

£25 COMPETITION :: SEE PAGE 68

3rd

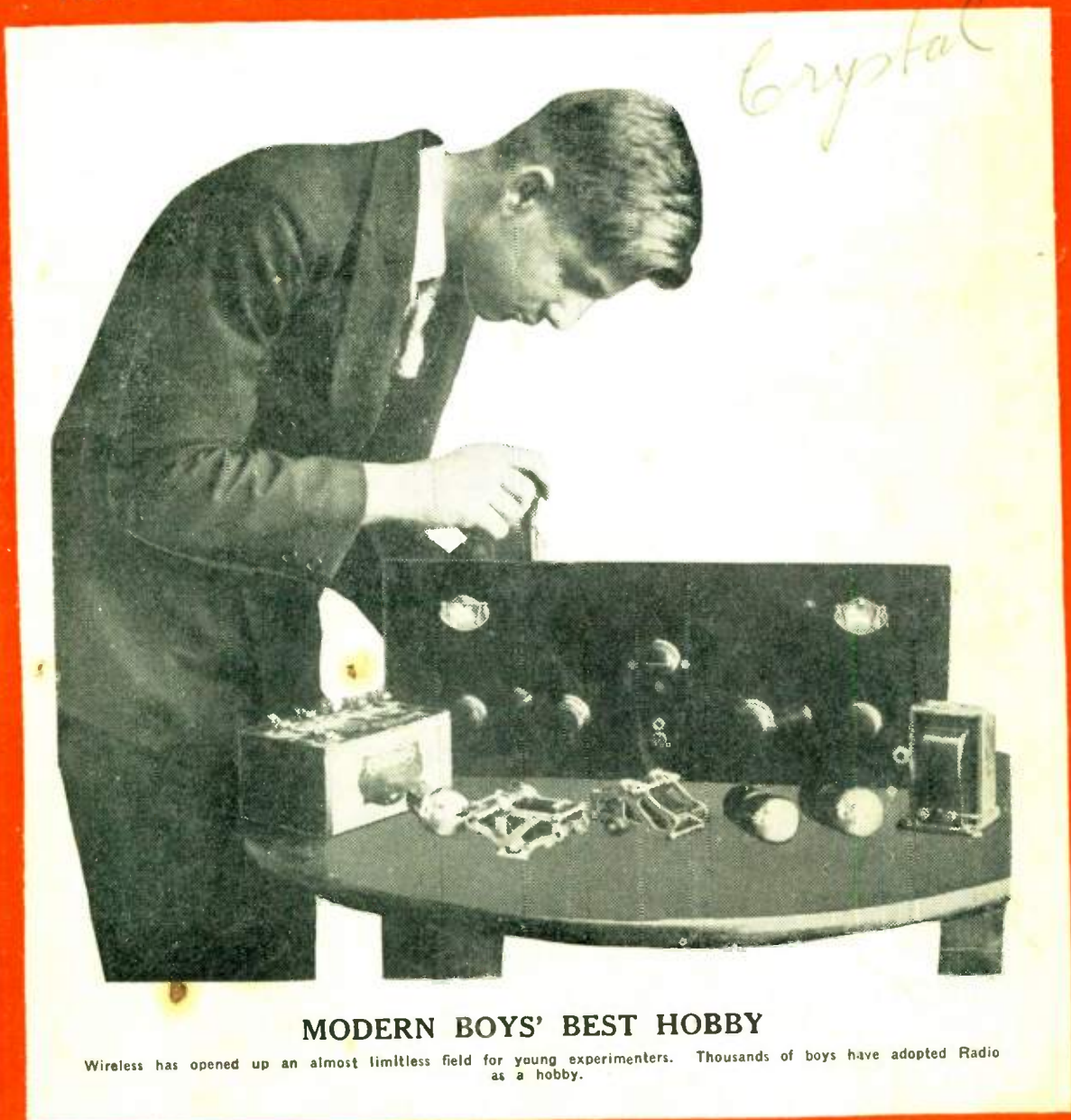
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December 11,
1929.

*Registered at the G.P.O., Melbourne, as transmission by post
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Vol. 5.
No. 50.



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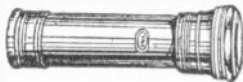
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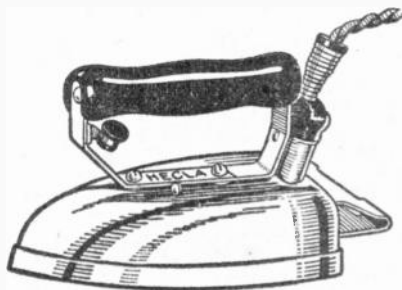
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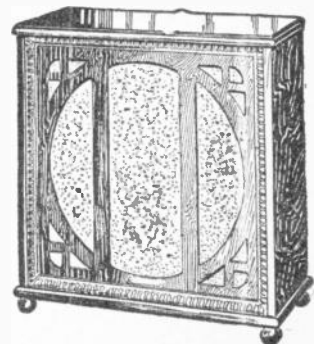
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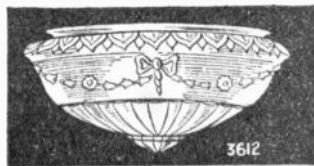
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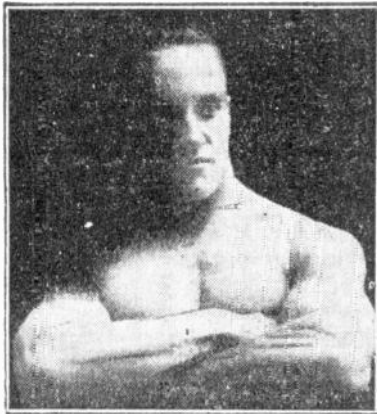
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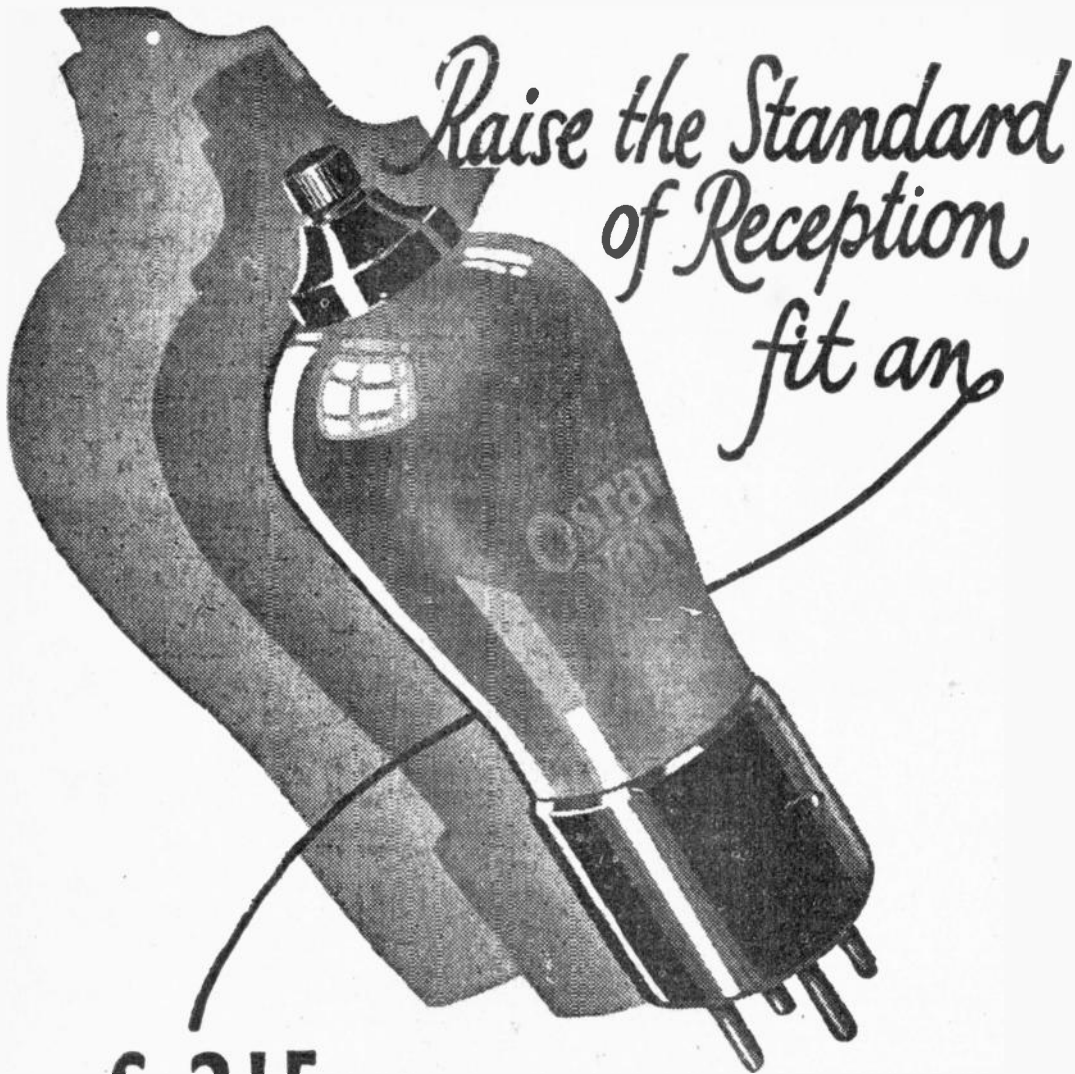
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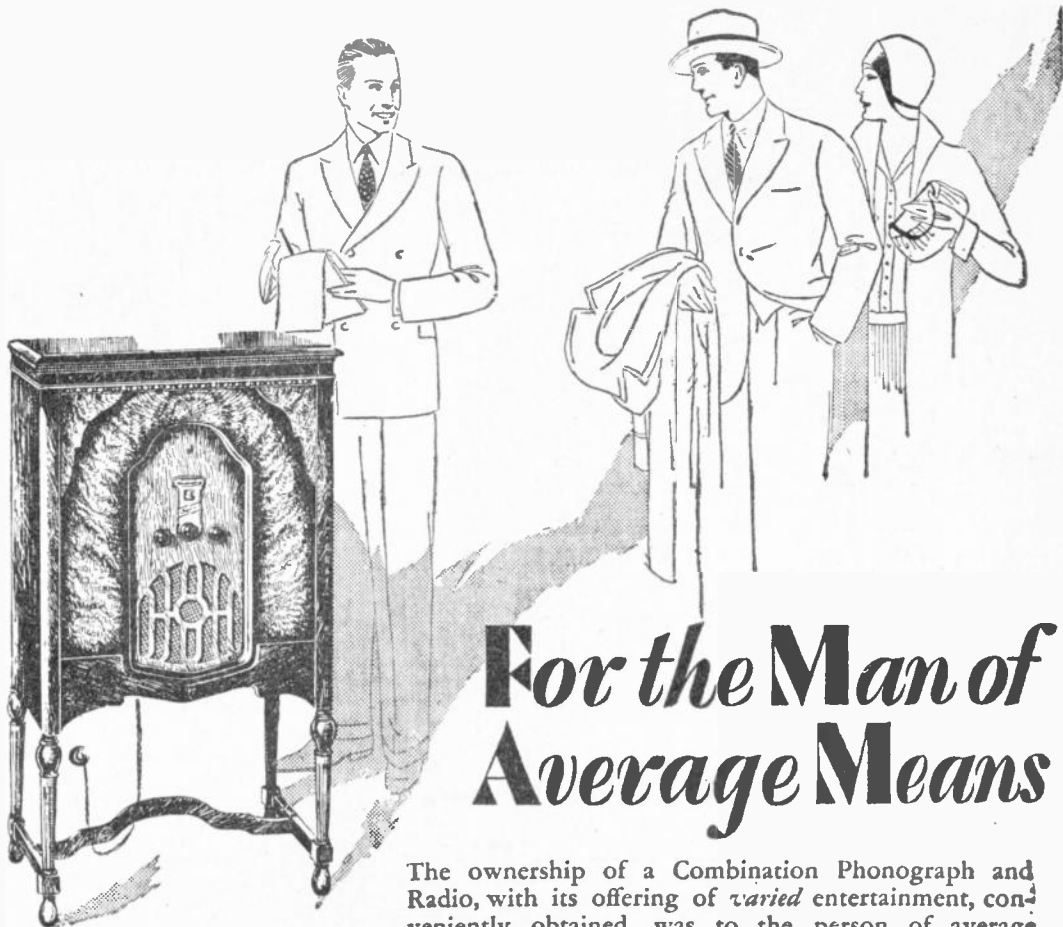
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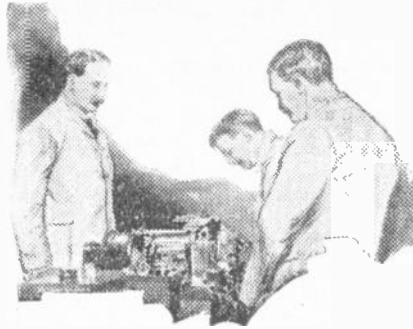
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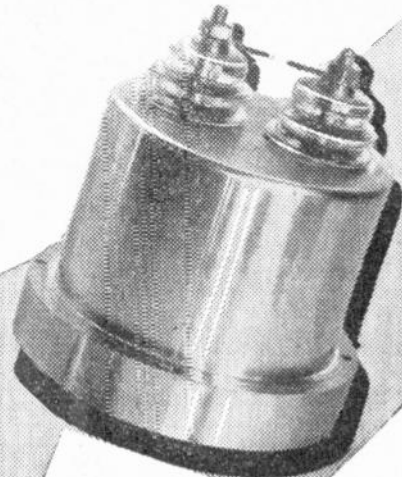
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It will be worth the while of every radio enthusiast to find out more about this truly remarkable — we might almost say, unique — line. Further particulars of the comprehensive "Manens" Condenser range may be obtained from the Australian Representatives—

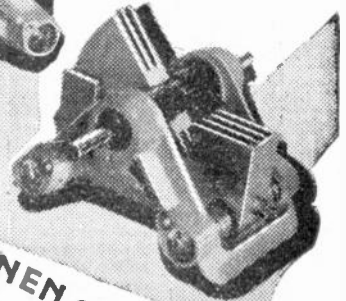
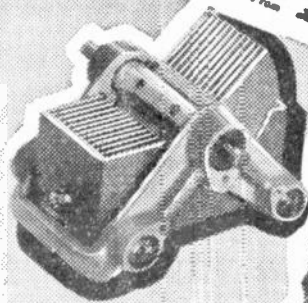
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4 Volt "Monobloc" 2 CELLS IN ONE

Here is a new development of the well-known Oldham slow discharge battery, so popular with owners of dull emitter valve sets. Previously this battery was sold in 2-volt single cell units, and to have a 4-volt battery it was necessary to buy two separate cells. Now you can buy the two cells in one—the double glass container cast in a single piece! A convenient handle for carrying is also provided. This battery resists the sulphation usually caused by slow discharging and it may be recharged very quickly without damage. Sold already charged and filled with acid, 10 amp actual capacity. Price, O.V.D. Type 18/-
20 amp. actual capacity 34/6
I.V.D. Type

An accumulator with thick plates saves you money. It needs less re-charging. Thin, flimsy plates are an expense from the start—they do not hold their charge—they lose their active material and soon fail altogether.

