw through 25deg. The price of the former switch is 2/6 (duty into Australia about 1/).

Dr. McLachlan, the loud-speaker expert, was showing a most ingenious modulated C.W. wavemeter, using a screened grid valve working on the negative-resistance portion of the curve. By this means, oscillations are produced without a reaction coil. (Don't he'll be using his new receiver as a transmitter!)

The Necessity for PRECISION in Resistance Coupled AMPLIFIERS

A short article on an important phase of radio reception. New developments in England and U.S.A.

THE resistance-coupled amplifiers in common use to-day have two inherent disadvantages. In the first place, they require altogether too many B and C batteries; in the second place, they are unstable. It is true that reasonably stable amplifiers have been built—amplifiers with a maximum gain of 70 and a variation of less than 10 over a range extending from 30 to 6000 cycles. There are, however, many instances when an amplifier capable of handling direct and audio frequency voltages up to 10,000 and even 30,000 cycles, is highly desirable.

Such an amplifier has recently been designed in England, and after much experimentation, its basic principles have been successfully applied to standard American valves. In America there have been developed two remarkably stable amplifiers. The first is capable of giving an excellent gain on direct voltages and audio frequencies up to 10,000 cycles, while the second gives these same results up to 30,000 cycles. In both amplifiers the uniformity throughout the frequency range leaves little to be desired. In one model, having three stages, the overall gain is approximately 60, with less than 10 variation between 0 and 300 cycles, and 6 between 3000 and 6000 cycles. For use in a broadcast receiver an amplifier of this type will provide excellent results for moderate power output, since the frequency band necessary for excellent reception extends from 30 cycles to 6000 cycles. It has the added advantages of simplicity and low cost, but its particular field of application is found wherever it is necessary to amplify direct voltages or very low frequency alternating voltages.

A three-stage amplifier, operating on this principle, is shown in the first diagram. It will be noted that the amplifier is resistance-coupled throughout. The A, B, and C batteries are all in series. For convenience, a separate C battery of 1.5 volts is used in the first stage. The condenser for the speaker filter must be large enough to pass the lowest desired frequency. For 30-cycle alternating current this condenser

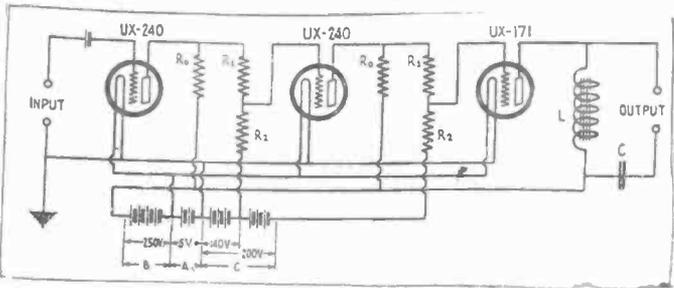


Fig. 1.

should be at least 4 mfd. The condenser cannot be used at all for direct-current amplification.

Because of the uniform gain of this amplifier, it becomes necessary to employ precision, noiseless, permanent resistors, preferably of the metallised type. The values of these resistors should be as follows:— R_0 —0.5 megohm; R_1 —0.75 megohm; R_2 —1.0 megohm. The choke coil should be 30 henries.

For use in amplifying direct voltages, and alternating voltages of less than 30 cycles, the output choke in the last stage may be replaced by an output resistance having a value of twice the plate resistance of its associated valve, together with a battery so connected that it tends to send current through the output resistance in a direction opposite to the current from

city of the high- μ valves. It will be noted, therefore, that the overall gain of such an amplifier is approximately the same as that obtained in the usual resistance-condenser coupled amplifier, while the frequency characteristic is flat over a longer range.

In adjusting the amplifier, milliammeters should be placed in the plate circuits, and the C bias adjusted until the milliammeters show the rated current for each valve. Such an amplifier is extremely stable under proper operating conditions. Changes of 1 or 2 per cent. in the B or C batteries do not affect the operation appreciably. To use the amplifier as an electrostatic voltmeter for direct voltages, the C bias of the last valve is slowly increased until the plate current, as read on a milliammeter in the plate circuit of the last valve, reaches zero. The amplifier can then be calibrated in terms of plate current in the last stage, with known direct voltages.

In the laboratory the amplifier shown in our first diagram was operated throughout from storage B batteries. The A battery was the usual 6-volt storage battery. The B battery was a 250-volt storage battery, and the C battery a 200-volt storage battery. There is no reason, however, why a good B supply device could not be used in place of the B and C storage batteries, provided sufficient by-pass condensers are employed across the taps of the supply, in order to prevent conductive coupling between stages of the amplifier.

Our second amplifier is not primarily intended for broadcast reception, although it may be employed for that purpose. It has a gain-frequency characteristic which is flat from below 30 cycles to above 15,000 cycles, decreasing only 7 at 30,000 cycles. This amplifier is especially well adapted to television experiments and to any purpose requiring uniform amplification over the entire audio-frequency band. The overall gain of this particular model is 54.

The circuit shown in the third diagram is quite novel. The first two stages employ a standard screen-grid valve, while any power tube may be employed in the last stage with slight alterations. It will be noted that the first two valves are connected according to the screen-grid or shield-grid method. This decreases the effect of the grid-plate capacity, with its resultant drooping of the gain-frequency characteristic at the higher frequencies. However, for a still flatter characteristic, the equaliser, shown in the output circuit of the last valve, has been inserted. This equaliser, comprising a series circuit containing an inductance (choke coil) of approximately 750 millihenries, and a resistance of 3500 ohms, is connected across the load. It acts as a high-pass filter, the value of the resistance governing the amount of signal lost at the low frequencies.

The resistors should be of the following values:— R_0 —0.25 megohm; R_1 —0.75 megohm; R_2 —1 megohm; R_3 —3500 ohms; R_4 —8000 ohms; R_5 —10 ohms. The choke coil L should be 750 millihenries. The condenser C should be 4 mfd.

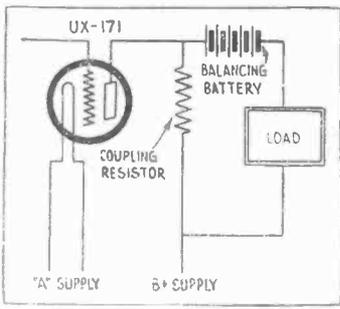


Fig. 2.

the B supply, as shown in the second diagram. When the voltage of this battery is properly adjusted, there will be no current through the load when there is no voltage impressed upon the input of the amplifier.

The accurately plotted curve of the response of this amplifier shows a practically flat portion from less than 30 cycles up to 1000 cycles, with a gradual falling off up to 10,000 cycles. A gain of 60 is maintained up to 1000 cycles, followed by a gradual falling off to 40 at 10,000 cycles. The decreased gain at the higher frequencies is attributed to the high effective inter-electrode capa-

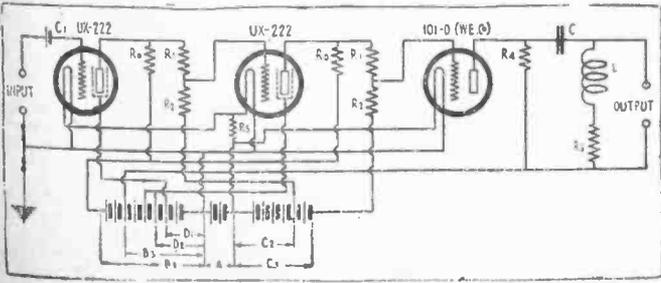


Fig. 3.

The battery voltages are as follow:—A—6 volts; B1—450 volts; B3—270 volts; C1—0 to 4 volts, variable; C2—160 volts; C3—166 volts; D1—39 volts; D2—42 volts.

In this amplifier the plate and grid bias voltages are somewhat critical. Shielding of the amplifier, however, is entirely unnecessary.

Although this amplifier requires a high voltage and is somewhat critical in its initial adjustment, its performance is extraordinarily good, and no other has been found to take its place where high and uniform amplification over the entire audio-frequency band is required.

A LIMITED number of all issues of "Wireless Weekly" from December 28 are now available at the offices of "Wireless Weekly." Those readers who have not been able to secure back numbers containing popular technical articles may now obtain them by sending 3d in stamps, and the copy required will be forwarded by return post.

Needless to say, the resistors used in the construction of both of these amplifiers must be the best obtainable. If the resistors are not accurate in resistance value, not stable, or again incapable of carrying the necessary currents without deterioration, the amplifier cannot be expected to perform satisfactorily. Both amplifiers are essentially precision devices for radio enthusiasts and experimenters seeking precision amplification. Nevertheless, they are essentially inexpensive. The difference in cost between good and poor components is so slight that the experimenter is scarcely justified in using any but the very best.

U.S. Move to Clean-up Radio Conditions

WE publish below the recommendations made to the U.S. Congress by the Board of Directors of the National Association of Broadcasters of America, which should have a particular interest for Australian listeners. The recommendations indicate the disturbed conditions under which American stations operate. It will be remembered that some time ago the U.S. Government appointed a Federal Radio Commission to inquire into the broadcasting situation which was fast approaching a state of chaos. The Commission took a number of drastic steps, the main one being the restriction of licenses and the policing of wavelength channels.

The board of directors of the National Association of Broadcasters respectfully presents the following recommendations regarding legislation affecting radio broadcasting:—

I. Administration of the Radio Law.—The National Association of Broadcasters urges that as soon as possible the administration of the radio law be permanently vested in whatever Federal body the Congress may designate, in order that such administration may proceed in an orderly, stable, and consecutive manner, which is impossible while the authority of the administering body is only temporary and of short duration.

The association recommends that, if the Congress is not at this time prepared to designate the Federal body to which it will entrust the permanent administration of the radio law, the authority now vested by law in the Federal Radio Commission be continued for a period of one year from and after March 15, 1929. This recommendation is not to be construed, however, as implying the association's approval of specific actions of the Federal Radio Commission.

The association urgently recommends that in the appropriations for the support of the body administering the radio law there be made adequate provision for the employment of the best available engineering and legal assistance, without which the law can neither be wisely and equitably administered nor be adequately enforced.

The association recommends that the terms of office of all members of the Federal Radio Commission be as set forth in the Act of 1927 before amendment thereto.

II. Duration of Licenses.—The association points out that the basis for the entire industry of radio broadcasting is rendered perilously unstable by the limiting of broadcasting licenses to a period of ninety days, thus jeopardising capital investments and necessary future commitments aggregating

The remarkable rapidity of the development of radio, particularly in America, has resulted in chaotic conditions in closely populated countries. In America a Commission was appointed some time ago to put matters right, but development has outstepped its moves.

millions of dollars, and a service which the American people have learned to regard as essential, and in which the public has invested more than a billion dollars.

The association, therefore, recommends that all broadcasting licenses hereafter issued be for a period of not less than one year except in the case of such emergency licenses for special or experimental purposes as from time to time may be expedient.

III. Distribution of Radio Facilities.—The association believes that mathematically equal distribution of radio broadcasting facilities among the five zones created by the radio law must inevitably fail to produce an equitable distribution of good radio reception among the listeners of the entire country. The division of the country into five zones, unequal in number of inhabitants, in area, in availability of capital and suitable programme material, and in density of population, provides no true basis for the equal distribution of broadcasting facilities. The zone system appears, indeed to have proved injurious to the listening public, both in the limitations it imposes on the choice of Commissioners and in the administration of the law. Furthermore, the requirement of equal distribution of broadcasting facilities among the five zones necessarily disregards all previously existing conditions of capital investment and established service.

The association recommends that the law be so amended as to eliminate the requirement of equal distribution of radio broadcasting facilities among the five zones, and equitable distribution, and to substitute therefor a requirement that there shall be such an allocation of licenses, frequencies, power, and hours of operation as to provide an equitable distribution of good radio reception throughout the entire United States.

IV. Power.—It has been proposed that the Congress should by law limit the maximum output of any broadcasting station to ten thousand watts. The association suggests that this is essentially a matter of administration, involving expert engineering counsel, and that, with the rapid development of the science of radio transmission such a limita-

tion of power by Act of Congress might soon prove to be contrary to the public interest.

The association recommends, therefore, that regulation of the power output to be used in radio broadcasting be left to the determination of the administering body.

V. Broadcasting.—The association recommends the enactment of an amendment to the radio law, providing, in substance, that no radio broadcast programme shall be in any manner intercepted and transmitted to listeners without the consent of the station, person, or company originating such programme.

VI. Administrative Provisions.—The association has declared, by resolution, that in the administration of the Radio Law of 1927 various provisions are vague as to their application and meaning. Accordingly, the association recommends:—

(1) That Section 16 be amended so as to provide an appeal for a station which, as the result of the application of another station, suffers from Commission action by a change in its frequency, power, or hours of operation. As the statute now reads, and particularly sections 11 and 16, only the station which applies for a better assignment can appeal from an adverse decision.

(2) That Section 10 be amended so as to make provision for emergency licenses, effective for a limited period, such as ten days or thirty days, without the necessity for complying with the formalities now required.

(3) That sub-section (d) of Section 12 be repealed, chiefly because it prevents the licensing of transmitters on many American vessels, but also because it presents a purely technical barrier to the licensing of certain broadcasting stations.

(4) That Sections 11 and 16 be amended to make clear what are the rights of a person applying for a renewal of his license to broadcast, if the Commission assigns him a different frequency, less power, or decreased hours of operation.

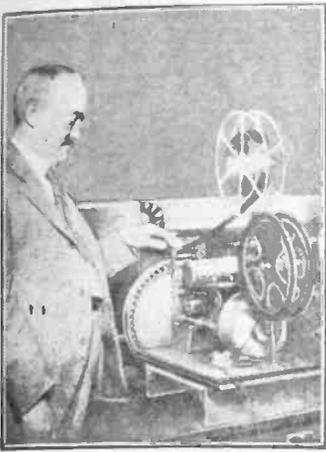
(5) That Section 21 be clarified, in connection with Section 11, so as to indicate whether a person applying for a construction permit is entitled to a hearing.

(6) That Sections 32 and 33 be clarified so as to make it clear whether a licensee who exceeds the terms of his license, for example, in materially exceeding his authorised power, is subject to Section 32 or Section 33, and also so as to specify whether each day's violation is to be considered a separate offence.

TELEVISION

Another article about Television, this time by the world-famous inventor, who perfected the motion picture film, the high speed movie camera, and is at present engaged on television. His company is broadcasting regular television programmes, which are being picked up by listeners

By C. FRANCIS JENKINS



Mr. Jenkins, with his lens scanner. for broadcasting radio movies.

TELEVISION is here; but it is likely that no other invention ever had so much publicity in advance of an actual demonstration. It is unique also in that present methods and mechanisms were fully described fifty years ago, and tons of printer's ink has been spread on newspaper and magazine pages in telling the public just how it would be done.

And this advance information was accurate, too, an exact description of thousands of receivers which have been built in the past year; receivers, many of which were built to get our radio-movies broadcasts; for we are broadcasting on a regular printed schedule here in Jersey City.

My initial activity in this development began about fifteen years ago, and has been the subject of active study ever since, except for time out for war work.

Immediately after the Armistice I set up a laboratory devoted exclusively, to this development; took on some enthusiastic young folks; and after practising on still picture transmission for some months our first public demonstration of radiovision and radio-movies was made June 13, 1925. This attainment received rather wide publicity, and the favorable comment of scientific and technical authority, but still the public remained indifferent.

But eighteen months later the demonstration by the Bell Telephone Company of wire transmission of living images from Washington to New York City put the seal of approval on previous predictions of the possibilities in this new art, and stimulated activities therein to a surprising degree.

For ourselves, as radio is a two-ended proposition, in which there is no occasion for receivers unless someone is broadcasting, I decided it was time to begin broadcasting.

So on July 2 last year, 1928, we began regular scheduled broadcasting of radio-movies. We chose motion pictures because of the difficulty of getting interesting performers into our studio on scheduled hours with certainty. Judging from our experience of the past few months, I think it is likely that visual radio will develop very much along the lines audible broadcasting did.

It will be remembered that audible broadcasting was begun by an amateur, who set up a crude transmitter in the corner of his garage, broadcasting first from talking machine records, and later from singers in person standing before a home-made carbon button microphone. Those who picked up his broadcast entertainment did so with radio receivers they had made themselves,

out of a bit of galena, a cat-whisker, two pie plates, and some coiled hay wire.

Big business became interested in radio as a means of entertainment only after the amateur had demonstrated the tremendous possibilities inherent in this crude toy.

As I had the honor of amateur-standing in radio, and knowing what splendid things the amateurs had already done in radio, it very naturally occurred to me to invite them to join in in the development of television.

And so we began radio-movies broadcasting on short-wave lengths, and without previous announcement. It is quite likely that no one got our first broadcasts, perhaps not even our first week's broadcast. Possibly no one tried. But eventually fellow-amateurs came to understand that we were broadcasting on a regular schedule, which they could depend upon with as much certainty as on a railway time-table.

And then things began to happen. Boys and girls all over the country, science teachers in colleges and universities, and others less easily placed, began writing in to us for information on how to build receivers, where to get scanning discs and neon lamps, and with detailed questions regarding the hundreds of little tricks of technique which go to make up successful reception.

This activity, as I have explained, began only a few months ago, but to-night many thousands of amateurs here in the United States will tune-in on W3XK with certainty, proudly exhibiting the results to daddy, mother, and sister Mary, or perhaps it is somebody else's sister Mary, doubly proud as he explains that he built his receiver himself.

And after the show he writes us in typical amateur code, language with an enthusiasm which is contagious. And it is from these reports that we get the suggestions which enable us to improve our processes and our mechanisms.

I am an enthusiastic believer in the ability of the amateur, and the probabilities of surprising development when he takes up radiovision as an avocation after the day's work at a regular task.

In spite of the universal acknowledgment of the ingenuity and cleverness of youth in discovering valuable communication channels in the scientifically-scorned short-wave radio hands, a noted radio engineer was quoted recently as saying that "the Government should confine its television licenses to experienced and responsible organisations." I am still quoting: "for only such organisations can be depended upon to uphold high ideals of service in television."

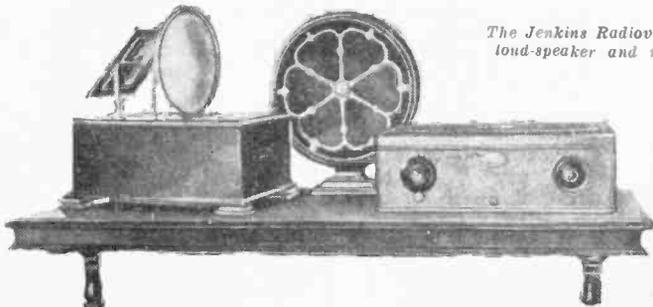
That gentleman has sadly neglected the history of great inventions. He has overlooked the fact that no great laboratory, despite its inestimable contributions to science and engineering, has ever yet brought forth a great, revolutionary invention upon which a new industry has been founded.

Professor Morse, a portrait painter, invented the telegraph, and the system of dots and dashes by which we communicate electrically; it was Dr. Bell, a teacher of the deaf, who gave us the telephone; Mr. Sholes, a farmer, tinkered up the typewriter; Mr. Berliner, a clothing salesman, gave us the disc talking machine, and Mr. Tainter, a lawyer's clerk, the wax-cylinder phonograph; Mrs. Jacquard, a dressmaker, invented the Jacquard loom which gives us beautiful figured fabrics. Mr. Lanston, a groceryman, made the monotype casting machine. Dr. Dunlop, a physician, built the first pneumatic tyre; Mr. Eastman, a bank clerk, gave us the portable Kodak hand camera; and Rev. Goodman, a country preacher, the film roll used therein. The Wright Brothers, bicycle repair men, worked out the flying-machine; and Mr. Jenkins, a stenographer, invented the motion picture projecting machine used in every theatre the world over to this very day.

It has always been a poor man first to see these things, and, as a rule, the more magnificent the vision, the poorer the man.

And, by the way, that is right comforting, too, for I sometimes think that, perhaps I myself may yet do something worth while if only I stay poor enough, long enough.

So my answer to the contention that radio-movies and radiovision for home entertainment may be expected only from a



The Jenkins Radiovisor, with loud-speaker and receiver.

great organisation, is to refer to the record of great inventions, and to cite the thousands of amateurs who are now nightly watching with fascination our radio pantomime pictures in their home-made receivers, as little Gens-Marie performs tricks with her bouncing ball; Miss Constance hangs up her doll wash in a drying wind; and diminutive Jacqueline does athletic dances with her clever partner, Master Fremont.

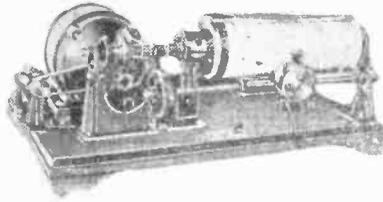
"Perfect?" No, and the receiver looks no more like the ultimate structure will than the old "one-lung" horseless carriage of twenty-five years ago looked like the eight-cylinder limousine of to-day.

But the ten thousand pioneering amateurs we are nightly entertaining with our picture broadcasts are the radio picture engineers of to-morrow, for they are building up a technical experience which will be of inestimable value in the art later on.

After the day's work is done these youngsters rush home, bolt a hurried dinner, and then race away to the radio shack to tune in on our pantomime broadcasts. Exactly the same thrill which came to them with their first crystal set and headphones, now comes again when they pick their first motion pictures out of the air; pictures radiated into invisible space, from miles and miles away, and put together by their home-made receiver.

Many of these amateurs have attained such quality of picture that they have moved their apparatus into the living-room where the whole family circle may join in the fun.

The pictures they see are black and white,



The Jenkins Weather Map receiver, as installed on many transatlantic vessels.

comparable to the cartoon movies in the theatre, and just as interesting.

Incidentally, it is rather a surprise to those who see these silhouette movies for the first time to find them so interesting; but the explanation is that in movies the story is told in the action, and half-tone quality is not necessary to an enjoyment of them. The public is not usually critical of first efforts, in any new thing; the novelty alone entertains for awhile.

From many letters we get, apparently the greatest anxiety of our audience, or should I say, optience, is that we will eventually get tired and stop broadcasting. To those of them who are listening to me to-night, may I say that I have no intention of stopping our broadcast of pantomime pictures for home entertainment. On the contrary we are putting up a powerful station a few miles outside of Washington, to make their picture reception easier, and the pictures

better, and each broadcast from now on will contain at least one picture story.

We are broadcasting in black and white only at present in order that the frequencies involved in motion picture transmission may stay within the legally permissible width of carrier channel.

The half-tones in regular movie film, and in broadcasting from living subjects and scenes, require a broader band. This was recognised by our Federal Radio Commission, and bands one hundred kilo-cycles wide have been assigned for such work. The new, more powerful, broadcast station we are building outside of Washington is for this width of band, and we shall broadcast for fireside entertainment pictures selected from those now shown in theatres.

Our present transmission on 6420 K.C. was undertaken principally to learn the possibilities and the limitations of this new entertainment; to build up a radio-movies technique; and to insure later the availability of radio-visors giving larger and brighter pictures, pictures which can conveniently be watched by the whole family, and friends of the family circle.

Already radio-movies are giving pleasure to thousands of radio amateurs and short-wave radio fans. Ultimately this pantomime story-teller will come to our fireside with appropriate sounds and speech, as a fascinating teacher and entertainer, without language, literacy, or age limitation—an itinerant visitor to the old homestead with photoplays, the opera, and a direct vision of world activities.

ADAPTING THE DRAMA FOR RADIO - - - A Short Article By H. W. Varna

THE preparation of plays for the radio audience leaves one little time to answer personally the large correspondence of mainly congratulatory letters which we receive. However, this space should serve to thank our listeners, and to describe in a few words the preparation work which has been so often requested. As I am at present preparing our thirty-eighth offering, "The Bells," the play that placed the late Sir Henry Irving on his pinnacle of fame, perhaps this may be a stimulus.

My plan is to select half a dozen noted plays that would seem to interest listeners; submit them for approval to the management of 2FC, who graciously trust me with an absolutely free hand in arrangement, and with their acknowledgment, I spend Saturdays and (peccavi) Sundays in arranging for the time limit given (one hour) and almost invariably on our presentation, we work to the minute.

With old friends that I have produced in earlier years, or acted in, the arranging task is less difficult. With plays I have never "met," I read carefully, frequently three times, and then by some intuitive process, perhaps from long experience in handling plays, I am enabled to select scenes, passages, and incidents, so that the listeners always get what regular theatre audiences do not—the essence of a play, with very little extraneous dialogue; and at times (again, peccavi, dramatic authors) rewrite a "situation" or end of an act, just as one would in really producing a play, to bring conviction to listeners, which the play as written, might not do.

Then the company attend the regular rehearsal calls at my own studio, and we all rehearse most carefully till the "reading" date.

Thus, let it be put to the listeners that we do not sit inertly round a table, as I frequently hear is done; in fact, generally I personally do not sit once, and watchers tell me I appear a sort of devil among the tailors.

I must say I am grateful to my young actors and actresses, who respond loyally to rehearsal, and for my part, I notice such strides in improvement at their work, that I feel the radio plays give them what actors used to have a generation or so back—"stock company" practice, for the range of plays we give affords such variety.

Also, fortunately, I have a large enough community to cast generally as to type, and I am not bound by the circumstances in the regular actor's training surrounding "lines of business."

But the true acting is surely to sink one's own identity in the parts played, and to reproduce the character studied, as it would be in real life, in opposition to the more modern, easier method of going through the parts; allowing the actor to be always apparent in propria persona, and blending the author's conception with his or her own personality.

Very fortunately we have had the generosity of the firm of J.C.W., Ltd., to allow us to render many of their masterpiece plays, with a range of melodrama, romantic costume drama, modern American farce comedy, etc.

If there were time and space, it would be fitting to speak of "effects," but that may be done later.

In conclusion, please let me apologise if the personal pronoun has appeared too frequently; also to say that one and all are engaged in the work, and put all the interest and energy possible into it and feel that wonderful "mike" is paramount over all, and hope we may long continue to incline to his hearing.

Otters!

SAID Compton Mackenzie, the novelist, in a recent wireless talk on "Siamese Cats and Some Islands," broadcast from London: "A Siamese cat at first glance does not look like a cat at all. I have heard my own cats called monkeys, and on one occasion a navy passing by called out to a friend: 'Bill, look at this bloke walking about the blooming street with a lot of blinking otters.'"

Mixed!

THIS is a story they tell around the roaring camp fires at Alice Springs:—"Worried wife (over telephone to husband), "Sam, please come home. I've got some connection wrong in the house, and the radio is all covered with ice, while the refrigerator is singing 'Red-hot Mama!' Just throw a little petrol on the flames, will you?"



MR. VARNA.

TEST MATCHES IN MELBOURNE

From a Talk Delivered From 3LO by M. R. H. Campbell.

OUR story to-night is a brief account of the Tests played at Melbourne. It was at Melbourne, on March 15, 1877, that the historic series of Tests began. Lillywhite's men, who represented English cricket in Australia at the time, were all professionals, and under his captaincy two matches were played, resulting in a win for each country. In winning the first of the encounters Australia showed that her cricket had improved to warrant the games being played upon equal terms. In the first game, Charles Bannerman made history in scoring 165 before he retired hurt, hit on the middle finger of his right hand by a ball from George Ulyett, this being the first century scored against an English team.

The third game was during the tour of 1878-9, under the captaincy of Lord Harris. Only one game was played, resulting in a victory for Australia. Spofforth obtained 13 wickets in the match at a cost of only 110 runs, and performed the "hat-trick" by taking the wickets of Fernon Royal, F. MacKinnon and Tom Emmett with successive balls, being the first in Tests to take 10 wickets in a match, and also the first to perform the "hat-trick."

During the 1881-2 tour, two games were played, both being drawn. In the second game Geo. Ulyett, with 149, scored the first century for England in Australia, and with 64 in the second innings was the first player to aggregate 200 runs in a Test match. Of the two matches played during the next English visit—the 1882-3 season—honors were even, each side winning one game. The chief feature in the first game was the extraordinary hard hitting of Geo. Bonnor, and the bowling of Geo. Palmer, who took 10 wickets for 126 runs. This was undone in the second game for England by Billy Bates, who took no fewer than 13 wickets for 102 runs. Three of his wickets, those of Percy McDonnell, Geo. Giffen, and Geo. Bonnor, were obtained with successive balls, this being the second "hat-trick" and the first for England in these games.

The 1884-5 season saw the number of Test matches increased to five, England winning the two games at Melbourne. In the first match J. Briggs, with a fine score of 121, was the best individual performance, Arthur Shrewsbury was the hero of the second game in scoring 105, not out, being his first century in Australia. During the English tour in Australia of 1886-7 or 1887-8, no Tests were played at Melbourne.

After an interval of 14 years, W. G. Grace re-appeared as captain of the team which visited Australia during the season 1891-2. In the one game at Melbourne, although England led by 24 runs on the first innings, Australia won by 54 runs. W. Bruce was top-scorer with 57 for Australia, and Grace and Geo. Bean each with 50 for England. In the tour 1894-5, England, as in 1884-5, again won both the games at Melbourne. In the first game England won after being in arrears in the first innings, the outstanding performance being in England's second innings, when A. E. Stoddart, in scoring 173, beat the previous English record for Tests—170 made by W. G. Grace. In the second game England was again in arrears in the first innings. Two centuries were obtained in the game, both for England—A. C. MacLaren 120 in the first innings, and J. T.



Rod McGregor, who described the last Melbourne Test Match for 3LO.

Brown 140 in the second. A. E. Stoddart was in command of the English visitors in 1897-8. Australia won both games played here, the first by an innings and 55 runs, and the second by eight wickets. Charlie McLeod, with 112 in the first game, was the outstanding performer, and Clem Hill, with 185 in the return game.

The English tourists of 1901-2 were captained by MacLaren, and again Australia was victorious in the two fixtures. The first was distinguished by Reg Duff making his first appearance in a Test and scoring 104, and brilliant bowling by M. A. Noble, who in England's first innings took 7 for 17, a feat unequalled in previous Tests, his full count for the match being 13 for 77 runs. Hugh Trumble, now secretary of the Melbourne Cricket Club, performed the "hat-trick," obtaining the wickets of John Gunn, A. O. Jones and S. F. Barnes with successive balls. Although England, in the second match, led on the first innings, Clem Hill, with 87, was the only player to reach 50 runs in the game. The honors of the four previous games had been carried off by Australia, so it was a change for England to win one of the two Melbourne games under the captaincy of P. F. Warner in 1903-4. The outstanding feature of the first game was the unique feat of Wilfred Rhodes in obtaining 15 wickets in the game, this being the greatest number of wickets obtained by a bowler in Tests. In the second game two good bowling feats were performed, Len Braund 8 for 81 in Australia's first innings, and Hugh Trumble 7 for 28 in England's second innings.

The season 1907-8 saw A. O. Jones as captain of the English side, and, as in the previous tour, honors were even, England winning the first game by one wicket and Australia the second by 308 runs. K. L. Hutchings, 126 for England, was the hero of the first game, and W. Armstrong, with 133, not out, for Australia in the return game. P.

F. Warner was the captain of the team that next visited us in 1911-12, but owing to illness did not take part in any of the Test games, J. W. H. T. Douglas taking the leadership. Jack Hobbs, 126, not out, and J. W. Hearne, 114, were the chief run-getters in the first Melbourne match, which was won by England with 8 wickets to spare. In the return game Hobbs scored 178 and Rhodes 179, putting on 323 for the first wicket, and winning the match by an innings and 225 runs.

The next English visit, in the summer of 1920-21, was led by J. W. H. T. Douglas, and was the most disastrous tour for England in the whole series of games, Australia winning every one of the five matches. The first Melbourne match was won by Australia by an innings and 91 runs to spare. C. E. Pellew, with 116, and J. M. Gregory 100, were the chief contributors to Australia's total of 499. Jack Hobbs scored 122 in England's first innings of 251, Jack Gregory proving very destructive, with seven for 69. In the second game, Australia's margin was eight wickets. H. Makpeace, for England, with 117, and Warwick Armstrong, 123 not out, for Australia, were the chief run-collectors, but Arthur Malley was the outstanding performance in the match—taking nine wickets for 121 runs in England's second innings, he established a record for the number of wickets taken by a bowler in an innings in these games, his full count being 13 wickets for 236 runs.

On the next visit, in 1924-25, the tourists were led by A. E. R. Gilligan, who had not previously played for England. In the Melbourne games honors were even, each side winning one match. In the first match, Australia put up the record score of 600 (since beaten by Chapman's team, now in Australia), to which Vic Richardson contributed 138, and Ponsford 128, but both were overshadowed by the performance of Hobbs and Sutcliffe. Jack scored 164 and, with Sutcliffe, 176, put on 283 runs for the first wicket. In the second innings, Sutcliffe added further lustre to his prowess as a batsman by scoring 127, giving him an aggregate of 303 runs for the match. Notwithstanding all this run-making, Maurice Tate showed nine wickets for 241 runs for England, and Jack Gregory seven for 211, for the home team. Australia's margin was 81 runs. The second game went England's way. The old firm were at it again—putting on 126 runs as an opening effort, before being separated, Sutcliffe continuing his run of success at Melbourne by scoring 143, Jack Hobbs being content with 66. Gregory this time completely failed with the ball, having 102 runs knocked off him without obtaining a wicket. Maurice Tate again was to the fore with seven wickets for 145 runs. England's score of 548 gave them the victory by an innings and 29 runs.

The 1928-29 English tourists, captained by A. P. F. Chapman, started operations here in December last, and an exciting game was won by England by three wickets. Wally Hammond made his first appearance at Melbourne by scoring in England's first innings 200 runs. In the second innings, the old firm of Hobbs and Sutcliffe opened with 105 runs, Sutcliffe finishing with 135. For Australia, Bradman had a fine double with 79 and 112. Jack Ryder also scored 112, Woodfull 107, and Alan Kippax 100. Blackie, with six for 94, in England's first innings, was the best bowling effort in the match, Jack White, for England, taking five for 105 in Australia's second innings. And so ends the story of the 27 games played at Melbourne, of which Australia has won 13 to England's 12, while two have been drawn.

PROGRAMME PERSONALITIES

The Omniscient Mr. Norman

A REALLY grown-up elf has appeared during the 2BL Children's Session on Tuesday evenings. He knows everything—all about hobbies, all about electrical and chemical experiments, all about everything that is really interesting and worth while. He can tell you how to make cement for an aquarium, or how to prevent weeds growing on the front paths, or how to make useful household gadgets, or how to prevent goldfish getting a white growth on their sides and dying—in fact, if it is worth knowing, Mr. Norman will know it; and will be pleased to tell anyone who doesn't know it, over the air from 2BL during the Children's Session on Tuesday evening.

So everyone who has a question to ask about hobbies or anything at all that is really interesting is invited to address a letter to Mr. Norman, of 2BL, Bligh Street, Sydney. If anyone wishes to hear a talk on his favorite hobby—Mr. Norman will be very pleased to give that talk.

Why? Well, Mr. Norman has made a hobby of hobbies. He can talk on anything from the Australian bush to batik-work, basketry making, and sealing wax work. Boats? He holds a captain's ticket. Engineering? He has been blacksmith, copper-smith—through every branch of the engineering trade and through the drawing office. We are sure that if we didn't know so terribly much as we do we would immediately consult Mr. Norman.

But Mr. Norman is not going to stop at hobbies. He is going to give talks on industries, on the how and why of things; and he is going to organise parties of interested young men; and he is going to take these parties through the big Sydney workshops, and let them see with their own inalienable eyes exactly what is what.

The New South Wales Director of Education welcomes the scheme enthusiastically, and has promised any help that his department can give. It only remains for a sufficient number of young men to write in to Mr. Norman, nominating the industry into which they would like to inquire. Mr. Norman will do the rest.

We hope that you have all taken a careful note of this, that you have only to write in to Mr. Norman, at 2BL, and that Mr. Norman will do the rest. We hope that you will write in. We think this will be one of the best things on the air in Australia.



BROWNING MUMMERY.

It provides an answer to the curiosity of the growing boy. Of us. We think Mr. Norman will have his work cut out.

Graham and Manning

MR. HARRY GRAHAM is a Londoner. He played in England in stock drama, musical drama, pantomime, and concert parties, and appeared before the King with the Royal Red Car Pierrots. He came out to New Zealand some years ago,



Harry Graham.

and ran his own company there; then he came to Australia and recommenced his Concert Party work. For three years he was with Edward Branscombe's Dandies. After that he was principal singer and comedian with Williamson's in Adelaide, where he was very successful, especially with the song, "Tony, the Swiss Mountaineer," for which he had five special requests from the Governor.

Since then he has produced his own show at Manly, and appeared in revues and pantomime. As he says himself, he only needs to appear in a circus and in grand opera to complete his stage education. Miss Dorothy Manning's parents came out with one of the Brough-Boucault's companies. Some little time afterwards her mother was appearing in a series of Irish pieces. When the company arrived in Adelaide, it was found that the property baby had been left behind; so Miss Manning was carried on in its place.

When her schooling had been completed, Miss Manning followed up this introduction to the stage, and spent some years in concert parties and musical

So that the firm of Graham and Manning can face the microphone with the backing of years of experience of Australian conditions. They are known among artists as exceptionally hard workers; always careful to rehearse their appearances; always paying that attention to details which distinguishes the professional from the amateur. Their snapshot revues have become very popular, and their duets and songs are always amusing.

Browning Mummery

MR. BROWNING MUMMERY, whom 2BL and 2FC listeners-in were lucky to hear before he left Australia, was trained to be a solicitor. But he did not solicit. Instead, he served his time as an engineer.

It was Mr. Frank Rigo who lured him away from his engineering studies and gave him



Jascha Spirakowsky, the famous Russian violinist, who, it is hoped, will be heard over the air during his visit to Sydney.

his first opportunity with the part of Harlequin in "Pagliacci." The influenza epidemic supervened, and when the flu flew Messrs. Williamson took the company over, and with reinforcements of American and Italian artists sent it on tour through New Zealand and the Australian capital cities. The star of Browning Mummery was in the ascendant. He hitched his waggon to it, and arrived in England.

For three and a half years he sang for the British National Opera Company, learning and becoming known. Then he went to Italy to study, returning, at Melba's request, to sing Rudolpho to her Mimi at (one of) her Farewell Concert(s) at Covent Garden. It remains the most wonderful night of his life. All Royalty was there, and the King of Portugal, and Duchesses and Dukes, and attendants, etcetera; and Melba presented him with the horseshoe tiepin, set with diamonds which Mr. Mummery was wearing while he told us all about it.

After this, he sang through three seasons with the International Opera Company, under the batons of Bruno Walter and the Bellezza who now conducts the Metropolitan in New York.

He returned to Australia under engagement with the Italian Opera Company, to which he said good-bye last year, and is now on his way to England, where he has some gramophone contracts and others to fulfil, via America.

Mr. Browning Mummery has had few experiences of broadcasting. He sang in a 2LO (London) performance of "Boheme" and has been heard several times in England from Opera Houses; but confesses, with the humility of an artist, that he has still to learn the technique. One would not have thought so. We almost forgot to mention that four years ago he was with a concert party at 10 Downing Street, while Mr. MacDonald was in power. The British National Opera Company was trying to interest the nation in subsidised music, and Mr. Clynes, then the Minister for Something-or-other, had promised a subsidy. English Labor was the only party willing to subsidise music. But English Labor fell from office before it could carry out its threat. Yet Mr. Mummery thinks that English National Opera will come, and that it will come through public subscription, and that it will come very soon.

He also thinks that the next opera company to visit Australia might be made up of English singers. We ventured to doubt whether there were sufficient great English singers to make up an opera company, whereupon Mr. Mummery rattled off name after name of singers who were world-famous, many of them Australians. It is a patriotic scheme, and one of which we should hear more.



Dorothy Manning.

The MICROPHONE PRESENT—

New Features

"THE MAN FROM TORONTO," breezy comedy, to be produced by the H. W. Varna Company at 2BL on the evening of March 27. Mrs. Lolla Calthorpe is an independent young widow. She has impressed a Canadian millionaire, so much so that he offers her marriage.

She declines, and the millionaire dies, not before he realises, however, that he himself was too old for the charming young widow to have married, and he leaves his large fortune to a nephew, Fergus Wimbush, on condition that he succeeds in persuading Mrs. Calthorpe to marry him instead. She resents

being bargained for in this way, and before the young man Fergus arrives changes place with her own maid, so that she may have an opportunity of seeing the kind of man she is asked to marry. The confusion which arises is well handled from a dramatic point of view, and "The Man from Toronto" should prove good broadcasting material.



MEG SERVICE,
a member of the
H. W. Varna Co.

The Captain and His Comrades

TWO FC has added a new weekly feature to the programme which will appeal specially to schoolboy and schoolgirl listeners as well as to the parents and those members of the family whose school days are not so far behind and who still take a keen interest in the past association of their old school. Under the radio title of "The Captain" a new personality has been introduced, who has become a friend to countless numbers of boys and girls between the ages of thirteen and nineteen years, and who has found very much to interest them in this bright, breezy twenty minutes on Sunday morning. "The Captain" has coached, played, and written about most Australian school sports and pastimes, and he has handed on his experience and practical advice to schoolboys and girls who have written to him. Only the listener's initials are given over the air, as the whole value of "The Captain's" help is in the absolute confidence between himself and his "comrades," as he calls his young radio school friends. The new session is programmed at 10.15 each Sunday morning.

Dickens Recital

A FURTHER Dickensian recital by Mr. P. J. Dear is promised from 3AR on March 23, when a further series of character sketches will be given. Few writers offer more scope to the radio actor than Charles Dickens, and because his books are so widely read, and thousands are familiar with the well-known people who live in them—Quilp, Fagin, Peggotty, and Oliver Twist—they are especially suitable for the broadcasting studio. In his next recital Mr. Dear will introduce us to some of David Copperfield's friends, and all lovers of Dickens will be glad of the opportunity to renew their acquaintance.

The Call of the Veld

HAVE you a copy of Leonard Fleming's great story of South African life. "The Call of the Veld"? If not, here is a unique opportunity of getting one, autographed by the author, for 3LO is conducting a competition, and is awarding 25 copies of this thrilling and fascinating story as prizes. The rules are very simple. Just write your name and address clearly on a sheet of paper, enclose in an envelope, and address to "The Call of the Veld," c/o 3LO (or 3AR), Melbourne. Entries close at noon on March 20, and the winning names will be announced on that date. Remember, "If you're not in it, you can't win it." Someone has to be successful. Why not you?

St. Patrick's Day Broadcasting

TO commemorate St. Patrick's Day, a special musical programme of Irish melodies will be broadcast from 3AR. Instrumental solos and ensembles from the Strad Trio will include "Danny Boy" and "Molly on the Shore," and an additional attraction will be a fine series of gramophone orchestral selections. Assisting artists are the Sundowners' Quartette, programmed for "Oft in the Stilly Night" and "Kitty Magee," with solos from Robert Gillard and Herbert Sanderson. A piano recital by the brilliant young Queensland artist, Victor Stephenson, will complete an excellent programme, that should not be missed.

"The Runaway Girl"

IN response to many requests, arrangements have been made to give a further performance of the ever-tuneful "Runaway Girl," from 3AR, on March 18. As on previous occasions, the production is in the hands of Madame Ethel Ashton, who will be assisted by her clever pupils, Florence Blitz as Winifred Grey, John Donovan as Leonello, while the dry humor of Allan Bell, will find ample expression in the role of Flipper. Maurice Dudley will keep a watchful eye on the performance, and perfect "harmony" will be assured.

Signor Torre at 3LO

SIGNOR RINALDO TORRE, the popular operatic tenor, will make his debut before the 3LO microphone on March 18, when he will be heard in selections from some of the old-fashioned, but very tuneful, grand operas, "Una Ballo en Maschera," "La Traviata," "Il Trovatore," and "Ernani." Signor Torre is a well-known figure on the stage and concert platform in South Australia, and it is safe to predict that his success will follow him to Victoria.



SIGNOR TORRE.

Irish Melodies From 3LO

MADAME MINNIE WAUGH, whose artistic work has endeared her to thousands of Australians, will be on the air from 3LO on Sunday, March 18. In some specially selected Irish melodies. Madame Waugh will be remembered a few years ago, when



Mme. MINNIE
WAUGH.

she sang many times in connection with the Melbourne Philharmonic and other leading choral societies, before going to England to complete her musical education. Whilst overseas she studied correct interpretation under Sir Frank Bridge, and operatic singing under Walter Van Noorden, of the Carl Rosa Opera Co. After a successful tour of the provinces Madame Waugh accepted an invitation to return to Australia to take the principal solos in "Elijah" with the Melbourne Philharmonic.

St. Patrick's Day at 3LO

ST. PATRICK'S DAY will be royally celebrated with song and story at 3LO, where a fine programme has been arranged. The Brunswick Band have a fragrant bunch of "Memories of Ireland," violin solos will be given by Violet M'Gregor, and appropriate vocal numbers from Madame Minnie Waugh and E. Mason Wood. William Tainsh, who has devoted many years to the study of folk lore will give a talk on the history of Irish folk songs, and thus complete a very fine St. Patrick's programme.

3AR Dance Night Popular

ONE of the brightest spots in 3AR's programmes is the weekly dance night, when listeners, in addition to the regular dance night at 3LO, are able to enjoy the rhythm of an excellent jazz band. The Radio Revelers, under the direction of Ernest Hall, who will provide the music for March 18, are now on excellent terms with listeners, and have proved worthy successors to the Radi-o-Aces, and their budget of "special request" items grows with each mail. Assisting artists on this occasion will be the vivacious Rita Hilton and those versatile, clever entertainers, Ward and Long.

Imperial Russian Trio

THAT fine musical combination, the Imperial Russian Trio, who have firmly established themselves at 3LO as artists of considerable ability, will present an unusually interesting programme on March 16. One of the chief features will be the beautiful little piano solo, "Romance d'Autonne," by Frederick Hall, the Australian composer who has specially arranged this number as a trio for piano, violin, and cello. Apart from his many hundreds of successful compositions Mr. Hall is well known as the leader of the Station Orchestra, and the opportunity of hearing one of his compositions played by such artists is one that should not be missed. Of successful compositions, Mr. Hall is well known as the leader of the Station Orchestra, and the opportunity of hearing one of his compositions played by such artists is one that should not be missed.

Wireless Weekly

Incorporating "Radio in Australia and New Zealand."

FRIDAY, MARCH 15, 1929.

Anglicizing Musical Titles

MOST listeners must have felt sorry at some time or another for the announcer who has had to get his tongue around "L'Après Midi d'un Faune," "Periglianti ancor Langente," "Turiddu mi Tolve l'onore," "Auf den Wasser zu Singen," and other musical titles. Many must have also felt annoyed at various times with the affectation of triumphant superiority when every syllable has been carefully learnt from a pronouncing dictionary, and is spoken without knowledge of the meaning of the words.

No two musicians pronounce foreign titles alike. A list of numbers in their respective repertoires is supplied to the programme department, thence to the announcers (not only in the studio, but those who are broadcasting from outside functions and concerts); finally, the listener-in, having read the programme in the papers, and made a wild guess at the title, hears it announced on the air, shrugs, and says, "I'll take your word for it."

Foreign words mean nothing to us, while an understanding of a title may often mean the difference between appreciation and abuse of a song. For instance, how many listeners know that the English translation of "La Donna e Mobile" means "Woman is Fickle," which conveys a great deal more than the original title.

The move of the New South Wales Broadcasting Company, therefore, to Anglicize all musical titles will be welcomed by listeners. The artists at 2FC and 2BL are being asked to cooperate by supplying English titles when presenting their programmes. Every listener-in who is not an art-hypocrite or an excellent linguist will appreciate this attitude, towards what concert-managers are not in a position to do, and musicians feel diffident about, as being a good one which will justify itself by an increase of musical appreciation.

But the company opens up an entirely new question when it says "the time is also coming when practically all singing from our broadcasting stations will be in English." It is one thing to announce a song in English; another, to sing it in English. Good translators who are also librettists are rare, and the difficulties in some cases are almost insurmountable.

Astounding Growth of U.S. Radio Industry

RADIO sales in the U.S.A. in 1928 amounted to about £130,110,000, against £85,000,000 in 1927. All records for total cost and number of sets sold and the growth of the listening public were exceeded.

The listening public was said to have increased in America to about 35,000,000 persons against an estimated 26,000,000 in 1927, and 75,000 in 1922. Sets of all types in use were said to have reached 9,000,000 in number, as compared with 7,500,000 in 1927, and 60,000 in 1922.

An itemised account of the survey, the report said, shows that 2,550,000 factory-built sets, including consoles and built-in receivers, were sold for a total of £61,200,000 in 1928, against 1,350,000 sets, sold for £33,750,000 in 1927, and 100,000 sold for £1,000,000 in 1922. Radio-phonograph combinations sold last year totalled 81,000 and the outlay for them was £7,600,000.

Tubes sold in 1928 totalled 50,200,000, the total representing an outlay of £13,400,000. In 1927 tube sales totalled 1,600,000, costing about £1,200,000. About 2,460,000 loud-speakers were sold for about £12,080,000 this year.

Battery sales, reflecting the trend towards sets operating from house current, showed a decrease for 1928, the report said. Expenditures for "A," "B," and "C" batteries totalled £10,800,000 against £13,600,000 in 1927, and £18,000,000 in 1926. A drop from £6,800,000 in 1927 to £3,500,000 is shown in "A" and "B" power units, storage batteries, and chargers in 1928. Other accessories, including head sets, aerial equipment, meters, pick-ups, and other items, represented a total outlay of £1,600,000 in 1928, against £7,910,000 in 1927. The later figure includes the item of furniture, which is accounted for separately in the 1928 accessories total. In parts sales, available figures were said to have indicated an

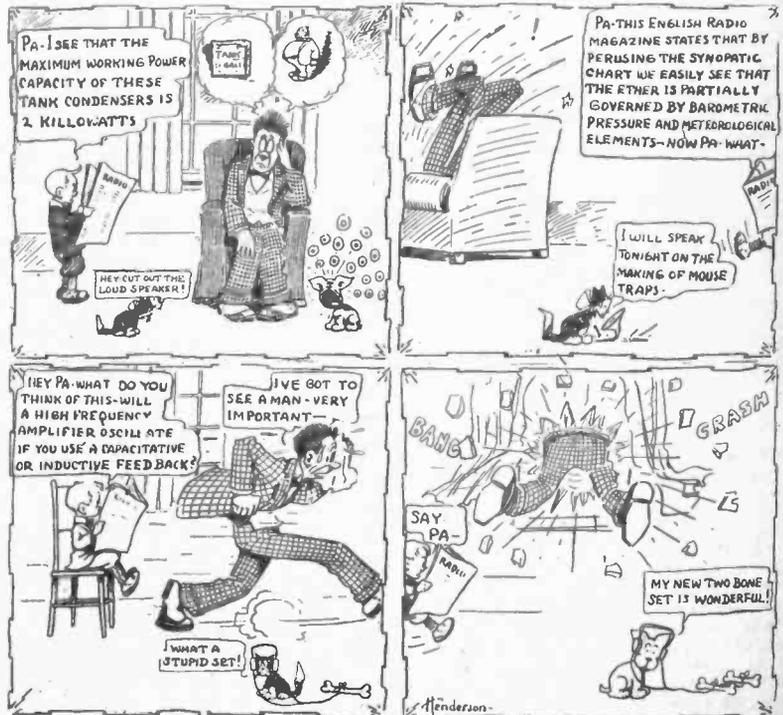
outlay of £2,400,000 last year, against £4,200,000 two years ago.

Consistent gains were shown last year in U.S. radio exports, the values of these being £8,400,000 against £1,840,000 in 1927, and £560,000 in 1922. Console sales were estimated at 800,000 consoles in 1928, for which £8,400,000 was paid.

3LO Short-wave at Singapore

ONE of the most enthusiastic listeners to the short-wave session, broadcast from 3LO every Monday morning between five and six o'clock, is Mr. Moyna, of Singapore, who, after listening to a "voice over the air from 3LO" for over a year, called at the studio a few days ago to "see the voice." Mr. Moyna, who is at present on furlough, listens on a three-valve set, and has no difficulty in getting excellent reception from Melbourne (3000 miles) and London (8000 miles) and, as far as London is concerned, has heard the applause from the Royal Opera House, Covent Garden. Our visitor has one little fault to find with the early morning session—there are not enough items, and, as there are quite a colony of Australians working the tin dredges, they are hungry for the tit-bits of home news, for, unfortunately, unless there is something of a really sensational character—strikes or murders—very little Australian news finds its way into the Singapore press. As Mr. Moyna points out, musical programmes are pretty much the same the whole world over, but it is the news items that create the real interest. So keen are these wireless fans of Singapore, that they think nothing of rising at 1.30 every Monday morning, week after week, to tune in at two, and the Australians have never quite got over the thrill of hearing the studio time register 5 o'clock, when all the Singapore timepieces are proclaiming the hour of 2.

The Young Idea Gets Radio - No. 1



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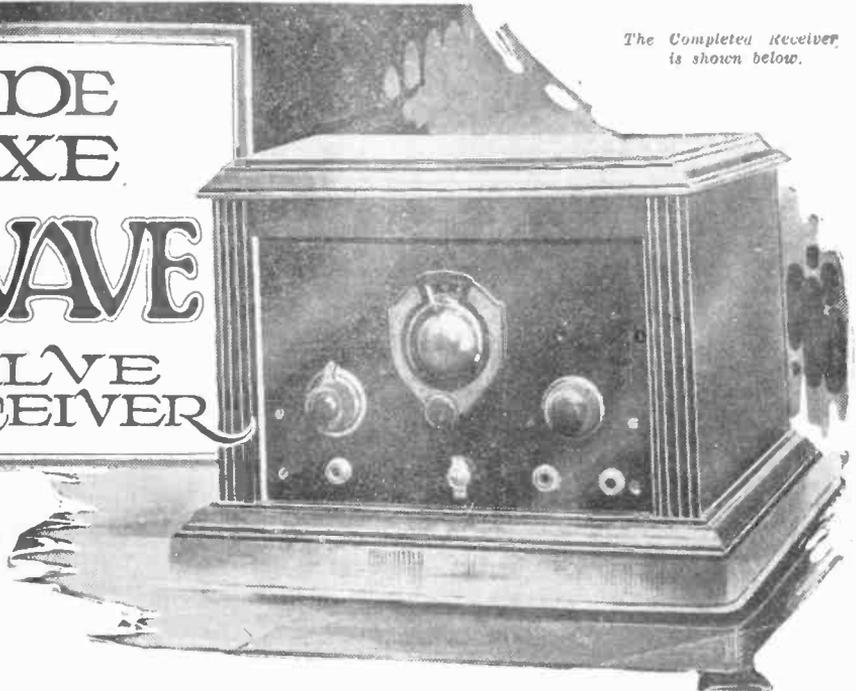
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The DE LUXE ALL-WAVE 4 VALVE RECEIVER

The Completed Receiver is shown below.



A Constructional Article

By **DON B. KNOCK**

(Associate Technical Editor)

ONCE again I am going to turn away from the R.F. amplifier and DX business, and give readers something that will have a direct appeal to all, which is easy to make, and which, after all, is of infinitely more use to the man who considers true reproduction the first consideration.

Let us first of all consider the ordinary Reinartz type of receiver designed to cover the broadcast band of wave-lengths. Those words, "cover the broadcast band of wave-lengths," are not always strictly correct. Too well I know that, although I go to the trouble to describe in detail circuits which will actually cover the range from 250 to 550 metres; yet there are countless cases where the constructor will persist in using old-fashioned variable condensers, which are neither of the "square law" type or "straight-line frequency" type, with the result that, aided by an unsuitable inductance, the stations at the lower end of the band are hopelessly crowded, and a perplexed querist will ask me how it is that he cannot separate the experimental stations operating on the 200-metre band from 2UW.

TUNING IN 2UW

The excellent transmissions from this particular "B" class station have of late been attracting many listeners, and this unsuitability of many receivers has brought numerous inquiries for details of a receiver which will deal with this separation problem. A few months ago I promised those readers interested in the transmissions from the experimental stations operating below the "B" class stations that I would describe a receiver especially for this work, and the urge to do this was prompted by an experience which brought home to me the realization of how unsuitable many of the usual types of sets must be.

My own experimental station, VK2NO (at that time 2NO without the new prefix), was operating intermittently on an exact wave-length of 220 metres. This measurement was checked by a very accurate wavemeter once used by a well-known broadcasting station, and no mistake could possibly occur. I was politely informed by a listener in the suburb of Ashfield that my transmission in-

terfered with that of station 2UW, whose advertised and actual wave-length is 267 metres. To convince myself that nothing

was wrong with my own station, I carried out a field test, and found everything in order. A chat with the complaining listener soon evinced the information that he was using a variable condenser of .001 mfd., and that his receiving aerial had a natural wave-length around 250 metres, thus jamming the N.S.W. and Victorian experimental stations up in a very small space on his dial.

SIMPLE REINARTZ

Probably this state of affairs exists in many cases, and so I am presenting to "Wireless Weekly" readers the "All Wave De Luxe Four," to deal with the question. It is not a receiver using any R.F. amplification, but just a simple little Reinartz, with the addition of a very high quality audio amplifier, and provision for the electrical reproduction of gramophone records. The coils are wound on old UX valve bases, as in the Midget Short Wave S.G. Four, and, although I found that one coil alone was sufficient to cover the broadcast band as high as 2FC, without any crowding on the higher frequencies, the specifications are shown for the coil which covers from 200 to 380 metres, and spreads every station well out round the dial.

A UX valve socket is used for the coil mounting, with the connections as indicated in the diagrams. Looking at the circuit diagram, you will see that the detector valve has included in the grid-flament circuit a three-circuit jack. The insertion of a plug into this, carrying a gramophone pick-up, allows the use of all four valves for amplification, and the volume obtainable from this little set is enormous when used with a Philips B eliminator and a Dynamic speaker. There is absolutely no sign of distortion, owing to the excellent power valves used, but care must be taken in the adjustment of grid biasing.

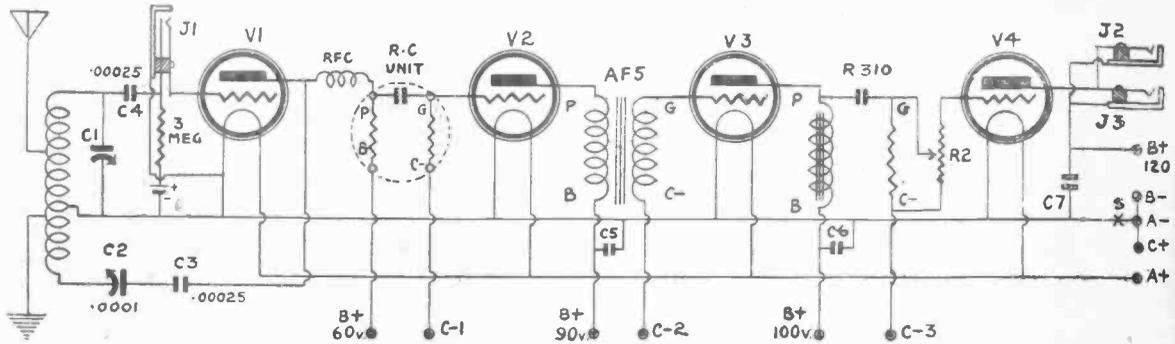
ANODE BEND RECTIFICATION

It will be seen that grid leak rectification is not used, but, instead, anode bend rectification, which, it is generally agreed, allows a greater measure of purity from the detector itself. Do not forget that the best audio amplifier in existence cannot behave itself behind a detector circuit which is prone

List of Parts for the All-Wave De Luxe Four

- 1 Bakelite panel, 10in. by 7in. by 3-16in.
- 1 Bakelite sub-panel, 11in. by 10in. by 3-16in.
- 5 A.W.A. UX valve sockets.
- 1 Philips resistance coupling unit.
- 1 Ferranti AF5 audio transformer.
- 1 Rauland type R310 impedance unit.
- 2 single-circuit jacks.
- 1 three-circuit jack.
- 1 .0005 S.L.F. variable condenser.
- 1 Eummo Velmo or Pilot vernier dial.
- 1 Pilot .0001 Midget vernier condenser.
- 2 .00025 Sangamo or Welles fixed condensers.
- 3 T.C.C. 1-mfd. by-pass condensers.
- 1 Radiokes R.F. choke.
- 1 3-meg Mullard gridleak with clip mounting.
- 1 or 2 UX valve bases (for coils).
- 1/2 lb. No. 40 D.R.C. copper wire.
- 1 40-volt C battery.
- 1 12-volt C battery.
- 1 Roylly 0 to 500,000 ohm potentiometer.
- 1 battery switch.
- 13 terminals.
- 1 pair sub-panel brackets.
- Wiring: 18-gauge tinned copper, with insulating covering..
- Valves:
- Detector, Philips A615.
- 1st audio, Philips A609.
- 2nd audio, Philips B605.
- 3rd audio, Philips C603.
- Alternatively:
- Detector, Marconi DEL610.
- 1st audio, Marconi DEP610.
- 2nd audio, Marconi DEP610.
- 3rd audio, Radiotron, UX171A.

DESIGNED TO TUNE IN "B" STATIONS ON LOW WAVES



to distortion itself. Anode bend rectification is obtained in this instance by giving the detector a positive bias through a three-megohm grid leak. The voltage for this purpose is only 1½ volts, and may be obtained through a small 1½-volt cell, or may be tapped from the common grid bias battery, which is the case in the receiver illustrated.

The variable condenser used for tuning the grid circuit is a .0005 Formo. This is a straight-line frequency condenser, and is used because of its compactness, but any good condenser, such as Pilot or A.W.A., may be used. The vernier dial controlling this is one of the new Kurz-Kasch baby type, obtainable at all leading dealers, and, in lieu of this, the Emmco, Velmo, or Pilot may be used equally well.

The coil unit I will deal with later, as this component, being home-made, requires careful construction. Reaction, which is of the "constant reaction" type, is provided by a Pilot .0001 midget vernier condenser, and in series with this to the reaction coil (common with the grid coil on the one former) is a .00025 fixed condenser connected to the plate of the detector valve. This stopper condenser is simply a safeguard, and has nothing to do with the controlling of reaction.

STOPPER SAVES DISCHARGE

Should the variable reaction condenser become shorted at any time, the stopper saves the B battery from a heavy discharge, and readers who are contemplating the construction of a Reinartz circuit at any time will do well to always include this inexpensive item.

Six-volt valves are used throughout in this receiver, and the detector, which is a Philips A615, is coupled to the first audio valve (A609) by a Philips resistance capacity coupling unit. Thus we have at the very commencement of the receiver two factors which make for the best in fidelity of reproduction; namely, anode bend rectification and resistance capacity amplification. As we wish to obtain a reasonable amount of lift in the audio amplifier of the receiver, the next audio stage is coupled by a high-grade audio transformer, which is a Ferranti AF5. The second audio valve behind this is appropriately a Philips B605.

Now we come to the final coupling for the last valve. In this last coupling, owing to this being a three-stage amplifier, we can afford to pay more attention again to the all-important question of quality, and not worry so much about the amplification factor, so that the choice falls on the Rauland type R310 impedance coupling unit.

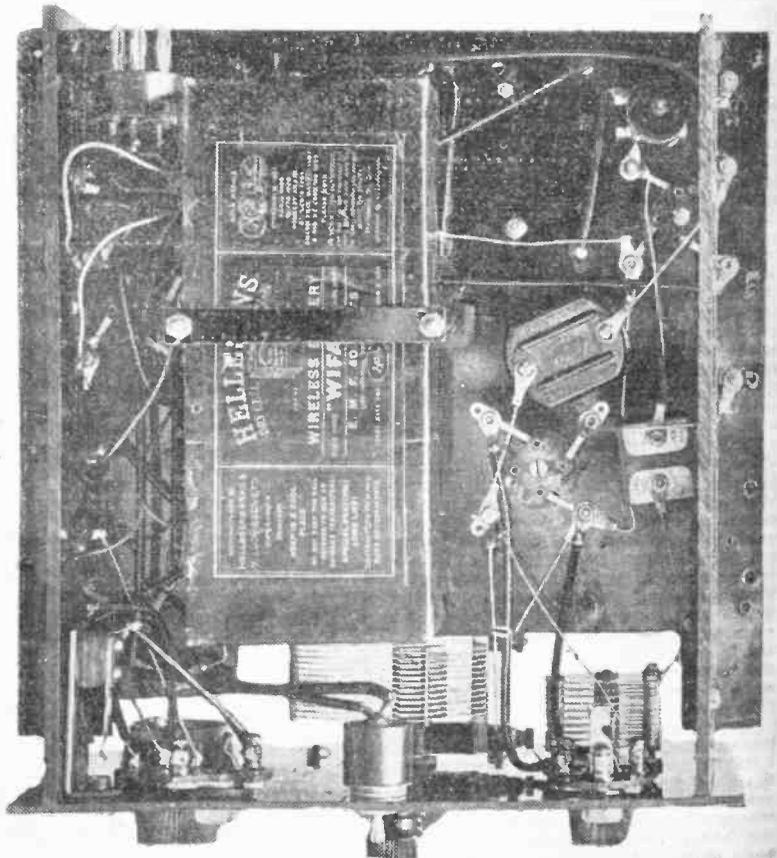
The last valve behind this is one capable of dealing with all the power the average enthusiast will ever require, and is a Philips C603.

The whole set is devoid of filament resistances of any kind, and operates straight from a six-volt accumulator. In these days, six-volt valves are designed to run at the full six volts, and there is no fear of damaging them by giving them the full supply. In any case, there will be a slight drop through the wiring, although extremely small.

OUTPUT

Volume is controlled at the output of the

audio amplifier by a Royalty 0 to 500,000 ohm potentiometer, connected across the "secondary," or resistance, side of the Rauland Impedance unit to the grid of the last valve. The output is similar to the Marnock De Luxe Five, with two single circuit jacks connected in parallel to enable the use of two loud speakers in different rooms. Do not overlook the Radiokes R.F. choke in the plate circuit of the detector valve. This is a valuable accessory in the plate circuit of a detector valve for two reasons. The most important is that it keeps radio-frequency current from passing into the audio amplifier, and the other is that it helps consider-



PLUG-IN COILS MADE FROM OLD VALVE BASES

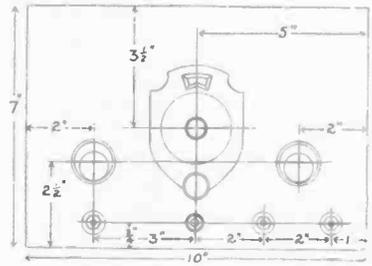
COILS

Reference to the drilling diagram will give the exact position of these components on the panel. Two coils are provided for the broadcast band. The one covering the whole range consists of 100 turns of No. 40 D.S.C. copper wire, with a continuation winding of 25 turns for the reaction coil, and the coil which pays most attention to those stations from the experimenters up to 2EL has 80 turns of No. 40 D.S.C. copper wire, with a continuation of 25 turns for the reaction coil. With this coil, 2UW is located just below 55 degrees on the tuning dial, with plenty of latitude, and to those listeners who are attracted by this station's programmes this coil will be the most useful.

As the coils are wound on a UX valve base, extreme care must be taken in the winding, as it is a different proposition for the home constructor in winding a three-inch diameter coil with 24 D.C.C. and a 1.5-16ths former with 40 D.S.C. The turns must be laid on evenly, and the wire is so fine that any undue handling will immediately break it. These coils are well worth the time and trouble taken, and their efficiency is remarkable.

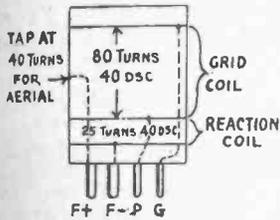
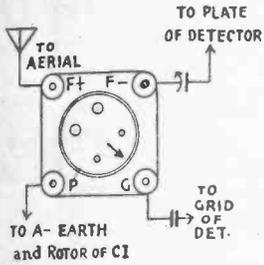
SHORT WAVES, TOO

Although this is not a short-wave receiver, I tried, as an experiment, a short-wave coil for the 80-metre band, and found the Russian station, RFN, fairly easy to tune and audible at good speaker strength. To use this receiver as it stands on the higher



frequencies covered by the 40 and 20 metrebands will be out of the question owing to the tuning capacity of .0005 mfd. If the constructor likes to consider the idea of using a Pilot drum dial, and plug-in variable condensers as well as coils, the set may be made to cover any short-wave band in addition to the usual broadcast. In that case, the capacity and inductance must be worked out accordingly, and is best determined by experiment.