Oldham accumulators have extra thick plates made under a special Activation Process that ensures long service, extra power, and fewer trips to the charging station.

Sold in clear glass cases—no seams to leak, and the acid level and state of the battery can be seen at a glance.

Oldham Slow Discharge Types

	(In strong clear glass containers)	4 volt	6 volt
O.V.D.	Actual capacity 10 amp. hours	18/	27/
I.V.D.	Actual capacity 20 amp. hours	34/6	51/9

Oldham Standard Type

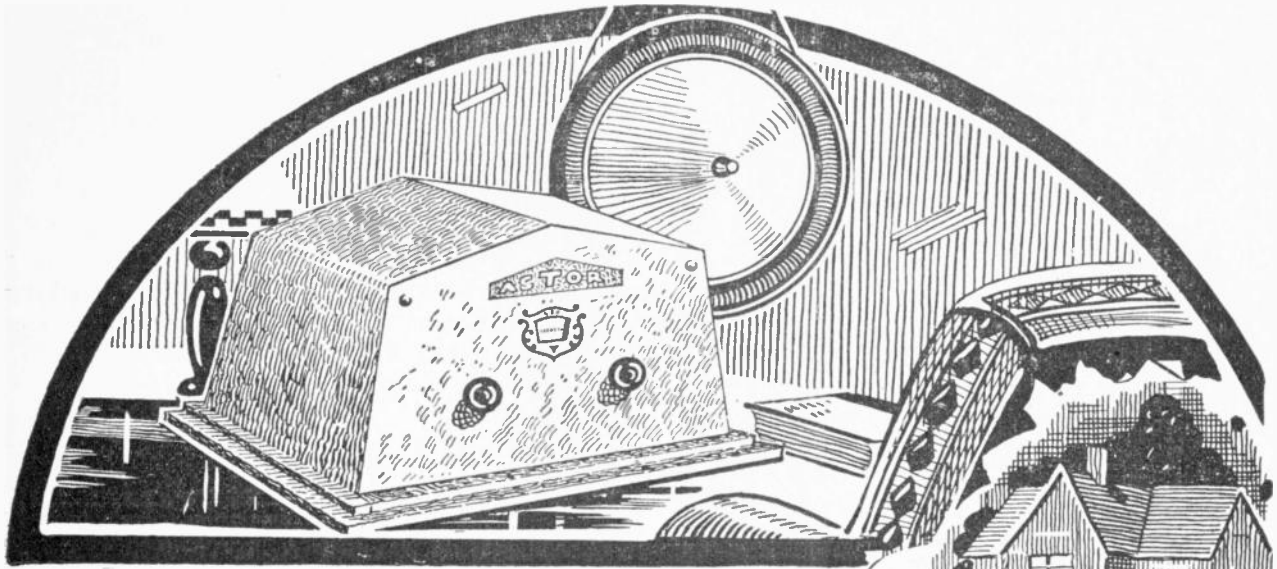
	(In strong clear glass containers)	2 volt	4 volt	6 volt
C.L.G.3.	Actual capacity 30 amp. hours	25/	50/	75/
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C.L.G.6.	Actual capacity 60 amp. hours	38/6	77/	115/6

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Type H.T.L., 2750 M/a Hours—	Each
10 Volt Unit only	11/3
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11/12/29

The Listener In

Vol. 5, No. 50.

DECEMBER 11, 1929.

Price Threepence.

MANY will agree with the Director of the Council of Public Education in Victoria (Mr R. H. Croll), that radio is capable of opening up new avenues for the education of children in the great outback. In America the country schools are being linked with the network of broadcasting systems, and already there is evidence that radio will eventually occupy a prominent place in the educational activities of that country. The possibilities concerning the dissemination of knowledge through the agency of wireless are practically limitless, and there is no valid reason why Australia should not keep pace with the times. A first essential is the co-operation of the State Education departments, the school councils, and the national broadcasting services. It is perhaps too much to expect that the Government should be called upon to install receiving sets in the thousands of schools. As far as Victoria is concerned, an organisation already exists which could take in hand the installation of sets.

EACH of the 2500 schools has its committee of parents, and there is no doubt that if these bodies were offered sufficient encouragement, they would promptly raise funds for the purchase of equipment. The Australian Broadcasting Company, which is exploiting every avenue to popularise radio, would lend its assistance in the matter of arranging suitable programmes of an educational character, which would be put on the air in school hours once or twice a week. However, before anything definite were decided upon, it would be necessary to convene conferences between the various bodies interested, so that plans may be arranged for the conduct of an efficient and suitable radio educational service. Mr Croll's suggestions open up immense possibilities. Children attending the country schools, especially those in remote places, have not the advantages of those in the cities, but with the aid of radio they could be brought nearer the centres of knowledge and learning. Their outlook would thus be broadened, and their education extended without any additional cost to the State, except that involved in the preparation of educational talks.

PERFECTION of the short wave wireless receiver has brought the world within the range of radio enthusiasts in all parts of the Commonwealth. In order to encourage amateurs to exploit the possibilities of long distance reception of stations operating below the broadcast band, The Listener In has introduced a new weekly feature dealing with all phases of short wave telephony. The number of stations working on the short wave is increasing, and the quality of their broadcasts is improving each month, so that the field for experimenting is being continually enlarged. The short wave section in this week's issue gives construction details for a simple yet effective set capable of bringing in the most remote stations. From time to time the service will be extended, so that every possible assistance may be rendered by those experimenting in this fascinating branch of radio.

THERE is a mistaken idea that short wave telephony is beyond the home set builder, and those who get a lot of joy out of following radio as a hobby. The short wave set is a comparatively simple arrangement, and if instructions are followed closely, there is no reason why any difficulty should be experienced in tuning in American, European and Eastern stations which cater for those searching the air for signals below the broadcast band. For those radio enthusiasts seeking new worlds to conquer, the short wave offers an ideal opportunity. The Listener In expert and his assistants are ever on the lookout for new stations. These will be tabulated as they are discovered. All queries should be addressed "Short Wave," care of The Listener In, Melbourne.

THE success of the automatic wireless distress signal demonstrated in Sydney last week, suggests the beginning of a new era in safety-at-sea principles. In the past small Australian coastal steamers have not carried wireless (although in other parts of the world they are compelled to do so), because of the cost of the operator's salary and upkeep, and the space required to house him and his gear. The device now available is merely a small box which occupies little room, yet it will keep on sending out the "S.O.S.," the name and position of the ship until she founders.

"THE BEST OF THE MENU"

- 3LO, Wednesday—
8.0: Studio production of "The Tales of Hoffman."
- 2FC, Wednesday—
8.0: Studio production of "Macbeth."
- 2BL, Wednesday—
9.5: Radio Play, "Something to Talk About."
- 3AR, Thursday—
8.15: Reproduction of "The Barber of Seville."
- 4QG, Thursday—
8.0: Group Night—Concert, Orchestra and Male Chorus.
- 3DB, Saturday—
9.0: "A Trip to Honolulu" (Some new Hawaiian music)
- 3LO, Sunday—
8.0: Musical Ensemble arranged by Hamilton Webber.
- 3LO, Monday—
8.0: Old Time Night.

RADIO NOTES and NEWS

The Tales of Hoffmann

FROM many points of view the production of "The Tales of Hoffmann" (Offenbach), for broadcasting by 3LO on Wednesday evening, December 11, will be the most impor-



W. G. JAMES, who will produce "The Tales of Hoffmann" for 3LO

tant musical presentation yet attempted in Australia.

This beautiful opera was Offenbach's favorite among the many operas he composed, and it has always been popular. The special version to be broadcast by 3LO has never before been presented in the Southern Hemisphere, and it is

fitting that Mr William G. James, under whose direction it is to be produced, has selected for it a specially strong cast as follows:

Olympia, Winifred Mitchell; Coppelius, A. C. Bartleman; Hoffmann, Alan Mitchell. Chorus: The Bartleman Male Choir and the Melbourne Choral Union with a full orchestral accompaniment by the National Broadcasting Orchestra.

The opera will be produced with atmospheric and other effects, and many novel features will be introduced. The well-known and beautiful number, "The Barcarolle," is the theme extracte to Act II, and many other popular numbers are included in the broadcasting version of the opera, which will mark a definite advance in radio musical production.



A. C. BARTLEMAN will take the part of Coppelius in the studio production of "The Tales of Hoffman."

Pictures to London

ON October 15 Amalgamated Wireless transmitted by radio the first pictures from Sydney to London, establishing a new world's record for distance. The pictures were received by the British Post Office and Wireless Pictures Limited, and prints were posted to Sydney.

The first picture sent was a portrait of Mr E. T. Flisk, Managing Director of A.W.A., the second was that of Mr Scullin, Prime Minister of Australia, and the third Mr Ramsay MacDonald, Prime Minister of England. Despite atmospheric difficulties to be overcome, the pictures, as seen in the accompanying reproductions, are quite clear and distinct.

Thus is added another achievement to Australia's record of wireless progress. The distance of 12,000 miles covered in the transmission of these pictures, is nearly four times the greatest distance previously bridged.

Playing Bridge by Radio

CARD players are enthusiastic over the Friday night bridge talks broadcast by 3DB.

Games played by four recognised American authorities are described in detail, the reasons for their bids, leads and general play being given in a way that is easily followed.

Already there have been two of these talks. The third, which will begin at 8 next Friday night, will be particularly interesting, as it will show how, by good play, 48 was scored for tricks, 50 for a little slam, and 90 for honors.

Vocal Championship Winners

WINNERS of the popular vote in the 5CL Radio Vocal Championships will be heard in the evening session of Monday, December 16. Marcelle Berardi, who won the ladies' section, will render, among other numbers, "The Lass with the Delicate Air" (Arne) and "Song of the Shepherd Lehl," from the opera "Snow Maiden" (Rimsky-Korsakov). The winner of the gentlemen's section, Frank McCabe, will render, in his programme, a composition by Adelaide's gifted young composer, Tom King, "Down Our Way."

Novel Aerial Masts

THE high-power short-wave transmitter at Malabar, on the Island of Java, is the only station in the world which does not use aerial masts. The aerial is slung between two high mountain peaks, the transmitter being installed in the valley.

"Weary Heart"

THIS fanciful radio scena has for its theme an incident in the life of Tschaiowsky and is based on his famous song, "None But the Weary Heart". Specially written for radio by Gordon Ireland, it will be broadcast by 3LO on Monday night



A wireless picture of Mr E. T. Flisk, Managing Director of Amalgamated Wireless. This is how the picture was received in London after being transmitted by wireless from Sydney.

Eternal Programmes

NOW what about the new broadcast programmes? Professor Bernard Heinze is coming out in the open to

discuss them before half a million people, when, on Thursday night, December 12, "The Odd Men Out" will debate them with him and Dr. Loftus Hills. and the discussion will be broadcast to the world by 3AR. It will be an open forum.

Professor Heinze claims to have some winning trumps up his sleeve in the form of thousands of letters from every class of listener all over Australia, expressing congratulation upon and appreciation for the vastly improved programmes from 3LO and 3AR. Listeners are invited to write to "The Odd Men Out", care of 3LO, if they would like any special point raised in the discussion.



PROFESSOR HEINZE

Maurice Dudley Returns

THE return of Maurice Dudley to 3LO after his recent severe illness was hailed with delight by his



MAURICE DUDLEY

many thousands of friends. The children were particularly happy when the familiar voice of their beloved "Billy Bunnny" was again heard in their own hour.

Mr and Mrs Dudley have some new one act plays for production at 3LO shortly, and some of their old favorites such as "Monkey's Paw"

and "Scrooge" will be broadcast shortly. Christmas would not be Christmas without Maurice Dudley and "Scrooge."

Germany and U.S.A.

GERMANY has concluded a contract with America for the interchange of radio programmes. The service commenced on October 4, a special concert being transmitted through the Konigswusterhausen station on 31.3 metres. This was clearly received in U.S.A., and rebroadcast through KDKA, one of the pioneer short-wave broadcasters. There have been no reports of this concert having been tuned in by any Australian listeners.

3DB Hikers' Next Outing

THE next outing of 3DB Hiking Club will be on Saturday, December 14, from Whittlesea to Tommy's Hut. The train will leave Flinders Street at 9.25 a.m.,

Radio Choral Contest

THE Radio Choral contest for "A" Grade choirs, of 50 to 70 voices, organised by 3LO, in conjunction with The Victorian Choral Association, is proceeding satisfactorily. Listeners are invited to take an active part in connection with this competition by writing to 3LO, expressing their views upon the programmes presented by the various choirs.

PUZZLE COMPETITION Competition No. 24

The following are the solutions in the Picture Puzzle Competition No. 24, that appeared in the issue of November 27. The names of the prize-winners will be published in the issue of December 24.

1, The Sinister Man; 2, Candles in the Wind; 3, On Our Selection; 4, Three Men in a Boat; 5, Treasure Island; 6, Wandering Saint; 7, The Mining Camp; 8, The Grand Canyon; 9, Tapestry Room Murder; 10, The Man From Mexico; 11, Ordeal; 12, Fifty Years Ago.

Look up your list and see if you were right in nine or more of these in any single set of 12 PICTURES you sent in. If so forward a claim stating the exact number you answered correctly in any single set. Sign your name and address which must be the same as that which you wrote on the back of your envelope which contained your entry.

Address your claim to—

The Editor,
Listener In, Box 1924 R,
G.P.O., Melbourne,

and post in time to reach us not later than 3 p.m. on Monday, December 16.

Round the World

WHAT should prove an interesting broadcast is that arranged for Tuesday, December 17. In imagination, Jack Fewster and his Band will take listeners around the world in a novel radio revue. Music of many lands will be featured in this programme from 5CL.

Occupied the Chair

AN American widow, being anxious to conceal the fact that her late husband had been electrocuted as a murderer, always explains that "he occupied the chair of applied electricity at one of our public institutions."

"Wife Drives a Car"

"WIFE Drives a Car" is how the amusing one-act play by Frank Perrin and Laurie McLeod is titled in the 5CL programme for 10 p.m. on Wednesday, December 18. Frank Perrin is well known to listeners as an entertainer; Laurie McLeod will appear in a new broadcasting role. She is also well known to 5CL's audience, for her physical culture talks, and it is enough to say that she is equally at home in this one-act play as when she discusses diet and muscle exercises.

"The Messiah"

HANDEL'S glorious oratorio is seemingly something that listeners cannot hear enough of, particularly with Christmas approaching. It has already been broadcast through 5CL, but it is safe to say that no previous performance of this great work will be better than that to be broadcast by the Malvern Choir under the direction of Mr Fred Pilgrim, on the evening of December 19. This choir has broadcast once a fortnight from 5CL for several months, and has attained a high standard in broadcasting technique.