One cannot blame enthusiasts for wishing to make combination short and long wave receivers, but a short-wave receiver should always be designed for that purpose alone, for many technical reasons. Both the 100 and 80 turn grid coils are tapped at the centre for the aerial connection, that is, 50 turns on the one and 40 on the other. Small holes must be drilled through the valve base, where the leads are, to be taken down to the pins, and where the tappings are taken for the aerial, and filament-earth.



ably in smoothness of oscillation control. The B positive supplies to all three audio stages are by-passed to earth by T.C.C. 1mfd. fixed condensers; these are marked C5, 6, and 7 in the diagrams.

CONSTRUCTION

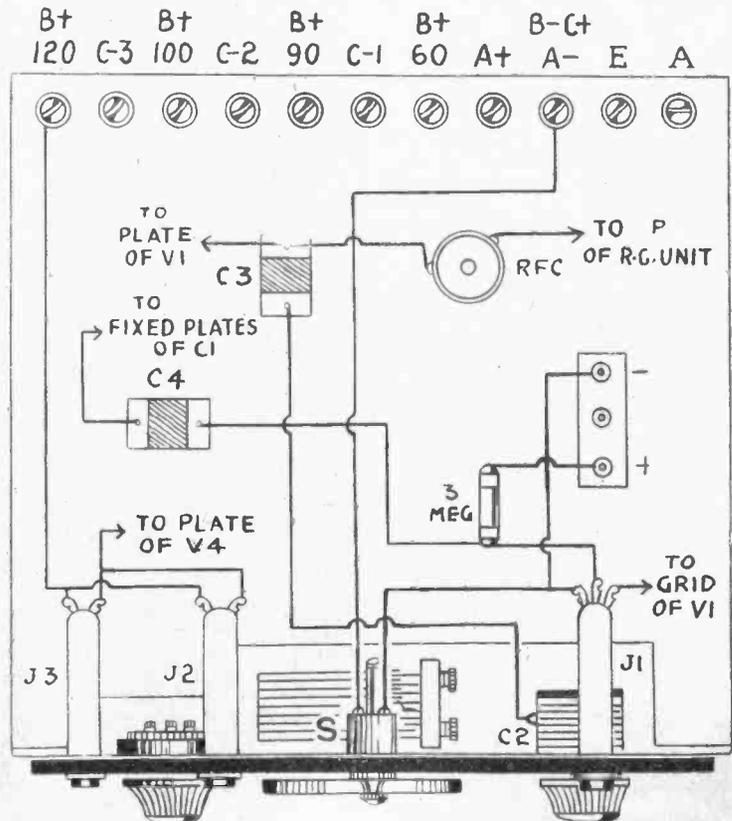
That is an ample description of the fundamentals of this excellent little receiver, and from this we will pass to constructional details. It is not by any means necessary to stick to the panel and sub-panel sizes, as in my own instance the whole receiver was built as compactly as possible to fit the cabinet available. I have a habit of attending radio sales at well-known stores, and obtaining small cabinets, which are due for the junk heap in the eyes of the radio department. There is nothing like an eye to the future, and man is, like the fair sex, a bargain-hunter ever when it comes to radio sales!

A little application of elbow grease and polish will turn a slightly-scratched cabinet into a real piece of furniture. To fit the cabinet on hand, the panel had to be cut to 10 by 7 inches, and this is, consequently, the size given in the list of parts, but when you get to this part of the article remember that it is not necessary. The receiver will not work any differently with a stock panel size.

ASSEMBLY

The assembly is carried out on a sub-panel measuring 11 by 10 inches, with part of it cut away for clearance for the variable condenser (.0005), C1, the reaction condenser, C2, and the potentiometer, R2. The view underneath the receiver shows what is implied by this. Ordinary sub-panel brackets may be used, but those in this receiver were made from Bakelite strips drilled and tapped with screws through from the front panel and sub-panel. If you are not used to tapping Bakelite along its edges, you had better use the regular sub-panel brackets available on the market.

The front view of the receiver shows the placement of the controls. In the centre of the panel is the vernier dial, actuating the tuning condenser with the knob for the reaction condenser on the left and the potentiometer on the right. Underneath the potentiometer are the two output jacks, the battery switch in the centre under the tuning condenser, and the pick-up jack under the reaction condenser.



SIMPLE REINARTZ CIRCUIT WITH HIGH QUALITY AUDIO AMPLIFIER

the wire is simply twisted into a loop and pushed through the hole into the inside of the valve base.

CONNECTIONS

It is quite easy to make the connections to the respective pins. By applying the soldering iron to the end, the solder inside will melt, and may be shaken out, afterwards pushing the bared end of the wire down inside the pin and re-soldering. The diagrams show how the coils are constructed and which connections are made to the pins, with the corresponding wiring for the socket to hold the valve base coils.

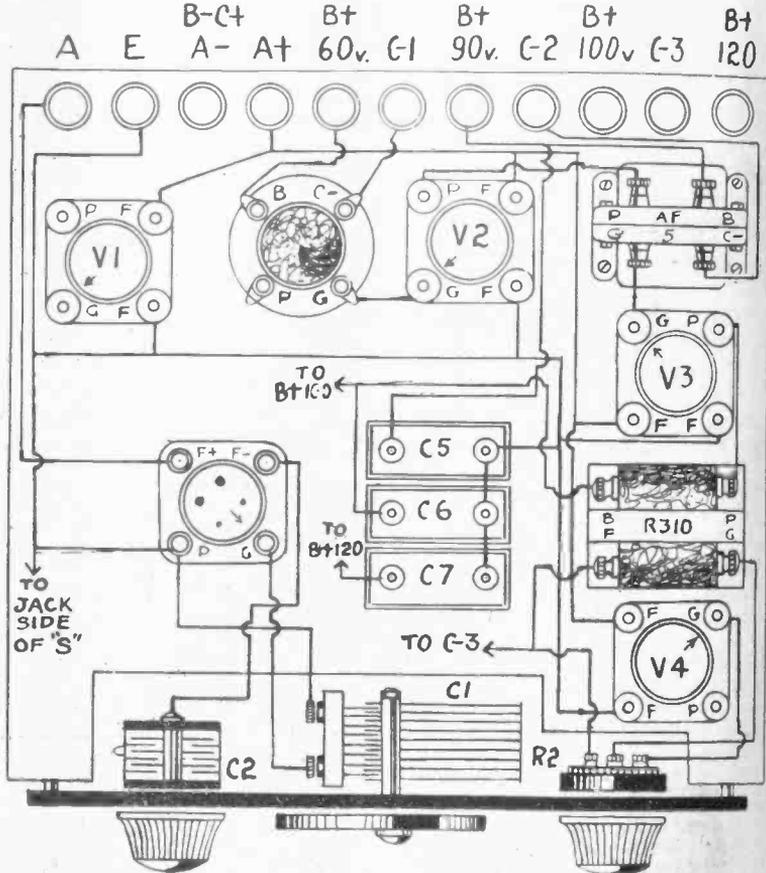
Start the winding of the coil from the grid end. This is the connection to the grid of the detector valve, and is connected to the grid pin of the valve base to correspond with terminal G of the socket. If winding the 80-turn coil, take the tapping at the 40th turn for the aerial connection down to the A positive pin. Continue from this looped tapping for another 40 turns, and take a looped tapping at this point down to the plate pin. This is for connection to the A negative and earth of the circuit. Continuing from this, we have the reaction coil, which has 25 turns with the final turn connected to the A negative pin.

SECOND COIL

This completes the coil for the lower half of the broadcast band. The other coil is treated similarly, except that there are 100 turns on the grid portion, and the tapping for the aerial is taken at the 50th turn.

The plan view of the UX socket shows where each corresponding connection leads off to. I am not describing the physical lay-out of the receiver, as it is practically certain that most readers will not stick to this arrangement, because the receiver was designed to fit the particular cabinet.

In the photograph showing the view underneath the receiver, it will be seen that no terminals are in evidence for A, B, and C battery connections, but, instead, a multi-plug connector is used. This may be seen



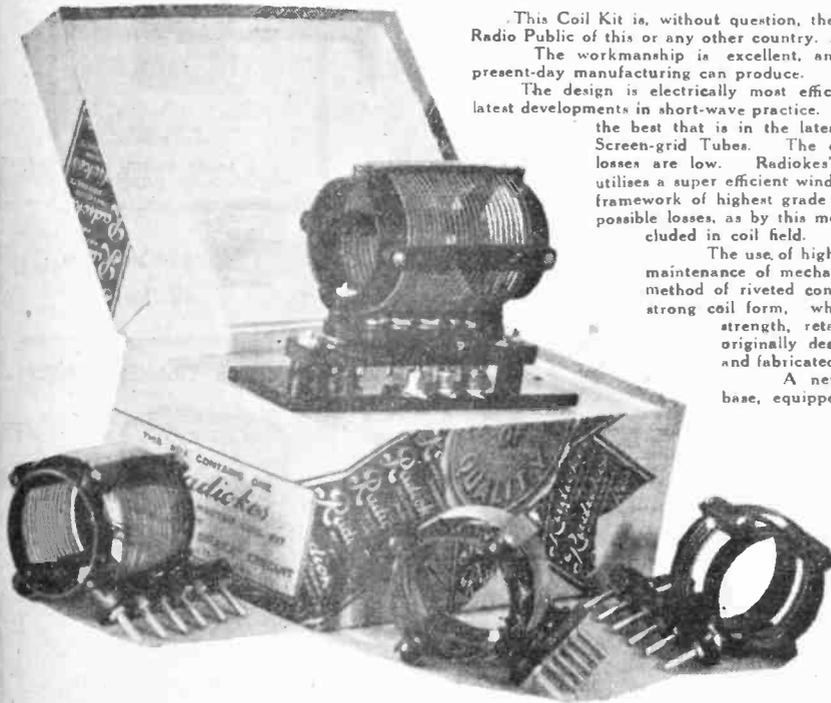
SHORT WAVE SCREEN=GRID FOUR

demands above all else a high grade coil kit

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This Coil Kit is, without question, the finest Kit ever offered to the Radio Public of this or any other country.

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The design is electrically most efficient, and represents the very latest developments in short-wave practice. Specially arranged to bring out the best that is in the latest Radio Wonder, that is, the Screen-grid Tubes. The efficiency is high because the losses are low. Radiokes' unique construction, which utilises a super efficient winding, supported upon a skeleton framework of highest grade Bakelite, makes for the lowest possible losses, as by this means least solid dielectric is included in coil field.

The use of highest grade Bakelite assists in the maintenance of mechanical rigidity, and RADIOKES' method of riveted construction guarantees a reliable strong coil form, which, on account of its very strength, retains the coil calibrations as originally designed in Radiokes' laboratory, and fabricated in the Radiokes' factory.

A new type six-contact mounting base, equipped with a special silver spring system, makes the interchange of coils a pleasure and the smooth but positive velvety action of the contacts will assure that the robust little coils may be interchanged almost indefinitely without damage to themselves or mounting base.

This new Radiokes' Kit consists of four interchangeable R.F. Transformers, as illustrated, a six-contact horizontal type mounting base, and a special antenna coupling

choke, and lists for £3/12/6 per kit. A Broadcast coil is available at a cost of 15/-, to cover the waveband of from 245 metres to 555 metres, using the recommended .00014 m.f. Tuning Condenser.

RADIOKES RADIO FREQUENCY CHOKES

are the only chokes on this market which are suitable for use in a universal receiver, such as the Short Wave Screen-grid Four.

These Chokes are so designed and manufactured as to be equally efficient on the 15 Metre Band as on the 545 Metre Wave Band. They are small in size, ruggedly constructed, and sell for the moderate price of 8/6 each.

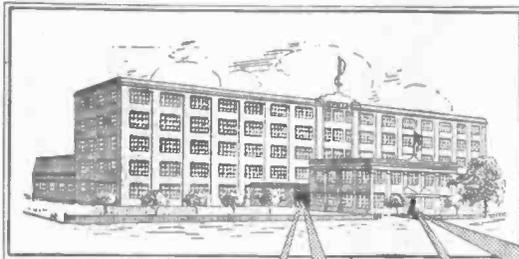
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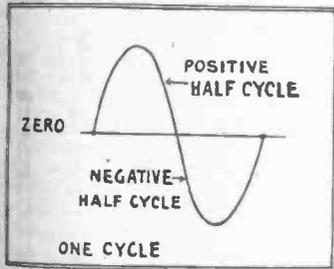
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PROVING RADIO!

No. 12. We continue our interesting discussion on cycles and waves, then pass on to rectification, and the Heavyside layer. Though this week's article may seem to be a little more technical than usual, great care has been taken to make everything clear, and the points contained herein have a direct bearing on our experiments.

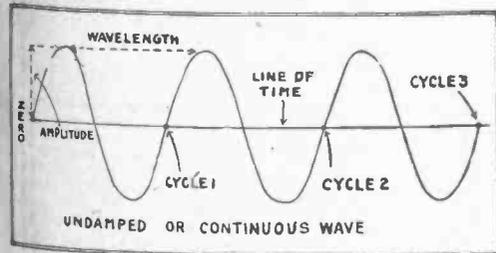
HAVING been inundated with letters from all over Australia in connection with the "Proving Radio" Club Page, I feel it should be my first duty to thank everyone, per medium of these columns. It would be a stupendous task to undertake the writing of a letter of thanks for each correspondent, so I take this opportunity of saying "Thanks!"

Now, last week I broke off in the middle of a very interesting discussion on waves and their characteristics. Let us continue with the good work!



1.

Frequency and cycles need not be confused if one looks into the matter carefully. A cycle is shown in Fig. 1. You will note that a cycle is a complete reversal, i.e., it starts from the line zero, and moves upwards. The height of this line above zero is termed the amplitude, and is simply a measure of energy. (These diagrams refer not only to sound waves, but also to other kinds of waves which will be discussed presently.) Now, the wave, having reached its maximum amplitude, commences to move downwards, until it reaches the zero line, then it proceeds downwards until the amplitude level is reached, and finally returns to the zero line. Now, this is a complete cycle—a complete



2.

reversal—and the cycle is (as you will notice), divided into two by the zero line. The half-cycle at the top of the zero line is termed the positive half-cycle, and the cycle

below the line is called the negative half-cycle. The reader need not bother his head about comparing the positive and negative connection of these half-cycles with batteries, for there is no connection whatever. The terms are used merely to distinguish the two half-cycles from one another.

Now, in Fig. 2, you see three complete cycles. You will notice, too, that the distance from the crest of one wave to the next is termed the "wavelength." Thus, if a station's wavelength is 442 metres, it merely means that the distance between each wave-crest is 442 metres. Most of you will know that a metre is a French measure, and the English equivalent to a metre (for all practical purposes) is one yard. Therefore, the wavelength (expressed in yards) would be 442, and in feet 442×3 , which equals 1326 feet. So you see that wavelength is really only a measurement of distance, and not energy, as is popularly supposed.

If I sing the note C (or Doh—which is the same note, only expressed in tonic solfa) and the curve shown in Fig. 2 represents the characteristics of this note, we can find several interesting things. In the first place, you can count for yourself three distinct cycles. Therefore, the note will have a frequency of three cycles. (Actually the frequency of middle C is 256 cycles per second.) The zero line is sometimes termed "The Line of Time," and from it one can find the time taken for a certain number of cycles to reach a given spot. From these cycle-curves one can also find the amplitude (or energy of the note), and, as I have previously explained, the wavelength of the note.

Oscillations are simply reversals of current, or, in other words, complete cycles. In Fig. 2 you see that the amplitude of each cycle is constant, i.e., the amplitude is the same all the time, until the note eventually reaches its destination, when it cuts off suddenly. Such an oscillation (or series of cycles) is termed a "continuous" or "undamped" wave, because the note is uninterrupted, and, when cut off, stops suddenly, like an organ note or a ship's hooter. When the note dies away gradually (such as a piano note or a gong note) this is called an "intermittent" or "damped" wave. A "damping" process, which will not concern us yet, causes the sound to die away gradually. (Fig. 3).

Alternating current is measured in cycles. The reason is obvious.

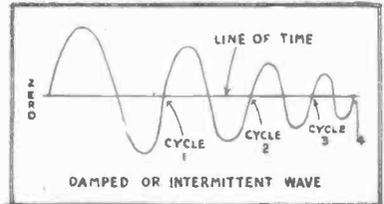
As alternating current reverses its direction of flow, say, sixty times per second, it is said to have a frequency of 60 cycles per second.

Sound waves,

as I have mentioned previously, travel at the rate of 13 miles per minute. Ether or electro-magnetic waves travel at a much greater speed, i.e., 188,000 miles per

second, which is also the speed of light. Sound waves travel faster through water, and faster still through salt water. Actual figures will be given in a later issue.

I have explained very briefly the characteristics of audio (or sound waves). These waves (that can be heard) are said to be of audible frequency, because they are within the limit of the human ear. Sound waves that cannot be heard, i.e., those that have a frequency above or below the human range, are termed "radio-frequency" waves, and these waves cannot be heard until certain action takes place. This action is termed "rectification." If you have carefully noted previous remarks on rectifica-



3.

tion, you will see the resemblance. Last week I told you how the rectified signal could be shown by a number of cycles, from which one-half of each cycle had been cut off. In the radio receiver the rectification is carried out by the component known as a valve (which is nothing more than its name implies), for it allows current to travel only in one direction. A water valve or an air-pump valve will illustrate the point. In small sets a crystal is sometimes used for rectification purposes.

According to Oliver Heavyside, a famous English physicist, there is a layer of ionised atmosphere or gas at some distance (between 50 and 150 miles) above the earth's surface. In a future article we shall take up what is meant by "ionised," but here it will be sufficient to say that ionised atmosphere is atmosphere which has acquired an increased ability to pass electrical currents, such as radio waves. Heavyside's theory is used to account for the fact that radio waves, particularly short-waves, tend to "skip"; that is, they will often be received with greater strength at a point far distant from the transmitter than at a nearer point. This, according to the theory, is not due to the reflection of the wave, but to its refraction.

Before going any further, it might be well to have the term "refraction" clearly understood—both as to what it is and as to its



4a.

4b.

effect.

Refraction may be defined as a "bending back of a light ray or any other wave." (Light gives off aether waves.)

Look at Fig. 4 (a) and imagine each of the dots to represent a soldier. The rank is marching in the direction indicated by the arrow. The portion of the field that is shaded is mud, the white part is good, hard ground. Now, if these soldiers are ordered to advance as rapidly as possible, you can see how the ones that get on the hard ground first will travel faster than the others and the line will no longer be straight. A moment's inspection of Fig. 4 (b) will show how, if fastened together with a rope so that they could not become separated, these men, travelling as fast as possible, would come out of the land on which the going was easier. This is the same, in principle, as is the refraction of radio waves from the Heavyside Layer. Fortunately, for ease in picturing, the refraction of the radio wave may be shown in the same way as reflection.

"PROVING RADIO" CLUB NEWS.

THE Willoughby Group's inaugural meeting was held at Mr. Meadows' residence, Willoughby, at 7.30 p.m., on March 6. There was a good attendance, even though five people advised per letter of their inability to attend, but intimated that they desired to become members of the club. Present at the meeting were Messrs. Meadows (hon. secretary), Mr. Hook (organising secretary), Mr. Bondy (Willoughby executive), Mr. Slemmett, sen. (Wahroonga executive), Mr. Burgess (secretary), Mr. Barker, Mr. Koets, Mr. Webster, Mr. Slemmett, jun., and Mr. Ellis.

Mr. Meadows took the chair, and Mr. Hook (organising secretary) explained to the company the object of the club.

Mr. Hook explained the difficulty in getting a club running as a general rule, but pointed out that his own local "Proving Radio" Club (the Dulwich Hill Group) had grown so large as to necessitate the formation of another club. "Even now," he said, "though the two clubs have been formed from the one, we have no more room for Dulwich Hill members, and another local club must be formed."

He stressed the fact that though certain members would join the club merely with an idea of finding out why their crystal set would not work, these, together with the more technical man studying for his "ticket," must be catered for.

Mr. Hook mentioned that apparatus owned by the club could be used by new members, and they would be specially coached up from the beginning of the course.

Mr. Burgess then suggested that this would retard the progress of club members who were anxious to obtain their A.O.P.C., but Mr. Webster suggested that the club members be divided into groups according to their advancement. Thus every three months, new members would commence study, and at the end of a similar period they could pass up to the next stage, which had previously been vacated by a more advanced class.

Mr. Meadows proposed Mr. Bondy as one of these executives. He was seconded by Mr. Webster. Mr. Hook then proposed Mr. Slemmett, sen., as the other officer, and Mr. Barker seconded this. It was decided that these two officers should meet at Mr. Hook's residence, 29 Blagowrie Street, Dulwich Hill, at 8 p.m. on Friday, March 8, when this and other matters could be discussed.

Also, it was suggested that the two executives should meet regularly with other club executive and discuss phenomenon in connection with experiments. This will have a double advantage, for not only will each club have the advantage of co-operation with the other, but where one club fails in an experiment, the club that has made a success of it will be able to explain matters to the others. This motion was carried.

It was then decided to hold the next meeting at Mr. Slemmett's residence, Blytheswood Avenue, Turramurra, on Wednesday,

March 13. Readers interested in the club are invited to attend. They will be able to meet the club at Warrawe station between 7.15 and 8.45 p.m. Members who are unable to be present at the station so early, may reach the meeting room by following these directions—Take the train to Warrawe (Hornsby line), then proceed down Heyden Avenue till you reach Lane Cove Road, where you will see (a little to the left) the public school, which is immediately opposite Blytheswood Avenue. Proceed down here and stop at the third light on the left, where you will see a solitary house with white palings. Then enter, and be welcomed.

The meeting was very successful, and closed with a short chat by Mr. Meadows, who intimated that "Wireless Weekly" wanted to see the club advance rapidly, and were willing to help in every reasonable way. To this end, the club had been given a page of its own, and already arrangements for the benefit of the club, which we hope will come as pleasant surprises, are being arranged. Certificates will be issued each member of the club, and these would entitle the owner to many benefits and privileges which he otherwise would miss. Mr. Meadows also showed the company some several thousand radio periodicals and books, including every copy of "Wireless Weekly" since it first started, and said that every member would be able to use these books, provided he undertook to return them in good condition. One of the members immediately asked for a copy, which was given him **NEW MEMBERS, ETC.**

We welcome to the "Willoughby Group" of the "Proving Radio" Club, Mr. Frank Ellis, who, having a good knowledge of radio to commence with, has expressed his willingness to help the club. The same club also welcomes as a member the well-known amateur experimenter Mr. C. G. Koets, who will lecture at Willoughby, Wahroonga, Dulwich Hill, and Summer Hill Clubs. Other members who hope to be present at next meeting of the Willoughby Group are Messrs. Leslie Loughland and Jack Loughland.

The next two members in the list are joining up with the Willoughby Group. Their names are respectively William and Donald Webster, of Mosman.

It has been suggested that a club be formed at Leichhardt or Petersham. Mr. Hook already has several names, and others willing to join should get in touch with Mr. Hook as soon as possible. Two local transmitting amateurs have undertaken to help the club's advancement. A club-room right in Petersham, a large unfurnished double-room, with radio gear and tools, etc., has already been placed at this club's disposal.

As the Willoughby Club (only one meeting has been held so far) is already becoming large, and some of the members have to come all the way from Turramurra and Wahroonga, it is probable that in the near future the club will be divided into two.

Names are invited for the formation of a Country Club. Special arrangements are being made for this club. Material will be supplied for experiments.

Each club extends a hearty welcome to all interested. Intending members may obtain further particulars from the local secretaries (whose names and addresses were published in last issue), or from this office.

A new member, in the person of Mr. Clarke has joined up with Dulwich Hill. Now that the new Summer Hill Group has been formed the members, including new ones, are:—Secretary, Mr. Beeby, 1 Daver Street, Summer Hill; Mr. Vesper (who has been transferred from Dulwich Hill), Mr. Thomas, Mr. S. C. Thomas, Mr. Matthews, Mr. Flynn (transferred from Dulwich Hill), Mr. Tarlington, Mr. Fleming (transferred from Bondi).

At the Dulwich Hill Group meeting, held March 1, at 7.30 p.m., all members were present, except Mr. Clarke. A new member, in the person of Mr. Fleming, was present. Static experiments were in readiness, but as rain fell, and dry weather is necessary for these experiments, they were cancelled. The experiments with nickel and copper-plating were commenced. The copper-plating experiment was quite successful. We also started the rectifier experiments, but it took a considerable time to take a film. A good deal of discussion on the point from which pole current flows then took place. This finished the discussion. The Summer Hill Group was then formed.

Wireless in the Back Blocks

PEOPLE in the capital cities and other thickly settled centres of population, who have every modern facility and convenience, complain constantly of their disabilities. It is the old story of being surfeited with pleasures and advantages; there are so many comparatively that their true worth is not fully appreciated.

But in the sparsely settled areas of the Commonwealth, where these advantages are not enjoyed, the complaints are seldom heard. The pioneers and hard settlers seem to be more contented the farther away they are from the coastal districts of plenty and apparent contentment. In the centre of the continent, where the picture shows are never seen, the telephone bell never or seldom rings, the coolness of the sea breeze is never felt, and the motor car horn is seldom heard, one would think that there are good grounds for expressions of discontent. The grounds may be there, certainly, judged by our suburban standards, but dissatisfaction is scarcely heard.

For those people wireless was expected to be a boon and a blessing. It would bring them into touch with the throbbing centres of the business world of the cities, and help to break down the isolation and loneliness of "the bush." To a great degree it has done so. It is no unusual circumstance nowadays to find a lonely settler and his family, or a group of friends sitting round the wireless set, listening to the programme from far-

away 3LO and the other stations.

The long evenings and nights are thus shortened when the programmes can be followed. Music, lectures, sporting information, and the other miscellaneous attractions of broadcasting can be enjoyed for hours in the evening. And even the greetings of friends in distant parts of other States are heard when the birthday announcements are read out.

Sport interests all Australians, and we all know how, in former years, the news of the Test Match results, or the name of the winner of the Cup, was not known for days, or even weeks, by interested followers of the sport in some faraway settlement.

Of course, it is not all so easy as we, who are accustomed to metropolitan listening, may imagine. The clear, ringing tones issuing from our loud speaker may not be so clear or consistent at a place many hundreds of miles away. There are local disturbances and disadvantages met with in most localities. The old bugbear of all wireless reception, atmospherics, and the newer annoyance of fading, contribute to mar much of the entertainment. Those disabilities can only be removed or minimised by the installation of more stations in country districts, as was contemplated, and actually planned, by some of the broadcasting companies. It is to be hoped that the subject will not lightly be passed over by the Government in the coming years.

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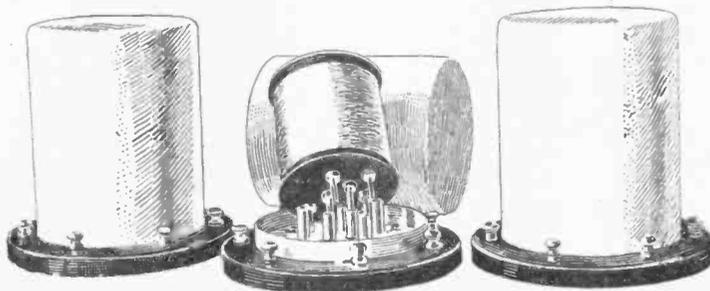
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The Captain to His Comradios

(Being notes from the happy personal chats to past and present schoolboys and schoolgirls and their parents all over Australia and New Zealand. Conducted by "The Captain" every Sunday morning from station 2FC, Sydney.)

Schoolboy, Schoolgirls.

NOT for one little tiny minute does "The Captain" pose as a "Mr. Jimmy Know-all" in the thousand and one problems that "face" every boy and girl during their great days in the playground. Every school has its sports master or mistress as the case may be. I only aim to help on their work. But the point is that radio reaches far more ears than any one person can ever hope to do personally and intimately.

Who is the Captain?

IT does not matter who "The Captain" may be. Just take it that he is one who has always loved his work in the past, coaching, and playing, and helping boys and girls of all school ages to play the game and "love the game beyond the prize." And also take it that he is in a position to find out and tell you the answer to most of the little and big things in sport and school life generally that puzzle everybody at one time or another.

Count Your Troubles

SO just fire your questions. Your name will not be called, only your initials or non-descript name, whichever you prefer. Of course you must sign your letter. That's only proper, and I cannot answer any anonymous notes at all. The very thing you want to know may be of help to scores of other listeners up against just the same little problem. Don't worry, I'm not going to preach at you, but simply tell you straight and clearly just as though I were in the field with you or chatting to you in your own room. Address your letters to "The Captain," 2FC, Sydney, or "The Wireless Weekly."

The Past Ones

THEN we can keep the old boys and old (no, I can't call the ladies names like that). We'll say the "ex-schoolgirls." How's that for a side-step? Well, the boys and girls who have left school often miss re-unions just because they get out of touch with the old place. Radio, and "The Captain," will alter that, and you secretaries can look forward to bigger gatherings when I am able, through 2FC, to stir up the forgetful ones, and remind them of what, when, and where your functions are.

Cricket Bat

ALREADY I have a wall from J.D. (Home-bush) about a bat. He lent his bat. It was chipped badly, and, on being repaired, is not half the old friend it was. Quite likely too! It is probably an ounce or two heavier, and does not balance in the grip as before. There is only one answer. Don't lend your bat. And I always think that a chap is a mighty poor sport who asks any fellow to lend his own private bat. So there you are. Don't borrow a bat, and then owners will not be put in the mean position of refusing you.

Greeting

AND so, until next Friday night at 2FC, good wishes to you all. Cheerio, comradios!

HITTING BELOW the BROADCAST BELT



Short-wave and Amateur Notes by VK2NO

The report below is from Mr Russell Crane's log-book.

PHI, Huizen, Holland: From midnight, Friday, to 3 a.m., Saturday, March 2, 1929: "This is the strongest station I have ever heard. For the first hour, full loud-speaker strength, perfectly modulated, mostly items by the Amsterdam Studio light orchestra, with frequent announcements in several languages, including English."

4.15 a.m., PCJ: This station was almost as loud as Huizen, but the wave length was not quite as suitable, for there was a good deal of static about. Several storms during the hours of darkness. The result was that there was more background mush, but still a very splendid and enjoyable transmission. During two items, viz., "A Policeman's Holiday One Step" and "Wee Macgregor Patrol," it was possible to get loud music with the set out of oscillation.

4.35 a.m., KGO, National Broadcasting Co., Oakland, California: A talk on personal expenditure regulation and the consistent use of a budget system was being given. The strength was R9 and clarity perfect. Then followed a song and chorus, a nigger patter song, and several request items, "I'll Get By," some verses sent in by a Mr. Henderson that the announcer said he would like to pass on to his audience, and "When You and I Were Young," a request item by a couple who had just celebrated the 50th anniversary of their wedding. The whole of this was at good loud-speaker strength.

5.10 a.m., GSSW: This station not quite as loud at this time as the others mentioned. Like PCJ, the wave length being longer than PHI or KGO, the static caused more background noise. All the same, good loud-speaker strength obtained for some time.

3 a.m., Sunday, TLO, Nairobi, B.E. Africa: Heavy static slightly spoiled reception, but strength and modulation excellent; no fading of any sort noticeable during over half-an-hour's reception. Best items, compositions by Rubinstein and Chopin, and Peter Dawson, singing "Oh, My Warrior."

In addition to the above, the usual Dutch telephony stations, Java and Holland, were heard at good strength, and R.F.N. now comes in at great strength through bad static.

Of such is the stuff that gladdens the heart of the short-wave "fan." Now for the experimenters—the brass pounders! More and more contacts reminiscent of the "good old days" are being made slowly but surely. Down on 20 metres queer things are happening again. One evening the air will be alive with interstate, Javan, Philippine, Hawaiian, and Indian signals, and the next, at the same time, there is nothing but a stealthy silence.

That is, silence except for the "big fellow" commercials, who are forever with us, and not always outside our band. Twenty metres seems to have certainly put long distance thoughts in the minds of some operators, to wit, K6EHA, in Honolulu. I opened up for a chat with him the other evening, and he said, after giving me a signal and strength report, "Am going to look for a DX station now . . ." I didn't realise that Honolulu and Sydney were such next-door neighbors before!!!

If he had said he was going to look out for an Englishman for a contact it would have been a little better, for I understand that the Englishmen find Honolulu the most

difficult place to raise, and the only hope they have is on 20 metres.

One of our best Australian 20-metre fiends is VK5HG, down in Adelaide. Almost every time I switch the receiver on I hear him working away with someone, or else remote parts of the world calling him. I suspect that South Australia must be a 20-metre paradise, for I often hear VK5HG working away with people I cannot hear, much in the same way we hear New Zealanders chatting away without effort with England, and all the super-receivers in the world will not find those Englishmen here at the same time.

The difference in time must be taken into consideration, but from all accounts our best signal strength here for a European must seem weak to a New Zealander or a South Australian. DX is accomplished from New South Wales just the same, and "a sig's a sig for a that."

VK2AW met me in high spirits on my arrival at the shack on Sunday evening, March 3. He had worked with his first Englishman, having had an answer to his CQ call from G6VP in the afternoon. G6VP reported him R6 on an inside aerial and two-valve receiver, so now, if VK2AW was bitten somewhat previously by the "DX" bug, he is going to be fairly eaten alive now.

One of the Queenslanders who seems to be doing well on 20 is VK4BB. He is seldom very strong at our location, but many are the Europeans I have heard calling him. Ray Carter (VH2HC) is at present in Sydney and came along to take a trick at the key, driving VK2NO. He had a good yarn with VK3CX, and then, much to my surprise, expressed the opinion that reception around Centennial Park is much better than up in Quirindi. The latter place is not a great distance, as the crow flies, from Wingen, and I remember that reception there at the old haunt of VK2TK was unparalleled on 20 metres.

A growing curse at VK2NO-VK2AW is the persistency of a certain power leak. It seems to be my luck to be dogged by this ghostly form of QRM, but in these days I do not perspire through it, but put down the 'phones and go out in defiance.