Goanna Gully Wedding

IT will be fast and furious at 3LO on December 18, when the Goanna Gully wedding festivities will be in full swing. All the familiar characters will be there, the ceremony will be performed by the Rev. Hyam Merry, and many friends of the rustic bride and bridegroom will contribute vocal and instrumental items. The production is in the hands of the well known entertainer, J. Harcourt Bailey, and there will not be a dull moment while this versatile company is before the microphone.

Wireless Policy

IT is learnt in Sydney that the Federal Government has appointed a Cabinet committee to consider the whole question of wireless policy. The committee consists of Mr Lyons (Postmaster-General), Mr Brennan (Attorney-General) and Messrs Beasley and Forde (Assistant Ministers). The committee has had a long interview with Mr H. P. Brown, director of Postal Services, and has asked him to set out in writing his proposals for the future conduct of all phases of radio.

A Queer Mixture

AN absent-minded man's wife asked him to take down a recipe that was to be broadcast. He did his best, but he tuned in two stations at once. One was the right one, and the other was broadcasting physical exercises. This is what he gave his wife afterwards:—

"Place one cup of flour on shoulders, raise knees and depress toes, mix thoroughly with half-cupful of milk. Inhale quickly one teaspoonful baking-powder, lower the legs, and mash with two boiled eggs in a sieve. Exhale and sift into a bowl. Lie flat on the floor and roll the white of an egg backwards and forwards until it boils."

Edna Davis to Tour

THE popular young xylophonist—Edna Davis—will not be heard from 3LO for a few months as she is leaving shortly to fulfil concert engagements in Cairo, Alexandria and London. While in England it is possible that she will broadcast from 2LO.

Russia in Song and Story

THIS is a unified radio entertainment comprising features of national significance in drama, music and story, and has been arranged by Gordon Ireland for broadcasting by 3LO on Friday night, December 13. Included in it is a radio play, "The Resurrection," which has been adapted from Tolstoy's famous book and will be produced in appropriate effects.

Heard in Solomons

AN appreciation of Eric Welch's description of the Melbourne Cup comes from Mr R. C. Laycock, of Tulagi, Solomon Islands, who picked up the transmission of Amalgamated Wireless' short wave station, 2ME. "While turning the dial on November 5," says Mr Laycock, "I received the greatest shock of my life when I heard a voice say 'the horses are now cantering up to the starting post all out to win the Melbourne Cup.'" The writer adds that, although reception was at times rather blurred, he managed to hear every word.

"Evolution of Dixie"

THIS descriptive orchestral novelty will be produced by the National Broadcasting Orchestra, under the baton of Percy Code, for broadcasting by 3LO on Thursday night, December 12, as a prelude to the weekly dance programme.

Talkies on the Air

A NOVEL programme will be given through 3AR on December 19, when "Tit Bits from the Talkies" will be transmitted from the Athenaeum Theatre. Many world-famous artists will take part, including Julia Sanderson and Frank Crummit in vocal numbers, Rody Vallens and his Connecticut Yankees—America's leading dance band, will be heard in "Deep Night" and "Outside," while in classical strain, the Quartette from "Rigoletto" will be rendered by world-famous Operatic stars.

Travel Week at 3DB

THE various sessions of the Women's Radio Service this week will be devoted to items of interest to the be near or far. The clothes to wear, how to pack, easily made facilities, holiday maker, whether her journey how to cope with baby and the children on the holiday, easy menus to prepare for the holiday house; all these subjects will be dealt with, and many useful hints for the holiday-maker generally.

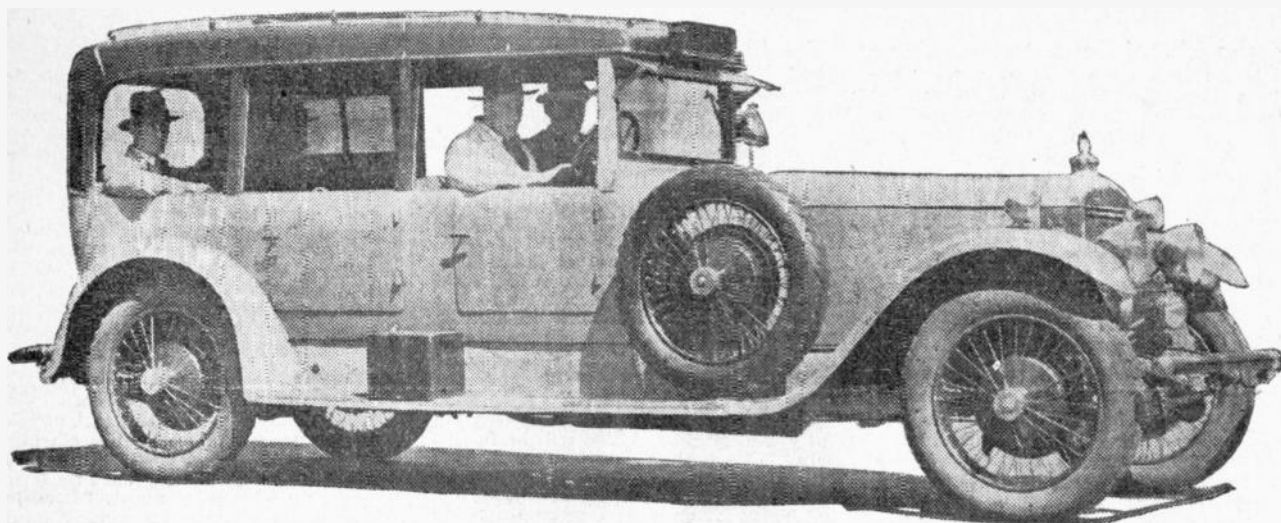
These sessions of the Women's Radio Service which are conducted by Miss Iris Turnbull and Mrs Dorothy Silk are proving of great advantage to the country woman as well as to her suburban sister.

Winners in The Listener In Competition No. 22.

There were nine competitors who succeeded in naming the whole 12 puzzles correctly, viz.:

Miss Lucy Powell, 93 Windsor Cres., Mont Albert. M. M. Rooney, 8 Addison Street, Moonee Ponds. G. Squire, 12 Clarendon St., Malvern. Mrs B. Pelham, 11 Wave St., Elwood. Mrs W. Wynd, 19 Elizabeth St., Malvern. H. Hellings, Bruce Street, Preston Park. T. L. Johnston, 5 Rupert St., Garden Vale. Elst. Francis Castles, 8 Wellington St., Kew. Miss Coralie Webb, 41 Campbell St., Bentleigh.

A cheque for £2/15/6 has been forwarded to each of the successful competitors.



Above is pictured one of the new cars acquired by the Victorian Police Patrol.

Caught in the Wireless Trap

Police Night Patrol Makes Thrilling Captures

By JACK CARROLL

Wireless has increased the hazards of the law-breaker. The motor patrols of the Victorian Police Force are all wirelessly equipped. Patrolling the city and suburbs throughout the night, the cars are in constant touch with the transmitting station at police headquarters. There have been some thrilling captures after whirlwind midnight pursuits following messages flashed through the air from Russell Street.

WITH its fleet of five cars and 30 motor cycles, the Victorian police force is one of the most mobile police bodies of its kind in the world. It is five years since the patrol was founded and Senior-Constable Downie, whose efforts were responsible for the introduction of the system, is still its leader. He has encountered some amazing cases in his experience with the patrol, and he is able to recall countless stories of exciting pursuits and captures.

It was 11.30 p.m. when the patrol received a call to an accident in St. Kilda Street Brighton (Vic.). A car, swerving to avoid a collision, had been forced off the road and had wrecked itself against a telegraph pole. There had been three girls and two men in the car. One girl had been thrown from the back seat, through the windscreen, and had struck the pole ten feet from the ground. The impact of her head against the pole was so violent that one of her ear-rings was embedded in the hard wood. She was dead when the patrol arrived and the other girls had disappeared.

The only clue left behind was a woman's handbag, with a name inside. By looking up the electoral roll, the patrol discovered where she lived. When they reached her home they found her mother and sisters waiting at the gate. The accident had an unpleasant sequel for the young man who was driving the car. He was in hospital, badly hurt, but the patrol's inquiries induced them to put him under police guard until he recovered. Then, he was charged with shop-breaking and, later, sentenced to a term of imprisonment.

One of the most sordid cases on record followed the seemingly unimportant detection by a night-watchman of two women breaking into a flock factory. The patrol was called by wireless and caught the two women carrying away a bag of flock. Taking the offenders with them, they visited the home of one woman. And there they encountered a shocking case of moral and hygienic neglect. The house, a hovel denuded of furniture, was in a filthy state. Two little children were asleep on bare mattresses covered with sacks.

Catching the Car Thief

Perhaps the most audacious young law-breaker the patrol has met was arrested some time ago after

a long chase in which several shots were fired. The police had been troubled for some time by the theft of a number of cars from Albert Park and Kew. The cars stolen from Albert Park were always recovered at Kew, while those from Kew were found at Albert Park. The attention of the patrol was first drawn to the car they chased by its number on the list of cars reported stolen, which is always carried on the dashboard of the patrol car.

The driver was only 16 years old. He admitted that he had stolen 32 cars in a few weeks. He said he had a friend in Kew to whose place he would drive from



The operator on the Patrol car, having received by radio details of a criminal outrage in the metropolitan area is acknowledging receipt of the message to Russell Street

his home in Albert Park, abandoning the stolen car at Kew. Then, he would go out, steal another car from Kew and he and his friend would take girls joy-riding. The boy, who came from a good home, was released by the Court on a bond.

Two weeks after his release, the patrol was passed by a stolen car. Another chase occurred and, again, shots were fired before the driver pulled up. He was the boy the patrol had arrested only a few weeks before—and this time he had three girls in the car with him.

Stolen Property Recovered

No one would expect to meet criminals on Beaconsfield Parade, South Melbourne, at 4.30 on a cold winter morning when the wind is throwing the sea on to the roadway. But it was there that the wireless patrol made one of its most remarkable arrests. The police car was pulled up and the crew having supper. One of the men remarked, "It's no good waiting here. This is the last place on earth where we'll catch any one." At that moment, a car, travelling about 50 miles an hour, dashed past. Seeing it was a stolen car, the patrol gave chase.

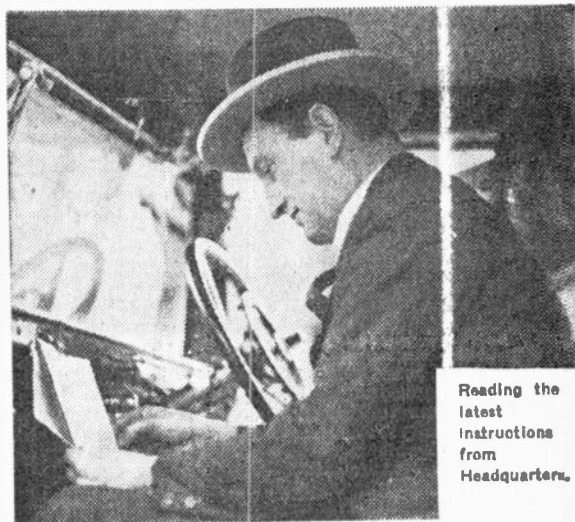
The police car was swiftly overhauling it. Suddenly, it slowed to about 25 miles an hour; in quick succession, three men jumped from the running-board to the roadway and tried to escape. The patrol halted, its crew jumped out, and in a few minutes, the men were captured. Driverless, the stolen car had swung from the roadway and crashed into the side of a building. In the back seat was found a quantity of obviously stolen property.

Realising there was no escape, the men told the patrol that the stolen goods came from a seaside hotel. One of them remarked, "We came along the seafront because we thought it was the last place you'd be watching on a night like this." At the hotel, the household was still asleep. With their captives, the police climbed in through the window which the thieves had broken open and woke the very surprised licensee. Among other things, the intruders had attempted to force the safe.

Often, the patrol-men have unpleasant and dangerous work to do. But it is episodes of this sort, the contact with the human side of police duty that makes their job attractive. There is the exhilaration, too, of travelling at high speeds—the record for the service is 87 miles an hour—and the thrill of entering a dark building in which they know criminals, possibly desperate men, are hiding.

Nine Operators With the Patrol

Victoria's wireless police patrol system is established on modern lines. It is a tribute to the men who founded it and developed it—all members of the force—and to the nine wireless operators who share the work of transmitting and receiving. They are experts in wireless, and each was trained as an ordinary constable before he joined this branch of the service.



Reading the latest instructions from Headquarters.

Automatic Distress Signals

A New Device which will Transmit the S.O.S. Signal in time of stress

A REMARKABLE demonstration was given by Amalgamated Wireless recently of a radio transmitter invented and designed for sending out distress signals from small coastal steamers not equipped with wireless. The device is known as the Automatic Wireless Distress Transmitter, and the whole appliance is contained in a cabinet 3ft. 6in. high by 15in. square; it is thus easily placed in the chart room of even a small steamer.

In a moment of emergency the captain or any member of the crew, by operating a switch, causes the appliance to send out the International Alarm Signal, followed by the S.O.S. Within 30 seconds any person, though completely ignorant of wireless or of the Morse Code, can transmit an arrangement of letters which causes the position of the ship—latitude and longitude in minutes and degrees—to be transmitted.

The signals may be picked up by any vessel equipped with wireless, and, without any attention, the transmitter continues for 20 minutes to send out the distress signals together with the name of the ship and her position.

By winding a spring the device will continue in action for another 20 minutes if required, and as long as the spring is kept wound up, the transmitter will work continuously for 10 hours before the battery is run down.

An arrangement is also available by which a signal can be transmitted indicating that no further help is required.

Tested and Proved.

There are 168 vessels in the interstate trade on the Australian coast, none of which is fitted with wireless,

the chief reasons being the cost of maintaining an operator and the value of the space necessary for his accommodation. The Automatic Wireless Distress Transmitter occupies practically no space yet meets all the requirements of the ordinary small coasting vessel, several of which have foundered within recent times without even being able to send out a message stating the cause of the disaster.

The device has been tested by the Commonwealth Navigation Authorities and the signal has been received by shipping and land stations on 7272 occasions and for distances up to nearly 2000 miles, although the actual range of the transmitter is nominally 100 miles. It is understood that the Navigation Authorities regard the Automatic Distress Transmitter as generally satisfactory.

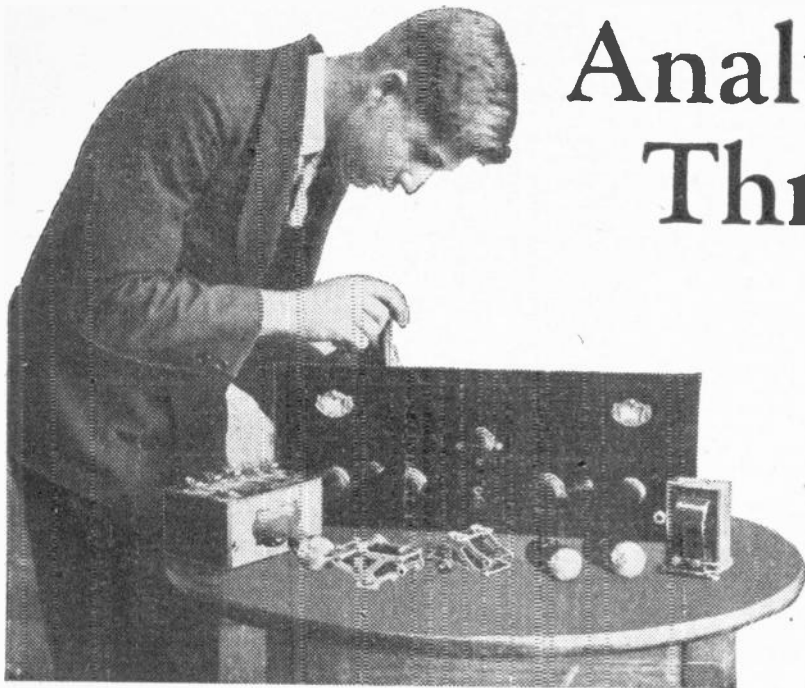
Brief Details of Design.

The Automatic Wireless Distress Transmitter consists essentially of two discs, which are caused to rotate on a vertical axis by a spring driven motor. On the edge of one of the discs Morse characters corresponding to the regulation automatic alarm and distress signals are cut permanently. On the edge of the other disc characters can be readily fitted by anyone corresponding with the position of the ship, according to latitude and longitude, or according to location on a special chart. The apparatus is set in motion by means of a small tumbler switch, which causes both the wireless transmitter and calling device to function. From then the calling is automatically carried on.

Power is obtained for the transmitter from an accumulator battery, which has sufficient capacity to operate the transmitter for 10 hours.

Analysing a Three Valve Receiver

By H. K. LOVE, VK-3BM



WE look over hundreds of receivers, an equal number of circuits, constructional diagrams and pictures, in an endeavor to find the best circuit to employ three valves. A three-valve receiver may consist of a detector, followed by two stages of audio frequency amplification, or it may be a three-valve receiver in the true sense, employing three valves each with its own function — No. 1 as a radio frequency amplifier, No. 2 as a rectifier, and No. 3 as an audio-frequency amplifier.

The radio frequency amplifier is designed for the purpose of building up the signal before it is handled by the detector. The modern tendency is to employ a screen grid valve for this purpose, but it is our intention here to discuss an ordinary three - element valve in this capacity.

First we must have a collector, consisting of an aerial and a ground. The aerial and the ground are con-

nected to a coil shown in the circuit of Fig. 1, as L1. This coil must be arranged so that its field cuts a second coil, L2, and so passes on the energy which it collects to the input or grid circuit of the valve, V1.

In order that the grid circuit of this first valve may be tuned to the required frequency, the grid or input coil has paralleled across it a variable condenser of suitable capacity shown in the sketch as C2. The energy so impressed on the grid of this valve is, by the natural relay action, greatly amplified in its plate circuit, in which is included the coil, L3. This coil completes the circuit arrangement of the radio frequency amplifier.

The energy pulsating through the coil produces lines of force which, in turn, cut the coil L4. The cutting of L4 by these lines of force induces a certain amount of energy into the grid circuit of the rectifier valve, V2, when its grid circuit is tuned by the

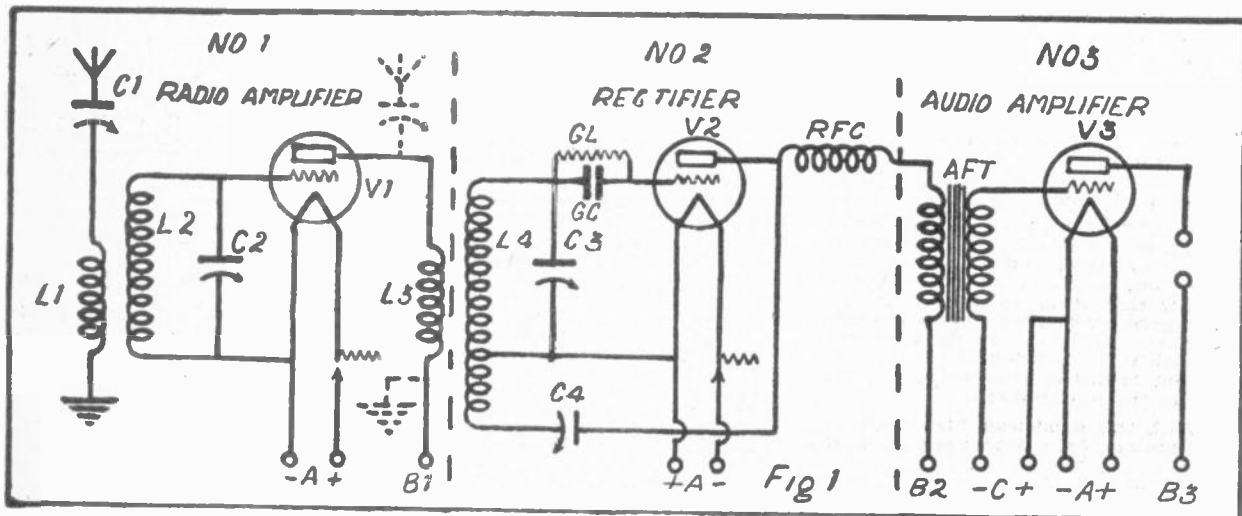
aerial condenser, C3, to the frequency of the energy pulsating in the output coil, L3, of the first valve.

Rectification takes place by means of a grid condenser and leak shown in the diagram as GC and GL. The energy is again built up by the relay action of the detector valve in its plate circuit, and flows through the primary of an iron core transformer marked AFT.

A slight modification is introduced at this stage whereby a fraction of this built-up energy flowing in the plate circuit is reintroduced into the input or grid circuit of the detector valve, V2, where it is re-amplified and the strength of the signals greatly increased. This action is termed reaction or feed back. The amount of energy fed back into the grid circuit from the plate circuit is controlled by a feed back or throttle condenser, C4.

By means of rectification, the current flowing in the plate circuit of V2 is divided into two channels—a radio frequency channel and an audio frequency channel. As the radio frequency energy is not required in the low frequency amplifier, the choke marked RFC is included between the plate and the primary of the iron core transformer AFT to prevent its passage.

The audio frequency currents, however, flow through the primary winding of the transformer and induce in



By dividing this standard three valve circuit into sections, the reader will be able better to understand the fundamentals and operation of a multi stage arrangement.

the secondary winding, which is connected to the grid of V3, energy which is amplified in the plate circuit of V3 and fed to the loud speaker or telephones.

A slight modification of the grid return is made in the valve V3 to provide for the inclusion of grid bias battery so that the tube may be worked at the correct point on its characteristic curve to give, not only maximum amplification, but, what is far more important, faithful reproduction. It will be seen that, in Fig. 1, this simple circuit is divided into three separate parts by dotted lines. The most important components other than the valves themselves are the coupling devices which perform the function of transferring energy from the plate circuit of one valve to the grid circuit of the next.

Coupling Devices

It will be seen from this circuit that we have three separate coupling devices. The first is used to couple the energy from the aerial to the grid of the first valve. The second is used to couple the energy from the plate of the first valve to the grid of the second valve. The third is used to couple the audio frequency energy in the plate circuit of V2 to the grid circuit of V3.

The main problems in the design of any coupling unit are: (1) The provision against losses; (2) the provision for ample selectivity which will allow the free tuning of the stations required without interference from an unwanted station; and (3) in the case of audio frequency coupling units, ability to amplify over a given range of frequency.

The outline of the above problems immediately suggests that coupling devices may be divided quite readily into two distinct classes—Class A radio frequency coupling units, and Class B audio frequency coupling units.

The design of units for the coupling of radio frequencies varies considerably with the conditions under which the unit is to be employed, the type of circuit and the degree of selectivity desired. In the circuit shown in Fig. 1, the simplest possible arrangement is employed. The first coupling unit consists of L1 and L2, merely two coils of wire wound on a cardboard former with a space between the two to add to the selectivity.

It will be noticed that in this portion of the circuit the condenser, C1, is included directly in the aerial lead, or in series with the aerial and the coil L1. Very few receivers, particularly those using multi-stage radio frequency amplifiers, employ this type of aerial tuning.

A condenser placed in this condition need not by any means be regarded as an extra control. It is, however, one of the most useful adjustments that it is possible to include. For a receiver which has a tendency towards slack tuning, a condenser placed in the position of C1, is an excellent means of sharpening the tuning in the initial stages.

With this condenser turned all out, the tuning of the condenser, C2, in the grid circuit will be very sharp. The value of C1, for average working, should be .00035 mfd.

The next coupling device in the circuit of Fig. 1 is the group of coils, L3

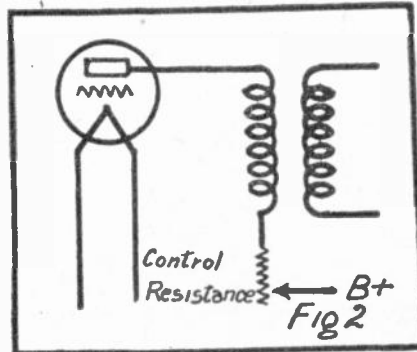
L4, L3 being the primary and L4 the secondary of a radio frequency transformer, which is the term applied to a coupling device used between one valve and another at radio frequencies.

It is the design of this particular type of radio frequency transformer which varies with the circuit and the type of valve employed.

Most readers are probably aware of the type of transformer used in the neutrodyne circuit. Here is employed a primary winding and a secondary winding, which is tapped at a given turn and wired to a neutralising condenser for the purpose of taming the radio frequency stages.

In the ordinary radio frequency transformer, the primary is almost invariably left untuned. It is arranged to be brought into resonance by the tuning of the condenser, C3, and for this reason the coupling of the two coils, L3 and L4, must be sufficiently close to allow the condenser C3 to exercise a tuning effect on coil L3. The fact that this coupling is fairly close may have the disadvantage of impairing the selectivity of the unit.

For this reason, the modern tendency runs towards opening the coupling between the primary and the secondary to maximum, but providing tuning condensers for both coils. This method has two advantages—(1) That it considerably raises the impedance



A radio frequency control resistance to adjust the r.f. stage for maximum sensitivity. It is usual to shunt this resistance with a fixed capacity of about .01 mfd.

offered to the plate circuit of the valve in which it is included, thereby giving greater amplification, and (2) on account of its very loose coupling between the coils selectivity is greatly improved.

This form of coupling is not recommended for the three element type of tube, as considerable difficulty may be experienced in keeping in check the tendency of the radio frequency valve to oscillate. It will be noticed that in No. 1 section of Fig. 1, dotted lines representing an aerial and earth are placed showing where these will be connected to the coil L3 if a radio frequency amplifier was not being employed. This is drawn in for the purpose of illustrating how very simple it is for a radio frequency amplifying valve to be added to an existing detector followed by one or more stages of audio frequency.

It is appreciated that a great number of people employ the three element tube as a radio frequency amplifier in various types of circuits. The majority of circuits are probably of the neutrodyne variety, in which advantage is taken of deliberate feedback from plate to grid for the pur-

pose of neutralising unwanted feedback within the valve.

Despite the fact that the receiver may be most carefully neutralised by any one set of valves, it frequently happens that there is a tendency to oscillate present all the time. This will probably be more noticeable where a B battery eliminator is employed where the pressures supplied to the radio frequency tube are not definitely known.

One of the most useful methods of controlling this type of amplifier, in addition to any neutralising arrangement, is the employment of a high resistance in series with the plate lead to the tubes. This resistance should be somewhere in the order of 0 to 50 or 0 to 75,000 ohms. The method of including this in the high tension lead is shown at Fig 2. Where one or more plate leads for the radio frequency valves are taken to a common terminal, the one control resistance will serve for all tubes.

This method of control is worth while adding to almost any radio frequency amplifier employing ordinary three element tubes. The voltage may be so varied by means of the resistance that the set will remain quite stable under all working conditions. Coupling devices for screen grid tubes require special treatment, which will be given as a continuation of this article next week.

Gertrude Hutton at 3LO

GERTRUDE HUTTON, whose cultured vocal style has placed her in the front rank of concert and broadcasting artists, will be on the air from 3LO on December 13. Many will remember her as a member of the Australian Chautauqua Society when she toured New Zealand, afterwards being associated with Maxim Brodi, the distinguished Continental tenor, and the Regal Opera Company. She has acted as soloist with every reputable Choral Society, and sustained the contralto roles of "Martha" and "Faust" with the Postal Institute Choir. Miss Hutton is a sincere artist of considerable ability, and her work is always appreciated.

Cheques By Telegraph

AS a result of a contract recently successfully completed by the B.G.E.C., photographs, drawings, cheques, advertisements, etc., are being transmitted daily between Sydney and Melbourne for business and private purposes, with (to quote from the official announcement) "photographic accuracy and telegraphic speed." It is proposed to extend the system to other capitals connected by carrier telephony when and as the business warrants.

"The Three Live Ghosts"

A STAGE personality, Miss Doris Lascelles, entertained listeners to 2BL on December 2. As a member of many of J. C. Williamson's musical comedy companies Miss Lascelles has toured the Commonwealth, and there is not a town in New Zealand, she claims, which she has not visited. She has played with Muriel Starr and Oscar Asche, and more recently understudied Marie La Varre in the three pieces played at the Savoy Theatre, Sydney. Sixteen years ago she played at the Grand Opera House in "The Three Live Ghosts," which Sydney is witnessing on the sound screen.

Short Wave Phone Notes

A Weekly Review of Stations below the Broadcast Band

If one is prepared to turn night into day — and what D.X. enthusiast isn't — there is ample entertainment to be had on the short waves below 100 metres. Most of the short wave phone stations heard in Australia are to be found from about 9 p.m. on to daylight next morning, although there are also a number of American stations to be tuned in during the daytime.

By "SHORT WAVE"

phone jacks, reaction control or any components not usually grounded being insulated or bushed therefrom. For the same reason it is preferable to cover the top or bottom of the baseboard with sheet metal also, and all grounded returns can then be made via this medium. Complete shielding, should it be necessary later, is thus greatly facilitated.

The wiring should be rigid and of 16-gauge or similar heavy busbar to prevent vibration or "shimmying." All leads to detector or tuning unit, or carrying high frequency currents, should be made short and kept off and away from the metal baseboard, etc. If valve sockets are used for the plug-in coils, they can be mounted side by side, with the sockets for the valves, and very little wiring will be required. By-pass, blocking and smoothing condensers and R.F. chokes, where necessary, should be placed right against the component they are to assist.

This particular set has only two controls, tuning and reaction. The variable aerial coupler is primarily adjusted for maximum signal strength at a point where the set will oscillate steadily over the whole of the tuning dial, and, when once set, needs no further attention.