Eighty metres has been telling a tale over the week-end, and many New Zealanders were very strong on Saturday evening on this band. There was an almost entire absence of static, which is little short of marvellous.

Now I am going to take a big jump from 80 to 10 metres, regarding which frequency I have some interesting information. This was received by VK2OW from VK2TW, 9.30 p.m., Sunday, March 3:—"Received from the Contact Bureau Radio Society of Great Britain . . . To all Australians and New Zealanders . . . the following information . . . Ten-metre tests will be held from 0001 GMT, March 9, to 2359 GMT, March 24. A five-letter code must be used during each transmission. Code word must be changed each day. A list of code words must be sent to the Contact Bureau of the R.S.G.B., and of stations worked and particulars of stations heard. Stations are particularly requested to report on G stations, and request that special efforts be made to this end."

There we are, boys . . . this is what we have been waiting for, and now let us get busy on the great G-VK-ZL 10-metre hooking party!



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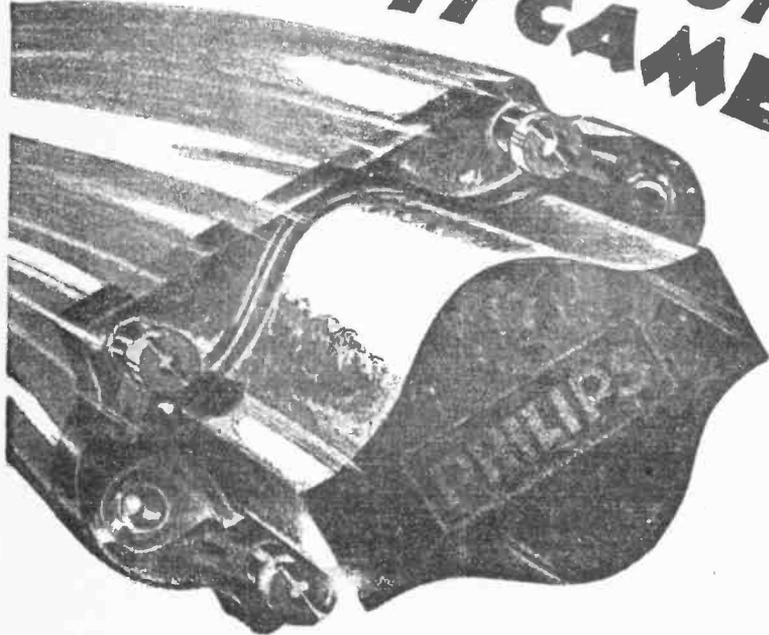
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RADIO BATTERIES

GREATEST CLARITY, VOLUME & DISTANCE

Local Programmes, Friday, March 15

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. 10.45: 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. 12.18: A reading. 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: Popular 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 schools; a short musical recital, a reading. 3.0: Pianoforte reproduction. 3.15: Popular music. 3.30: Doris Orr, soprano—(a) "Kashmiri Song" (Finden), (b) "A Birthday" (Woodman). 3.37: Studio music. 3.45: A reading. 4.0: "Big Ben." Doris Orr, soprano—(a) "It is not because your heart is mine" (Lohr); (b) "A Brown Bird Singing" (Wood). 4.7: Popular music. 4.20: A talk by Freda Sternberg. "Should we see Australia first?" 4.35: Studio items. 4.45: Stock Exchange, third call. 4.47: Popular music. 5.0: "Big Ben"; close.

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. 6.10: The Farmyard Five from Kookaburra Gully. 6.30: Daigety'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: Specially selected recital of records.

EVENING SERVICE.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Popular music. 7.45: Programme announcements. 7.48: Studio items. 8.0: "Big Ben." Castle Palais Band, winners of Dance Band, Section No. 22 in the recent Radio Elsteddoff, conducted by the New South Wales Broadcasting Company Limited. 8.12: Ivy Green, winner of Soprano Section, No. 7, Radio Elsteddoff, conducted by the New South Wales Broadcasting Company Limited—(a) "The Song of Florian" (Godard); (b) "Hills of Beyond" (Fisher). 8.19: Carlos Fakola, novelty pianist. 8.27: Joe Cahill, entertainer—(a) "Tang-malangaloo" (from "Around the Boree Log") (O'Brien); (b) "Danny McShane" (Walters). 8.34: Castle Palais Band. 8.46: R. A. Bartleman, baritone—(a) "The Emperors Charioter" (Mornement); (b) "The Mountains of Mourné" (Collison). 8.53: Dulcie Blair, violinist. 9.0: "Big Ben"; weather intelligence. 9.1: Ivy Green, soprano. 9.8: Carlos Fakola, novelty pianist. 9.15: Joe Cahill, entertainer—(a) "Bills

Varn" (Walters); (b) "Home" (Whitman). 9.22: Castle Palais Band. 9.30: R. A. Bartleman, baritone—(a) "Two Old Tramps" (Holloway); (b) "Stick It" (Barker). 9.37: Dulcie Blair, violinist. 9.44: Castle Palais Band. 9.56: Late weather and announcements. 10.0: "Big Ben"; Castle Palais Band. 10.27: To-morrow's programme. 10.30: National Anthem; close.

MISS RAE

FOSTER, who will be Mr. Charles Lawrence's partner in a series of popular duets from 2BL to-night.



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 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 down.

MIDDAY SESSION.

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes; 2BL Women's Sports Association session, conducted by Miss Gwen Varley. 11.30: Advertising hints. Talk on "Diet and Health," by Miss Dorothy de Cleghorne. 11.40: Women's session, conducted by Mrs. Cranfield. 12.0: G.P.O. chimes; special ocean forecast and weather report. 12.3: Pianoforte reproduction. 12.30: Shipping and mails. 12.35: Market reports. 12.48: "Sun" midday news service. 1.0: 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 down.

AFTERNOON SESSION.

Announcer: A. C. C. Stevens.

Accompanist: Kathleen Roe.

3.45: G.P.O. chimes. Popular music. 4.0: A talk by Captain A. C. C. Stevens, "Leaves from a Pressman's Notebook." 4.15: Hilda McGilbray, soprano. 4.22: Studio items. 4.32: Hilda McGilbray, soprano. 4.40: Pianoforte

reproduction. 4.53: "Sun" news service. 5.0: G.P.O. chimes. Popular music. 5.10: Pianoforte reproduction. 5.30: Producers' Distributing Society's poultry report; features of the evening's programme.

EARLY EVENING SESSION.

Announcer: Basil Kirke.

5.40: Children's session; music and entertainment; letters and stories. 6.30: "Sun" news and late sporting. 6.40: A specially selected recital of dinner music records. 7.7: Australian Mercantile Land and Finance Co.'s report; weather report and forecast, by courtesy of Government Meteorologist; Producers' Distributing Society's fruit and vegetable market report; grain and fodder report ("Sun"); dairy produce report ("Sun"). 7.25: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: Basil Kirke.

Accompanist: G. Vern Barnett.

8.0: G.P.O. chimes. Topical chorus, by courtesy of J. C. Williamson, Ltd., a transmission will be arranged from one of Sydney's leading theatres.

9.0: From the Studio—Weather intelligence.

9.1: Pianoforte solos, by Horace Keats—(a) "Slippery Fingers" (Steele). (b) "Bats in the Belfry" (Pepper).

9.9: Popular duets, by Charles Lawrence and Rae Foster.

9.19: C. R. Dexter will give last-minute sporting information.

9.35: Horace Keats, pianist—(a) "Danse des Mirilions" (Tschalkowsky), (b) "Chant Sans Paroles" (Tschalkowsky), (c) "Romance" (Tschalkowsky).

9.42: Charles Lawrence and Rae Foster, duets.

9.52: From the Arcadia Theatre, Chatswood—Nicholas Robins at the Wurlitzer organ.

10.18: From the Studio—Late weather and announcements.

10.23: Romano's Dance Orchestra, conducted by Bennie Abrahams.

10.57: Features of to-morrow's programme.

10.59: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.

10.30: National Anthem. Close.

During intervals between dance items "The Sun" news will be broadcast.

2GB

10.0: Music. 10.10: Happiness talk, by A. E. Bennett. 10.20: Music. 10.30: Women's session, by Miss Helen J. Beegling. 11.30: Close down. 2.0: Music. 2.5: Women's Radio Service, by Mrs. Dorothy Jordan. 2.30: Music. 3.0: Close down. 5.30: Children's session, by Uncle George. 7.0: Music from studio. 8.0: Mr. Leonard Brewer, violinist. 8.10: Miss Edith Allen Taylor, mezzo-soprano. 8.20: Mr. Charles Davis, pianist. 8.30: Mr. Jack Win and Mr. Heath Burdock, humour. 8.35: Mr. Peter Templeton, baritone. 8.45: Instrumental music. 8.56: Miss Edith Allen Taylor, mezzo-soprano. 9.0: Weather report. 9.3: Address. 9.15: Miss Gwen Selva, soprano. 9.35: Mr. Charles Davis, pianist. 9.45: Mr. Jack Win and Mr. Heath Burdock, humour. 9.50: Mr. Leonard Brewer, violinist. 10.0: Mr. Peter Templeton, baritone. 10.10: Dance music. 10.30: Close down.

2UW

MIDDAY SESSION

12.30: Music. 1.0: G.P.O. clock and chimes; music. 2.30: Close down. 4.30: Musical programme.

EVENING SESSION

5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. Clock and chimes; music. 8.0: To-day's anniversary; music. 9.0: G.P.O. clock and chimes; comments on foreign affairs, by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.

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Interstate Programmes, Friday, March 15

3LO

EARLY MORNING SESSION.

7.45: Morning Melodies. 7.20: Morning exercises to music. 7.30: Stock reports, Stock Exchange information. Market reports. General news. Shipping and sporting information. 8.0: Melbourne Observatory time signal. 8.1: Morning Melodies. 8.15: Close down.

MORNING SESSION.

11.0: 3LO's Different Dainties for the Daily Dinner. To-day's Radio Recipe, Whitebait and Lettuce. The Glory of the Garden. 11.5: Under the auspices of the Blue Triangle Amateur Sports Association, Miss E. Bennett will speak on sports for women. "Swimming." 11.20: Musical Interlude. 11.25: "Au Fait" will speak on "Fashions: From Long Island to Government House." 11.40: Musical Interlude. 11.45: Under the auspices of the Health Department, Dr. Featonby will speak on "Vitamins."

MIDDAY SESSION.

Accompanist: Agnes Fortune. 12.0: Melbourne Observatory time signal. Express train information. 12.1: Prices received by the Australian Mines and Metals Association from the London Stock Exchange this day. British official wireless news from Ruby Reuter's and the Australian Press Association cables. "Argus" news service. 12.15: Newmarket stock sales. Special report by the Associated Stock and Station Agents, Bourke Street, Melbourne. 12.20: The station orchestra. Overture, "Hunyadi Lazo" (Erkel). 12.30: Marcelle Berardi (soprano). "Aubade" (Lalo). "Obstination" (Fontenailles). 12.37: Stock Exchange information. 12.40: The station orchestra. Selection, "The Ollingvine" (Terry). 12.50: Spencer Ward and Gertrude Long. "Just a Piano and Us." 1.4: Percy Code (trumpet). "Valse" (Russell). 1.8: Meteorological information. Weather forecast for Victoria, New South Wales, South Australia, and Tasmania. Ocean forecasts. River reports. Rainfall. 1.18: The station orchestra. Suite, "Sigurd Jorsalfar" (Grieg). 1.25: Marcelle Berardi (soprano). "La Partida" (G Alvarez). "Sylvelin" (Blinding). 1.33: The station orchestra. "Yearning" (Crist). Modern songs by Tschakowsky, Debussy and Grieg. 1.45: Close down.

AFTERNOON SESSION.

Accompanist: Agnes Fortune. 2.15: The Strad Trio (Cecil Parkes, violin; May Broderick, piano; Frank Johnston, cello). "Trio, op. 70 in D Major" (Beethoven). Allegro con brio. Largo assai. Presto.

2.33: Jessie Shmith (contralto). "O That It Were So" (Bridge). "Do Not Go, My Love" (Hagemann). 2.40: Cecil Parkes (violin). "Melodie" (Tschakowsky). "Serenade Valse" (Tschakowsky). "Schoen Rosmarin" (Kreiser). 2.51: J. Alexander Browne (baritone). "Over the Mountains" (Grieg). "The Jolly Miller" (Quilter). 2.58: May Broderick (piano). "Pastorale and Capriccio" (Bearth). "Hornpipe" (Lavater). 3.4: The Strad Trio. "Song of the Mountains" (Grieg). "Vavotte" (Maurin-Parkes). "Three Folies" (Godeig Taylor). 3.15: Miss Frances Fraser will speak on "Travels with Mandeville." 3.30: The station orchestra. Overture, "Robespierre" (Litolff). 3.40: Syd Hollister (comedian) will entertain. 3.47: The station orchestra. Selection, "The Fortune Teller" (Herbert). 3.54: Adele Crane (soprano). "The Blackbird's Song" (Cyril Scott). "At Dawning" (Cadman). 4.1: A. Anderson (clarinet). "Concerto" (Weber). 4.5: Jessie Shmith (contralto). "The Blind Lover" (Lety Keys) Selected. 1.18: The station orchestra. Selection, "Catherine" (Tschakowsky). 4.23: J. Alexander Browne (baritone). "Flower of the Desert" (Lohr). "To-morrow" (Keel). 4.30: The station orchestra. Deuxieme Petite Suite (Debussy). 4.35: Stock Exchange information. 4.40: "Now Sleeps the Crimson Petal" (Quilter). "White Rose" (Noel). 4.47: Special weather report for the benefit of listeners in the Redcliffs district. 4.48: Syd Hollister (comedian). "Bits and Pieces." 4.55: The station orchestra. "Gondoliers" (Kreiser). New Session. 5.0: "Herald" news service. Stock Exchange information. 5.10: Close down.

EVENING SESSION

6.0: Answers to letters and birthday greetings by "Billy Bunny" 7.5: Musical Interlude. 6.30: "Billy Bunny" will entertain the children.

NIGHT SESSION.

Announcer: John Stuart. Accompanist: Agnes Fortune. 6.59: Madame Bonard. "French Without Tears." 7.5: Stock Exchange information. 7.15: Official report of the Newmarket stock sales by the Associated Stock and Station Agents, Bourke Street, Melbourne. Latest truck orderings for next week's markets. Fish market reports by J. R. Borrett. Market reports by the Victorian Producers and Co-operative Company, Ltd. Poultry, grain, hay, straw, jute, dairy produce, potatoes and onions. Market reports of fruit by the Victorian Fruitgrowers' Association. Retail prices. Wholesale prices of fruit by the Wholesale Fruit Merchants' Association. Citrus fruits. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the Past. 7.48: Under the auspices of the Department of Agriculture, Miss Knight will speak on "Spiced Relishes." 8.0: Maker of History. H. K. Love will speak on "Technicalities." 8.10: Collingwood Citizens' Band. March, "Trumpeter Bob." Fox trot, "After My Laughter Came Tears." 8.20: Syd. Hollister (comedian), "Mirthful Moments." 8.27: Collingwood Citizens' Band. March, "Reliant." Selection, "With Sword and Sabre." 8.34: Marcelle Berardi (soprano). "Ah fors e lui" from "La Traviata" (Verdi). "The Rose Enslaves the Nightingale" (Korsakoff). 8.41: French Bros (banjoists). "Modern Melodies." 8.48: Colin Thomas (tenor). Selection, "You Old Oopsy Man" (Warren). "We'll Know, We'll Understand" (Sanderson). 8.55: Collingwood Citizens' Band. Selection, "Community Land." 9.5: The Imperial Russian Trio (Arved Norit, violin; Ivan Esterling, cello; Vassili Ivan (tenor). Selection, "Carneval" (Schumann). The Trio. "O Sanctissima" (Orelli-Kreiser). "Hungarian Dance No. 6" (Brahms). 9.40: Adele Crane (soprano) by permission of the Williamson, Ltd. "Songs My Mother Used to Me" (Dvorak). Selection. 9.47: Eric Welch will speak on to-morrow's V.A.T. races at Caulfield. 9.57: Spencer Ward and Gertrude Long. "Just a Piano and Us." 10.10: "Argus" news service. British official wireless news from Ruby Reuter's. Meteorological information. Report not supplied by the Royal Automobile Club of Victoria. Announcements. 3LO's Weekly Seasonable Gardening Reminders, compiled by Leslie Brunning. 10.25: Colin Thomas (tenor). "A Brown Bird Singing" (Haydn Wood). "Serenata" (Toselli). 10.32: Collingwood Citizens' Band. March, "St. Patrick's Day." Cornet solo, "The Last Rose of Summer." 10.42: Syd. Hollister (comedian), "Gloomchasers." 10.50: The Radio Revellers. "I Just Jog Along" (Rose). "I Can't Do Without You" (Berlin). "Mississippi Mud" (Harris). "Tin Pan Parade" (Whiting). "My Heaven Is Home" (Collins). "Jeannine" (Gilbert). "Dream House" (Fox). "Mother, I Still Have You" (Guson). "Over the Dawn" (Donaldson). "Get Out and Get Under the Moon" (Tobias). "Japanese Mammy" (Donaldson). "The Prune Song" (Crumit). "Sincerely I Do" (Davis). "Sally Rose" (Friend). "Mexican Serenade" (Terce). "Good-night Chorus." 11.30: God Save the King.

3AR

MORNING NEWS SESSION.

Announcer: Maurice Dudley. 10.0: G.P.O. clock says "Ten." 10.1: "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. 10.55: Weather forecast.

MORNING MUSICAL SESSION.

11.0: Radio Revellers (conductor, Ern Hall).—"Dream Kisses" (Yellen), "Lenora" (Giermer), "Virginia Creeper" (Wade), "Little Log Cabin of Dreams" (Hansley). 11.20: Beautiful Ballads. 11.28: Radio Revellers—"Happy Go Lucky Lane" (Lewis), "All Day Long" (Cross), "Don't Keep Me in the Dark, Night Eyes" (Bryan). "Down where the Sun Goes Down" (Jones). 11.48: Beautiful Ballads. 1.55: Radio Revellers—"Dolores" (Kassell), "Mine, All Mine" (Ruby), "Rain" (Ford), "Just Like a Melody out of

the Sky" (Donaldson), "Because my Baby Don't Mean Maybe Now" (Donaldson), "Guess Who's in Town" (Razay). 12.20: British official wireless news; announcements. 12.30: Close down.

AFTERNOON SESSION.

3.0: Gramophone recital. 4.30: Close down. EVENING SESSION. 6.0: A gramophone recital of vocal and orchestral chefs d'Oeuvre. 7.10: News service; announcements; results of fifth Test match. 7.20: Gramophone recital continued.

NIGHT SESSION.

Announcer: Renn Miller. 8.10: Eric E. Aikens will speak on "To-morrow's Event at the Motordrome." 8.15: Transmission from Geelong Central Hall. 10.30: "Age" news service announcements; results of cricket, fifth Test match; road notes supplied by the Royal Automobile Club of Victoria; God Save the King.

4QC

EARLY MORNING SESSION.

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

MORNING SESSION.

Announcer: Rita M'Auliffe. 11.0: Music. 11.5: Social news. 11.15: "Cookery and Household Talk" by "The Etiquette Girl." 11.30: Music. 11.35: More social news. 11.45: Wurliizer organ. 12.0 (noon): Close down.

MIDDAY SESSION.

Announcer: R. Wight.—1.0: Market reports and weather information. 1.15: Lunch-hour music. 2.0: Close down.

AFTERNOON SESSION.

Announcer: H. H. Humphreys.—3.0: A programme of electrically reproduced records. 3.31: A recital by Mr. George Sampson, F.R.C.O. (City Organist). 4.0: This afternoon's news. 4.30: Close down.

EARLY EVENING SESSION.

Announcers: R. Wight and H. Humphreys.—6.0: Mail train running times; mail information; shipping news. 6.5: Dinner music. 6.25: Commercial announcements. 6.30: Bedtime stories, conducted by "The Sandman." 7.0: News in brief. 7.5: Stock Exchange news. 7.5: 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: To-morrow's sporting fixtures reviewed.

NIGHT SESSION.

Announcer: H. Humphreys.—8.0: From the Studio—The Federal Band: Overture, "Tancred" (Rossini), selection, "On the Mississippi" (Rimmer). 8.18: C. Knott, baritone. "If I Might Only Come to You." 8.23: P. Goussins, xiphophis—Finlay, "William Tell" (Rossini). 8.28: The Federal Band—Humorous item, "Three Blind Mice." 8.30: Marie Adair, soprano, selected. 8.40: The Federal Band, fox trot, "Dismal Desmond." 8.45: Miss Bonney, pianist, "Rhapsody Hongroise" (Liszt). 8.50: James Gray, elocutionist, "Earthenware" (Lee). 8.55: B. Popham, cornetist. "The Merry-go-Round" (Rimmer), accompanied by the Federal Band. 9.0: Metropolitan weather forecast: week-end road information for motorists officially supplied by the Royal Automobile Club of Queensland. Will. Listner, a thought for to-night—"From Lonely Home and Princely Mansion." 9.10: 9.18: Messrs. Ingham and Knott—Vocal duet, "Watch The Federal Band—Valse, "Tesora Mio" (Becchi), man. What of the Night?" 9.23: The Federal Band—Two-step, "Tom Boy Bam." 9.28: Marie Adair, soprano, selected. 9.35: Weather forecast. 9.40: James Gray, elocutionist, "The Ormation of Sam M'Ghee." 9.52: Messrs. Dauth and Popham, cornet duet, "The Forest Warblers." 9.58: Miss Bonney, pianist, "Etude Appassionata." 10.0: The Federal Band, hymn tunes. 10.10: "The Daily Mail" news. "The Courier" news, weather news; close down.

5CL

MORNING SESSION.

Announcer: C. J. O'Connor.—11.0: G.P.O. chimes. 11.1: A vocal and instrumental concert. 11.15: Kitchen craft and menu talk. 11.30: Columbia records. 11.45: Under the auspices of the St. John Ambulance Association, a thought for to-night—on "First Aid." 12.0: G.P.O. chimes. 12.1: Columbia recordings. 12.15: General news service. 12.30: British official wireless news. 12.35: Columbia recordings. 12.53: S. B. Ward and Co.'s Stock Exchange information. 12.57: Meteorological information. 1.0: G.P.O. chimes; Columbia recordings. 1.57: Meteorological information and Ballarat race results. 2.0: G.P.O. chimes and close down.

AFTERNOON SESSION.

Announcer: C. J. O'Connor. Accompanist: Jean Finlay.—3.0: G.P.O. chimes. 3.1: Ballarat race results. 3.2: Description of the inter-State tennis match and annual tournament by Mr. F. J. Mills. 3.21: Station Quartette—Selection, "Queen High" (Strmy), "Ballet Sentimental" (Zamecnik). 3.38: Alys Watson, soprano—"A May Morning" (Denna), "The Wreath" (Rae). 3.42: Lizzie Foglia, violinist, "Benedictus" (M'Kenzie), "Serenade." 3.48: Renato Torre, baritone—"Alla vita che l'arride" (Verdi), "Caro Mio Ben" (Giordani). 3.54: Station Quartette—"Spring Song" (Mendelssohn), "Ballet Barbarian." 4.5: Resume of previous race results. 4.8: Alys Watson, soprano—"Pale Moon" (Hogan), "Estrella" (Ponce). 4.12: Vern Rogers, trumpeter. 4.18: Rev. Frank Gorman and Sadie M'Donald. 4.24

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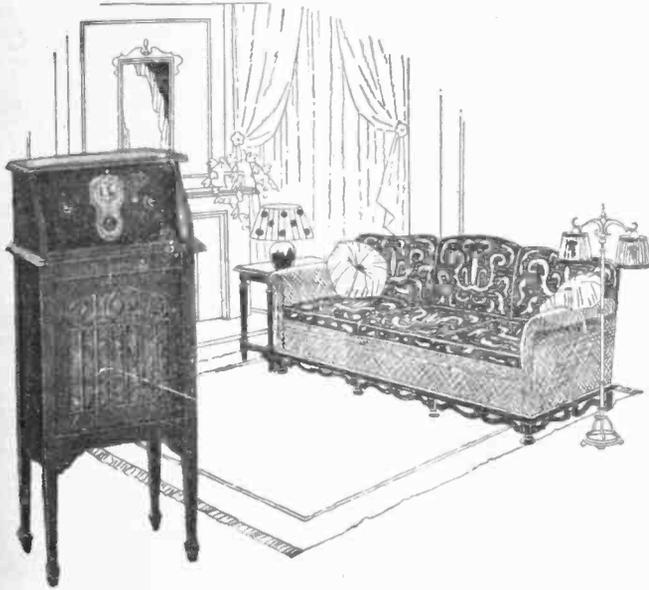
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PITT, MARKET AND GEORGE STREETS, SYDNEY

Ballarat race results. 4.25: Station Quintette—"The Crickets' Dance" (Hager). "Valse Nannette" (Friml). Rosemary" (Reynard). 4.40: Description of the inter-State tennis match. 4.57: S. C. Ward and Co.'s Stock Exchange information. 5.0: G.P.O. chimes and close down.

EVENING SESSION.

Announcer: J. L. Norris.—6.0: G.P.O. chimes. 6.1: Birthday greetings, correspondence, songs and stories by "Miss Wireless." 6.30: Captain Donald Maclean. 6.45: Columbia recordings. 6.55: Ballarat race results. 7.0: G.P.O. chimes. 7.1: Scores of inter-State tennis matches and annual tournament. 7.2: S. C. Ward and Co.'s Stock Exchange information. 7.3: General market reports; Dalgety and Co.'s wool and grain reports. 7.15: 5CL's sporting service by "Silvius," including a review of to-morrow's races at Port Adelaide and Caulfield. 7.27: "Willow" will speak on "Crickets." 7.45: G. M'Riehnle, talk on the work of the Workers' Educational Association.

NIGHT SESSION.

Announcer: J. L. Norris.—8.0: G.P.O. chimes. 8.1: Station Orchestra—"Musical Jigsaw" (Jalowiec). 8.10: Hilda Hammond, soprano—"What a Wonderful World It Would Be" (Martin). "The Lass with Delicate Air" (Arne). 8.18: "The Radio Twins." 8.25: Captain Donald Maclean. 8.30: Station Orchestra—"Andante from Symphony Pathétique" (Tschalkowsky). "Antira's Dance" (Grieg). 8.49: Rinaldo Torre, baritone—"The Last Watch" (Pinsuti). "Mi piaci sempre" (Cianelli). 8.55: E. Ryberg, mouth organist (holder of S.A. Mouth Organ Championship)—"Stars and Stripes." "Yearning." 9.0: G.P.O. chimes. 9.1: Meteorological information, including Semaphore tide. 9.2: Overseas grain report. 9.3: Station Orchestra—Overture, "La Burelescauer." 9.10: Rev. Frank Gorman and Sadie McDonald. 9.14: R. H. Nicholls, assisted by Bessie Peters, will present "A Midsummer Night's Dream." No. 1. 9.24: E. Ryberg, mouth organist—"Winnipeg" (Waltzes). "Polkas." 9.40: Hilda Hammond, soprano—"Shepherd, Thy Demour Vary" (Old English air). "Rose in the Bud" (Forster). 9.46: Station Orchestra—"Japanese Carnival" (Ketybel). "Marronette" (Arndt). 9.54: "The Radio Twins, in new and novel numbers. 10.0: Rinaldo Torre, baritone—"Sancta Lucia Luntana" (Marlo). "Dreams that are Sweet and True" (Mona). 10.5: Station Orchestra—Novelette. "The Water Beetle" (Miles). "Serenata Invar Armada." 10.15: General news service, meteorological information; 5CL's sporting service by "Silvius," including selections for Caulfield and Port Adelaide, and Ballarat race results; Royal Automobile Association road notes. 10.31: Modern dance numbers by the Radio Revelers. 11.0: God Save the King, and close down.

6WF

12.30: Tune in. 12.35: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin supplied by the Meteorological Bureau of West Australia. 1.3: Musical selections by the Studio Trio. 2.0: Close down. 3.30: Tune in. 3.35: Afternoon tea music from the Primrose Cafe de Luxe; vocal items from the studio. 4.30: Close down. 6.45: Tune in. 6.48: Uncle Duffy will talk to the Kiddies. 7.5: Light music by the Studio Trio. 7.30: Commercial and general information. 7.45: Talk; racing anticipations by the Sporting Editor of the "Truth" Newspaper Co. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Items by Mr. Fred Gibson, English concertina artist, vocalist and entertainer. 8.9: Late news items by courtesy of the "Daily News" Newspaper Co., Ltd.; ships within range announcements; station announcements; late weather bulletin. 9.15: Description of wrestling match relayed from the Subisco Oval. 10.30: Close down. 10.4: Metre Transmission.—Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing a 6.45 p.m.

7ZL

AFTERNOON SESSION.

Announcer: Jack Broadbent. 3.0: G.P.O. clock chimes the hour. 3.1: Weather information. 3.4: Selections. 4.0: An educational talk on "Agency in United Kingdom for General Lines." 4.15: Selections. 4.30: Close down.

EARLY EVENING SESSION.

Announcer: Jack Broadbent. 6.15: Selections. 6.30: "The Storey Lady" will tell a story to the wee folk. 6.45: Selections. 7.0: Answers to letters and birthday greetings by "Uncle David." 7.5: Selections.

EVENING SESSION.

Announcer: Jack Broadbent, Accompanist: Lelia Read. 7.15: A. M. L'ary will speak on "Columbia Activities." 7.30: A studio concert by Nellie Columbia and 7ZL artists. Lelia Read, piano solo. "Selected." 7.35: Gwen Davidson, soprano—"Oh, That It Were So" (Bridge). "Big Lady Moon" (Taylor). 7.42: Ed Brooker, aeolo solo—"Oh, Doris, Where Do You Live?" 7.46: Gertrude Sneedon, soprano—"Rosesay Bay" (Gittly). "Jessie the Flower of Dumbland" (Macfarren). 7.52: Jas. Compton, cornet solo—"At Sunrise" (Code). "At Dawn" (Code). 8.0: Jack Broadbent, baritone—"Vale—Farewell" (Sanderson). "Mother I Love." 8.7: Ed. Brooker, aeolo solo—"Nowegian Cradle Song" (Morris). 8.12: Gwen Davidson, soprano—"A Birthday" (Woodman). "By the Waters of Minnetonka" (Laurance). 8.19: Ed. Brooker, aeolo solo—"Chien Chines." 8.24: Gertrude Sneedon, soprano—"Songs My Mother Taught Me" (Dvorak). "The Charm of Spring" (Clark). 8.31: Reginald Goss-Custard, organ solo—"Solemn Melody" (Davies). "Intermezzo" (Halliwell). 8.38: Jack Broadbent, baritone—"Love's Old Sweet Song" (Molloy). "King Charles." 8.45: "The History and Development of Music." 9.45: News session—British official wireless news; railway auction produce sales, held at Halifax; weather information; Hobart Stock Exchange quotations; market reports from Messrs. Roberts and Co., Wise and Stirling, and T. Thorpe and Co., railway news and information. 10.0: 10.0: G.P.O. clock chimes the hour. 10.1: Close down.

Local Programmes, Saturday, March 16

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; interstate markets; produce markets. 7.40: Studio music. 8.0: "Big Ben." Close.

MORNING SESSION.

Announcer: Eric Bessemer.

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: A talk on "Gardening," by J. G. Lockley ("Redgum"). 11.0: "Big Ben"; A.P.A. and Reuter's cable services. 11.0: 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: Studio music. 12.50: From Rosehill—Description of the races in running. During intervals, from the Studio. Items by the Gleeful Three and Studio Dance Band. 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"; letters and stories; music and entertainment. 5.30: 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) "I Just Roll Along" (de Rose), (b) "When Love Comes Stealing" (Rapee), (c) "The Country Girl" (Monckton), (d) "Forget-me-not" (Macbeth), (e) "The Tin-Pan-Parade" (Whiting), (f) "Blue Night" (Rollins), (g) "Moonlight on the Lake" (Von Blon).

EVENING SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Studio music.
7.45: Programme announcements.
7.48: Popular music.
8.0: "Big Ben"; Studio Dance Band, conducted by Cec. Morrison.
8.12: Robert Gilbert, baritone.
8.19: Sketch by Zena and James Kendall, winners of Section 25 in the recent Radio E'steddfod, conducted by the New South Wales Broadcasting Company, Limited.
8.34: Foster and Finlay, instrumentalists.
8.44: Amy Firth, winner of Section 8, in the recent Radio E'steddfod, conducted by the New South Wales Broadcasting Company, Limited.
8.51: Euphonium solos, by Andrew Madden.
8.59: Weather intelligence.
9.0: "Big Ben"; Robert Gilbert, baritone.
9.7: Foster and Finlay.
9.17: Sketch by Zena and James Kendall.
9.30: It is hoped that at this hour we will have a big attraction to offer listeners: please pay particular attention to the announcements which will be made in this connection.
10.0: "Big Ben." From the Studio: Amy Firth, mezzo soprano.
10.17: Studio Dance Band, conducted by Cec. Morrison.
10.25: Late weather and announcements.
10.30: 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.



The beautiful white-flowering Dorrigo creeper (*Olematis aristata*), a native of New South Wales, about which Mr. Cooper will talk during his session at 2BL this morning.

2BL

2BL—SATURDAY, 16th MARCH

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 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 down.

MIDDAY SESSION.

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. Women's session, conducted by Mrs. Cranfield. What's on at the pictures and theatres. 11.30: Advertising hints. 11.40: Talk on "Gardening," by Mr. Cooper, Park Superintendent, City Council. 12.0: G.P.O. chimes; special ocean forecast and weather report. 12.3: Pianoforte reproduction. 12.30: "Sun" news service. 12.40: Studio music. 12.45: "Sun" news service. 12.50: Studio music. 1.30: "Sun" midday news service. 1.40: Studio music. 2.0: G.P.O. chimes. Close down. Note.—Race results from Rosehill races will be transmitted, by courtesy of the "Sun" Newspapers.

AFTERNOON SESSION.

Announcer: Basil Kirke.