Reaction control will well repay any detailed attention, and each coil should be adjusted either by adding or removing reaction turns, or portions of a turn, varying the spacing between the grid and plate turns, spacing out the last turn or so of the reaction coil, and critical adjust-

ment of the plate voltage applied to the detector, until the set goes almost imperceptibly into weak oscillation with the reaction control about half in use.

In resistance controlled reaction receivers, about 50 per cent. more plate voltage will be required on the detector to compensate for the potential drop across the resistance.

L1 and L2 tubes are base coils, with the grid coil on top and the reaction on the bottom with about 1/4 to 3/8ths of an inch between them. Connections to the pins should run— Grid at top, Fil. and "B" plus or transformer connection from the centre ends of the respective coils, and Plate connection from the bottom end of the reaction coil to ensure correct coupling for application of reaction, as in diagram.

No 24 D.C.C. gauge wire may be used for all except the 70 metre coil which needs smaller wire to wind it in the space available; 30 gauge d.s.c. is suitable.

Many varying factors affect the actual tuning range of the coils with a given capacity, but the values specified will serve for a guide.

All other components are standard, and, if the four volt valves available on the Australian market are used, no rheostats will be required, although, if desired, they can be inserted in the positive lead to the valves. Rheostats are sometimes useful in keeping down fringe howl on a coil which has not been properly adjusted.

The phone jack is of the single circuit filament variety.

(Continued on Page 64).

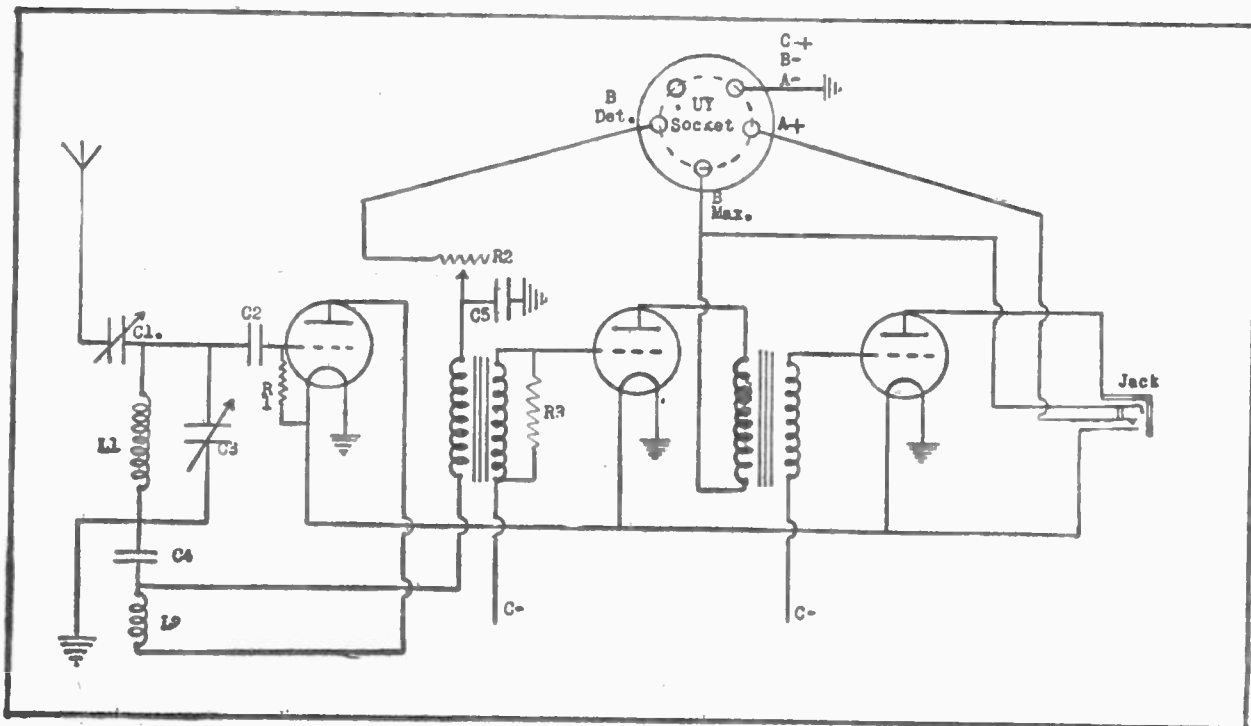
Comparatively simple receiving equipment is required, and the amateur who is used to constructing and operating broadcast sets should have no difficulty in building a short-wave receiver.

What is probably the simplest type of short wave receiver is contained in the circuit diagram published herewith. It is regarded as the standard design for a large number of sets in use at the present moment. Several variations from the standard can be made to suit individual tastes. The tuning unit can be built up separately as an "adaptor," the plate and filament leads being soldered to the respective pins on a burnt-out valve base and plugged into the detector socket of the broadcast receiver, using the audio amplifier stages contained therein.

The second stage of audio can be dispensed with if desired, at a sacrifice of some signal strength, but, for overall efficiency, the circuit as it stands is recommended.

There are several pitfalls to be avoided in building up a short wave receiver. These are not encountered in the average broadcast set, and a brief review should prove helpful to the amateur just "breaking in."

A metal or bakelite panel, backed with sheet metal, should be used to keep down body capacity effects.



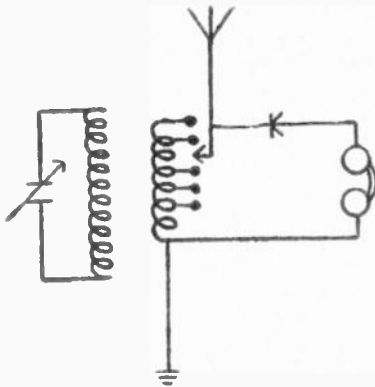
Circuit of an easily-built Short Wave Receiver, details of which are included in the above article.



The Radio Doctor

The Listener In "Radio Doctor" will help you solve your problems. Consult him! All queries should be addressed to the Technical Editor, The Listener In, 62 Flinders Street, Melbourne.

ADDING SELECTIVITY TO THE SDB CRYSTAL SET.—I am using a "SDB Crystal Set" as described in The Listener In and it is living up to its name, as I am able to receive SDB louder than any other station. How-



Making a Crystal set more selective

ever, since this station shifted its location I have had difficulty in bringing in 3UZ. Could you offer any suggestions of how I might improve the Selectivity of the receiver? — J.W. (Caulfield, Vic.).

The selectivity of this circuit may be improved by use of a tapped aerial coil as in the accompanying illustration. Experiment with the various tappings and whichever gives the correct selectivity required to bring in 3UZ should be used. 1.

THE REINARTZ TWO.—Could "The Reinartz Two" be used successfully as a one valver by omitting the audio stage? If so could you explain how this should be done.—J. C. Lloyd.

This receiver can and is being used by many as an interstate single valve receiver. The circuit is the same as the two, the transformer and amplifying stage being omitted. The phone should be connected to the leads which are at present connected to the primary terminals of the transformer. A 80 volts B battery should be used.—1.

WET B BATTERIES.—I have a six valve receiver. This set has a 6 volt wet "A" battery and three 45 volt dry batteries. My electric light plant is a 32 volt 1500 watt engine. I have a charging board for the "A" battery and wish to know how I could make use of this plant to get my "B" current. Could I buy wet "B" batteries that I could charge in sections, and would they give the same service as

dry "B" batteries; or could you suggest other ways of making use of the plant for supplying the "B" current? —J.G.B. (Enroa, Vic.).

You can use an accumulator "B" battery as you suggest using your lighting plant to recharge the cells. The battery should be purchased in 20-volt sections. Six of these sections would be sufficient. You will also need a D.C. meter reading up to one ampere and a power "clarostat." The sections, when being used, should be connected in series, in the same manner as you have the three dry batteries connected at present. The various "B" tappings from the receiver can be plugged into their correct positions. When the batteries are to be charged, they should all be connected in parallel with the positive and negative of the first battery connected to the positive and negative of each of the remaining batteries. Connect the positive side of the accumulators to one terminal of the power "clarostat," and the other side of the "clarostat" to the negative side of the ammeter. The other side of the meter should be connected to the positive side of the 32 volt accumulator lighting bank. On joining up the negative side of the 32 volt bank to the negative sides of the batteries to be charged, the controlling resistance should be adjusted until the meter registers a quarter of an amp.—1.

ADDING AN UNTUNED R.F. STAGE.—I have a two valve receiver using a three coil tuner as I have shown in the accompanying drawing. I am able to receive 2FO at weak

speaker volume and the other "A" and "B" class interstate stations on the phones. Could you show me how to add an untuned r.f. stage using an ordinary valve in the additional stage? —"Mug" (Belgrave, Vic.).

Printed below is the circuit you require. All you need is a valve socket, valve, 10,000 ohm fixed resistance, and a rheostat. The three coil tuner plays the part of regenerative coupler, the same number of turns being used. The connections to the primary (the former aerial coil) should be reversed, the way which gives best results being used.—1.

IMPROVING SELECTIVITY. — I have constructed two "Standard Single" sets from instructions which appeared in The Listener In of January 23. I find the stations come in at good strength but the selectivity is not as good as desired.

I am operating one set in a five-storey building in the city; for this set I have an indoor aerial of 12 ft. and the ground is on to a water tap in the room. The different stations cut in on this set very much.

The other is operated at Malvern. I have an outdoor aerial of 50 ft. Could you suggest anything to improve selectivity?—"Quandary" (Malvern, Vic.).

Selectivity of this receiver can be improved very easily. All that is necessary is to take the coil tapping at the 30th and 35th turns using whichever tapping is most suitable for the locality in which the receiver is used.—1.

(Continued on Page 70).

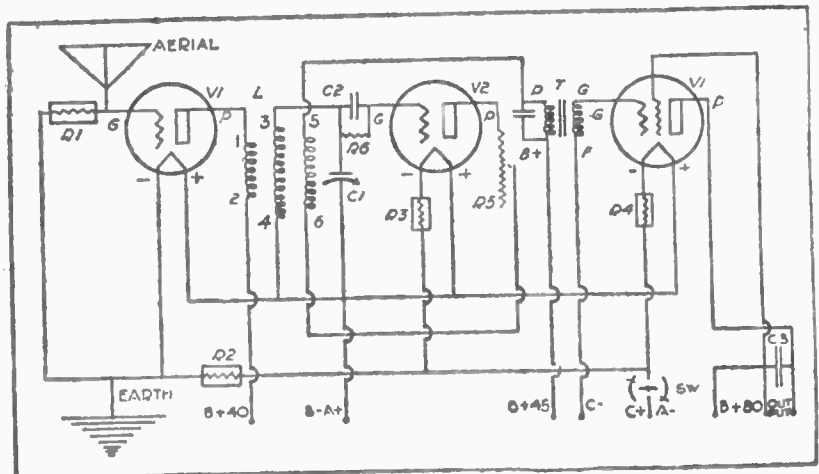


Diagram showing how to add a stage of untuned R.F. to a two valve receiver.

People in the Programmes

Frank Russell to Talk

HUNDREDS of listeners will be tuning in to the Wesley Pleasant Sunday Afternoon service on December 15, when Mr. Frank Russell will give a brief travel talk. This well known journalist has but recently returned from a world tour, during which he met most people who were of consequence, ranging from celebrities to kings and emperors.



FRANK A. RUSSELL

Forgot "God Save"—

JAMES Walker, the young pianist, who was heard from 2BL on December 4, is a pupil of the Conservatorium of Music, where he has as his tutor Frank Hutchens. He has the performer's diploma of that institution, and a well developed technique. When Arthur Benjamin gave his last concert in Australia prior to his departure for England, in association with Cyril Monk, the two artists left the stage at the conclusion quite overlooking the National Anthem. With great presence of mind, James, who turned the music for the Australian pianist, slipped on to the stage just as the audience turned to leave, and rectified the omission.

"Weary River"

"WEARY River," a dramatic sketch depicting an incident in the life of the famous Russian composer, Tschalkowsky, will be given from 3LO on December 9. The story is based on his famous song, "None but the Weary Hear," and will be illustrated by gems from his compositions. Favorite broadcasting artists will assist, and selections will be contributed by the National Broadcasting Orchestra.

The People of India

A DISSERTATION on the history and character of the people of India will be given from 2FC on December 9 by Mr T. S. Gurr. The changes wrought in the inhabitants by the inclusion of the Aryan race instituting caste, and by the reaction of the natives to Western civilisation introduced under British rule and the present Governmental problems of the country will occupy Mr Gurr's attention. A glimpse of India's future in the light of a more liberal form of government granted the country by the English Labor Government Ministry will conclude the address.

A Bit of Blarney

MR F. CLARKE COTTRELL, the well-known producer has arranged a delightful Irish song scene entitled "A Little Bit of Blarney" and will produce it for broadcasting by 3LO on Tuesday evening, December 10.

New Singer at 3AR

LENA WORLAND, a newcomer to the broadcasting studios, will be heard from 3AR on December 16. This young contralto possesses a delightful voice, and is the protegee of one of Melbourne's leading art patrons. Many musicians are interesting themselves in her career, and she is studying with a view to going abroad during the coming year.

Old 3LO Artist

THREE popular songs a day from 3LO for a month without repeating any number is the record of Vera Spaul. So many new songs were being released at the time that she did not have much time to learn them, and she admits that she was not always sure of the words she was going to sing.

Miss Spaul has played in every kind of stage production, and is of opinion that her greatest success was as Marietta in "Madame Pompadour." This popular vocalist will be heard from 2FC on December 10.

"Daughter of the Regiment"

UNDER the direction of Fritz Hart, F.R.C.M., a studio presentation of Donizetti's "The Daughter of the Regiment" will



FRITZ HART who will produce "The Daughter of the Regiment."

be given from 3AR on December 16. Soloists include Beatrice Oakley (soprano), Howard King (baritone) and Alan Mitchell (tenor). Immediately following the conclusion of the opera, a delightful programme of Old English music will be given. Assisting artists will include Alan Mitchell and Bessie Dougall, who will be heard in traditional folk songs, while the "Three Dances" from "Henry the Eighth" will be given by the National Broadcasting Orchestra.

Woman in Other Countries

A DELIGHTFUL new series of travel talks will be given by Miss Doreen Berry, from 3AR, beginning on December 20, when by "A Woman's Wanderings Through Other Countries," listeners will be taken to some of the most interesting places in Europe. Few are able to speak with more authority than Miss Berry, who during the last four years has been twice to Europe, when she visited the leading musical and artistic centres and spent many hours watching the players at Monte Carlo.

A bullfight was included in the trip through Spain, and historical picture galleries and cathedrals claimed attention in Holland and Italy. Miss Berry's description of shopping in Paris and London is very entertaining, and her sidelights on "night life" on the Continent are full of surprises.

Pierrette and Pierrot

A NOVEL musical turn by Pierrette and Pierrot will be given from 3AR on December 16, when, with piano, voice and saxophone, they will contribute some excellent vocal and instrumental duets. Both these clever artists have had much experience on the Australian, America and South African stage, and were chosen to support Sir Harry Lauder on one of his recent tours. As broadcasting entertainers, they are well known throughout New Zealand, and their popularity will certainly follow them to Victoria.

"Escape"

CONTINUING the plays concerning incidents in the lives of famous composers, "Escape," describing a chapter in the life of Richard Wagner, one of our greatest musical reformers, will be given from 3LO on December 17. This is a dramatic little episode which will hold the attitude of listeners from the start. It will be illustrated by the "Flying Dutchman Overture," played by the National Broadcasting Orchestra.

Harpist's Second Appearance

FOR the second time under the management of the A.B.C., Signor Butta, harpist, was heard on the air. This was on December 6 from 2FC. During the war no harp strings could be brought to Australia owing to the disorganisation of trade and harp strings were unobtainable in Australia. The harpist tried almost every substitute but each proved unsatisfactory and he had to give up playing until after the war. "But I have been making up for it ever since," he said.



VERNON SELLARS, the well known tenor, who is to broadcast from 3LO.

Ray Carey Returns

BACK from a successful musical comedy tour comes Ray Carey, whose tuneful tenor will be entertaining from 3LO on December 16. This versatile artist began his professional career by playing principal parts, and has gone steadily from success to success. Possessed of a pleasing voice, admirably suited to the demands of the broadcasting studio, a vivid personality, and a wide repertoire of songs, his items are always much to the taste of the great majority of listeners.

The League of Nations

"INTERNATIONAL Goodwill," by Mr B. R. Gelling, from 2FC, should be an interesting address. Mr Gelling is president of the N.S.W. branch of the League of Nations Union, a past-president of the Rotary Club, and an executive of the Boy Scouts' Association's committee. Mr Gelling will outline the methods adopted by the League of Nations to secure international peace and security.

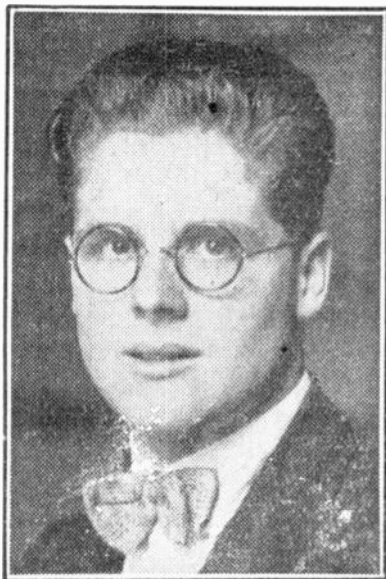
Mildred and Connie

MILDRED and Connie, two versatile young performers, are making a welcome return to the broadcasting studio, and will be heard from 3LO on December 20, in some novelty musical numbers. These clever artists come from a well known English theatrical family, and made their first professional appearance at a very early age, touring the leading Continental towns and Great Britain.

They are skilled exponents on a wide range of instruments, including the piano, concertina, harp, steel guitar, banjo, violin, and that most difficult of all instruments, the English post horn. Both sisters have pleasing, well-trained voices, and their delightful sense of comedy is a decided asset to their radio work.

Town Hall Organ Recital

THE organ recital by Dr. W. G. Price, City Organist, on Wednesday, December 11, at midday, will be broadcast by 3AR.



EDWARD COCKMAN, violinist, who was recently heard from 2BL. Mr Cockman is a recent arrival from England, and, during his stay in Australia, he will be often heard from the Sydney stations.

Vladimir Elin

"I HAVE sung before the Czar in the Royal Theatre and in little villages in the North of Russia before an audience of peasants. The peasants were just as appreciative as members of the Royal family," declared Vladimir Elin, who will offer a song programme from 2BL on December 10. "During the revolution it was customary to give a concert in exchange for a sack of potatoes, and I have known Chaliapin play for an evening in return for five pounds of sugar or a bag of flour.

"The uneducated mujiks can appreciate good music because their bad taste has never been developed as it has been elsewhere. If you give people only good music they can like nothing else."

Mr Elin toured Slam and the East for some time.

'Ce'lo That Byron Heard

MR NORMAN MARTIN, 'cellist has a very old instrument of which



NORMAN MARTIN, who recently was heard from 2BL.

he is proud. When he bought it, it had not been played for fifty years. By an inscription on it he was able to trace its history. It once belonged to the wife of the Earl of Blesington. She was a writer of note and a close friend of Byron's so that the poet must frequently have heard it. Listeners to 2BL had the opportunity of hearing the beautiful tone of the instrument recently.

"The Daisy Chain"

LIZA LEHMANN'S delightful song cycle, "The Daisy Chain," depicting twelve songs of childhood, was produced by Madame Ella Kingston for broadcasting by 3LO on Wednesday night, December 4. The vocalists included — Madame Ella Kingston, soprano; Miss Winnie Wayberry, Contralto; Mr Val Woff, tenor; Mr Ernest Sage, baritone.

'Cellist at 3LO

A MUSICAL treat is in store for listeners on December 17, when Louis Hattenbach, the distinguished 'cellist, will broadcast a recital of popular classics from 3LO. Professor Hattenbach received his musical education on the Continent, and held recitals in most of the important centres of Europe. He is known throughout Australia as a very fine artist, and his sincere work is always greatly appreciated by everyone.

Old Time Numbers

AS part of the effort to give listeners more old-time music, a series of programmes were arranged by 5CI to be played by Holden's Silver Band. Two of these programmes have already been heard, and have proved very popular with 5CI's audience. The next of this series will be heard on Friday, December 20, at 8 p.m. The refrains of the numbers will be rendered by James Riley, tenor, and Gertrude May, soprano.

Sunday Night Programmes

WHEN Hamilton Webber, Mus. Bac. undertook the responsibility of supplying something different in programmes for broadcasting by 3LO on Sunday nights, there

was some doubt among those who had been directing programmes for years as to whether he was over-optimistic when he said, "I am going to create an ideal form of radio entertainment."

His optimism was not misplaced, however, for his opening programme from 3LO was certainly unique. Even though it was made up of more or less stereotyped items, its presentation was remarkable. The orchestral items were particularly brilliant, the placing of the instruments being so arranged that perfect balance and true values were transmitted.

Hamilton Webber has a keen sense of public requirements, and when he sets out for a definite effect he is not satisfied with half measures, but insists upon the highest possible efficiency and effect.

Ernest Wilson at 3LO

ERNEST WILSON, the popular young Geelong baritone, will be on the air from 3LO on December 15 in some well selected numbers. Mr. Wilson, who is a great favorite with listeners, has done particularly well in the competitive world, and has carried off championships at Geelong, Bendigo and Ballarat, and secured special commendation on winning the Sun "Aria" Contest. He has sung in connection with many well known musical societies, and whether on the concert platform or in the broadcasting studio, his work is marked by the same high standard of artistic finish.

Symphony Orchestral Concert

THE Railways Symphony Orchestra, conducted by Mr. A. Belcher, will present a programme through 3AR on Wednesday night, December 11th,

"On With the Dance"

"LET us resort to this ancient custom and dance in our churches. Dancing does not necessarily belong to the devil—it is a natural and innocent expression of human vibration," said Mr W. Francis Jackson, whose voice is well known from the Sydney stations. In his talk "On With the Dance" from 2FC on December 10, Mr Jackson will trace the history of the terpsichorean art, including the symbolic war dances of primitive men, the Choric religious dances of Ancient Greece, and a Zulu war dance which he witnessed.

Music Teachers' Programme

A PROGRAMME arranged by the Music Teachers' Association, and including Rita Cooman, soprano, Stanley Adams, tenor, and Phyllis Partlett, pianist, will be broadcast by 3LO on Tuesday night, December 10.



"HAM" WEBBER, Mus. Bac., responsible for the Sunday night programmes from 3LO.

Broadcasting Programmes of the Australian Stations

3LO, Melbourne: 371 Metres.
3AR, Melbourne: 484 Metres.
2FC, Sydney: 451 Metres.
2BL, Sydney: 353 Metres.

4QG, Brisbane: 385 Metres.
5CL, Adelaide: 409 Metres.
6WF, Perth: 435 Metres.
7ZL, Hobart: 516 Metres.

3DB, Melbourne: 255 Metres.
3UZ, Melbourne: 319 Metres.
2GB, Sydney: 316 Metres.
2KY, Sydney: 280 Metres.

WEDNESDAY, DECEMBER 11

EARLY MORNING SESSION

- 7.0: Melbourne Observatory Time Signal.
7.1: Shipping news.
7.3: Physical Exercises to Music.
7.20: Reproduced Music.
7.40: Mail Notices.
7.42: What's on today.
7.46: Market reports.
7.53: Weather forecasts.
7.55: News service. Cable news service.
8.0: Melbourne Observatory Time Signal.
8.1: Arriving time of Express Trains.
8.13: Musical interlude.
8.15: Close down.

MORNING SESSION

- 10.30: CURRENT HAPPENINGS IN SPORT by MEL. MORRIS.
10.45 Musical reproduction.
11.0: Fish market reports.
11.6: Musical reproduction.
11.30: Morning sales—Melbourne Stock Exchange—metal prices.
11.35: Musical reproduction.
12.0: Time signal.
12.1: Musical reproduction.
12.15: News service. Cable news service. British wireless. Corn Exchange midday report. Newmarket stock sales.
12.30: Close down.

MIDDAY SESSION

- 1.0: Melbourne Observatory Time Signal. Stock Exchange information. Meteorological data. Weather forecast.
1.15: Comments on the day's news.
1.30: TRANSMISSION FROM THE ROTARY CLUB LUNCHEON. Speaker—ROTARIAN G. T. ARMITAGE. Subject—"Hawaiian Islands."
2: READING.
Poetry — as distinguished from Verse—and Worse (James Fitz-Hugh)—Mr JOHN COYNE.
2.13: Description Hurdle Race—2 miles—by MEL. MORRIS—Kyneton Turf Club races.
2.20: THE WONDERS OF NATURE. DR. LOFTUS HILLS, D.Sc.
2.35: Musical interlude.
2.45: Description of Maiden Plate—5 furlongs—by MEL. MORRIS. Kyneton Turf Club races.
2.55: MODERN DEMOCRACIES. HON. J. H. KEATING, LL.B.

AFTERNOON SESSION

- 2.10: PAUL JEACLE AND HIS BAND.
"Tip Top Thru' the Tulips" (Burke)
"Laughing Marionette" (Collins).

3LO, MELBOURNE

- 3.17: Description of Turf Club Gold Cup — 8½ furlongs — by MEL. MORRIS — Kyneton Turf Club races.
3.25: LESLIE JEPHCOTT, Tenor.
"I Hear You Calling Me" (Marshall).
"Coming Home" (Willeby).
3.32: PAUL JEACLE AND HIS BAND.
"Sweetheart of All My Dreams" (Fitch).
"Lila" (Gottler).
3.40: ELISE STEWART, Soubrette.
"Mean to Me" (Ahlert).
"Sing a Little Song" (Conrad).
3.47: HARRY BENNETT, Xylophone
"I Love You Truly" (Jacobs-Bond) Selected.
3.52: CLAUDE JEACLE, Baritone.
"Come to the Fair" (Martin).
3.55: Description of Handicap Trot—1¼ miles—by MEL. MORRIS—Kyneton Turf Club races.
4.5: PAUL JEACLE AND HIS BAND.
"Pa's Old Hat" (Guy).
"The Toymakers Dream" (Golden)
4.12: LESLIE JEPHCOTT, Tenor,
"Salaam" (Lang).
"Mellsande in the Wood" (Goetz).
4.20: HARRY BENNETT, Xylophone—
"Mighty Lak a Rose" (Nevin). Selected.
4.25: Description of Trial Handicap, five furlongs, Kyneton Turf Club's races, by MEL. MORRIS.
4.35: PAUL JEACLE AND HIS BAND—
"I Love You, I Hate You" (Bryan).
"Ready For the River" (Kahn).
"It's a Wonderful World After All" (Davies).
4.45: ELISE STEWART, Soubrette—
"Too Wonderful For Words" (Stamper).
"Steppin' Along" (Curnell). Selected.
4.55: Description of Welter Handicap, six furlongs, Kyneton Turf Club's races by MEL. MORRIS.
5.5: Close down.

CHILDREN'S SESSION

- 5.45: "LITTLE MISS KOOKABURRA" will tell "What the Fairies Think of Christmas." Wonder if they help Santa Claus!
MR W. E. HOPLY has bought a nice new mouth-organ, and will

entertain the children with some bright and breezy selections.

Birthday Greetings by "LITTLE MISS KOOKABURRA," and then a story for the Older Children:—"Pinkie's Ghost."

EVENING SESSION

- 6.35: ESPERANTO—A Talk by MR R. RAWSON.
6.45: CULTIVATING GOOD HEALTH — The Prevention of Tuberculosis—
DR. BELL FERGUSON.
6.55: Musical interlude.
7.0: Melbourne Observatory time signal.
7.1: COUNTRYMAN'S SESSION —
7.25: MODERN STEELS — Heat Treatment of Special Steels—
PROF. J. NEILL GREENWOOD, D.Sc.
7.40: The Herald news service. Cable news service (copyright, Sun-news service).
7.45: OUR RADIO SERVICE TO LISTENERS—
MR. H. K. LOVE.
8.0: Melbourne Observatory Time Signal.
8.0: NATIONAL BROADCASTING ORCHESTRA—
"Invitation to the Dance" (Weber).
8.8: JOE BRENNAN and IDA NEWTON will entertain.
8.18: PIERROT & PIERETTE—
Pierrot with his Piano and Pierette with her Saxophone.
"TALES OF HOFFMANN."
Cast:
Olympia . WINIFRED MITCHELL
Coppellius . . . A. C. BARTLEMAN
Hoffmann . . . ALAN MITCHELL
Chorus:
THE BARTLEMAN MALE CHOIR
and
THE MELBOURNE CHORAL UNION.
Full Orchestral Accompaniment by NATIONAL BROADCASTING ORCHESTRA.
10.0: JOE BRENNAN and IDA NEWTON will entertain.
10.8: PIERROT AND PIERETTE—
Pierrot with the Piano and Pierrette with Her Saxophone.
10.16: British official wireless news. Meteorological information. Items of interest.
10.26: NATIONAL BROADCASTING ORCHESTRA—
Selection from "The Firefly" (Friml).
10.36: PAUL JEACLE AND HIS BAND—
Latest Dance numbers.
11.30: GOD SAVE THE KING.

WEDNESDAY, DECEMBER 11—Continued

MORNING SESSION

- 8.15: Musical reproduction.
 8.45: Weather data.
 9.0: G.P.O. Chimes.
 9.1: News service. Cable news service.
 9.5: Musical reproduction.
 10.0: G.P.O. Chimes.
 10.1: British Official wireless news.
 10.10: Announcements.
 10.30: ARNO D COLEMAN at the Organ.
 10.50: THE DAILY BROADCAST SERVICE.
 11.0: Close down.