3.45: G.P.O. chimes. "The Smart Set Trio." 4.0: Popular music. 4.10: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.20: From the Studio—"The Smart Set Trio." 4.30: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.40: From the Studio—"The Smart Set Trio." 4.50: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 5.0: From the Studio—G.P.O. chimes. Popular items. 5.20: Complete sporting and racing resume. Features of the evening's programme.

EARLY EVENING SESSION.

Announcer: Basil Kirke.

5.40: Children's session; music and enter-

tainment; letters and stories. 6.30: "Sun" news. 6.40: 2BL Dinner Quartette—(a) "In Basdad" (Leigh), (b) "I Can't Do Without You" (Berlin), (c) "Gavotte Caprice" (Bortiewicz), (d) "Chu Chin Chow" (Norton), (e) "Mother, I Still Have You" (Jolson), (f) "Back In Your Own Back Yard" (Jolson). 7.7: Complete sporting and racing resume. 7.30: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION.

Announcer: Basil Kirke.

Accompanist: G. Vern Barnett.

8.0: G.P.O. chimes. Topical chorus. Kalua Trio, Hawaiian Steel Guitar—(a) "Kalua Blues" (Arber), (b) "Hawaiian March Medley" (Scott), (c) "Hawaiian Waltz Medley" (Mison).
8.15: Billie Creswell, popular vocalist.
8.22: Googs Hanlon, novelty pianist—(a) "Jeannine I Dream of Liliac Time" (Shilkert), (b) "Without You, Sweetheart" (De Sylva), (c) "Waltzing the Classics" (own arrangement).
8.30: Popular studio programme.
8.30: Late weather report.
8.31: Kalua Trio—(a) "Hilo March Medley" (Garrett), (b) "Flight of the Fairies" (Hicks), (c) "One, Two, Three, Four Waltz" (Alau), (d) "Honolulu Marches" (Francis).
9.45: Billie Creswell, popular vocalist.
9.52: Googs Hanlon, novelty pianist—(a) "After My Laughter Came Tears" (Turk), (b) "Laugh, Clown, Laugh" (Florio), (c) "Side by Side" (Woods).
10.0: G.P.O. chimes. Announcements.
10.5: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
10.15: From the Studio—Late weather.
10.20: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
10.32: Announcements and "Sun" news.
10.37: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
10.57: From the Studio—Features of tomorrow's programme.
10.59: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.
11.30: National Anthem. Close down.



Oriole Clarson (10), who gives charming recitations from 2UW during the "C.N." R.B.C. "Children's Hour." Oriole has been a member of "Farmer's Children's News" Radio Birthday Club since she was six.

2GB

3.0: Dance music. 5.30: Children's session, by Uncle George. 7.0: Music from studio. 8.0: Request evening. 9.0: Grown-up session. 10.30: Close down.

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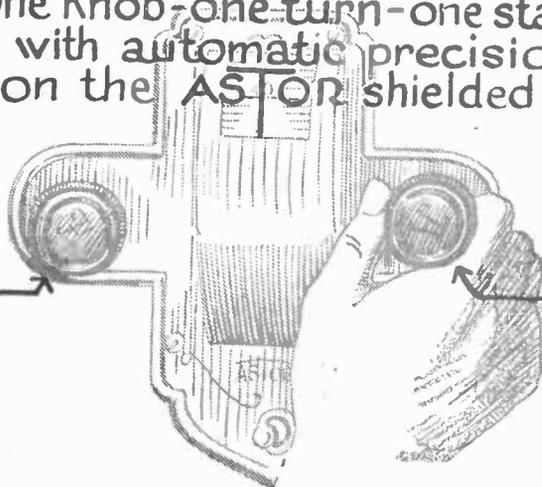
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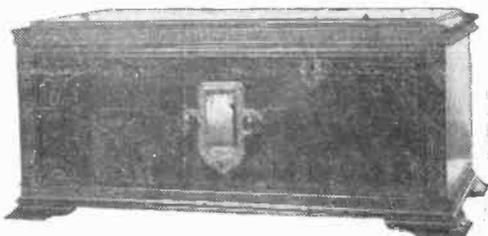


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Lady." 6.30: Captain Donald Maclean. 6.45: Parlophone recordings. 7.0: G.P.O. chimes. 7.1: S. G. Ward and Co.'s Stock Exchange information. 7.6: Scores of Inter-State tennis matches and annual tournament. Parlophone recordings. 7.10: Rev. G. E. Hale, B.A., will give an interesting talk on "Profitable Reading." 7.25: "Willow" will speak on "Cricket." 7.35: G. G. Riley, talk on "Items of Interest." 7.45: 5CL's sporting service, by "Silvius," including Port Adelaide and Caulfield race results.

NIGHT SESSION.

Announcer: J. L. Norris. 8.0: G.P.O. chimes. 8.1: S.A. Railways Band—Overture, "Morning, Noon, and Night" (Suppe). 8.10: Alys Watson, soprano—"Il Trovatore" (Verdi), "The Garden of Happiness" (Wood). 8.15: A one-act play entitled, "The Question." Characters: Mrs. Emily Baxter, a modern mother, Beryl Alford; Dolly Baxter, a modern daughter, Miriam Ralph; Arthur Saunders, a friend of Dolly's, Jack Burgess. Time. Forenoon. Scene: The sitting-room of the Baxters; Dolly bursts into the room while her mother is knitting. 8.35: S.A. Railways Band—"The Song is Ended" (Berlin), descriptive march, "Paddy's Patrol" (Darce). 8.43: Rev. Frank Gorman and Sadie McDonald. 9.0: G.P.O. chimes; meteorological information, including Semaphore tides. 9.2: Tom Doring, banjoist—"The Rosary" (Nevin), "Cheatin' On Me" (Ager). 9.5: Rinaldo Torre, baritone—"The Toreador" (Bizet), "Flange con me" (Papini). 9.12: S.A. Railways Band—Euphonium solo, "The Gipsy's Warning" (Barman). 9.20: Captain Donald Maclean. 9.40: Alys Watson, soprano—"Break o' Day" (Sanderson)—"Vale" (Russell). 9.46: S.A. Railways Band—Waltz, "Militaire" (Meissler). 9.52: Rev. Frank Gorman and Sadie McDonald. 9.58: Tom Doring, banjoist—"Love's Dream" (Liszt), "Ice Cream" (King). 10.3: Rinaldo Torre, baritone—Lucia Lantana (Maris), "Because" (D'Hardelet). 10.9: S.A. Railways Band—Selection, "The Land of the Shamrock" (Rimmer). 10.15: Late sporting results; scores of Inter-State tennis matches and annual tournament. 10.30: Modern dance numbers, by the famous "Radio Revelers." 11.0: God Save the King. Close down.

6WF

12.0: Tune in. 12.5: Racing anticipations. 12.7: Musical programme from the studio, including pianoforte solos by Miss Audrey Dean. 12.44: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin supplied by the Meteorological Bureau of West Australia. 1.3: Close down. 2.30: Tune in; sporting session, racing, cricket, and other sporting results will be broadcast each 15 minutes during the afternoon. 5.30 (approx.): Close down. 6.45: Tune in. 6.48: Uncle Duffy and Percy will talk to the Kids. 7.12: Sports results. 7.30: Commercial and general information. 7.45: Music. 8.0: Time signal. 8.1: Weather bulletin. 8.3: Vocal and Instrumental music from the studio; dance music relayed from the Y.A.L. ballroom, Ron Moyle and his Orchestra. 8.0: L.A.L. news items by courtesy of "The Daily News" Newspaper Co., Ltd.; slips within range announcement; station announcements; late weather bulletin. 8.18: Programme continued from the studio and Y.A.L. ballroom. 10.30: Close down. 104.5 Metre transmission.—Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL

MIDDAY SESSION.

Announcer: Jack Broadbent. 11.30 to 1.30: See Friday. 1.30: Running description of Narong Hurdie Race, 2 miles 84 yards, run at Caulfield racecourse, Caulfield, Melbourne, Victoria. 1.35: Close down. 2.30: Running description of Narong Two-year-old six furlongs, run at Caulfield racecourse, Caulfield, Melbourne, Victoria. 2.35: Close down.

AFTERNOON SESSION.

Announcer: Jack Broadbent. 3.0: G.P.O. clock chimes the hour. 3.1: Music. 3.5: Running description of St. Kilda Handicap, 1/2 mile, run at Caulfield racecourse, Melbourne. 3.10: Transmission from the T.C.A. Ground, cricket match, Sandy Bay v. South Hobart, described by A. M. O'Leary. 3.40: Running description of Gordon Steeplechase, 2 miles, run at Caulfield. 3.45: Cricket match. 4.5: Running description of South Yarra Handicap, 6 furlongs, Caulfield. 4.10: Cricket match. 4.50: Running description of Unique Welter, 1 mile, run at Caulfield racecourse, Caulfield, Melbourne, Victoria. 4.55: All sporting results to hand. 5.0: Close down.

EARLY EVENING SESSION.

Announcer: Jack Broadbent. 6.10: All sporting results to hand. 6.15: Music. 6.30: "Uncle David" will tell a story to the wee folk—"How the animals came to Australia." 6.35: Music. 7.0: Answers to letters and birthday greetings, by "Uncle David." 7.5: Music. 7.15: News service; egg-laying competition.

EVENING SESSION.

Announcer: Jack Broadbent. 7.30: Roy Johnson will speak on "Manual Training." 7.45: J. M. Counsell will speak on "European Affairs." 8.0: G.P.O. clock chimes the hour. 8.5: Transmission from the City Hall, Macquarie Street, Robert—St. Patrick's Concert. 10.20: From the Studio—News service. 10.35: Close down.

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Local Programmes, Sun., Mar. 17

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 St. John's Church of England, Balmain, the morning service, conducted by Rev. A. G. Rix.
- 12.15: Approx. close down.

AFTERNOON SESSION.

Announcer: Eric Bessimer.

- 2.30: Programme announcements.
- 2.32: Children's Session, conducted by the "Hello Man."
- 3.0: "Big Ben"; record recital.
- 3.15: A talk by W. F. Kay, "Life in the Early Goldfields."
- 3.30: From the Band Rotunda, Manly Beach: The Manly Band, conducted by James Pheloung.
- 4.30: From the Studio, musical items.
- 5.0: "Big Ben"; close down.

EVENING SESSION.

Announcer: Laurence Halbert.

- 6.0: "Big Ben"; programme announcements.
- 6.2: A talk by C. R. Hall.
- 6.15: Nora Hill, soprano.
- 6.22: Kathleen Roe, pianoforte solos—
 - (a) "Nocturne" (Chopin).
 - (b) "Les Marionnettes" (Crovlez).
 - (c) "Tamborin" (Rameau).
 - (d) "Prelude" (Rachmaninoff).
- 6.29: William Bowyer, basso.
 - (a) "Friend" (Davies).
 - (b) "Cavaller" (Hickey).
- 6.36: Kathleen Roe, pianoforte solos—
 - "Polonaise" (Chopin).
- 6.44: Nora Hill, soprano.
- 6.51: William Bowyer, basso.
 - (a) "Within these sacred Bowers" (Mozart)
 - (b) "Thou are Risen, My Beloved" (Taylor)
- 7.0: From the Lyceum Hall, Pitt Street.

Evening Service arranged by the Central Methodist Mission.

Preacher: Rev. H. C. Foreman, M.A.
Organist: Miss C. Bandsley, L.T.C.L.
Musical Director: Mr. V. W. Peterson, B.A.

- B.Ec.**
- Anthem, "O Gladsome Light" (Sullivan).
- Introit, "Jesu, stand among us."
- Invocation.
- Hymn 430, "Nearer My God to Thee."
- Prayer.
- Hymn 410, "Dear Land and Father of us all."
- Lesson, Matt. 5, 13-21.
- Solo, "Give" (Lohr), Herman Tremayne.
- Prayer.
- Intimations, Offertory.
- Anthem, "Hear My Prayer" (Mendelssohn).
- Soloist, Daisy Tollis.
- Hymn 580, "A charge to keep I have."
- Sermon, "The Lost Radiance of Christianity," Rev. H. C. Foreman.
- Hymn, 910, "Love of My Soul."
- Benediction and Vesper.
- 8.30: From the Band Rotunda, Manly Beach: The Manly Band, conducted by James Pheloung.
- 9.30: From the Studio, Eileen Starr, soprano.
- 9.37: Bryce Carter, 'cellist.
- 9.44: Eileen Starr, soprano.
- 9.51: Bryce Carter, 'cellist.
- 9.58: Recital of selected records of world famous artists.
- 10.30: National Anthem; close down.

2BL

MORNING SESSION.

Announcer: A. C. C. Stevens.

- 11.0: G.P.O. chimes. From the Strathfield Presbyterian Church, the morning service, conducted by the Rev. Victor Bell.
- 12.15: From the Studio—"Sun" news service.
- 12.30: Studio music.
- 2.0: G.P.O. chimes. Close down.

AFTERNOON SESSION.

Announcer: Jack Barnett.

- 3.0: G.P.O. chimes. Recital of selected records.
- 3.30: From the Arcadia Theatre, Chatswood—Nicholas Robins at the Wurlitzer organ.
- 4.0: From the Studio—Studio items.
- 4.10: From the Arcadia Theatre, Chatswood—Nicholas Robins at the Wurlitzer organ.
- 4.40: From the Studio—A talk by W. S. Ray, on the "Shamrock."
- 4.55: Programme announcements.
- 5.0: G.P.O. chimes. Close down.

EVENING SESSION.

Announcers: Jack Barnett and G. Verr. Barnett.

Accompanist: G. Vern Barnett.

- 6.0: G.P.O. chimes. Children's session, conducted by Uncle Peter.
- 6.30: From the Newtown Congregational Church—Organ and orchestral recital; organist, Allan Weekley; orchestral leader, Miss Howsen.
- Orchestra: "Sacred Wreath No. 26" (Volti).
- Orchestra: "Sacred Wreath No. 31" (Volti).
- Orchestra: "Sacred Wreath No. 9" (Volti).
- Organ solo, "By Babylon's Wave," by Gounod.

7.0: Evening service, conducted by Rev. Mearns Massie—

- Call to worship.
- Doxology.
- Short prayer.
- Gloria (chanted).
- Hymn, No. 2, "All Hail the Power."
- Scripture lesson—Pastor.
- Healing prayer.
- Duet, "Grateful Oh Lord Am I," Lena Murray and Lance Capps.
- Hymn, No. 9—"Lead, Kindly Light."
- Messages to sick friends.
- Announcements—Questions for March.
- Offertory Anthem—"O, Gladsome Light" (Sullivan).
- Hymn, No. 34—"God Will Take Care of You."
- Silent prayer.
- Sermon—"Things We Are Sorry For"—Pastor.
- Hymn, No. 37—"Rescue the Perishing."
- Benediction.
- Retiring—"Tell Me the Old, Old Story."
- 8.30: From the Victory Theatre, Chatswood—Leslie Harvey, at the Christie organ.
- 8.50: From the Studio—Theodore Atkinson, baritone.
- 8.51: Alicia Haywood, contralto—(a) "Ave Maria" (Luigi Luzzi), (b) "Meeting of the Waters" (Old Irish).
- 9.4: From the Victory Theatre, Chatswood—Leslie Harvey at the Christie organ.
- 9.24: From the Studio—Theodore Atkinson, baritone.
- 9.31: Alicia Haywood, contralto—(a) "She Is Far From the Land" (Lambert), (b) "Kate O'Shane" (Tinley).
- 9.38: From the Victory Theatre, Chatswood—Leslie Harvey at the Christie organ.
- 9.57: From the Studio—Late weather.
- 10.0: National Anthem. Close down.

2GB

- 5.30: Children's session, by Uncle George
- 6.30: Music from studio. 7.0: Lecture from Adyar Hall. 8.15: Rosenkranz piano solos.
- 8.23: Miss Mary Neal, contralto. 8.30: Miss Annetta Kerr, violinist. 8.38: Mr. J. Sim Allan, baritone. 8.45: Miss Gladys Edwards, soprano. 8.52: Rosenkranz piano. 9.0: Miss Mary Neal, contralto. 9.7: Miss Annetta Kerr, violinist. 9.15: Mr. J. Sim Allan, baritone. 9.22: Miss Gladys Edwards, soprano. 9.29: Rosenkranz piano. 9.33: Close down.

2UW

- 10.30 a.m.: Music. 1.0 p.m.: Close down.
- 5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: Musical programme. 10.30: Close down.

Interstate Programmes, Sunday, March 17

3LO

MORNING SERVICE.

Announcer: RENN MILLAR.

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 Christian Science Church, Melbourne—Voluntary, "Morceau de Concert" (Hollins); hymn 219, "O Lord, I Would Delight in Thee"; Scriptural, 1 Kings 17: 2-16; reading: John 6: 5-13, 22-27; silent prayer, followed by the audible recitation of the Lord's Prayer, with its spiritual interpretation from page 16 of the Christian Science text book, "Science and Health with keys to the scriptures," by Mary Baker Eddy; hymn 191, "O Gentle Crescense, Peace and Joy and Power" (Mary Baker Eddy); announcements: solo "O Lord, Thou hast searched me out," from "The Woman of Samaria," subject of the lesson sermon; "Substance"; offertory (organ), "Vive l'amour," by Herbert M. Prece; hymn 163, "Day by day the manna fell"; reading: "The Scientific Statement of the Bible," from page 498 of the Christian Science Text-book, and the correlative Scripture, according to John 3: 1-3; Benediction, Ephesians 3: 20, 21; postlude, "Grand Offertoire pour Un Jour" (Jules Grezol). 12.15: Close down.

AFTERNOON SERVICE.

Announcer: RENN MILLAR.

2.0: Sonnets recital of the world's most famous poets. 3.0: Pleasant Sunday afternoon from Wesley Central Mission, Lonsdale-street, Melbourne—Hymn No. 20, "Hail Thou once despised Jesus Christ"; orchestra; selection, Mr. G. M. Williams conductor, hymn No. 43, "Light of the World"; solo, Mr. J. Alexander Browne; orchestra; solo, Mr. J. A. Browne; notices; offering; orchestral; address; National Anthem; benediction; orchestra. 4.30: Close down.

EVENING SERVICE.

5.45: Shipping information. 5.47: Answers to letters and birthday greetings by "Billy Bunny." "Smother Bill's" talk this way is entitled, "Fully Armed." 6.45: Adult birthday greetings and programme announcements. 6.47: Bells from St. Paul's Cathedral.

NIGHT SERVICE.

Announcer: RENN MILLAR. Accompanist: Mabel Neilson. 7.0: Evening service from St. Paul's Cathedral, Melbourne—Sentence; Exhortation; General Confession; Absolution; The Lord's Prayer; Versicles and Responses; Psalm 111; Lesson; Magnificat; 2nd Lesson; Nunc Dimittis; The Apostles Creed; The Collects; anthem, "Blessed Jesu"; Prayers; Hymn 300 A and M. "We sing the praise of Him who Sings." Sermon, Rev. T. M. Robinson. Hymn 520. "Love Divine, all loves excelling"; The Benediction. 8.30: Brunswick City Band (conductor, Hugh Niven) selection, "Memories of Ireland" (Rimmer). 8.40: Madame Minnie Waugh, "The Meeting of the Waters," "Hes Sorrow Thy Young Days Shaded"; 8.47: Violet McGregor, violin, "Londoner's Air" (Newell); Irish Airs, arr. by Violet McGregor. 8.54: E. Mason Wood, baritone, "The Donegal" (Moir); "Little Irish Girl" (Lohr). 9.1: William Tish will tell an Irish story. 9.16: "Brunswick City Band" Two Chorales (Baehi). 9.23: Madame Minnie Waugh, soprano, "He Wipes the Tear" (Lee), "Ave Marie" (Mascagnoni). 9.30: Violet McGregor, violin, "Berceuse" (Godard), "Minuet in G" (Bach); E. Mason Wood, baritone, "Breathe!" (Dehde), "Song of the Open Country" (Martini). 9.44: Brunswick City Band, "March Militaire" (Schubert). 9.51: "Argus" news service announcements. 10.0: God Save the King.

3AR

11.0: Morning service from Scots Church, Collins-street, Melbourne. Psalm 40-1-4, "I waited for the Lord my God," "Purs 30. Prayer, "Prose Psalm" Will Bless the Lord at All Times," 34. Chants. Old Testament lesson, Isaiah 63-1-9. Hymn 198, "Hark My Heart is the Lord." Prayer of intercession. New Testament lesson, "The Parable of the Barren Fig Tree." Lord's Prayer. Sermon, the Rev. D. Macrae Stewart of Malvern Presbyterian Church, "The Rent Veil," St. John, 27-51. Prayer, Intimations. Offering Offertory. Hymn 401. Come and Mourn to Me." Benediction. 12.10: British official wireless news. 12.15: Close down.

AFTERNOON SERVICE.

Announcer: MAURICE DUDLEY. 3.0: Gramophone record of orchestral and vocal chets. 4.30: Close down.

EVENING SERVICE.

5.5: "Brier Rabbit." 5.30: Close down.

NIGHT SERVICE.

Announcer: MAURICE DUDLEY. 8.15: The Sunday News. Robert Gilard, bass, two songs from "Songs in Exile" (Lohr). Herbert Sanderson, baritone, "At the End of an Irish Moonbeam" (Golden). 8.22: The Strad Trio (Cecil Parkes, violin; May Broderick, piano; and Fred Johnston, cello). "Trio" (Lohr). "Melodie" (Parker). "Melodie" (Gluck). "Irish Air" (Hill-James). "Bourree" (Handel). 8.32: The Sunday News. Quartet, "O in the Silly Night" (Old Irish). "Kitty Mager" (Friedrich Schopponen). Piano, "Study in G Sharp Minor" (Chopin). "Study in G Major" (Chopin). "Valse Caprice" (Franz). "The Waterlily" (McDowell). "Finnish Dance" (Painpre). "Gavotte and Minuet" (Albani). 8.52: Frank Johnston, cello, "Has Sorrow Thy Young Days Brightened." "The Coolin." 8.57: The Sunday News. "Group of Negro Spirituals" (Frey). 9.1: One-act

play, "Bread," by request (Professor Eastman). Under the direction of Winifred Moverley. Characters: John Curtis (a farmer), A. J. Watkins; Grandma Curtis (his wife), Kathleen B. Metcalf; Maudie (his mother), Marjorie McLeod; Stella (his blind daughter), Kara Harkness; Betty (another daughter), Doris Little Jim (his son), Stanley James. The scene is the living-room of a farm house of the present day. The furnishings are simple, evocative. A dining table covered with a red cloth is in the centre of the room, and along the right wall is a cupboard. In a rocking chair sits Grandma Curtis darning hose. In a high-backed chair sits Stella, a blind girl of 15, her face bright and filled with enthusiasm as her fingers touch the pages of raised type before her. (9.27: Cecil Parkes, violin, "Londonderry Air" (Kreisler). "The Rosary," violin, "Molly on the Shore" (Grainger). 9.37: The Sunday News. "Songs My Mother Taught Me" (Dvorak). "Silver Threads Among Paroles" (Tschalkowsky). "The Strad Trio," "Chant sans Dance" (Fletcher). 9.54: News service. Announcements. God Save the King.

4QG

MORNING SERVICE.

10.50: The complete morning service will be relayed from St. Andrew's Church of England, South Brisbane: organ music by Mr. E. W. Taylor. 11.0: Morning prayer and holy communion—Psalm 27. Magnificat (chants): anthem, "Turn Thy Face" (Attwood); hymns 1164, "Father of Heaven," (207) "Our Bless Redeemer" (259) "Just as I Am," (537) "Peace, Perfect Peace," (107) "Glory be to Jesus"; organ music in conclusion; sermon by the rector.

AFTERNOON SERVICE.

3.30: The concert by the Citizens' Band will be relayed from the Botanic Gardens. 4.30: Close down.

EARLY EVENING SERVICE.

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

NIGHT SERVICE.

The complete evening service will be relayed from St. Andrew's Church of England, South Brisbane. Organ music; hymns and talk by the rector. 7.29: 7.0: Children's service—Psalm 51; Magnificat and Nunc Dimittis (Mauder); "Story of the Cross" (Stainer); hymns, (103) "When I Survey" (368) "To Whom the Sick" (91) "Christian, Dost Thou See" (Thomson); "Thou, the Day"; sermon by the rector; organ music. At the conclusion of the church service the concert by the Brisbane Municipal Concert Band (conductor, E. Jackson) will be relayed from Wickham Park. 9.30: Close down.

5CL

MORNING SERVICE.

Announcer: C. J. O'CONNOR.—10.45: Carlton of bells. 11.0: S.A. radio-gram, Irish tunes. 11.0: G.P.O. chimes. 11.1: Divine service from St. Patrick's Roman Catholic Church, Grote Street—Solemn High Mass, presided over by his Grace the Archbishop of Adelaide, Most Rev. W. Spence, O.P., a full chorus will render "Agnus Dei," "Credo," "Offertorium," "Sanctus," "Benedictus," "Agnus Dei," "Donna nobis pacem," and concluding with Hymn to St. Patrick; "Propeator," sung by Harold Wenzel; choirmaster and organist, Mr. A. R. Bushnell; soloist, Miss Helen Graham. 11.45: "Russell and Whelan, Messrs. Power, Kennedy, and Curtis. 12.15: From the studio: British official wireless news. 12.30: Close down.

AFTERNOON SERVICE.

Announcer: C. J. O'CONNOR.—3.0: G.P.O. chimes. 4.1: A pleasant Sunday afternoon service from Maughan Church, Franklin Street; preacher, Rev. W. F. Cann. 4.0: G.P.O. chimes and close down.

EVENING SERVICE.

Announcer: C. J. O'CONNOR.—8.0: G.P.O. chimes. 8.1: S.A. radio-gram information. 8.3: Birthday greetings, correspondence, songs and stories by "Miss Wireless." 6.30: "The Bird Lady" and "The Junior Songsters" will entertain the children. 7.0: G.P.O. chimes. 7.1: A religious service from Parkside Baptist Church.

NIGHT SERVICE.

Accompanist: Jean Finlay. Announcer: C. J. O'CONNOR.—8.25: From the studio. Holden's Silver Band (conductor, Mr. O. Summerton)—Quick march "It's a Long Way to Tipperary" (arr. S. Douglas), waltz, "Little Bird of Heaven" (share they call it) (Ireland) (Ball). 8.31: Linda Wald, soprano—"Barney O'Hea" (Samuel Lova). "Irish Folk Song" (Poole). 8.35: Tom Doring, banjoist, will entertain you with various Irish tunes. 8.41: Holden's Silver Band selection, "Reminiscences of Ireland" (arr. Douglas). 8.50: Gerald Healy, tenor—"Mother Macchree" (Ball). "Believe Me If all those Endearing Young Charms" (Moore). 8.58: James Glennon, violin, "Londonderry Air" (Kreisler). "Has Sorrow thy Young Days Shaded." 9.1: Holden's Silver Band—An Irish outburst, "Paddy's Outing" (Holliday), solo, "Peg o' my Heart" (Fisher). 9.9: Linda Wald, soprano, "Young Dream" (Anon.). "The Lane of Ballyroe." 9.15: Tom Doring, banjoist, in Irish melodies. 8.20: Holden's Silver Band, (fantasia, "Hibernian Melodies" (arr. Greenwood). 9.29: Gerald Healy, tenor—"Little Town in the County Down" (Gardner). "Sweet Vale of Avoca" (Pempie). 9.35: James Glennon, violinist—"The Harp that Once," "The Minstrel Boy." 9.40: Holden's Silver Band—Tango, "The Irish Tango" (Beauer),

March, "Where the River Shannon Flows" (Russell). 9.48: P. H. Nicholls will speak on "St. Patrick." 9.58: Meteorological information, including Semaphore tide. 10.0: G.P.O. chimes and close down.

6WF

10.25: Tune in. 10.30: Special half-hour for the enthusiastic listener in. 11.0: Morning service relayed from Trinity Church. 12.15: Close down. 3.30: Tune in. 3.35: Musical programme from the studio, including vocal and instrumental artists. 4.30: Close down. 7.0: Tune in. 7.5: Bedtime stories. 7.30: Evening service relayed from the Salvation Army Fortress. 8.45: Programme relayed from the Government Gardens by the Perth City Band, conducted by Mr. Les Price. 10.5: Close down. 10.4.5: Metre Transmission.—Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 7 p.m.

7ZL

MORNING SERVICE.

Announcer: J. M. COUNSEL. 11.0: Transmission from the Melville Street Methodist Church, Melville Street. Preacher, Rev. Mansley Bennett. 12.30: Close down.

AFTERNOON SERVICE.

Announcer: J. M. COUNSEL. 3.30: From the studio, a pleasant Sunday afternoon service, arranged by the P.A.S. Association.

EARLY EVENING SERVICE.

Announcer: J. M. COUNSEL. 6.15: Chorus singing (conductor, Trevor M. Morris, of the Children's Special Service Mission). 6.45: Bertha Southey Bremhill will read a poem to the wee folk—"Goblin Bill," "Fairy Horses."

EVENING SERVICE.

Announcer: J. M. COUNSEL. 7.0: Transmission from the Memorial Congregational Church, Brisbane Street. 8.25: From the studio, a programme of sacred and classical music, arranged by J. M. Counsel. 9.40: News service. 9.50: Close down. 7ZL—MONDAY, MARCH 18. ETA

MIDDAY SERVICE.

11.30 to 1.30: See Friday. 2.55: Results will be given of the Ardmillan Trial Hurdle Race, two miles, and Hollymount Handicap, five furlongs, run at Moonee Valley racecourse. Moonee Valley, Melbourne, Victoria.

AFTERNOON SERVICE.

Announcer: JACK BROADBENT. 3.0: Running description of Quality Handicap, six furlongs, Moonee Valley course, Melbourne. 3.5: Music. 3.40: Running description of Eight Hours Welter Handicap, one mile and a quarter. Moonee Valley. 3.45: Music. Running description of Maccodoc Welter, seven furlongs, run at Moonee Valley racecourse, Melbourne, Victoria. 4.55: Close down.

EARLY EVENING SERVICE.

6.10: Results of Moonee Valley races. 6.15: Music. 6.45: Sheila Carroll, elocutionist, will recite. 7.0: Answers to letters and birthday greetings, by "Uncle David." 7.5: His Master's Voice in moments merry and musical. Marrying two records, "Laughing Policemen" and "Giggling Gertie." 7.15: News service.

EVENING SERVICE.

7.30: Geo. Collins, Tasmania's champion wrestler, will speak on "Physical Culture." 7.45: R. W. Brookes will give a talk on "Inside a Motion Picture Studio." 8.0: G.P.O. clock chimes the hour. 8.8: His Master's Voice in moments merry and musical. 8.15: A concert programme arranged by Madame Helen George and Mlle. Columbia. Madame Helen George, piano solo, "Rhapsodie in B Minor" (Drahms). Barbara Storey, elocutionist. "The Revenge" (Tennyson). Harry Edna, bass, "Lesair" (Bennett). Madame Helen George, piano solo, "Liebestraum" (Liszt). Maria Kurekko, soprano, "Wiegallied" (Tschalkowsky). Barbara Storey, elocutionist—(a) "Christ in Flanders" (Whitwell), (b) "Death Be Not Proud" (Donne). "Sweet Content" (Dekker). "I Loved a Lass" (Anon.). Paul Whiteham and his orchestra, "Tschalkowskiana" (Hand). Madame Helen George, piano solo, "Waltz in E Major" (Mozowski). 9.45: News service. British official wireless news. Tasmania district weather report. 10.0: G.P.O. clock chimes the hour. 10.1: Close down.

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Local Programmes, Monday, March 18

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.

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: The 2FC Racing Commissioner, late 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.

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. 12.30: 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: Popular 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 schools—A short musical recital; a reading. 3.0: Pianoforte reproduction. 3.15: A sketch by the students of the MacCunn School—"On the Kitchen Fire"—Danny, H. W. Varna; Madge, Freda Catip; Norah (cook), Asthore Taunton. Scene: In the kitchen. 3.30: Miriam Pope, soprano—(a) "Piper June" (Carew), (b) "My Message" (D'Hardelot). 3.37: Popular music. 3.45: A reading. 4.0: Miriam Pope, soprano—(a), "Butterfly Wings" (Phillips), (b), "Robin's Song" (White). 4.7: Popular music. 4.10: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.22: From the Studio—A sketch by the students of the MacCunn School—"Bobbie Settles Down"; Roberta, Phyllis Dwyer; Aenes Brompton, Marjorie Dwyer; George Phillips, Gordon Stilling; Grace (the maid), Bonnie Thompson. 4.37: Studio music. 4.45: Stock Exchange, third call. 4.47: Popular items. 5.0: "Big Ben." Close.

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 "Mara"; letters and stories; music and entertainment. 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), "Hungarian Dance" (Brahms), (b), "Floradora" (Stuart), (c), "The Fiddler of June" (Elliot), (d), "I, Extase" (Thorne), (e) "In the Woodshed" (Siegel).

EVENING SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Popular music. 7.45: Programme announcements. 7.48: Studio items. 8.0: "Big Ben." Concert programme, under the direction of Mr. Leo Packer; associate artists—The Light Music Four, Dorrie Ward, Peggy Dunbar, W. E. Lewis, Gladys Rowling. Charles Lawrence. 9.0: "Big Ben." Weather report; tales of a traveller, told by the Rev. F. H. Raward. 9.15: The "Cingales," produced by Leo Packer; the story told by Charles Lawrence, who plays the part of "Mr. Chumboddy Ram"

—The Light Music Four, Dorrie Ward, Peggy Dunbar, W. E. Lewis, Gladys Rowling. 10.27: To-morrow's programme. 10.30: National Anthem. Close down.



Rev. F. H. RAWARD, who will continue his "Tales of a Traveller," from 2FC to-night.

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 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 down.

MIDDAY SESSION

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. 2BL Women's Sports Association Session, conducted by Miss Gwen Varley. 11.30: Advertising Hints: Talk on "Diet and Health" by Miss Dorothea de Clegborne. 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. 12.30: Shipping and mails. 12.35: Market reports. 12.48: "Sun" midday news service. 1.0: Studio music. 1.30: Talk to children and special entertainment for children in hospital. 2.0: G.P.O. chimes. Close down. Note: Race results of the trots will be broadcast by courtesy of the "Sun" Newspapers.

AFTERNOON SESSION

Announcer: A. C. C. Stevens.

Accompanist: Kathleen Reeves.