MIDDAY SESSION

- 12.0: G.P.O. Chimes.
 12.1: FOOD AND COOKERY
 Summer Drinks.
 Miss KATHLEEN BENINGFIELD.
 ORGAN RECITAL
 12.15: ORGAN RECITAL from the
 MELBOURNE TOWN HALL
 Dr. W. G. PRICE.
 12.45: LUNCHEON MUSIC.
 Supplied by the STUDIO LIGHT
 ORCHESTRA.
 2.0: G.P.O. Chimes.

AFTERNOON SESSION

- 2.1: Orchestral New Symphony Or-
 chestra.
 2.6: Duet—Dora Maughan and Wal-
 ter Fehl.
 2.9: Wurlitzer Organ—Reginald Foort.
 2.12: Male Voices—Salon Group.
 2.16: Orchestral—Reginald King and
 His Orchestra.
 2.19: Comedian—Frank Crumit.
 2.22: Violin—Fritz Kreisler.
 2.25: Duet—Dora Maughan and Wal-
 ter Fehl.
 2.28: Band—Band of H.M. Coldstream
 Guards.
 2.31: Comedian—Frank Crumit.
 2.34: Wurlitzer Organ—Reginald
 Foort.
 2.37: Male Voices—Salon Group.

MORNING SESSION

- 11.0: THE WOMEN'S RADIO SER-
 VICE—TRAVEL TALK—
 "Homecrafts and Interior Decora-
 tion"—Conducted by MRS DORO-
 THY SILK—
 MRS E. A. SHIELDS—
 "Form and Color."
 MISS EILEEN NORTON—
 "Handwork in Syria."
 MRS DOROTHY SILK—
 "Useful Travel Hints."
 12.0: LONDON SYMPHONY OR-
 CHESTRA—
 "Huldigungs March."
 1.0: REGINALD GOSS CUSTARD —
 Organ—"Romanza."
 1.15: PIONEER TOURIST COACHES
 PROGRAMME.
 1.45: Close Down.

MORNING SESSION

- 9.0: Nilsen's Session.
 10.0: Veall's Hour.
 11.0: Close Down.

AFTERNOON SESSION

- 1.0: Nilsen's Session.
 3.0: Nilsen's Session.

EARLY MORNING SESSION

- 7.0: "Big Ben" and meteorological
 information for the man on the
 land.
 7.3: This morning's news.

3AR, MELBOURNE

- 2.40: Band Music — Band of H.M.
 Coldstream Guards.
 2.43: Soprano—Dusolina Giannini.
 2.46: Novelty Piano Duet—Victor Ar-
 den and Phil Ohman.
 2.49: Comedian—Eddie Cantor.
 2.51: Band — Le Garde Republicane
 Band.
 2.54: Soprano—Dusolina Giannini.
 2.57: Orchestral: Reginald King and
 his Orchestra.
 3.0: Request numbers.
 3.30: THE PRE-SCHOOL CHILD:
 Creating a love for Music.
 MISS M. LUSH.
 3.35: Musical Interlude.
 3.40: HOMES THROUGHOUT THE
 AGES:
 Dr. LOFTUS HILLS, D.Sc.
 3.55: Musical Interlude.
 4.0: WOMEN'S STATUS IN OTHER
 COUNTRIES:
 MISS NORA COLLISON.
 4.15: Musical reproduction.
 5.0: G.P.O. Chimes.
 5.1: Musical reproduction.
 5.30: Weather data.
 5.45: Close down.

EVENING SESSION

- 6.15: Dinner Music supplied by PAUL
 JEACLE AND HIS BAND.
 7.30: What's on the Air Tonight?
 7.32: Sporting results.
 7.35: Latest musical releases.
 8.0: G.P.O. Chimes.
 8.1: WHY WE BEHAVE AS HUMAN
 BEINGS:
 The Psychology of Belief.
 PROF. J. A. GUNN, M.A., B.Sc.,
 Ph.D.
 8.15: Orchestral Programme by the
 RAILWAYS SYMPHONY ORCHES-
 TRA, with assisting Artists. Con-
 ductor: A. BELCHER.

3DB, MELBOURNE

AFTERNOON SESSION

- 2.15: KAUFMAN AND HIS ORCHES-
 TRA—
 "Gypsy Baron."
 2.30: MANUEL HEMINGWAY—
 "Friend o' Mine."
 3.0: DE GROOT TRIO—
 "O Sole Mio."
 3.30: SIR HARRY LAUDER—
 "Tobermory."
 4.0: Close Down.

EARLY EVENING SESSION

- 4.45: CHORAL EVENSONG — ST.
 PAUL'S CATHEDRAL.
 5.30: LEVIATHAN SESSION.
 6.30: COLDSTREAM GUARDS BAND
 "East and West March."
 7.0: FRANK CRUMIT—
 "Wake Nicodemus."

3UZ, MELBOURNE

- 4.0: Gramophone Records.
 5.0: Craig's Radio Club, conducted by
 Uncle George.

EVENING SESSION

- 5.30: Leviathan Session.
 6.0: Sutton's Session.

2FC, SYDNEY

- 7.3: Musical Reproduction.
 7.45: Mails and Shipping.
 7.48: Whats' on today?
 7.50: Children's Birthday Calls.

Programme.

- Overture, "Raymond" (Thomas).
 ORCHESTRA.
 Duet, "The King's Heroes" (Theo.
 Bonheur).
 ALF. DAVEY and ALEC
 WOTHERSPOON.
 Selection, "Iolanthe" (Sullivan).
 ORCHESTRA.
 Soprano, "A Brown Bird Singing"
 WYN. OATES.
 Piano, "Romance" (Hinton).
 "Humoreske" (York Bowen).
 VICTOR STEPHENSEN.
 Baritone, "Up from Somerset" (San-
 derson).
 ALEC WOTHERSPOON.
 Suite, Three Dances from "Nell
 Gwynne" (German).
 ORCHESTRA.
 Tenor, "Flower Song" from "Carmen"
 (Bizet).
 ALF. DAVEY.
 Pot Pourri, "Melodious Memories"
 (Finck).
 ORCHESTRA.
 Soprano, "Just Because the Violets"
 (Kennedy Russell).
 "Waiata Pol."
 WYN. OATES.
 Duet, "Watchman, What of the
 Night" (Sargeant).
 ALF. DAVEY and ALEC.
 WOTHERSPOON.
 Incidental Music to "The Merchant of
 Venice."
 ORCHESTRA.
 Soprano, "Silent Noon" (Vaughan
 Williams).
 WYN. OATES.
 Piano, "Capriccio" (Frank Bridge).
 VICTOR STEPHENSEN.
 Baritone, "Sonny Boy."
 ALEC WOTHERSPOON.
 Grand March from "Tannhauser"
 (Wagner).
 ORCHESTRA.
 At 10 p.m.: Weather Information,
 Herald News Service, Cable News
 Service.
 10.30: GOD SAVE THE KING.

- 7.15: MARKET REPORTS.

- 7.30: REGINALD FOORT (Organ)—
 "Leave Me Alone."
 7.45: ZENKER AND SCHULTES
 SESSION.

EVENING SESSION

- 8.0: LONDON SYMPHONY OR-
 CHESTRA—
 "Impressaria"
 8.30: RHODES MOTORS SPON-
 SORED SESSION.
 9.0: J. H. SHARWOOD SHOW SES-
 SION.
 10.0: ERNEST HASTINGS—
 "Roast Beef of Old England."
 10.30: SAVOY HAVANNA BAND—
 "Rose of Dear Old England."
 10.45: NEWS.
 11.0: GOD SAVE THE KING.

- 8.0: Knight Motors' Programme.
 8.30: Rhodes' Motors Musical Session.
 9.0: Nilsen's Session.
 10.0: HUBERT EISEDELL—
 "O Flower Divine."
 10.15: Sun News-Pictorial News Ser-
 vice.
 11.0: National Anthem.

- 8.0: Music from the Studio.
 8.15: Close.

MORNING SESSION

- 10.30: Announcements.

WEDNESDAY, DECEMBER 11—Continued

- 10.32: General Sporting Talk by OSCAR LIND.
- 10.45: HORACE WEBER at the GRAND ORGAN.
- 11.0: HOUSEHOLD HELPS—Cooking, by MISS RUTH FURST.
- 11.10: Cables. News Service.
- 11.15: MORNING DEVOTION, conducted by Rev. J. H. KING.
- 11.30: Musical Reproduction.
- 11.53: British Official Wireless Press.
- 12.0: "Big Ben." Stock Exchange and metal quotations.
- 12.5: Studio Music.
- 12.20: Mid-day weather forecast and weather synopsis. Market Session.

MORNING SESSION

- 8.15: G.P.O. Chimes and Announcements.
- 8.16: Music for every Mood.
- 8.40: Meteorological data for the country.
- 8.45: Mails and Shipping Information.
- 8.50: Memory Melodies.
- 9.0: This Morning's Story.
- 9.30: A Musical Interlude.
- 9.40: British Official Wireless Press.
- 9.45: New Music.
- 10.5: News.
- 10.10: Musical Reproduction.
- 10.40: THE AUSTRALIAN BROADCASTING COMPANY'S WOMEN'S ASSOCIATION. Conducted by Miss Gwen Varley.

MIDDAY SESSION

- 12.0: FROM THE SYDNEY CRICKET GROUND—
A description of the Trial Match. AUSTRALIA v. THE REST.
- 1.15: Afternoon news.
- 1.20: Musical Reproduction.
- 1.45: New Songs.
- 2.0: A Pianoforte Recital.

AFTERNOON SESSION

- 2.30: MALCOLM HANNA, Tenor—
"Who is Sylvia?" (Schubert).
"A Dream" (Bartlett).
- 2.37: MODERN MUSIC.
- 2.57: ROY MACKKEY, Pianist.
- 3.0: ROMANO'S DANCE ORCHESTRA.

MORNING SESSION

- 10.0: Music.
- 10.10: Happiness Talk by A. E. BENNETT.
- 10.20: Music.
- 10.30: Women's Session by MRS W. J. STELZER.
- 11.30: Talk by MRS JORDAN.
- 11.45: Close down.
- 2.0: Music.
- 2.5: Women's Radio Service by MRS DOROTHY JORDAN.
- 2.50: Movie Know All.
- 3.0: Music.

MORNING SESSION

- 10.0: Tune in to the ticking of the clock.
- 10.3: Popular Fox Trots.
- 10.15: Hawaiian Steel Guitar Selections.
- 10.30: Women's Session—
Home Hints and Information—
MRS GRAY.
- 11.0: A few laughs.
- 11.5: Pianoforte selections.
- 11.15: Calls and announcements.

2FC, SYDNEY

- 12.30. Close. Race results from Victoria Park will be transmitted as received.

AFTERNOON SESSION

- 1.0: Lunch Hour Music.
- 1.55: Stock Exchange, second call. A Glance at the afternoon "Sun."
- 2.0: From the Sydney Cricket Ground—Description of the Trial Match, Australia v. The Rest.
- 4.0: From the Studio. Dance Music—Old and New.
- 4.28: Stock Exchange, third call.

2BL, SYDNEY

- 3.12: MALCOLM HANNA, Tenor—
"Love's Garden of Roses" (Haydn Wood).
"At Dawning" (Cadman).
- 3.19: ROMANO'S DANCE ORCHESTRA.
- 3.31: MELODIES.
- 3.40: ROMANO'S DANCE ORCHESTRA.
- 3.42: ROY MACKKEY, Pianist.
- 3.49: ROMANO'S DANCE ORCHESTRA.
- 4.1: DANCE NUMBERS.
- 4.15: Description of the Trial Match, AUSTRALIA v. THE REST.
- 6.0: Close Down.

EVENING SESSION

- 6.15: DINNER QUARTET.
- 6.45: THE BOYS' RADIO CLUB, conducted by Mr Norman Lyons.
- 7.5: Market Session.
- 7.20: DINNER MUSIC.
- 7.45: Musical Reproduction.
- 7.55: What's on the air Tonight?
- 8.0: Overture by Will Prior and the State Orchestra, with Price Dunlavy at the Organ.
- 8.9: MARJORIE ALLOMES, Contralto
"To the Forest" (Tschaikowsky).
"Sometimes When Night is Nigh" (Phillips).
- 8.16: C. N. BAEYERTZ will continue

2GB, SYDNEY

EVENING SESSION

- 5.15: Children's Session by UNCLE GEORGE.
- 6.50: Radio Movie Club Session.
- 7.0: Music.
- 7.45: Feature Story.
- 8.0: Italian Programme.
HEATHER KINNAIRD, Contralto.
- 8.7: Violin solos.
- 8.15: CECIL HOUGHTON, Tenor.
- 8.22: SYMPHONY ORCHESTRA.
- 8.30: JACK WIN and HEATH BURDOCK, Humor.

2KY, SYDNEY

- 11.20: Musical interlude.
- 11.30: Request numbers.
- 11.40: Music and vocal items.
- 11.55: Where to go Tonight.
- 12.0: Closing announcements.

CHILDREN'S SESSION

- 6.0: Birthday calls, request numbers and Kiddies' Entertainment—
UNCLE BERT AND UNCLE MAC.
- 7.0: Musical interlude.

- 4.30: Radio Rhythm.
- 4.45: Close.

EVENING SESSION

- 5.45: Children's "Good-night" Stories, told by the "HELLO MAN," assisted by UNCLE TED and "SANDY."
- 6.45: Dinner Hour Music.
- 7.20: A.B.C. Sporting Service.
- 7.25: Country Session. Stock Exchange resume. Markets. Weather forecast. Late news. Truck bookings.
- 7.58: Tonight's programme.
- 8.0: Studio production of "MACBETH."

his series of humorous stories in Dialect.

- 8.36: IRIS DE CAIROS REGO, Pianist—
"Prelude, Fugue, and Variation" (Franck).
"Waltz in A Flat" (Chopin).
"Arabesque in E" (Debussy).
"Melodie" (Paderewski).
"Tango" (Albeniz).
"Niel" (Gardiner).
- 8.58: MARJORIE ALLOMES, Contralto—
"A Maori Slumber Song" (Rangi Pai).
"Honey Chile" (Strickland).
- 9.5: BRUNTON GIBB, Radio Play—
"SOMETHING TO TALK ABOUT" (Philpots).
- 9.31: Weather Information for the Man on the Land.
- 9.33: FROM THE STATE THEATRE, Stage Presentation.
- 9.45: NEA HALLETT, Popular Vocalist—
"An Old Italian Love Song" (Harrison).
"My Sin is Loving You" (Henderson).
- 9.52: MURIEL LANG, 'Cellist.
- 10.0: NEA HALLETT, Popular Vocalist—
"What Wouldn't I do for that Man" (Gorney).
"Mean to Me" (Turk).
- 10.7: MURIEL LANG, 'Cellist.
- 10.15: Dance Music.

8.35: GWEN SELVA, Soprano.