3.45: G.P.O. chimes. Popular music. 4.0: A talk by Captain Fred Arons: "Bramante Bazzari." 4.15: Nancy Rouse, violinist: (a) "Old Folks at Home" (Kreisler), (b) "Andantino" (Martini). 4.22: Studio music. 4.32: "Sun" news service. 4.40: Nancy Rouse, violinist: Selected. 4.47: Popular music. 5.0: G.P.O. chimes. Pianoforte reproduction. 5.15: Studio items. 5.30: Resume of trots. Features of the evening's programme.

EARLY EVENING SESSION

Announcer: Basil Kirke.

5.40: Children's Session. Music and entertainment: letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette: (a) "La Belle Pierrette" (Foulds), (b) "Illusion Valse" (Michiels), (c) "The Girl from Utah" (Rubens), (d) "Tales of the Vienna Woods" (Strauss), (e) "Full Moon" (Woolmer). 7.7: Australian Mercantile, Land, and Finance Co.'s report. Weather report and forecast, by courtesy of Government Meteor-

Whistling Competition

For full particulars of to-night's Whistling Competition from 2BL, see page 3. Votes must be recorded on the coupon on that page which should then be forwarded to "Wireless Weekly," 51 Castlereagh Street, Sydney, endorsed "Whistling Competition."

The winner will be the listener whose voting coupon places the competitors in the order of popular voting.

ologist. Producers' Distributing Society's fruit and vegetable market report. Grain and fodder report ("Sun"). Dairy produce report ("Sun"). 7.25: Mr. Plim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION

Announcer: Basil Kirke.

Accompanist: G. Bern Barnett.

8.0: G.P.O. chimes. Topical chorus. Savoyans Dance Band. 8.14: Harry Croot, baritone—(a) "Down Vauxhall Way" (Oliver), (b) "Obstination" (Fontenailles). 8.21: Gwen Sherwood, entertainer—"The Conjuror's Revenge" (adapted), (b) "Professor Plumb's Pale Pills" (adapted). 8.29: Luci and Tonio, melodists. 8.39: Fun and frivolity by Graham and Manning—(a) "That Stile at the End of the Lane" (Hylton), duet; (b) "The Japanese Sandman" (Whiting), Dorothy Manning; (c) "Peep-bo, A-ha, I See You" (Miller), duet. 9.49: Our Whistling Competition. "Who can whistle the best?" Listeners are asked to judge. The following artists shall sing a song and then whistle it, and the listener who forecasts most accurately the successful competitor will receive a prize of £2/2/-: Harry Graham, Phil Mountain, Carlton Fay, Les Austin, Frankie Stott, Harry Croot.

9.10: Saxophone solos by—Harris. 9.17: Harry Croot, baritone—(a) "O Night of Stars and Splendour" (b) "The Little Ships" (Loughborough). 9.24: Savoyans Dance Band. 9.36: Gwen Sherwood, entertainer—(a) "The Awful Fate of Melpomene's Jones" (adapted), (b) "The Great Detective" (adapted).

9.44: Luci and Tonio, melodists. 9.54: Fun by Graham and Manning—(a) "Do You Think So?" (Foley), duet; (b) "The Sadness of Her Sadness" (manuscript), Harry Graham; (c) "Shopping a la Mode" (Foley), duet.

10.4: Savoyans Dance Band. 10.28: Late weather and announcements. 10.35: Savoyans Dance Band. 10.57: Features of to-morrow's programme. 10.59: Savoyans Dance Band. 11.30: 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. 11.30: Close down. 2.0: Music. 2.5: Women's radio service, by Mrs. Dorothy Jordan. 2.50: Music. 3.15: Close down. 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: Mr. Vileto Earle, baritone. 8.7: Miss Jeannette Paterson, pianiste. 8.15: Miss Gladys Verona, soprano. 8.22: Instrumental music. 8.32: A humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.37: Mr. Leon Novello, tenor. 8.47: Mr. Leonard Brewer, violinist. 8.57: A humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 9.0: Weather report. 9.3: Address. 9.15: Mr. Victor Earle, baritone. 9.25: Miss Jeannette Paterson, pianiste. 9.35: Miss Gladys Verona, soprano. 9.45: Mr. Leonard Brewer, violinist. 9.55: A humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 10.0: Mr. Leon Novello, tenor. 10.10: Dance music. 10.30: Close down.

2UW

MIDDAY SESSION

12.30: Music. 1.0: G.P.O. clock and chimes; music. 2.30: Close down. 4.30: Musical programme.

EVENING SESSION

5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. clock and chimes; music. 7.45: Wireless talk: hints and advice, by Mr. E. Homfray. 8.0: To-day's anniversary; music. 9.0: G.P.O. clock and chimes; comments on foreign affairs, by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.

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Announcer: Renn Millar.

7.15 to 8.15: See Friday. 10.50: Eric Welch will speak on to-day's races at Moonee Valley. 11.0: 3LO's Different Dainties for the Daily Dinner...

AFTERNOON SESSION

Announcer: Renn Millar. Accompanist: Agnes Fortune.

2.15: The Strad Trio - "Op. 12 No. 1" (Hummell), Allegro Agitato Andante. 2.28: Description of Hollymount Handicap, five furlongs at Moonee Valley...

EVENING SESSION

Birthday greetings by Billy Bunny. Storyteller: Frank Hatherley.

6.0: Answers to letters and birthday greetings by "Billy Bunny". 6.25: Musical interlude. 6.30: William C. Groves will tell the children some more about "The Peter Pan of the Pacific".

NIGHT SESSION

Announcer: Frank Hatherley.

7.15: Stock Exchange Information. 7.15: Market reports. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the Past. 7.46: J. Howlett Ross will speak on "Eight Hours' Day".

ma Moon" (Davis). "Sonny Boy" (Brown). "Sally of My Dreams" (Kernell). "You're a Real Sweetheart" (Friend). "Tokio" (Conder), selected, selected items. 11.30: God Save the King. 10.0 to 10.59: See Friday. 11.0: A gramophone recital of orchestral and vocal chefs d'Oeuvre. 12.20: British Official Wireless News. 12.30: Close down.

AFTERNOON SESSION

Announcer: Maurice Dudley. 3.0: Gramophone recital. 3.30: The Imperial Russian Trio (Vallinil Ister piano, Arved Norit violin, Ivan Berzinsky cello).

EVENING SESSION

Announcer: John Stuart. 6.0: Gramophone recital. 7.10: News service. Announcements. Results of Moonee Valley races. 7.20: Gramophone recital continued.

NIGHT SESSION

Announcer: John Stuart. 8.0: E. C. H. Taylor, "School Life and School Sport." 8.15: Under the auspices of the Historical Society of Victoria, A. S. Kenyon will speak on "Hume, Hovell, and Sturt".

5CL

MORNING SESSION

Announcer: C. J. O'Connor. 11.0: G.P.O. chimes. 11.1: News service. 11.25: Kitchen craft and menu talk. 11.30: Sonora. 11.45: Miss Gladys (Harris). Shorthose, and Rose will speak on "Physical Culture for Women".

AFTERNOON SESSION

Announcer: C. J. O'Connor. Accompanist: Jean Finlay. 3.0: G.P.O. chimes and resume of previous Moonee Valley race results. 3.1: Station Quartette-Selection. "The Pirates of Penzance" (Sullivan). 3.9: Hilda Hammond soprano - "Mifanwy" (Brabe). "Pat H' Peller" (Bevan). 3.15: Moonee Valley race results - Welter Handicap. 3.16: Re-appearance of Syd Hollister (comedian) in six minutes' fun. 3.22: Station Quartette, fantasy, "Schubertiana". 3.30: A comedy, entitled, "In Two Minds". Characters: Lady, Mrs. Sabel, the Maid (Parkins). Beryl Alford. Time: Evening Scene: Lady Margaret's dressing room. The room is strewn with dresses, flowers, shoes, etc.; dressing table with toilet apparatus, and a jewel case on it. Lady Margaret is discovered at her dressing table dressed for the ball. Parkins, the maid, is standing behind her. Mrs. Sabel, Matthew's contralto - "By the Waters of Minnetonka" (Luceance). "The Link Divine" (Piccolomini). 3.35: Moonee Valley race result - Knoll Handicap. 3.56: Station Quartette. "The Merry Widow" (Lehar). 4.1: Resume of previous race results. 4.2: Hilda Hammond, soprano, and Mrs. Leslie Matthews, contralto, in a duet, "Underneath the Trees" (Newton). 4.3: Syd. Hollister, comedian, hope Hollisterisms. 4.11: Station Quartette - "Men of Sparta" (Zameckil). "Sizilietta" (Von Blon). 4.19: Hilda Hammond, soprano - "The Silver Ring". 4.21: "Love was Once a Little Boy" (Arne). 4.25: Moonee Valley race result - Macedon Welter. 4.26: Lizette Poglia, violinist, Adagio (Ries). 4.32: Station Quartette, suite, "Moon Moths" (Kussner). 4.33: Mrs. Leslie Matthews, contralto - "Sunshine and Rain" (Vern Rogers, trumpeter. "One Happy Day" (De Costa). 4.47: Hilda Hammond, soprano, and Mrs. Leslie Matthews, contralto, in a duet, "Till Dawn" (Loewe). 4.51: Station Quartette, selection. "The Gondoliers" (Sullivan). 4.55: S. Ward and C. Dooley, Stock Exchange information. Time of Moonee Valley race results. 5.0: G.P.O. chimes and close down.

EVENING SESSION.

Announcer: J. L. Norris.—8.0: G.P.O. chimes. 6.1: Birthday greetings, correspondence, songs, and stories by "Auntie Peggy." 6.30: Introducing Nicola, the Great Magician, who will tell you "How to Become a Magician." 6.45: An interlude of dinner music. 6.57: Moonee Valley race results. 7.0: G.P.O. chimes. 7.1: S. C. Ward and Co.'s Stock Exchange Information. 7.5: General market reports.—South Australia and Adelaide Stock Salesmen's Associations, fat cattle sales; Dalgety and Co., wool and grain; Retail Grocers' Association, dairy produce. 7.10: Under the auspices of the South Australian Agricultural Department, Mr. R. Hill (Agricultural Instructor) will speak on "Cultivation and its Relation to Fertility." 7.30: The 5CL Twinkler Boys' Club, entertainment by "The Twinkler" (Mr. F. J. Mills).

NIGHT SESSION.

Announcer: J. L. Norris. Accompanist: Jean Phay.—8.0: G.P.O. chimes. 8.1: Station Orchestra, overture, "Potted Overtures" (Engelman). 8.8: Beryl Counter, mezzo-soprano—"Slave Song" (Del Rio). "What's in the Air To-day?" (Eden). 8.14: Re-appearance of Syd. Hallister (comedian) in comedialties. 8.20: Organ recital by Foxhall Robinson from Stow Memorial Church—Paraphrase on "The Londonderry Air," "Humoresque" (Dvorak), "Largo in G Major" (Beethoven), nocturne "Midsummer Night's Dream" music (Mendelssohn), "Minuet" (Mozart, 1756-1791), "Canzone" (Dubois), "Capriccio" (St. Cyr), "Military March" (Gounod). 8.40: The Radio Twins, entertainers, in newly revised numbers. 8.45: Norah Shirley, contralto—"My Dear Soul" (Sanderson), "Just" (Brasford). 8.52: Station Orchestra, selection, "Sally" (Kern). 9.0: G.P.O. chimes. 9.1: Meteorological information, including Semaphore codes. 9.2: Overseas grain report. 9.3: William and Florence Davey, xylophonists, in popular numbers. 9.9: Walter Wood, baritone, "I'll Sing The Songs of Araby" (Clay), "A Farewell" (Liddle). 9.15: Station Orchestra, "War March of the Priests" (Parsons). 9.20: Syd. Hallister, comedian, "Pickles." 9.26: Beryl Counter, mezzo-soprano—"Valley of Laughter" (Sanderson), "Ships that Pass in the Night" (Stephenson). 9.32: Station Orchestra—Suite, "By the Blue Hawaiian Waters" (Ketelby). "Rosamund" (Schubert). 9.38: William and Florence Davey, xylophonists, in pleasing harmonies. 9.44: Walter Wood, baritone—"There's a Land" (Allister), "An Emblem" (Thomson). 9.50: Station Orchestra, "The Maid of the Mountains" (Simson). 9.57: The Radio Twins, entertainers, in Radio-Liabilities. 10.3: Norah Shirley, contralto—"O, Lovely Night" (Ronald), "O, Western Wind" (Brahe). 10.0: Station Orchestra, "The Blue Kitten" (Friml). 10.15: General news service, meteorological information and Moonee Valley race results. 10.30: Modern dance numbers by the Radio Revellers. 11.0: God Save the King; close down.

6WF

12.30: Tune in. 12.35: Markets, news, etc. 1.0: Tune signal. 1.1: Weather bulletin supplied by the Meteorological Bureau of West Australia. 1.3: Fiction, "The Maid of the Mountains." 1.45: Meteorological Hour, relayed from Lyric House, arranged by Mrs. Murgrove. 1.50: Close down. 3.30: Tune in. 3.35: Afternoon tea programme relayed from the Carlton Cafe; vocal items from the studio. 4.30: Close down. 6.46: Tune in. 6.48: Uncle Duffy will talk to the kiddies. 7.5: Light music by the Perth Piano Trio, comprising Mr. A. Lynch violin; Mr. R. Brearley, cello; Mr. H. Shirley, piano. 7.30: Commercial and general information. 7.45: Talk by Lieutenant-Colonel Le Souef, Director, Zoological Gardens, South Perth. 8.0: Tune signal. 8.1: First weather bulletin. 8.3: Vocal and educational items from the studio. 9.0: Late news items by courtesy of "The Daily News" Newspaper Co., Ltd.; station announcements; ships within range announcement; late weather bulletin. 9.18: Programme continued from the studio. 10.30: Close down. 104.5 Metre Transmission—Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

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Local Programmes, Tuesday, March 19

2FC

Announcer: A. S. Cochrane.
EARLY MORNING SESSION.

7.0: "Big Ben" and announcements. 7.2: Official weather forecast; rainfall, river report; 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; product 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. 10.30: 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 Reuter's cable services. 11.5: Close down.

MIDDAY SESSION.

Announcer: A. S. Cochrane.
 12.0: "Big Ben" and announcements. 12.2: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Musical items. 12.10: Summary of news, "Sydney Morning Herald". 12.15: Rugby Wireless news. 12.18: A reading. 12.30: Studio music. 1.0: "Big Ben"; weather intelligence. 1.3: "Evening News" midday news service; Producers' Distributing Society's market report. 1.20: Studio music. 1.28: Stock Exchange, second call. 1.30: Studio music. 2.0: "Big Ben"; close down.

AFTERNOON SESSION.

Announcer: Laurence Halbert.
 Accompanist: Ewart Chapple.
 2.30: Programme announcements. 2.32: Educational Session for the schools—A short musical recital; a reading. 3.0: Pianoforte reproduction. 3.15: Popular music. 3.30: Madeline Hall, mezzo—(a) "Love's Garden of Roses" (Wood); (b) "The Ships of Arcady" (Head). 3.37: Studio music. 3.45: A reading. 4.0: Madeline Hall, mezzo—(a) "Meadow Sweet" (Brahe); (b) "Lullaby" (Scott). 4.7: Studio items. 4.20: Edith Harrison, pianist—(a) "The Fountain" (Bennett); (b) "No. 4 of Five Pieces" (Gardiner); (c) "Laughing Water" (Power). 4.30: Popular music. 4.45: Stock Exchange, third call. 4.47: Edith Harrison, pianist—(a) "Traumerli" (Schumann); (b) "Romance in F sharp" (Schumann); (c) "Caprice" (Schumann). Studio items. 5.0: "Big Ben"; close.

EARLY EVENING SESSION.

Announcer: A. S. Cochrane.
 5.40: The chimes of 2FC. 5.45: The Chil-

dren's Session, conducted by the "Heio Man," assisted by Aunt Eily; letters and stories; music and entertainment. 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. 5.50: Late sporting news. 7.0: "Big Ben"; late news service. 7.10: The 2FC Dinner Quartet, conducted by Horace Keats—(a) "Serenata" (Mascagni); (b) "Rouge et Noir" (Lotter); (c) "Hallelujah" (Youmans); (d) "Riviera Scenes" (Brooks); (e) "The Dream Princess" (Ancliffe); (f) "Sometimes I'm Happy" (Youmans).

EVENING SESSION.

Announcer: Laurence Halbert.
 Accompanist: Ewart Chapple.
 7.40: Popular music.
 7.45: Programme announcements.
 7.48: Studio items.
 8.0: Salvation Army Congress Band—(a) March, "Under Two Flags" (Coles); (b) Grand selection, "Gems from the Great Masters," No. 5 (arr. M'Anally).
 8.20: Leo Rowan, winner of the Tenor Section, No. 10, in the recent Radio Eisteddfod, conducted by the New South Wales Broadcasting Company, Limited—(a) "Love Is Mine" (Gartner); (b) "When Song is Sweet" (Sans Souci).
 8.27: Sketch by Brunton Gibb and Zena Jupp, successful in the recent Radio Eisteddfod, conducted by the New South Wales Broadcasting Company, Limited.
 8.39: Salvation Army Congress Band—(a) Cornet Solo, "O for the wings of a Dove" (Mendelssohn). Bandsman T. Smith, with band accompaniment. (b) March "The Golden Stair" (Hooke).
 8.50: Gertrude Grey, soprano.
 8.57: Pianoforte solos by Cec. Morrison.
 9.5: Weather report.
 9.6: Leo Rowan, tenor, in the Radio Eisteddfod—(a) "Bird Songs at Eventide" (Coates); (b) "Maiden Mine" (Bennett).
 9.13: Salvation Army Congress Band—(a) Trombone solo, "Ora Pro Nobis" (Piccolomini). Bandsman B. Hanna, with band accompaniment. (b) March, "Departed Heroes" (Coles).
 9.26: Gertrude Grey, soprano.
 9.33: Sketch by Brunton Gibb and Zena Jupp.
 9.45: Studio Dance Band.
 10.0: "Big Ben"; Terrence Nugent, popular vocalist.

10.7: Studio Dance Band, conducted by Cec. Morrison.
 10.17: Terrence Nugent, popular vocalist.
 10.24: Studio Dance Band, conducted by Cec. Morrison.
 10.36: Late weather and announcements.
 10.38: 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.

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 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 down.

MIDDAY SESSION

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

AFTERNOON SESSION

Announcer: A. C. C. Stevens.
 Accompanist: Kathleen Roe.
 3.45: G.P.O. chimes. Popular music. 3.50, down.

Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.0: From the Studio: Beatrice Nobbs, contralto—(a) "For Every Day" (Russell); (b) "Kathleen Mavourneen" (Crouch). 4.7: "Sun" news service. 4.10: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.20: James Pedal, pianist. 4.30: Beatrice Nobbs, contralto—(a) "A Jewelled Rosary" (Del Riego); (b) "Love is a Dream" (Pitt). 4.37: "Sun" news service. 4.40: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.50: James Pedal, pianist. 5.0: G.P.O. chimes. Popular music. 5.15: Pianoforte reproduction. 5.27: Producers' Distributing Society's poultry report. Racing resume. Features of the evening's programme.

EARLY EVENING SESSION

Announcer: Basil Kirke.
 5.40. Children's Session. Music and entertainment; letters and stories. 6.20: Mr. Norman speaks to the Bigger Boys. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette—(a) "Dawn" (Matt); (b) "The Rise of Rosie O'Reilly" (Cohan); (c) "Prelude in A Flat" (Chopin); (d) "Dream House" (Cowan); (e) "Pleading" (Bingham); (f) "Blue Night" (Rollins). 7.7: Australian Mercantile, Land, and Finance Co.'s report. Weather report and forecast, by courtesy of Government Meteorologist. Producers' Distributing Society's fruit and vegetable market report. Grain and fodder report ("Sun"). Dairy produce report ("Sun"). 7.25: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION

Announcer: Basil Kirke.
 Accompanist: G. Vern Barnett.
 8.0. G.P.O. chimes. Pianoforte solos by Kathleen Roe.
 8.10: From the Peace Memorial Hall, Rose Bay—A concert party arranged by the Rose Bay Music Club, under the direction of Oliver King. Associate artists: Cyril Monk, Walker, Mavis Dearman.
 9.10: From the Studio: "Bringa" will give a talk on "Aborigines."
 9.30: Second half of the concert programme arranged by the Rose Bay Music Club—Oliver King.
 10.15: From the Studio: Recital of celebrity records.
 10.27: To-morrow's programme.
 10.30: 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. 11.30: Close down. 2.0: Music. 2.5: Women's radio service, by Mrs. Dorothy Jordan. 2.50: Music. 3.15: Close down. 5.30: Children's session, by Uncle George. 7.0: Stock and market reports by N.Z. Loan and Mercantile Agency, Ltd. 7.15: Music. 7.30: Feature story, 7.40: Talk from the Radio Service Department by Mr. Stan Crittenden. 8.0: Miss Florence Gordon, contralto. 8.7: Mr. Gregory Valentine, violinist. 8.15: Mr. William Breen, tenor. 8.25: Miss Belle Young, pianist. 8.30: A humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.35: Miss Elsie Peerless, soprano. 8.45: Instrumental music. 8.50: Miss Florence Gordon, contralto. 9.0: Weather report. 9.3: Address. 9.15: Mr. Gregory Valentine, violinist. 9.25: Mr. William Green, tenor. 9.35: Mr. Jack Win and Mr. Heath Burdock, humour. 9.40: Instrumental music. 9.50: Miss Elsie Peerless, soprano. 10.0: Dance music. 10.30: Close down.

2UW

MIDDAY SESSION

12.30: Music. 1.0: G.P.O. clock and chimes; music. 2.30: Close down. 4.30: Musical programme.

EVENING SESSION

5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. clock and chimes; music. 8.0: To-day's anniversary; music. 8.15: Film talk, by Miss E. Baumberg. 8.30: Music. 9.0: G.P.O. clock and chimes; comments on foreign affairs by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close

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3LO

MORNING SESSION.
11.0: 3LO's Different Dainties for the Daily Dinner—Private Order's (Ansell). 11.5: Miss E. Noble will speak on "Gas Cookery." 11.20: Musical Interlude. 11.25: Mrs. Dorothy Silk will speak on "Homecrafts." 11.40: Musical Interlude. 11.45: Miss Doreen Berry will speak on "A Bullfight in Spain—Through a Woman's Eyes."

MIDDAY SESSION.
12.0: Melbourne Observatory time signal; express train information. 12.1: British Official Wireless news from Rugby; Reuter's the Australian Press Association cables; Reuter's news service. 12.15: Newmarket stock sales; official report of the sheep market by the Associated Stock and Station Agents, Bourke-street, Melbourne.

MIDDAY MUSICAL SESSION.
ANNOUNCER: RENN MILLAR.
ACCOMPANIST: AGNES FORTUNE.
12.20: The Station Orchestra. "A Military Overture—Private Order's" (Ansell). 12.30: Gaby Du Valle, soprano, "Carmena" (Lane Wilson), "Ayl Ayl Ayl" (Frolte). 12.37: Stock Exchange information. 12.40: The Station Orchestra, "Melody" (Frindl). 12.47: Rose Clayton, contralto, "Just a Ray of Sunlight" (W. H. Soutle). "Good Morning, Brother Sunshine" (Lehmann). 12.54: The Imperial Russian Trio (Arved Norit, violin; Ivan Berzinsky, cello; and Vassili Ister, piano). "Trio in F Major" (Schubert). In Tempo Moderato. Non troppo vivo: "Cavatotte" (Gluck). 1.9: Meteorological information; weather forecast for Victoria, Tasmania, South Australia, and New South Wales; ocean forecasts; river reports; rainfall. 1.10: Gaby Du Valle, soprano, "Is it a Dream" (Spier), "My Hour" (Ball). 1.23: The Station Orchestra, "Serenade" (Erne). "Thamara" (Ducouray). 1.30: Rose Clayton, contralto, "Night, Gentle Shepherd" (Grace Torrens). "Gossiping" (Dodge). 1.37: The Station Orchestra, selection. "Cleopatra" (Strauss). 1.45: Close down.

AFTERNOON SESSION.
ANNOUNCER: RENN MILLAR.
ACCOMPANIST: AGNES FORTUNE.
2.15: The Radio Revelers, "I'm Sorry Sally" (Kahn), "Mexican Serenade" (Terese), "Rio Rita" (Tierney). 2.24: Spencer Ward and Gertrude Long, "Just a Piano and Us." 2.40: Rita Hilton, sourette, "Ladies, Beware" (Pagon). "Whistle Away Your Blues" (Myers). 2.47: The Radio Revelers, "The Kink-a-Bou" (Tierney). "Next to me I like me next to you" (Bito). "Down where the sun goes down" (Jones). 2.56: Signor Tore, operatic tenor, "Non Torno" (Matti). "Santa Lucia Lantana" (Mario). 3.3: The Radio Revelers, "Can you Blame Me" (Goodwin). "I want to be alone with Mary Brown" (Leslie). "Tea Leaves" (Nichols). 3.15: Dolly Burdett, contralto, "The Night Wind" (Farey). "Home is Calling" (Hill). 3.19: The Radio Revelers, "Forty-seven Ginger-headed Sailors" (Sarony). "You ought to hear Olaf laugh" (Baer), "A Bungalow, a Radio and You" (Dempsy). 3.28: Spencer Ward and Gertrude Long, "Just a Piano and Us." 3.35: "Big Sister," by Norman McKinnel, produced by Maurice Dudley. Cast—Ethel Fraser, Mrs. Maurice Dudley, Dick Graham, Maurice Dudley. 3.40: The Radio Revelers, "Beck in your own backyard" (Jolson). "My Heart Stood Still" (Rodgers). "Give your Baby Lots of Lovin'" (Burke). 3.50: Rita Hilton, sourette, "A Good Man" (Freen). "Foolish Questions" (Sloane). 4.7: The Radio Revelers, "When You Know Me" (Baden). "My Blackbirds are Bluebirds Now" (Friend). "Get Out and Get Under the Moon" (Tobias). 4.15: Signor Tore, operatic tenor, "I Mare Chianese" (Tosti). "A Serenata" (Tosti). 4.22: The Radio Revelers, "Oh, Isabella" (Schuster). "Sweet Forget-me-Nots" (Lorenzoli). "Pansies" (Nichols). 4.31: Dolly Burdett, contralto, "The Sweetest Flower that Grows" (Hawley), selected. 4.38: The Radio Revelers, "In my Bouquet of Memories" (Levitt). "Lady of Love" (Nausbaum). "Hum and Strum" (Meyers). 4.47: Sonora recital of the world's most famous records. 5.0: "Herald" news service; Stock Exchange information. 5.10: Close down.

EVENING SESSION.
ANNOUNCER: FRANK HATHERLEY.
6.0: Answers to Letters and Birthday Greetings by "Bobby Bluegum." 6.25: Musical Interlude. 6.30: "Little Miss Kookaburra" in response to several requests, will tell her Kookaburrites some more about Robinson Crusoe. Did he like leaving the island after living there, twenty-seven years? How did he know it was that long? 6.50: "Bobby Bluegum" will tell you an old tale in a new way.

NIGHT SESSION.
ANNOUNCER: FRANK HATHERLEY.
ACCOMPANIST: AGNES FORTUNE.
7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the Past. 7.48: Under the auspices of the University Extension Board, E. Lang M.A., lecturer in Literature, will speak on "Early Australian Drama." 8.0: A Maker of History. 8.1: The Collingwood Citizens' Band—March. "The Virtuoso" (Rimmer). 8.10: Mrs. George, bass. "Julius Caesar's Song" (Gounod). "O, Could I But" (Malashkin). 8.17: Collingwood Citizens' Band, overture, "Crown Diamonds" (Auber). 8.24: Gaby Du Valle, soprano, "Pace Pace," "La Forza del Destino" (Verdi). 8.30: "Civellotto" (Dalverdi). 8.30: Church Choir—Organist and director, Mansley Greer; Annie Caddell, soprano; Madame Gregor Wood, contralto; Colin Thomson, tenor; Leslie Paul, bass. "The Last Night at Passover" (Toschi). "The Rose Tree" (Chorus). "Sweet Lord and Saviour Come" (2, recitative, baritone. "Behold, I stand at the door and knock"; 3, chorus). "Sweet Promise of a Heaven Below" (4, recitative, contralto. "Then Jesus, six days before the Passover came to Bethany, and he said, 'Behold, I stand at the door and knock'; 5, chorus. "O, God, most merciful and gentle"; chorus. "O, Master, Let Us In"; 6, quartet and chorus. "The Heavenly Word proceeding forth"; 7, recitative—contralto. "Then a Cook Mary a Pound of ointment"; 8, str, soprano. "All that has been said, Thine, my Lord"; 9, recitative, contralto. "Then

salth one of His Disciples"; 10, chorus. "The Poor, O Mary of Sorrows"; 11, recitative, contralto. "Then said Jesus, Let Her Alone"; 12, chorus. "By the good that Thou has wrought"; 13, Interlude, organ, episode—Angelic chorus. "For so He Giveth His Beloved Sleep"; 14, final, chorus. "Cain Ye, O Winds, Around Bethany blowing"; 9.25: The Russian Imperial Trio (Arved Norit, violin; Ivan Berzinsky, cello; and Vassili Ister, piano), "Barcarolle" (Tschakowsky); Arved Norit, violin, "Canzonetta" (Tschakowsky); the trio "Animate March from Symphony" (Tschakowsky); selected. 9.45: Mrs. George, bass, "Myself when Young" (Lehmann). "O Mistress Mine" (Quilter). 9.52: Collingwood Citizens' Band, Romance, "Love and Duty" (Rimmer), march, "Murcete" (Heber). 10.2: Gaby Du Valle, soprano, "Notturmo d'Amour" (Drigo), "Serenata" (Toselli). 10.10: "Argus" news service; meteorological information; British Official Wireless news from Rugby; announcements; Eric Welch's selections for the Kyneton races. 10.20: Collingwood Citizens' Band, selection. "The Desert Song" (Remberg). 10.30: Spencer Ward and Gertrude Long, "Just a Piano and Us." 10.42: Collingwood Citizens' Band, "March Militaire" (Schubert). 10.48: The Radio Revelers, "I'm Sorry, Sally," "Stars are the Windows of Heaven" (Maller), "That's Her Now" (Ager), "Japansy" (Jenner), "Constellation" (Carlton). "In the Woodshed she said 'I'd like to be a Minstrel'" (Wallace). "Just Keep Singing a Song" (Bissell). "Roses of Yesterday" (Berlin), "Jo-Anne" (Ward), "Gypsy" (Gilbert), "Mexican Serenade" (Terese). 11.30: God Save the King.

3AR

TUESDAY, MARCH 19.
ANNOUNCER: MAURICE DUDLEY.—10.0 to 10.5: See Friday.
10.5 to 10.55: See Friday.
11.0: Gramophone recital of orchestral and vocal chefs d'oeuvre. 12.20: British Official Wireless News. 12.30: Close down.

AFTERNOON SESSION.
ANNOUNCER: MAURICE DUDLEY. Gramophone recital. 3.15: The Strad Trio (Cecil Parkes, violin; May Broderick, piano; Fred Johnston, cello). Trio "Op. 99 B flat" 1st movement only (Schubert). 3.25: Beautiful Ballads. 3.35: Cecil Parkes, violin "Caprice Viennois" (Kreisler), "La Prietouse" (Bisak), "Hindoo Chant" (Rimsky-Korsakoff), "Zigeunerweisen" (Sarasate). 3.50: Beautiful Ballads. 4.0: May Broderick, piano. "Cavatotte and Musette" (D'AKert), "Windy in the Sun" (Sarony). 4.5: Beautiful Ballads. 4.3: The Strad Trio. Trio "Drink to Me Only" (arr. Cecil Parkes), "Menuett in E flat" (Beethoven), "Blue Lagoon" (Millocker-Parkes), "Extract from Brandenburg Concerto" (Bach). 4.26: Announcements.

EVENING SESSION.
ANNOUNCER: JOHN STUART. 6.0: Gramophone Recital. 7.10: News service. Announcements. Selections for Kyneton races. 7.20: Gramophone recital continued.

NIGHT SESSION.
ANNOUNCER: JOHN STUART. 8.0: Under the auspices of the Numismatic Society of Victoria, A. S. Kenyon will speak on "Roman Coins." Part 1. 8.15: W. G. Kelton of 3AR Program Club, "Postage Stamps." 8.30: The Station Orchestra. "Nautical Overture, "Plymouth Hoe" (Ansell). 8.40: Rinaldo Torre, tenor, "O Lisbona" (Don. Sebastiano), "Sull' Onda" (Donizetti Rusconi). 8.47: Musical Comedy. Radio presentation of "A Rustle in the Girdle" (Musical Director, Madame Ethel Ashton. Produced by Maurice Dudley. Cast: Brother Tamarind, Edgar Chapple; Signor Faloni, T. James Lloyd; Guy Stanley, T. James Lloyd; Mr. Cranford, Conrad; Lord Coode, Albert Harford; Sir William Hake, James Harford; Leonello, John Donovan; Pietra Pascara, James Russell; Filpper, Allan Bell; Alice, Jean Kelly; Dorothy Stanley, Rose Clayton; Garmentia, Merie Griffin; Lady Conna, Elsie Lang; Virginia, Vera Jura; Winifred Gray; Winifred Grey, Florence Blitz. 10.12: Adele Crane, soprano, "Down in the Forest" (Ronald), "Lie chestra," "Legende" (Frindl). 10.23: News session. There, My Lute" (MacCunn). 10.19: The Station Or News service, selections for Kyneton races. God Save the King.

5CL

MORNING SESSION.
ANNOUNCER: J. L. NORRIS. 11.0: G.P.O. chimes. 11.1: Sonora. Musical instruments, with Columbia artists. 11.15: Kitchen craft and menu talk. 11.30: Sonora. 11.45: Miss Maudie Ray will give a description of "Going to the Derby." 12.0: G.P.O. chimes. 12.1: Sonora. 12.15: General news service. 12.35: British official wireless news. 12.40: Vice. 12.52: S.A. railway information. 12.53: S. C. Ward and Co.'s Stock Exchange information. 12.58: Meteorological information. 1.0: G.P.O. chimes. 1.1: Lunch-hour recital. 2.0: G.P.O. chimes and close down.

AFTERNOON SESSION.
ACCOMPANIST: JEAN FINLAY. ANNOUNCER: J. L. NORRIS. 3.0: G.P.O. chimes. 3.1: Station Quartette—Foxtro, I Never Knew" (Ellis). "Valse Modeste" (Claude Iv). 3.10: Rev. G. H. Cole, B.A., will speak on "Pull Together." 3.25: Station Quartette—"Serenade" (Haydn), "Dance Fantastique" (Reynard). 3.35: Miss Leonora Mira, soprano—"Mighty Lak a Rose" (Nevin), "Old Golden Moon" (Lillian Gray). 3.45: Vera Jura, violin—"Nerone in E flat" (Chopin), "Concert Mazurka" (Wieniawski). 3.47: Station Quartette—Suite, "Rebel Maid" (Phillips), "Yester Eve" (Zamecni). 3.57: Syd. Hallister, comedian—in humorisms. 4.3: Syd. Hallister, comedian—Cherry Song" (Garter), "Across the Blue Baritone—Cherry Song" (Garter), "Across the Blue Sea" (Somerset). 4.5: Station Quartette—"Tip Toes" (Gershwin). 4.15: Miss Leonora Mira, soprano—"Love's Garden of Roses" (Wood), "The Leaves and the Wind" (Leonil). 4.2: Vera Jura, violin—"Berceuse" (Grieg), "Hungarian Dance" (Nachez). 4.27: Station Quartette—"Sunny" (Kern).

"Ecstasy" (Zamecnik), 4.37; Syd Hollister, comedian—Just for fun, 4.43; Syd Morrell, baritone—Ma Little Banjo (Dichmont), "Rolling Down to Rio" (German), 4.50; Station Quartette—Idyll, "April Sighs" (Hager), "Pomp and Circumstance" (Ziger), 5.0; O.P.O. chimes and close down.

EVENING SESSION.

Announcer: C. J. O'Connor 5.0; G.P.O. chimes. 6.1; Children's happy moments—Birthday greetings, correspondence, songs and stories by "The Wattle Lady", 6.30; Nicola, the world's greatest magician, will tell you more about "How to become a Magician", 6.45; An interlude of dinner music, 7.0; G.P.O. chimes, 7.1; S. C. Ward and Co.'s Stock Exchange information, 7.6; General market reports; S. A. Farmers' Union, dairy produce, A. W. Sandford and Co., produce and poultry; A. E. Hall and Co., wool and grain; Retail Grocers' Association, dairy produce, 7.11; 5CL's sporting service, by "Silvius", 7.25; Miss Laurie McLeod will talk on "The Art of Dancing", 7.40; Dr. Herbert Basedow, in another interesting Australian talk.

NIGHT SESSION.

Accompaniate: Jean Finlay. Announcer: C. J. O'Connor, 8.0; G.P.O. chimes, 8.1; Hindmarsh Municipal Band (Conductor, Mr. J. Radcliffe)—Overture "Stradella" (Plotow), 8.10; Windarra Male Quartette—"Calm as the Sea" (Pfeil), "Doan Yer Cry, Ma Honey" (Knoll) (by special request), 8.16; Syd. Hollister, comedian—in humorous numbers, 8.22; Hindmarsh Municipal Band—March, "Clippisland" (Lithgow), Tone Poem, "Loreley" (Nevadba) (b request), 8.31; Valda Harvey, soprano—"Break o' Day" (Sanderson), "I Love the Moon" (Rubens), 8.37; Winnie Hambridge, violinist—Selected numbers, 8.43; Hindmarsh Municipal Band—Selection, "Il Flauto Magico" (Mozart), 8.54; Eric Wickens, bass—"The Song of Hybris the Cretan" (Elliott), "True Till Death" (Scott-Gatty), 9.0; G.P.O. chimes, 9.1; Meteorological information, including Semaphore codes, 9.2; Overseas grain report, 9.3; H. Clayton, xylophonist (of the Hindmarsh Municipal Band)—Waltz, "Sunset On the St. Lawrence" (Heller), 9.5; Windarra Male Quartette—"Comrades in Arms" (Adams), "The Owl and the Pussy Cat" (De Koben), 9.14; Hindmarsh Municipal Band—Selection, "Joy Time Jingles" (Pether), 9.24; Syd. Hollister, comedian—More Hollisterism, 9.30; Ken Hughes, tenor—"My Dreams" (Tosti), "If I Might Come To You" (Foster), 9.38; Hindmarsh Municipal Band—Intermezzo, "In a Persian Market" (Keteib), 9.41; Winnie Hambridge, violinist—Selected numbers, 9.46; Valda Harvey, soprano—"Two Little Curly-headed Coons" (Hart), "I'm Wearin' Awa'" (Foots), 9.52; Hindmarsh Municipal Band—Intermezzo, "Rose Gardens" (Raymond), 9.57; A. Radcliffe, trombone soloist of the Hindmarsh Municipal Band—"The Death of Nelson" (Branam), 10.1; Eric Wickens, bass—"The Ragged Vagabond" (Randolph), "Young Tom O'Devon" (Russell), 10.7; Hindmarsh Municipal Band—March, "Death or Glory" (Hall), 10.15; General News Service, meteorological information; 5CL's sporting service, by "Silvius", 10.30; Wednesday dance numbers, by "The Radio Revelers", 11.0; God Save the King. Close down.

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6WF

12.30: Tune in. 12.35: Markets, news, etc. 1.0: Time signals. 1.1: Weather bulletin supplied by the Meteorological Bureau of West Australia. 1.3: Musical programme, including items by the Studio Trio. 2.0: Close down. 3.30: Tune in. 3.35: Musical programme from the studio, including pianoforte solos by Miss Audrey Dean; violin solos by Mr. Frank Romaine. 4.30: Close down. 6.45: Tune in. 6.48: Bedtime stories by Uncle Duffy. 7.5: Light music by the Perth Piano Trio. 7.50: Commercial and general information. 7.45: Talk by Mr. Bathgate on "Books of the Month." 8.0: Time signal. 8.1: First weather bulletin. 8.3: Vocal and instrumental items from the studio. 9.0: Late news items by courtesy of "The Daily News" Newspaper Co. Ltd., which within range announcement; station announcements; late weather bulletin. 10.30: Close down. 104.5 Metre Transmission—Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.45 p.m.

7ZL

EVENING SESSION.

Announcer: Jack Broadbent. 7.30: W. E. Punter will speak on "Literary Lapses and Library Lists, under the auspices of the Radio Research Club. 7.45: Trevor Watkins will speak on "How to Obtain Good Reception." 8.0: G.P.O. clock chimes the hour. 8.8: Columbia broadcasts. 8.15: A dance programme by the Ritz Band and Columbia (Conductor, E. Barnett). Ritz Band, "Forty-seven Ginger Headed Sailors" (Sarony); foxtrot, "One Hundred Years from Now" (Silvers); waltz, "Rosetta" (Newman). 8.24: John McCormack, singer—"Beneath the Moon of Lombardy" (Craxton), "Take, Oh, Take Those Lips Away" (Bennett). 8.31: Ritz Band—"Love Lies" (Reiland); foxtrot, "It Goes Like This" (Casear); Yale, "Dream House" (Foxe). 8.13: Edna Thornton, contralto—"For Every Day" (Russell), "Vale—Farwell" (Russell). 8.19: Ritz Band—Waltz, "Dream River" (Brown); foxtrot, "Cinnamon Light" (Zoeller); Yale, "By Myself in the Moon—Benjamin Oglit, tenor—"Lucrezia Berl, soprano, (Gounod); "Piangi! Piangi!" (Gounod). 9.30: Ritz from the Sky—"Two Lips" (Rose); Yale, "Melody of the Medley" (Donaldson); foxtrot, "Savoy American" (Sommers). 9.45: News service. 10.0: G.P.O. clock chimes the hour. 10.1: Close down.



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Local Programmes, Wednesday, March 20

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 sharemarket; metal quotations; wool sales; breadstuffs markets; Interstate 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. 10.45: 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. 12.30: 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: From the Pitt Street Congregational Church, organ recital, arranged by Lillian Frost. 2.0: "Big Ben." Close down Note.—Results from Ascot will be transmitted as received.

AFTERNOON SESSION.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
2.30: Programme announcements. 2.32: Record recital. 3.0: Pianoforte reproduction. 3.15: Popular music. 3.30: Sybil Porter, mezzo soprano—(a) "Open Thy Blue Eyes" (Massenet). (b) "Farewell to Summer" (Johnson). 3.37: Popular music. 3.45: A reading. 4.0: Sybil Porter, mezzo soprano—(a) "The Swallows Flying West" (Brahms). (b) "To Spring" (Gounod). 4.7: Studio items. 4.25: A talk by the Rev. T. A. Walsh. S.J. "Epitaphs." 4.40: Popular music. 4.45: Stock Exchange, third call. 4.47: Studio items. 5.0: "Big Ben." Close.

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; music and entertainment. 6.30: A chat about the Cheer-up Society, by Uncle

Frank. 6.35: 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. Request programme—(a) "Gavotte Mignon" (Thomas). (b) "Elegie" (Massenet). (c) "The Broken-hearted Sparrow" (Bendix). (d) "Who Is Sylvia?" (Schubert). (e) "Fille aux Chevaux de Lin" (Debussy). (f) "Songs My Mother Taught Me" (Dvorak). (g) "Largo" (Handel). (h) "The Angelus" (Massenet). (i) "Hearts and Flowers" (Tobani).

EVENING SERVICE.

Announcer: Laurence Halbert.
Accompanist: Ewart Chapple.
7.40: Popular music.
7.45: Programme announcements.
7.50: Studio items.
8.0: "Big Ben." To-night's classical programme is arranged by Arnold Mote.
9.0: "Big Ben." Weather report. A talk by Francis Jackson. "Three Nights in Paris."
10.15: Second part of the classical programme arranged by Arnold Mote.
10.27: To-morrow's programme.
10.30: National Anthem. Close.

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 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 down.

MIDDAY SESSION

Announcer: A. C. C. Stevens.
11.0: G.P.O. chimes. 2BL Women's Sports Association Session, conducted by Miss Gwen Varley. 11.30: Advertising hints. 11.40: Women's Session, conducted by Mrs. Cranfield. 12.0: G.P.O. chimes. Special ocean forecast and weather report. 12.3: Studio music. 12.30: Shipping and mails. 12.35: Market reports. 12.48: "Sun" midday news service. 1.0: Studio music. 1.30: Talk to children and special entertainment for children in hospital. 2.0: G.P.O. chimes. Close down. Note: Race results from Ascot races will be broadcast by courtesy of the "Sun" Newspapers.

AFTERNOON SESSION

Announcer: A. C. C. Stevens.
Accompanist: Kathleen Roe.
3.45: G.P.O. chimes. Popular music. 4.0: A talk by Basil Kirke—"Ceylon, the Pearl of the Indian Ocean." 4.15: Margaret Hunt, so-

prano. 4.22: Popular music. 4.32: Margaret Hunt, soprano. 4.40: Pianoforte reproduction. 4.50: Studio items. 5.0: G.P.O. chimes. "Sun" news service. 5.7: Popular music. 5.25: Resume of racing at Ascot. 5.37: Features of the evening's programme.

EARLY EVENING SESSION

Announcer: Basil Kirke.
5.40: Children's Session—Music and entertainment; letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette—(a) "Little Damask Rose" (Walton). (b) "This Hour With You" (Cooper). (c) "Valse des Alouettes" (Drigo). (d) "The Belle of New York" (Kerker). (e) "Two Arabesques" (Debussy). (f) "An Old Adobe" (Schertzinger). 7.7: Australian Mercantile, Land, and Finance Co.'s report. Weather report and forecast, by courtesy of Government Meteorologist. Producers' Distributing Society's fruit and vegetable market report. Grain and fodder report ("Sun"). Dairy produce report ("Sun"). 7.25: Mr. Pim and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION

Announcer: Basil Kirke.
Accompanist: G. Vern Barnett.
8.0: G.P.O. chimes. Topical chorus. Music Makers—(a) "Iolanthe" (Sullivan). (b) "Kuyaviak" (Weinlawski).
8.18: David Craven, baritone.
8.25: Sketch by Graham and Manning—"Just Like a Woman."
8.43: The Music Makers—(a) Suite "Le Lac des Cygnes" (Tschakowsky). (b) "Allegro in Waltz Form" (Walenn).
8.59: Weather report.
9.0: G.P.O. chimes. Irene Davies, soprano—(a) "Macushla" (Macmurrrough). (b) "Rose in the Bud" (Foster).
9.7: The Music Makers—Selection, "The Merry Widow" (Lehar).
9.17: Claude Corbett will talk on general sporting.
9.32: David Craven, baritone.
9.39: Sketch by Graham and Manning—"A Fire Affair."
9.43: The Music Makers—"Minuet" (Paderewski).
10.2: Announcements.
10.10: The Savoyans Dance Band.
10.30: Late weather and announcements.
10.35: Savoyans Dance Band.
10.57: To-morrow's programme.
10.59: Savoyans Dance Band.
11.30: National Anthem. Close.

2GB

10.0: Music. 10.10: Happiness talk, by A. E. Bennett. 10.20: Music. 10.30: Women's session, by Miss Helen J. Beegling. 11.30: Close down. 2.0: Music. 2.5: Women's radio service, by Mrs. Dorothy Jordan. 2.50: Music. 3.0: Labor-saving demonstration. 4.0: Close down. 3.30: Children's session, by Uncle George. 7.0: Stock and market reports by N.Z. Loan and Mercantile Agency, Ltd. 7.15: Music. 7.30: Feature story. 7.40: Talk by Miss Beegling. 8.0: Miss Heather Kinnaid, contralto. 8.7: Miss Ada Brook, pianiste. 8.15: Mr. Clement Hosking, baritone. 8.22: Mr. Heath Burdock, Shakespearian recital. 8.32: Miss Gladys Aubin, soprano. 8.40: Instrumental music. 8.50: Miss Heather Kinnaid, contralto. 9.0: Weather report. 9.3: Address. 9.15: Miss Ada Brook, pianiste. 9.25: Mr. Jack Win and Mr. Heath Burdock, humor. 9.30: Mr. Clement Hosking, baritone. 9.40: Instrumental music. 9.50: Miss Gladys Aubin, soprano. 10.0: Mr. Jack Win and Mr. Heath Burdock, humor. 10.5: Dance music. 10.30: Close down.

2UW

MIDDAY SESSION

12.30: Music. 1.0: G.P.O. clock and chimes; music. 2.30: Close down. 4.30: Musical programme.

EVENING SESSION

5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. clock and chimes; music. 8.0: To-day's anniversary; music. 9.0: G.P.O. clock and chimes; comments on foreign affairs by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.

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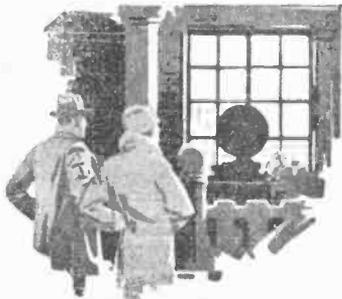
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3LO

EARLY MORNING SESSION.

7.15 to 8.15: See Friday.
MORNING SESSION.
 9.11.0: 3LO's different dainties for the daily dinner. To-day's Radio Recipe: Sand Cake. 11.5: Mrs. Henrietta C. Walker will speak on "The Art of Being a Settler—Washing Day." 11.20: Musical interlude. 11.25: Mrs. M. Galloway Mahood will speak on "The Art of Decoration." 11.40: Musical interlude. 11.45: Mrs. Clarence Weber will speak on "Physical culture for Women—Have You a Skin Like a Shark?" 12.0: Melbourne Observatory Time Sign. 12.1: British Official Wireless News from Rugby. Reuter's and the Australian Press Association cables. Argus news service. 12.15: Newmarket stock sales. Cattle sales report—bullocks and calves by the Associated Stock and Station Agents, Bourke-street, Melbourne.

MID-DAY MUSICAL SESSION.

Announcer: Renn Millar. Accompanist: Agnes Fortune. 12.20: The Radio Revelers: "Nebraska" (Sissel). "Little Irish Rose" (Zamcenik). "Counting the Milestones" (Thisley). 12.25: Spencer Ward and Gertrude Long. "Just a Piano and Us." 12.36: Stock Exchange information. 12.40: The Radio Revelers: "Daybreak" (Evans). "Toy Town" (Artillery) (Carlton). "Ready for the River" (Toret). 12.49: Olive Arthur, soprano. "There's Love for Us To-day" (Trent). "My Fairyland" (Foster). 12.56: 1.19: The Radio Revelers: "Under the Burma Moon" (Colombo) (Nichols). (Plantados). 1.5: The Program for information. Weather forecast for Victoria, New South Wales, South Australia, and Tasmania. Ocean forecasts. River reports. Rainfall. 1.12: Spencer Ward and Gertrude Long. "Just a Piano and Us." 1.19: The Radio Revelers: "The Big Top" (Brown). (Davis). "Sonny Boy" (Brown). "Sally of My Dreams" (Kernell). 1.23: Olive Arthur, soprano. "Life and Death" (Coleridge Taylor). "Because I Love You, Dear" (Forster). 1.30: Speeches from the Rotary Club Luncheon transmitted from the Freemasons' Hall, Collins-street, Melbourne. 2.0: Close down.

AFTERNOON SESSION.

Announcer: Renn Millar. Accompanist: Agnes Fortune. 2.13: Description of Hurdle Race—two miles—at Kyneton races, by Eric Welch. 2.20: The Station Orchestra: Overture, "Amilka" (Dorcline). 2.30: Adele Crane, soprano (by permission J. C. Williamson, Ltd.). "It is Only a Tiny Garden" (Haydn Wood). "A Dawning" (Gibson). 2.37: The Station Orchestra: "O'ntil" (Sanderson). 2.41: The Station Orchestra: Suite, "Gipsy Pictures" (Molloy). 2.48: Description of Macedon Plate, five furlongs, Kyneton races. 2.55: Dorothy Roxburgh, viola. Selected. 3.0: The Station Orchestra: "Andante from Sonata, No. Op. 12" (Beethoven). "The Butterfly's Madrigal" (Baron). 3.5: Signor Torre, operatic tenor. "Largo al Factotum" from "The Barber of Seville" (Rossini). "Blonde Sirena" (Pirpe). 3.12: Agnes Fortune, piano. "Frelude in A Flat" (Chopin). 3.18: Description of Kyneton Cup—3 1/2 furlongs—Kyneton races. 3.25: The Station Orchestra: "Larghetto" (Mozart). 3.32: Ella Riddell, contralto. "Linden Lea" (Vaughan Williams). "Hushen" (Necham). 3.39: The Station Orchestra: Selected. 3.45: Adele Crane, soprano. "How Do I Love Thee" (Maud V. White). "Two Bright Eyes" (Gayneh). 3.52: The Station Orchestra: Ballet Suite, "Princess Gioia" (Campbell). 3.58: Description of Trial Handicap—five furlongs—at Kyneton races. 4.5: The Station Orchestra: Selection. "Paul and Virginia" (Masse). 4.15: Signor Torre, operatic tenor. "Tamo ancora" (Tosti). "Vorrei" (Tosti). 4.22: The Station Orchestra: Selection Musical Comedy. 4.28: Description of Handicap Trot—five furlongs—Kyneton races. 4.35: Ella Riddell, contralto. "We'd Better Bide a Wee" (Claribel). "Within a Mile" (Holk). 4.42: For benefit of listeners in Redcliffe district. Selection "Two little Girls in Blue" (Youmans). 4.50: "Herald" news service. Stock Exchange information. 5.0: Close down.

EVENING SESSION.

Birthday greetings and stories, John the Piper's Son." 6.0: Answers to letters and birthday greetings by "John the Piper's Son." 6.25: Musical interlude. 6.30: "John the Piper's Son" has a quaint little story for the Tiny Ones.

NIGHT SESSION.

Announcer: Frank Hatherley. Accompanist: Agnes Fortune. 7.5: Stock Exchange information. 7.15: Market reports. 7.45: Out of the country. 7.48: Under the auspices of the Department of Agriculture, R. Crowe, Exports Superintendent, will speak on "Marketing Methods." 8.0: A Maker of History. 8.1: The Station Orchestra: Overture, "Chal Romano" (Katelbey). 8.10: Ernest Sage, baritone. "Marsha" (Cocobay). "King Charles" (Maude White). 8.17: Bertha Jorgensen, violin. "Romance" (Beethoven). 8.24: The Station Orchestra: "Echoes from the Opera" (Tobani). 8.31: Adele Crane, soprano. "Synnov's Song" (Kjerulf). "Thank God for a Garden" (DeRiego). 8.38: A. Anderson, clarinet. Selected. 8.43: The Station Orchestra: Selection. "L'Enfant Prodiges" (Wormsey). 8.53: Colin Thomson, tenor. "The Fuchsia Tree" (Quiller). "Old Man Might Have Been" (Fraser). One-act play. 9.0: "What They Think," by Rachel Crothers, produced by Winifred Moverley. Characters in the order of their speaking: The Boy, "Bobbie." Stanley James; The Girl, "Josie." Minnie Thornton; The Mother, "Mrs. Bernard." The Mother, Winifred Moverley. Time—Always. About 3 o'clock one morning in the summer. Place—A corner of the living-room of a good home. 9.30: The Station Orchestra: Suite, "In Fairy Realms" (Katelbey). 9.40: Gertrude Huton, contralto. "Lovers' Song" (Kjerulf). "Afar in the Wood" (Kjerulf). 9.47: Tasma Tiernan, cello. "Romance d'Autonne" (Friedrick Hall). 9.54: The Station Orchestra: "In the Garden" (Goldmark). 9.59: Ernest Sage, baritone:

"Far Across the Desert Sands" (Aylward). "Mountain Lovers" (Squire). 10.8: News session; meteorological information. British official wireless news from Rugby. Announcements. 10.17: Adele Crane, soprano. "Villa," from "The Merry Widow" (Lehar). "Morning" (Speaks). 10.24: The Station Orchestra: "Prelude Dramatique" (Hall). "The Cuckoo" (Arensky). 10.31: Colin Thomson, tenor. "The Arrow and the Song" (Balter). "A Song and a Dream" (Cadman). 10.38: The Station Orchestra: Selection. "Queen High" (Gensler). 10.46: Gertrude Huton, contralto. "Memories" (Cadman). "If June Were Mine" (Turvey). 10.54: The Radio Revelers: "Stars are the Windows of Heaven" (Mallet). "That's Her Nox" (Ager). "Japansy" (Klenner). "Constantinople" (Carlton). "In the Woodshed She Said She Would" (Johnson). "Whinetons" (Wallace). "Just Keep Singing a Song" (Sissell). "Roses of Yesterday" (Berlin). "Jo Anne" (Ward). "Gypsy" (Gilbert). Selected; Slumber Song. 11.30: God Save the King.

3AR

Announcer: Maurice Dudley.—10.0 to 10.50: See Friday. 11.0: Gramophone recital. 12.20: British official wireless news; announcements. 12.30: Close down.

AFTERNOON SESSION.

Announcer: Maurice Dudley. 3.0: Gramophone recital of orchestral and vocal chefs d'oeuvre. 3.30: The Russian Imperial Trio (Vassili Ister, piano; Arved Norit, violin; Ivan Berzinsky, cello). Ivan Berzinsky, cello. "Suite"—"Prelude" (Kalm). "Legend." "Menuetto." "Reproche" (Sachor). Vassili Ister, piano. "Kranovienne Fantastique" (Padewski). "Spanish Dance" (Moszkowski), selected. 4.0: Announcements. 4.3: Gramophone recital continued.

EVENING SESSION.

Announcer: John Stuart. 6.0: Gramophone Recital. 7.10: News service. Announcements. Results of Kyneton Races.

NIGHT SESSION.

Announcer: John Stuart. 8.0: P. W. Pearce, Physical Culture Expert, will speak on "Watch the Children's Physique." 8.15: Under the auspices of the Health Association. 8.30: The Brunswick City Band. Selection. "Melodious Gems" (Rimmer). 8.40: Gaby Duvalle, soprano. "Prayer to the Moon" (Lezal). "Cherie. I Love You" (Goodman). 8.47: Gipsy Ad. "Think About It." Produced by Duclie Hall. Cast: Mrs. Anybody. Mr. Anybody. Miss Nobody in Particular. 8.59: Brunswick City Band. Waits. "Over the Waves." 9.6: Rinaldo Torre, tenor. "Dis Possesse—Fau" (Gounod). "Crepuscule" (Kalm). "Legend." "Menuetto." "Reproche" (Sachor). Vassili Ister, piano. "Kranovienne Fantastique" (Padewski). "Spanish Dance" (Moszkowski), selected. 9.39: As per programme. 9.29: Spencer Ward and Gertrude Long in "A Piano and Just Us." 9.36: The Brunswick City Band. Fantasia. "My Old Kentucky Home" (Greenwood). March. "The First Life Guards" (Nalley). 9.46: Gaby Duvalle, soprano. "In the Garden of My Heart" (Ball). "Smilin' Through" (Penn). 9.53: The Imperial Russian Trio (Vassili Ister, piano; Arved Norit, violin; Ivan Berzinsky, cello). The works of Tschakovsky. Trio, "Bourgeois." Vassili Ister, piano. "Valse." Arved Norit, violin. "Cannonetta." Ivan Berzinsky cello. "Nocturne." Trio. "Andante from Symphony." 10.22: News service. Announcements. God Save the King.

7ZL

MIDDAY SESSION.

Announcer: Jack Broadbent. 11.30 to 1.30: See Friday. 1.30: Transmission from the Imperial Hotel, Collins Street, Hobart. Speeches at the Rotary Club luncheon. 2.0: Close down. 2.50: Running description of the Maiden Plate, five furlongs, run at Kyneton racecourse, Kyneton, Victoria. 2.55: Result of the Hurdle Race, run at Kyneton racecourse, Kyneton, Victoria.

AFTERNOON SESSION.

Announcer: Jack Broadbent. 3.0: G.P.O. clock chimes the hour. 3.1: Music. 3.4: Weather information. 3.5: Music. 3.20: Running description of Kyneton Cup, 9 1/2 furlongs, run at Kyneton racecourse, Kyneton, Victoria. 3.25: Music. 4.0: Running description of Trial Handicap, run at Kyneton racecourse, Kyneton, Victoria. 4.5: Music. 4.15: Readings from the "Illustrated Mail." 4.30: Running description of Handicap Trot, 9 furlongs, run at Kyneton racecourse, Kyneton, Victoria. 4.35: Close down. 5.0: Running description of Rawson Handicap, 6 furlongs, run at Kyneton racecourse, Kyneton, Victoria. 5.5: Close down.

EARLY EVENING SESSION.

Announcer: J. M. Counsel. 6.10: Results of Kyneton races. 6.15: His Master's Voice in moments merry and musical. 7.0: Southern Brannmall will tell a Tasmanian fairy tale: "The Fairy Witch of the 5 Hills" (part 3). 6.45: His Master's Voice in moments merry and musical. 7.0: Answers to letters and birthday greetings, by Bertha Southey Brannmall. 7.5: His Master's Voice in moments merry and musical. 7.15: News service.

EVENING SESSION.

Announcer: Jack Broadbent. 7.30: Geo. Nation will speak on "Around Your Garden." 7.45: Major H. Troussell, superintendent of the Hobart Fire Brigade, will speak on "Fire Brigade Horses." 8.0: G.P.O. clock chimes the hour. 8.5: Running description of instrumental and vocal items by leading international artists, specially arranged by Pindlay's Music Warehouse. 9.45: News service. 10.0: G.P.O. clock chimes the hour. 10.1: Close down.

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Local Programmes, Thursday, March 21

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 sharemarket; 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 selections. 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. 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. 12.30: Studio music. 12.45: Cricket scores, England v. West Australia, played at Perth. 12.47: 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: Popular studio music. 1.50: Last minute 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; a reading. 3.0: From Christ Church St. Laurence: Organ recital arranged by Christian Hellemann. 3.20: From the studio: Joseph Hagney, baritone—(a) "Where c'er You Walk" (Handel), (b) "Bird Songs at Eventide" (Coates). 3.27: Studio items. 3.30: Cricket scores, England v. West Australia, played at Perth. 3.40: From Christ Church St. Laurence: Organ recital arranged by Christian Hellemann. 4.0: From the Studio: A reading. 4.14: Joseph Hagney, baritone—(a) "Ombra Maiu" (Handel), (b) "Like Stars Above" (Squire). 4.20: From Christ Church St. Laurence: Organ recital arranged by Christian Hellemann. 4.40: From the Studio: Popular music. 4.45: Cricket scores, England v. West Australia, played at Perth. 4.47: Stock Exchange, third call. 4.49: Studio items. 5.0: "Big Ben." Close.

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. 6.20: A talk on "Safety First." 6.30: Dalgely's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.45: 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) "Bird Songs at Eventide" (Coates), (b) "Just Like a Melody" (Donaldson), (c) "Baby

Bunting" (Ayer), (d) "Down in the Forest" (Ronald), (e) "Barcarolle" (Offenbach), (f) "Back in Your Own Back-yard" (Jolson).

EVENING SESSION

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Popular music. 7.45: Programme announcements. 7.48: Lindley Evans will speak on the Music Teachers' Conference. 7.59: Foreword to the next item. 8.0: From the Capitol Theatre: The Capitol Unit entertainment. 8.12: From the Studio: Madame Vera Tasma. 8.19: Carl Budden, Morris, pianist. 8.31: A talk by C. Price-Conigrave: Australian Travelogue, "The Abrolhos Islands." 8.46: The Mellow Fellows, in song and story. 8.56: From the Capitol: Fred Scholl at the Wurlitzer organ. 9.10: From the Studio: Weather report. 9.11: Madame Vera Tasma. 9.18: Carl Budden, Morris, pianist. 9.30: The Mellow Fellows, in song and story. 9.40: From the Capitol Theatre: Fred Scholl at the Wurlitzer organ. 9.55: From the Studio: Announcements. 10.0: From the Hotel Australia: Cec Morrison's Dance Band. 10.15: From the Studio: Announcements. 10.20: From the Hotel Australia: Cec Morrison's Dance Band. 10.35: Late weather report. 10.40: 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.

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 down.

MIDDAY SESSION

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. 2BL Women's Sports Association Session, conducted by Miss Gwen Valey. 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. 12.30: Shipping and mails. 12.35: Market reports. 12.45: Cricket scores, England v. West Australia, played at Perth. 12.48: "Sun" midday news service. 1.0: 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 down.

AFTERNOON SESSION

Announcer: A. C. C. Stevens.

Accompanist: Kathleen Roe.

3.45: G.P.O. chimes. Popular music. 3.50: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.0: From the Studio: Ella Goodman, soprano. 4.7: "Sun" news service. 4.10: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.20: From the Studio: Edna Lister, contralto. 4.27: "Sun" news service. 4.32: Popular music. 4.40: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.45: Cricket scores, England v. West Australia, played at Perth. 4.47: Romano's. 4.50: From the Studio: Ella Goodman, soprano. 4.57: "Sun" news service. 5.2: Edna Lister, contralto. 5.9: Pianoforte reproduction. 5.20: Popular music. 5.37: Features of the evening's programme.

EARLY EVENING SESSION

Announcer: Basil Kirke.

5.40: Children's Session—Music and entertainment; letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner

Quartette—(a) "Nebraska" (Sissie), (b) "Miguetto" (Borenson), (c) "Chopiniana" (arr. Finck), (d) "I Just Roll Along" (de Rose), (e) "An Old Adobe" (Schertzing). 7.7: Australian Mercantile, Land, and Finance Co.'s report. Weather report and forecast, by courtesy of Government Meteorologist. Producers' Distributing Society's fruit and vegetable market report. Grain and fodder report ("Sun"). Dairy produce report ("Sun"). 7.25: Mr. Plm and Miss Pam in advertising talks and nonsense. 7.55: Programme and other announcements.

EVENING SESSION

Announcer: Basil Kirke.

Accompanist: G. Vern Barnett.

8.0: G.P.O. chimes. Topical chorus. The Ashfield Band, conducted by J. M. Herron. 8.10: Radio Male Quartette—successful competitors in the recent Radio Elsteddoff conducted by the N.S.W. Broadcasting Company, Limited. 8.20: Jack M'Clean, violinist. 8.27: Seven minutes of sorrow by the two Sad Sunbeams—Hear us moan though the Microphone—introducing "Tall, Dark, and Handsome" (Tobias and Sherman). 8.34: The Ashfield Band, conducted by J. M. Herron. 8.49: Hazel M'Pherson, winner of Section 9 in the recent Radio Elsteddoff conducted by the N.S.W. Broadcasting Company, Limited—contralto: (a) "Hindoo Song" (Bemberg), (b) "Has Sorrow Thy Young Days Shaded" (Moore). 8.56: Charles Lawrence, monologues. 9.6: Weather forecast. 9.7: The Ashfield Band, conducted by J. M. Herron. 9.22: Radio Male Quartette. 9.32: Jock M'Clean, violinist. 9.39: Hazel M'Pherson, contralto—(a) "Like to the Damask Rose" (Elgar), (b) "When Love is Kind" (Moore). 9.48: Charles Lawrence, monologues. 9.56: The Ashfield Band, conducted by J. M. Herron. 10.10: Late weather and announcements. Celebrity records. 10.27: To-morrow's programme. 10.30: National Anthem. Close.

2GB

10.0: Music. 10.10: Happiness talk, by A. E. Bennett. 10.20: Music. 10.30: Women's session, by Miss Helen J. Beegling. 11.30: Close down. 2.0: Music. 2.5: Women's radio service, by Mrs. Dorothy Jordan. 2.50: Music. 3.30: Cookery demonstration from Mark Poy's. 4.30: Close down. 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. 7.30: Short talk by Mrs. Jordan. 8.0: Miss Elsie Brown, soprano. 8.7: Miss Leila Waddell, violiniste. 8.15: Signor Mario Gustino, baritone. 8.22: Instrumental music. 8.30: Mr. Jack Win and Mr. Heath Burdock, humorous interlude. 8.35: Madame Bennett North, contralto. 8.45: Miss Mabel Underwood, pianiste. 8.55: Instrumental music. 9.0: Weather report. 9.3: Address. 9.15: Miss Elsie Brown, soprano. 9.25: Miss Leila Waddell, Violiniste. 9.35: A humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 9.40: Signor Mario Gustino, baritone. 9.50: Instrumental music. 10.0: Madame Bennett North, contralto. 10.10: Dance music. 10.30: Close down.

2UW

MIDDAY SESSION

12.30: Music. 1.0: G.P.O. clock and chimes; music. 2.30: Close down. 4.30: Music programme.

EVENING SESSION

5.30: Children's hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. clock and chimes; music. 8.0: To-day's anniversary, music. 8.15: Gardening talk, by Mr. S. H. Hunt. 8.30: Music. 9.0: G.P.O. clock and chimes; comments on foreign affairs, by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.

**FULLER
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LAST LONGER

GILBERT-LODGE & CO. LTD.

Interstate Programmes Thur., Mar. 21

3LO

EARLY MORNING SESSION.

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

MORNING SESSION.

Announcer: RENN MILLAR.
11.0: 3LO's Different Dainties for the Daily Dinner. To-day's Radio Recipe—Canary Pudding. 11.5: Under the auspices of the Society for the Prevention of Cruelty to Children, Mrs. Austin Gatehouse will speak on "The Work of the Society." 11.20: Musical Interlude. 11.25: Sister Purcell will speak on "Infant Welfare." 11.40: Musical Interlude. 11.45: Miss B. Macaulay will speak on "Autumn Sports in Switzerland."

MIDDAY SESSION.

12.0: Melbourne Observatory time. Express train information. 12.1: Prices received by the Australian Mines and Metals Association from the London Stock Exchange this day; British official wireless news from Rugby, Reuters; and the Australian Press Association cables. 12.15: News service. 12.15: Newmarket stock sales; report of the cow market and the number of cattle trucks taken for next week's markets, by the Associated Stock and Station Agents' Association, Melbourne. 12.20: Community singing, old time choruses, transmitted from the King's Theatre, Russell-street, Melbourne. Conductor, Frank Hatherly. 12.40: Stock Exchange information. 12.45: Community singing, retransmitted. Spencer Ward and Gertrude Long will entertain. 1.45: Meteorological information; weather forecast for Victoria, New South Wales, South Australia and Tasmania; ocean forecasts; river reports; rain fall. 1.52: Close down.

AFTERNOON SESSION.

Announcer: RENN MILLAR.
Accompanist: AGNES FORTUNE.
2.15: The Station Orchestra, overture, "Saul" (Bazini). 2.25: Gaby Du Valle, soprano, "Song of the Wind" (Rimsky-Korsakoff). "The Star" (Rogers). 2.32: The Station Orchestra, selection, "Countess Maritza" (Kalmán). 2.40: Signor Torre, tenor, "Agni Sera" (Gastaldini). "The Violets" (Wright). 2.47: The Station Orchestra, fantasia, "Erne Solre" (Händel). 3.0: Dr. Loftus Hills will speak on "Topics of the Week." 3.15: Wm. G. James will speak to students of Music. 3.30: J. Howlett Ross will speak on "George Essex Evans." 3.45: The Imperial Russian Trio (Arved Norit, violin; Ivan Berzinsky, cello; Vassili Ister, piano). "Trio in F Major" (Schumann); Molto animato: "Con espansione intima." "Rosary" (Nevin). 4.0: Gaby Du Valle, soprano, "Vilanelle" (D'Arenberg). "Song of the Sons" (Moya). 4.7: The Station Orchestra, selection, "Mirella" (Gounod). 4.17: Signor Torre, tenor, "Roughly Dance" (Schubert). "Exaltate D'Amour" (Liszt). 4.30: "Herald" news service; Stock Exchange information; special weather report for the benefit of listeners in the Redcliffe district. During the afternoon progress scores of the cricket, England v. Western Australia, will be broadcast as they come to hand; also the results of Pakenham races. 4.45: News, transmitted from St. Paul's Cathedral, Melbourne. 5.00: Accuparrier positions for the Moonee Valley races on Saturday. 5.35: Close down.

EVENING SESSION.

6.0: Answers to letters and Monday greetings by "Bobby Bluegum." 6.25: Musical interlude. 6.30: "Bobby Bluegum" in song and story for the children.

NIGHT SESSION.

Announcer: FRANK HATHERLY.
Accompanist: AGNES FORTUNE.
7.30: Stock Exchange information. 7.15: Market reports. 7.30: News service. 7.45: Birthday greetings. 7.45: Out of the Past. 8.0: A Maker of History. 8.1: Rod McGregor will speak on "Cricket." 8.15: The Radio Revellers, "Rio Rita" (Therese). "The Kinka-Jou" (Streep). "Next to Me I Like You Next to You" (Bitt). 8.24: Spencer Ward and Gertrude Long, "Just a Piano and Us." 8.27: The Radio Revellers, "Down Where the Sun Goes Down" (You Blue Me) (Gron). "When You Win," "I Want to Be Alone with Mary Brown" (Leslie). 8.38: Pat McLean will entertain with her ukelele. 8.39: The Radio Revellers, "Tea Leaves" (Nichols). "You Ought to Hear Olaf Laff." 8.48: J. Gibson Smythe, baritone, "In Your Dear Eyes" (Gibson Smythe). 8.51: The Radio Revellers, "A Bungalow, a Radio and You" (Dempsey). "Back to Your Own Backyard" (Jolson). "My Heart Stood Still" (Boyd). 9.0: Gaby Du Valle, soprano, "In Your Baby Lobs of Love" (Nichols). "When You Know Me" (Baden). "I'm Sorry, Sally" (Kahn). 9.12: Spencer Ward and Gertrude Long, "Just a Piano and Us." 9.15: The Radio Revellers, "My Blackbirds are Bluebirds" (Gron). "Get Out and Get Under the Moon" (Tobias). "Oh, Isabella" (Schubert). 9.24: Pat McLean, soubrette, "I'm a Little Impersonation." 9.27: The Radio Revellers, "Sweet My Bouquet of Memories" (Lewis). 9.38: J. Gibson Smythe, baritone, "Somebody Said" (Gibson Smythe). 9.39: The Radio Revellers, "Mexican Charms" (Teresa). "The Radio Revellers, "Mexican Charms and Strum" (Meyers). 9.48: Gaby Du Valle, soprano, "Charmine" (Polack). 9.51: The Radio Revellers, "Maybe I'm wrong" (Harris). "Constantinople" (Carlton). "That Melody" (Donaldson). 10.0: "Argus" news service. British official wireless news. 10.15: Rugby meteorological information; announcements. 10.15: The Radio Revellers, "Anything You Say" (Donaldson). "Mississippi Mud" (Harris). "Lucky in Love" (Hender on). 10.24: Spencer Ward and Gertrude Long, "Just a Piano and Us." 10.27: The Radio Revellers, "High Up on a Hilltop"

(Baer), "When Love Comes Stealing" (Rapee), "Someday Somewhere" (Rapee). 10.36: Pat McLean will entertain with her ukelele. 10.39: The Radio Revellers, "To-day, To-morrow, Forever" (Nichols), "Who Knows" (Dixon), "Tin Pan Parade" (Gillespie). 10.48: J. Alexander Browne, baritone, "Little Northern Window" (Anthony Dare). 10.51: The Radio Revellers, "Chiquita" (Wayne), "Old Man Sunshine" (Dixon), "My Dream Sweetheart" (Hall). 11.1: The Radio Revellers, "Guess Who's In Town" (Razal). "That Stolen Melody" (Fisher), "Lenora" (Gilbert), "Japanese Mammy" (Donaldson), "There's a Ricketty Ricketty Shack" (Turk); selected and request numbers. 11.30: God Save the King.

3AR

Announcer: Maurice Dudley. 10.0 to 10.59: See Friday. 11.0: Gramophone Recital. 12.20: British Official Wireless News. Announcements. 12.30: Close down.

AFTERNOON SESSION.

Announcer: MAURICE DUDLEY. 3.0: Gramophone recital of popular music. 3.9: Spencer Ward and Gertrude Long in "A Piano and Just Us." 3.15: Gramophone records. 3.23: The Strat Trio, (Cecil Parkes, violin; May Broderick, piano; Fred. Johnston, cello). Trio, (Mazart), Allegro, Larghetto, Allegretto. 3.40: Gramophone records. 3.48: Spencer Ward and Gertrude Long in "A Piano and Just Us." 3.55: Cecil Parkes, violin, "Arioso" (Handel), "Menuet" (Faderewski), "Rondino" (Beethoven), "Indian Snake Dance" (Burlleigh). 4.7: Gramophone records. 4.12: May Broderick, piano, "Fire Music" (Wagner), "Capriccio No. 2 E Minor" (Mendelssohn). 4.18: The Strat Trio, "Song Without Words" (Mendelssohn), "Passepied" (Delbes), "Novellets Nos 3 and 4" (Gade). 4.30: Close down.

EVENING SESSION.

Announcer: JOHN SUART. 6.0: Gramophone recital of orchestra, and vocal chefs d'oeuvre. 7.10: News Service. Announcements. Acceptances and barrier positions for Moonee Valley races on Saturday—Results of cricket—England v. West Australia. 7.30: Gramophone recital continued.

NIGHT SESSION.

Announcer: J. Stuart.—8.0: Dr. Loftus Hills, "Life's Facts and Fancies." 8.15: Under the auspices of the Nurserymen and Seedsmen's Association of Victoria, W. R. Warner will speak on "Permanent Garden Features." 8.30: The Station Orchestra, Overture, "Princess Jaune" (Saint-Saens), "Legende" (Friml). 8.45: Adele Crane, soprano, "I Wonder if Love is a Dream" (Foster). "The Robin's Song" (H. White). 8.52: The Station Orchestra, "Bochanale" (Saint-Saens). 8.57: The Melody Makers in "Stretching the Octaves." 9.17: The Imperial Russian Trio (Vassili Ister, piano; Arved Norit, violin; Ivan Berzinsky, cello). Trio in F Major (Schumann), a la tempo moderato. (b) Non troppo vivo. "Trio, "Gavotte" (Giuck). 9.37: Rinaldo Torre, operatic tenor, operatic selections. 9.44: The Station Orchestra, "Two Little Girls in Blue" (Jourman). 9.50: Adele Crane, soprano, "Request Items." 10.1: The Station Orchestra, "Serenade" (Erne). 10.7: Rinaldo Torre, operatic tenor, "Mi racco sempre" (Ginelli), "Request Item." 10.14: The Station Orchestra, "Request Items." 10.30: News service; announcements; results of cricket—England v. West Australia. God Save the King.

7ZL

MIDDAY SESSION.

Announcer: Jack Broadbent. 11.30 to 1.30: See Friday. During the afternoon results will be given of the Pakenham races, also the cricket match, English XI v. West Australia at Perth.

AFTERNOON SESSION.

Announcer: Jack Broadbent. 3.0: G.P.O. clock chimes the hour. 3.1: Selections. 3.4: Weather information. 3.5: Selections. 4.15: A representative of the Child Welfare Association will speak on "Can Baby Be Too Good?" 4.30: Close down.

EARLY EVENING SESSION.

Announcer: Jack Broadbent. 6.15: Selections. 6.25 "The Story Lady" will tell a story to the wee folk. 6.40: Selections. 7.0: Answers to letters and birthday greetings by "Uncle David." 7.5: Selections. 7.15: News service.

EVENING SESSION.

7.30: Under the auspices of the "Come to Tasmania" Organisation, Geo. Romelch will speak on "Tasmania as a Tourist Resort." 7.45: Sporting gossip from near and far. 8.0: G.P.O. clock chimes the hour. 8.8: Selections. 8.16: From the studio. 7ZL community singing. Lella Rand, piano solo. "Selected." 8.19: All, "Barcelona," "Minstrel Boy." 9.26: Val Ubrick, baritone, songs at the piano, "Get Out and Get Under the Moon." 8.29: Vivian des V. Ellison, baritone-at-law selection from "Pickwick Papers." "The Valentine." 8.44: Gwen Davidson, soprano, "The Net Mender" (Clarke). 8.47: All, "Moonlight and Roses." "Mother Machree." 8.54: Val Ubrick, baritone, songs at the piano, "Just Imagine It" (Weston). 8.57: All, "Vive l'Amour." "Waltz in Matilda." 9.2: Gwen Davidson, soprano, "Angels Guard Thee" (Godard). 9.7: All, "Ramona." "Sally Horner." 9.14: Val Ubrick, baritone, songs at the piano, "Thinking" (O'Hara). 9.17: All, "Loch Lomond." "Jeanne, I Dream of Lillie Time." 9.24: Val Ubrick, baritone, songs at the piano, "Dearest One." 9.27: All, "Old Folks at Home." "In a Little Spanish Town." 9.34: Gwen Davidson, soprano, "Venetian Love Song" (Bemberg). 9.37: All, "Swaner River Moon." "John Peel." 9.44: "Auld Lang Syne." 9.47: News. 10.1: God Save the King. Close down.



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The WIRELESS WEEKLY

Radio INFORMATION

Under the direction of

Ray Allsop

and

Don B. Knock

Associate Technical Editors

Correspondence Answered

only through

these

Columns

(See Coupon Below)

Service

P.W. (Willoughby).—Queries are not answered by mail. Experimental station VK2AD is operated by Mr. A. Dixon. This was the station you heard Times of transmission are irregular, but you may hear other stations operating on the 200 to 250 metre waveband from time to time. VK2NO has ceased operation on this band, owing to short-wave activities, but at various times may be heard VK2OG and VK2SX. The letters VK are not an intermediate, but are actually part of the call-sign under the new regulations.

L.C. (Thirroul).—"Being a constant reader of your valuable paper, "Wireless Weekly," I would be pleased to know if you could publish the constructional details of a home-made wet "B" battery. I feel sure it would be highly appreciated by the many readers of "Wireless Weekly."

Answer: If you look back through Queries for the past couple of months you will notice other requests for this. You will also see that I have told inquirers that the article they require will appear shortly in the "Proving Radio" series.

"Micro watt" (Alexandria).—"I intend in the near future to build a transmitter for operation on waves between 20-60 metres, and would like your opinion of the simple circuit I am forwarding with this letter."

(1) "What would its range be, using a 'B 406' as oscillator, with a high-tension voltage of 50 volts?"

Answer: You should be able to work inter-State hams.

(2) "Where shall I put the microphones in the circuit for work on telephony?"

Answer: Wind three turns of 16-gauge wire on a four-inch diameter coil. Connect one end of the coil to the fixed plates of a .00025 variable condenser, and thence to one side of the microphone. The other side of the microphone should connect to the moving plates of the condenser, and to the other end of the coil. The coil should be inductively coupled to the secondary. It may be found better to place the modulation coil over the secondary.

(3) "What is the cost of an aerial ammeter reading up to two amperes, and where may one be purchased?"

Answer: Depends on type and quality. A thermocoupled ammeter reading up to two or three amperes, of the Jewell type, costs approximately £3/10/. They can be obtained from any high-class radio dealer.

(4) "Explain briefly how I may adjust transmitter so as to energise the aerial system. Will an aerial wire of 80 feet long suffice as an antenna?"

Answer: Remove aerial and earth. Adjust condensers and proximity of coils whilst the key is depressed. A sudden sharp surge in the ammeter will indicate resonance has been passed. It will be found also that the taps will have considerable effect on adjustment, and these must be attended to. The aerial is O.K. Keep it well insulated.

(5) "I like your new "Wireless Weekly" very, very much. It is absolutely A1."

Answer: Thank you. Now to get down to business. You understand, of course, that it is necessary to have a transmitting license before you are allowed to operate a transmitter? Very well—now about your circuit. In the first place it is against regulations to operate a transmitter that is directly coupled to the aerial. Therefore, you will have to wind an aerial coil of six turns three inches diameter. A .0005 variable condenser should be placed between the coil and the ammeter. Do not use an earth—use a counterpoise. Insert a .0005 variable condenser here also. The distance of the aerial coil from the secondary must be adjusted for best results. Re your filament connections. Reverse them. You do not show a grid leak or condenser. Use a Bradleystat for a variable grid leak, and a .002 fixed condenser (these two in parallel with each other), and in series with the grid of the valve. A .002 fixed condenser must also be placed across the "B" battery. It would be advisable to use considerably more voltage than you propose—say, 180 volts. The secondary coil you propose using is too large. It should consist of ten (not sixty) turns, three inches diameter. The tapplings mentioned may not be correct; they will have to be adjusted by means of clips. The main tuning condenser should NOT have a capacity of .00025, but of .0001 mfd. The key should not be placed in the spot you mention, otherwise heavy sparking will occur, and key clicks will spoil transmission. Key in series with the grid side of the grid leak. With this circuit key clicks will be troublesome. The counterpoise should not be connected to the grid, but to the bottom of the aerial coil. The correct circuit is shown in these columns.

Mr. A. Tyler, "Lerida," Corfield, Queensland, writes "I have nearly all the issues of "Wireless Keekly" for the past three years, and if these are of any use to readers I am willing to rail them."

Answer: Thank you, Mr. Tyler. Readers seeing your offer here will, no doubt, get in touch with you.

Mr. V. A. Maidment, Cedar Point Post Office, via Casine, writes: "I have back numbers from the 6th May, 1927, and am willing to dispose of them under the usual conditions, i.e., postage forwarded with request."

Answer: Thank you, also, Mr. Maidment.

A.E.B. (Pyrmont) writes: "Sir, I wish to report reception of radio station PH1, Huizen, Holland, on your wonderful Go-Getter short-wave set. This station I tuned in on the loud-speaker (three valves), but had to cut the volume down. The station was transmitting on 16.88 metres. Band selections and classical opera singing were on the air. I am going to try to-morrow night to receive it again. The time I received it was 10.15 p.m. till I closed down at 12.30 a.m. Please let me know if this is good reception for this part of the city."

Answer: Yes, exceptionally good. The Go-Getter is a very efficient S.W. receiver.

A.L. (Warwick)—"A friend tells me that Greek letters are used to stand for many electrical and radio quantities. Will you please tell me if this is so, and give me the whole of the Greek alphabet?"

Answer: This is correct. The Greek alphabet is as follows:—Alpha, Beta, Gamma, Delta, Epsilon; Zeta, Eta, Theta, Iota, Kappa, Lambda, Mu, Nu, Xi, Omicron, Pi, Rho, Sigma, Tau, Upsilon, Phi, Chi, Psi, Omega. The symbols representing these sounds would appear to be specially made for print, but they will appear later on in the "Proving Radio" series.

S.G.F. (Bexley).—"What does an aerial ammeter measure?"

Answer: It measures current in the aerial at the point where it is located—nothing more. It does not measure set efficiency, radiation, or energy directly, though the ammeter is a good guide.

(2) "How can power in the aerial be calculated?"

Answer: Aerial power may be considered as the input of the set minus losses in the set. If a resistance curve of the aerial is available, the aerial power is (RI) squared, where R is the resistance at the wave-length under consideration, and I is the centre of the radiating system. Another way of calculating aerial power is as follows:—The plate voltage times the plate current (D.C. valves) gives the plate power. The input power times the efficiency of the set (usually estimated as 50 to 60 per cent.) gives the output power from the transmitter

or power in the aerial circuit. Substituting the value of aerial current (at node) in the formula (P equals RI squared) gives a value of aerial resistance at the wave-length in use.

(3) "You needn't be afraid to use technical terms. I am fairly well advanced. I like "Proving Radio" very much."

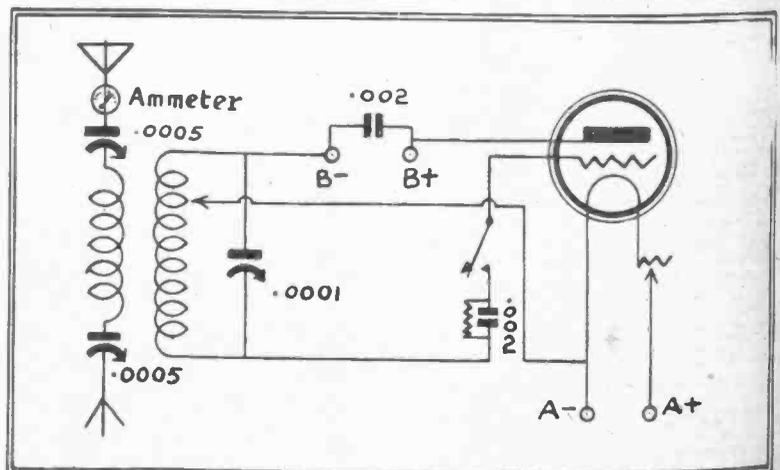
Answer: Glad you like "Proving Radio."

J.S. (Lavender Bay).—"How can I make test paper for finding polarity? Do you know of any other good methods of testing polarity?"

Answer: If a D.C. voltmeter or ammeter of suitable range with the terminals marked plus or minus is available, some other simple tests can be applied if one is in doubt about the polarity of a direct coupled source. The two wires may be dipped in a weak solution of salt water, or in a solution of hydrochloric, sulphuric, or nitric acid. The larger quantity of bubbles (of hydrogen) will come from the negative terminal. Test paper may be prepared by getting a small quantity of the necessary chemicals from a chemist. Dissolve one gram (1/28th oz.) of phenolphthalein (commonly known as phenol) in a little alcohol. Add this solution (for get your chemist to make the mixture up for you) to 100 centimeters (3.5 fluid oz.) of a 10 per cent. solution of potassium chloride in distilled water. Filter paper, or other absorbent paper of the same texture, should be soaked in the solution, and dried, and finally cut into strips. A piece of this paper moistened with water and placed in contact with the two wires will be stained a bright red at the negative terminal.

S.R. (Gordonvale).—"I have four valves with filaments broken, caused by a short circuit in my 'All Empire' receiver. If I remove these filaments will they do as fuses, if I connect one to each positive terminal on the valves? Would my new valves be absolutely safe from future blow-outs, without doing any harm to reception? No doubt the 'All Empire' receiver is a great set to the valve manufacturers—it makes me tired counting the number of ways a different short may happen in the simplest fashion. I ought to be ashamed to say it, but I have done eight valves in. I am not growing, the results are wonderful. Fuses in future! Why not a little note of encouragement in 'W.W.' to encourage the use of fuses?"

Answer: The filament wire would be of no use whatever; in fact would be a menace, as it is very brittle, especially after a heavy current has passed through it. If one of these improvised fuses blows down, there would in all probability, be another short, and all valves would suffer. Use proper fuse wire. A good plan is to remove the ends of an old grid-leak, and take out the contents. Place a piece of fuse wire in the glass tubing, and clamp



The transmitting circuit requested by "Micro watt" (Alexandria), whose query appears on this page.

the ends by the grid leak caps. Two clips could then be made to mount the fuse. If you haven't any fuse wire, and cannot procure any, send me a stamped, addressed envelope, and I shall be pleased to let you have enough for your requirements. An article on safety fuses appeared in a 1928 issue of "Wireless Weekly." You will also find in "Wireless Weekly" Radio Information Service Columns, Requirements a diagram showing how to protect your accumulator with a piece of fuse wire. Glad you like the "All Empire." Suggest you cover dangerous wires with spaghetti.

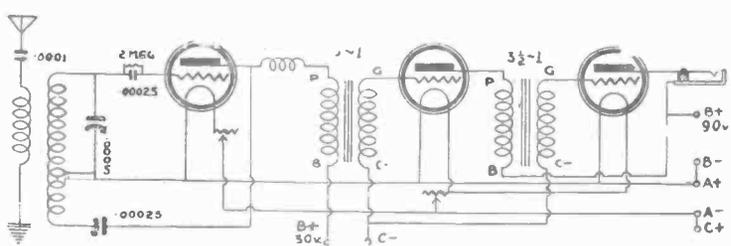
F.S. (Canberra).—Looking down the columns of your Radio Information Service in "Wireless Weekly," dated February 15, 1929, I noticed enclosed cutting about the Countryman's One Valve. Would you give me information as to how I can obtain full particulars of this one-valve receiver. Would it bring in any stations at Canberra?

Answer: The Countryman's One Valve was published in "Wireless Weekly" on January 25, 1929. The Countryman's One Valve, with a stage of audio added, appeared in these columns on March 1, 1929. The latter receiver would give you louder reception, though the one-valve will be quite O.K. You should be able to receive 2PC, 2BL, 3LO, and probably some of the "B" class stations.

J.G.P. (Manly).—I have a one-valve Reinartz, and am greatly troubled by hand-capacity. How can I get rid of this? Would shielding be of any use?

Answer: It should not be necessary to shield the receiver. See that the fixed plates of the 0005 variable condenser are connected to the top of the coil and also to one side of the grid leak. Make certain also that the fixed plates of your other variable condenser connect to the plate of the detector valve, and also to the choke (or, if you are not using a choke—to the plate of the first transformer). I think you will find either one or both of the condenser connections are reversed. If they are O.K. and the trouble persists, connect a .002 condenser across the telephone or speaker jack. If the trouble is still apparent, the fault is in your wiring.

T.H.C. (Enfield).—I was thinking of building the "International" short-wave receiver, described in "Wireless Weekly," Vol. 13, No. 1, December 28, 1928, but before I do, I'd like to know if it will give loud-speaker results on both short-wave and local stations. If it won't, could you send me a circuit of a four-valve set that will. It must be a four-valve set.



A three-valve Reinartz circuit, requested by J. H. (Waverley), R.P.W. (Auburn), and other readers.

Answer: I'll tell the wife.
 W.R.S. (North Queensland).—As a constant reader of your valuable paper, and as a radio crank of a few years' standing, it gives me a great deal of pleasure in tendering my congratulations to you for the masterly and frank manner in which you handle your Radio Information Service. I am enclosing query coupon, and would be much obliged if you would publish at your earliest the following information:—I have at present the following components hooked up to a Hazeline Neon circuit:—(1) only 0005 variable condensers, (2) only 3½-1 A.W.A. transformers, and 30 ohm rheostats. I would be pleased if you could hand me a good modern five-valve circuit, that would utilise these parts, and not incur much additional expense.

Answer: Sorry cannot hand you the circuit. Suggest the Dual Regenerative Five, published in "Wireless Weekly," June 8, 1928.

(2) "I have noticed your latest in Friday, February 15 issue, but it is a little expensive for me, and I would like a set using 90 volts, as I have to use dry batteries, and they cost money."

Answer: The Dual Regenerative Five can be used with 90 volts. Almost any receiver using three electrode valves can be used with 90 volts. If you use 199 valves, 90 volts will be the maximum voltage required on the plates of the amplifiers.

the afternoon. All queries will be taken in turn. It will have been noticed that in an effort to cope with all these queries the R.I.S. has been enlarged considerably. Please be patient and, if you write again regarding your queries, please repeat them.

W.W.T. (Queensland).—Use part as advertised opposite the receiver. For some mysterious reason, which we have not yet been able to fathom, the list of parts appearing with the "Kug" Crystal receiver were wrong. This has been corrected several times through these columns. Wind your coils as directed in the article, and cut off the unnecessary overlength of former. The formers sold are usually six inches long. Thanks for kind remarks.

General.—In an earnest effort to clear off the large batch of queries, we intend to be as brief as possible. Therefore for the time being, only letters which have matter that will be interesting for all readers will be published, until we have room and time to revert to our old system.

A.V.M. (Queensland).—See the "Screen Grid B.F. Midget Four S.W. Receiver" article. Full instructions appeared with this article.

E.F. (Lakemba).—Please write your letter again, and be careful. The letter in front of me now is impossible to follow. You say "by putting reaction coil of 100 turns reaction coil of 40" in any case, the 0005 variable condenser is too large for short waves.

B.H.I. (Dorrigo).—The agent for Attrer Kent radio sets is A. O. Healing, 208-210 Castlereagh Street, Sydney.

A.M.A. (Murrumbidgee).—Here is my solution for making reception of local stations possible with the Radiokes No. 5 coil:—Disconnect aerial and earth wires from primary coil, and fasten to a home-made spider coil of 22 or 24 turns. Insert this between the primary and large coil, and reception will be good, but not selective. Trust this will help some who are regarding the long wave coil as "dudder."

Answer: Thanks for the information.

W.S. (Woolongong).—I "Would you have to use a screen for the Television described in "Wireless Weekly"?"

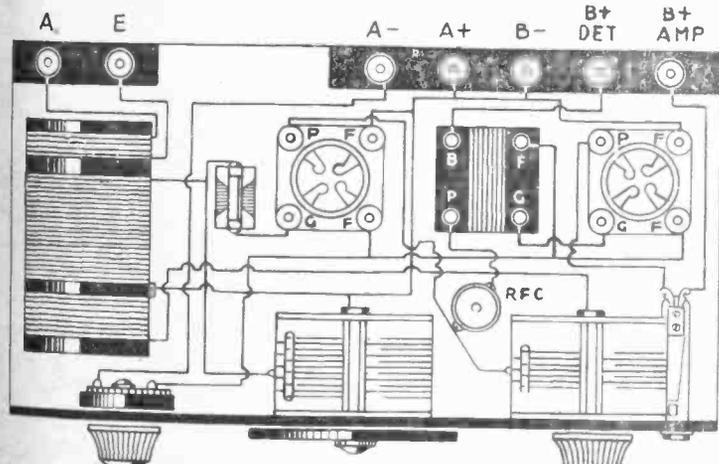
Answer: No, the picture is seen through the aperture.

2. "Would it work on local stations?"
 Answer: Yes, though until the local station takes up transmission of pictures, you will only see wavy lines, etc., when speech or music is being broadcast.

3. "I have a Reinartz Three. Could I plug the leads from a neon lamp in place of the speaker and get results?"

Answer: No. The picture is made by means of the revolving disc. The neon lamp actually only supplies an even illumination.

Razor-shaver (Parrington).—The circuit is O.K. The eliminator can be used on the 240 volt mains. The transformer will be arduous task. It is no joke to wind 5100 turns of fine gauge wire as you will discover.



A Reinartz two-valve back-of-panel wiring diagram, requested by a number of readers.

Answer: The conditions under which a short-wave receiver operates vary considerably. On the very best of short-wave receivers, SSW may be blasted for the speaker one moment, and within a few hours they can only be heard on 'phones, or not at all. The receiver mentioned by you will give you the very best results. Because short waves are unreliable, this should not deter you from making the receiver, which will give you good speaker strength on short and long waves when conditions are normal.

T.E.W. (Marrieville).—I desire to make an All-Electric Set, with an indoor aerial, of four valves."

Answer: You have put the cart before the horse!

(2) "I would be pleased if you would give me a circuit, and details on how to wire same."

Answer: An electric set—or an indoor aerial of four valves? Afraid I cannot supply the latter, but I am at present preparing an article on the three-valve "All-Electric" set.

(3) "Would an 'All-Electric' set be subject to A.C. hum?"

Answer: Very little. If well made, an A.C. operated set cannot be picked from a battery operating set. Good parts, of course, are a necessity.

(4) "I am not going to wish your paper every success, as everyone seems to wish that. What I most want is, you have wonderful patience and wit in your reply to the smart ones. This patience and wit alone gives one heart to ask your valued advice."

G.G. (Silksstone).—Use the Exide Battery as suggested.

2. The 00025 variable condenser will be most suitable for reaction. The other is too small. It may be used as a main tuning condenser in a short-wave receiver.

3. As you do not mention the name of the receiver, afraid I cannot help you regarding reaction. If the three-coil circuit is used, with fixed inductances, the 00025 variable condenser would be better. If Reinartz reaction is used the same applies. Should the reaction be made variable by means of a rotor coil, you could get vernier control by adding a midget condenser to the regenerative circuit. 4. Connect the fixed plates of the condenser to the plate of the transformer, and moving plates to the plate of the valve.

5. Use 24 gauge wire for winding your coils.

6. There is little to choose between Superaerial and Electron Wire.

7. "I have written several times before and received no reply."

Answer: You're lucky. This letter is out of rotation, but I haven't time to put it back. See below.

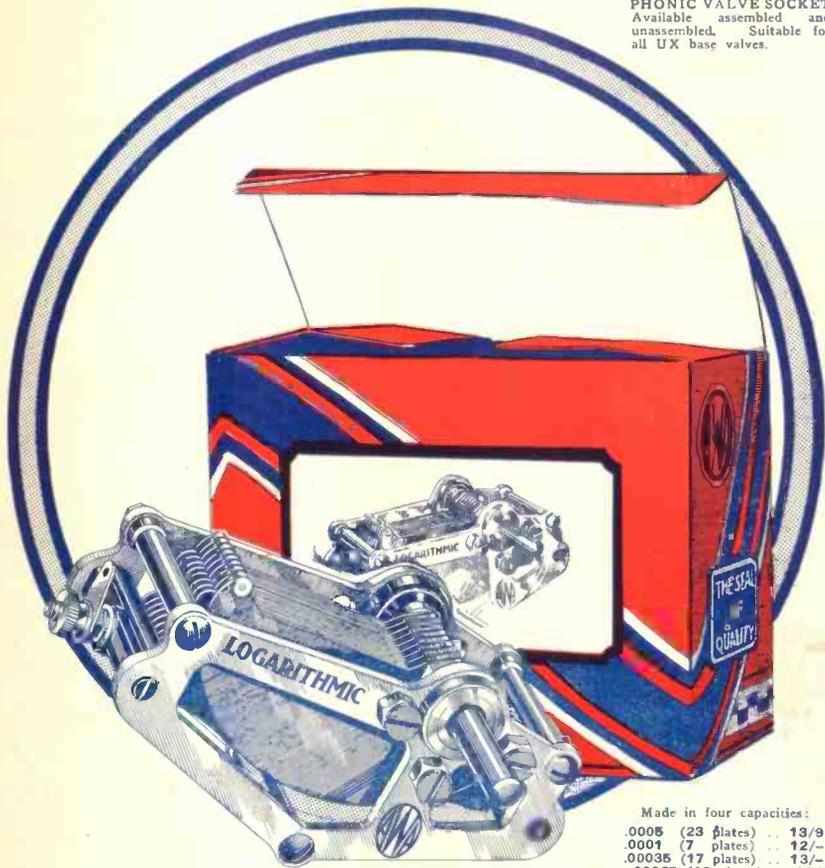
General.—Queryists are requested to patiently await their turn for answers to queries. Since the Radio Information Service commenced at the end of December last a large basketful of queries arrive each morning, and another large batch in

QUERY COUPON

If you are in difficulties about reception or set-construction, let us know, and we will endeavor to see 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
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