- 8.42: ADA BROOK, Pianist.
- 8.50: HEATHER KINNAIRD, Contralto.
- 9.0: Weather report.
- 9.3: Address.
- 9.15: SYMPHONY ORCHESTRA.
- 9.25: CECIL HOUGHTON, Tenor.
- 9.35: JACK WIN and HEATH BURDOCK, Humor.
- 9.40: Violin solos.
- 9.50: GWEN SELVA, Soprano.
- 10.0: Instrumental Music.
- 10.30: Close down.

- 7.15: Hawaiian Steel Guitar Selections.
- 7.40: Health feature.
- 8.0: AL. ROSENBERG, Novelty Pianist.
- 8.30: Banjo Solos—
MASTER HARRY WEIR.
- 8.45: Contralto Solos—
MISS ROTER.
- 9.10: Sporting Feature from Sydney Stadium. Full description of main 15-round event from the ringside.
- 9.55: Result of main 15-round event.

WEDNESDAY, DECEMBER 11—Continued

MORNING SESSION

- 7.30: News service.
7.58: Time Signals.
8.0: Music.
8.15: News Service.
8.30: Close down.
11.0: Music.
11.5: Social News.
11.15: Talk on "Artistic Uses of Sealing Wax and Crepe Paper"—by "Denise."
11.30: Music.
11.35: More Social news.
11.45: Music.
12.0: Close down.

MIDDAY SESSION

- 1.0: Market reports and weather information.
1.15: Music.
2.0: Close down.

AFTERNOON SESSION

Organ Recital

- 3.0: Music.
3.30: Mail train running times.
3.31: A Recital by Mr George Sampson, F.R.C.O.
4.15: This afternoon's news.
4.30: Close down.

MORNING SESSION

- 11.15: G.P.O. Chimes.
11.16: Morning Melodies.
11.45: "ECONOMIST"—Kitchen Craft and Menu Talk.
12.0: G.P.O. Chimes.
12.1: THE SOUTH AUSTRALIAN RAILWAYS BAND, from the Islington Workshops.
12.40: News Service.
British Wireless. Railway information. Stock Exchange information.
1.0: G.P.O. Chimes.
1.1: Player Piano Session.
1.15: Novelty Numbers.
1.59: Meteorological information. Kyneton Race Results.
2.0: G.P.O. Chimes. Close down.

AFTERNOON SESSION

- 3.0: G.P.O. Chimes. Kyneton Race Results.
3.1: Programme Review and Announcements.
3.4: Musical Interlude.
3.30: MRS GORDON ROGERS, President of Housewives Association, will speak.
3.38: Records.
4.0: G.P.O. Chimes. Kyneton Race Results.
4.1: Player Piano Session.
4.15: Tit-bits of Interest.
4.25: Stock Exchange information.
4.30: G.P.O. Chimes. Kyneton Race Results. Close down.

EVENING SESSION

- 6.0: G.P.O. Chimes.

EARLY MORNING SESSION

- 7.30: Town Hall Chimes.
7.31: Meteorological report.
7.32: The day's maxim.
7.35: Musical Reproduction.
7.55: Mails and shipping intelligence.
8.0: What's on today.
8.5: World-wide cables.
8.10: Musical Reproduction.
8.27: Features of today's programme.
8.30: Close down.

4QG, BRISBANE

EVENING SESSION

- 6.0: Mail train running times; mail information; shipping news.
6.5: Music.
6.25: Commercial announcements.
6.30: Bedtime Stories conducted by "Little Miss Brisbane."
7.0: News in brief.
7.5: Stock Exchange news.
7.6: Metal Quotations.
7.7: Market reports.
7.25: Stock report.
7.30: Weather information.
7.40: Announcements.
7.43: Standard Time signals.
7.45: Lecture: Arranged by Queensland Agricultural High School and College.
8.0: THE STUDIO DANCE ORCHESTRA—Dance Music.
8.10: MONUMENT AND HARROW—The Argumentative Pair.
8.25: THE STUDIO DANCE ORCHESTRA—Dance Music.
8.35: SHIRLEY RADFORD (soubrette)—Popular Numbers.

- 8.45: THE STUDIO ORCHESTRA—Dance Music.
9.0: Metropolitan Weather forecast; Movements of Lighthouse Steamers.
9.5: HARRY BORRADALE, entertainer.
9.15: THE STUDIO DANCE ORCHESTRA—Dance Music.
9.25: MRS ROY PARKINSON (soprano)—"Sylvan" (Ronald). "Come While the Twilight Closes" (Gluck).
9.35: THE STUDIO DANCE ORCHESTRA—Dance Music.
9.45: JOHN MORRISON (entertainer) "His Post of Duty" (Morrison).
9.55: THE STUDIO DANCE ORCHESTRA—Dance Music.
10.0: News.
10.15: THE STUDIO DANCE ORCHESTRA—Dance Music.
10.25: JOHN MORRISON (entertainer)—"The Baron's Doom" (Morrison).
10.30: THE STUDIO DANCE ORCHESTRA—Dance Music.

5CL, ADELAIDE

- 6.1: CHILDREN'S HAPPY MOMENTS— Birthday Greetings, Correspondence, Songs and Stories by "MISS WIRELESS."
6.15: Children's Request Numbers.
6.30: Crosley Dinner Session.
7.0: G.P.O. Chimes.
7.1: Senior Birthday League Greetings. 5CL's Sporting Service. Kyneton Race Results. Stock Exchange information. Market reports.
7.20: 5CL BLUEBIRD GIRL'S CLUB. Entertainment by "THE BIRD LADY."
7.40: CAPTAIN DONALD MACLEAN will speak on "Purple Patches in the Conquest of Peru."
7.55: BOY SCOUTS' CORNER. Address to Boy Scouts.

NIGHT SESSION

- 8: G.P.O. Chimes.
8.1: FIFTY YEARS AGO TODAY.
8.8: WALTZ: "Sweet Bunch of Daisies."
8.17: OLD TIME CHORUSES by the MADRIGAL SINGERS: "Good News, the Chariot Comes" (O'Donnell). "Peter go ring dem bells" (Mendindie).
8.24: MARINE FOURSTEP: "Come with me to Canada."

- 8.33: DAVE HOWARD, comedian, will entertain you.
8.43: BARN DANCE: "Dem Golden Slippers."
8.50: PHYLLIS EVERETT, contralto: Selected.
8.54: MARCELLA: "Pretty Little Girl From Nowhere."
9: G.P.O. Chimes. Meteorological information, including Semaphore tides. Overseas grain report. Announcements.
9.5: ALBERTS: "Old Refrains."
9.21: CAPTAIN DONALD MACLEAN will continue his talks entitled: "FEATS OF THE MIGHTY."
9.31: MILITARY TWOSTEP: Selected.
9.39: OLD TIME CHORUSES by the MADRIGAL SINGERS: "Just a little ring." "Hark, hark, the lark."
9.45: LANCERS: "Variety."
10: DAVE HOWARD, comedian, will entertain you again.
10.8: POLKA: Selected.
10.15: News service. British wireless. Meteorological information. 5CL's Sporting Service.
10.30: SCHOTTISCHE: "I'll take you home again, Kathleen."
10.37: OLD TIME CHORUSES by the MADRIGAL SINGERS: "Who's That calling." "The Arethusas."
10.44: VALETA: "Supplication."
10.51: LINLA WILD, soprano: Selected.
10.55: BROOM DANCE: Selected.
11: G.P.O. Chimes. Close down.

6WF, PERTH

MORNING SESSION

- 10.0: Town Hall Chimes.
10.1: Musical Reproduction.
10.10: Women's Interest Talk by DOROTHY GRAHAM.
10.30: Organ recital from Ambassador's Theatre.
11.0: Close down.

MIDDAY SESSION

- 12.30: Town Hall Chimes.
12.31: Musical Reproduction.

- 12.35: Market reports.
12.45: News service.
12.55: Items of interest.
1.0: Weather report.
1.1: Luncheon music by the National Broadcasting Orchestra.
2.30: Close down.

AFTERNOON SESSION

- 3.30: Town Hall Chimes.
3.31: Musical Reproduction.
3.45: Women's Interest Talk — "The National Council of Women."

WEDNESDAY, DECEMBER 11—Continued

- 4.0: Reproduced Music.
- 4.55: What's on the air this evening?
- 5.0: Close down.

EVENING SESSION

- 5.45: Town Hall Chimes.
- 5.46: Children's Good-night Stories by UNCLE BAS and AUNTY MAXINE.
- 7.15: A.B.C. Younger Set Session.
- 6.30: Dinner music by the National Broadcasting Orchestra.
- 7.30: Weather reports.
- 7.31: News service.
- 7.35: Market reports.

MORNING SESSION

- 11.30: Musical Selections.
- 11.34: Weather Forecast.
- 11.35: Musical Selections.
- 11.55: Weather Report.
- 12.0: G.P.O. Clock.
- 12.1: Shipping Information. Mail Notices. Housewives' Guide.
- 12.3: Musical Selections.
- 12.30: News Service. Announcements.
- 12.40: Musical Selections.
- 1.5: Railway Auction Sales.
- 1.10: Musical Selections.
- 1.30: Transmission from the Imperial Hotel, Collins Street, Hobart—

6WF, PERTH

- 7.10: Stock Exchange Information.
- 7.57: Features of tonight's presentation.
- 8.0: Town Hall Chimes.
- 8.1: Cello recital.
- ZLATA KALMIKOFF.
- 8.11: FLORIA VARNI, Soprano.
- 8.18: Cello Recital.
- ZLATA KALMIKOFF.
- 8.25: FLORIA VARNI, Soprano.
- 8.33: KEITH CUMMINGS, Violinist.
- 8.39: DAVID LYLE, Tenor.
- 8.47: KEITH CUMMINGS, Violinist.

7ZL, HOBART

- Speeches at the Rotary Club Luncheon.
- 2.0: Close Down. During the afternoon Sporting Results will be given as they come to hand.
- 3.0: G.P.O. Clock.
- 3.1: Musical Selections.
- 3.4: Weather Information.
- 3.5: Musical Selections.
- 4.15: Readings.

EVENING SESSION

- 6.15: Children's Corner, with Bertha Southey Brammall.

- 8.54: DAVID LYLE, Tenor.
- 9.0: Announcements.
- 9.5: Illustrated Musical Lecture by L. E. HINRICHS, of the Leipzig Conservatorium and the Royal Academy of Music, London. (Assisting vocalist, Marcla Hodges). "Some Old Music Masters."
- 9.30: Half an Hour with Celebrity Vocalists.
- 10.0: What's on the air tomorrow.
- 10.5: TEMPLE COURT DANCE BAND.
- 10.59: Weather report.
- 11.0: "God Save the King."

- 7.10: Recorded Music.
- 7.30: News Session.
- 7.40: MRS G. RYCROFT will continue her talks on "Local Industries."
- 7.50: JAMES COUNSEL will speak on "Topics of the Week."
- 8.0: G.P.O. Clock.
- 8.1: Musical Selections.
- 8.15: Gramophone Records.
- 9.30: News Session.
- 9.40: Record Recital.
- 10.0: G.P.O. Clock.
- 10.1: Close Down.

THURSDAY, DECEMBER 12

EARLY MORNING SESSION

- 7.0: Melbourne Observatory Time Signal.
- 7.1: Shipping News.
- 7.3: Physical Exercises Set to Music.
- 7.20: Musical Interlude.
- 7.40: Mail Notices.
- 7.43: What's On Today.
- 7.45: Market Reports.
- 7.52: Weather Forecast.
- 7.55: The Sun News Pictorial News Service. Cable news service.
- 8.0: Melbourne Observatory Time Signal.
- 8.1: Arrival times of express trains.
- 8.4: Musical Interlude.
- 8.15: Close Down.

MORNING SESSION

- 10.30: CURRENT HAPPENINGS IN SPORT by MEL MORRIS.
- 10.45: Musical reproduction.
- 11.0: Fish Market Reports.
- 11.3: Musical reproduction.
- 11.30: Morning Sales, Melbourne Stock Exchange, metal prices.
- 11.35: Musical reproduction.
- 12.0: Melbourne Observatory Time Signal.
- 12.1: Musical reproduction.
- 12.15: The Sun News Pictorial News Service. Cable news service.
- 12.30: Close Down.

MIDDAY SESSION

- 1.0: Melbourne Observatory Time Signal. Stock Exchange Information. Meteorological Information. Weather forecast for Victoria, New South Wales, South Australia and Tasmania. Ocean forecast. River reports. Rainfall data.
- 1.15: LUNCHEON MUSIC Supplied by THE STUDIO LIGHT ORCHESTRA.
- 2.0: GREAT AUSTRALIANS—George Coppin. MR J. HOWLETT ROSS.

3LO, MELBOURNE

- 2.15: Musical interlude.
- 2.30: MUSIC EXPLAINED AND ILLUSTRATED—MR C. E. MONTEATH, F.R.C.O.
- 2.35: Musical interlude.
- 2.40: TOPICS OF THE WEEK. Dr. LOFTUS HILLS, D.Sc.
- 2.55: Musical interlude.

AFTERNOON SESSION

- 3.0: Melbourne Observatory Time Signal.
- 3.0: ORPHEUS BRASS BAND—March: "Sambo's Wedding." Overture: "Napoleon."
- 3.10: HAZEL FOLETTA, Soprano—"Songs My Mother Taught Me" (Dvorak). "Last Night" (Kjerulf).
- 3.17: "THE ANGELUS PLAYERS"—"The Angelus." "Dance Hongroise."
- 3.26: GARNET KEMSLEY, Entertainer—"Wedding Day Speeches."
- 3.31: ORPHEUS BRASS BAND—Fox-trot: "Is Izzy Azzy Wozzy?" March: "The Return."
- 3.37: "THE ANGELUS PLAYERS"—Saxophone solo: "Rubenola" (Wiedoft).
- 3.40: HAZEL FOLETTA, Soprano—"Twas April" (Vivian). "Butterfly Wings" (Phillips).
- 3.47: CECIL FRASER—At the Piano.
- 3.54: ORPHEUS BRASS BAND—"Fondly I Love a Maiden." "Invocation to Battle" (from Wagner's opera, "Rienzi").
- 4.0: GARNET KEMSLEY, Entertainer—A Dramatic Recital—"Rio Grande's Last Race" (A. B. Patterson).
- 4.7: "THE ANGELUS PLAYERS"—"Bad Habits"—Clarinet Solo. "Sextette," from "Lucia" (Donizetti).

- 4.17: THE ORPHEUS BRASS BAND—Cornet solo, "The Jewel Song" from "Faust."
- 4.25: Acceptances and barrier positions for Moonee Valley races, Saturday, December 14.
- 4.30: Close down.

CHILDREN'S SESSION

- 6.45: "BOBBIE BLUEGUM" and "CLEVER CLARICE" have decided to be more than usually a little "Cheer-up" Society tonight, and have found that quite a lot of songs are about "Sunshine." The Name Club is now going strong. Are you enrolled? Birthday Greetings by "BOBBIE BLUEGUM" and an adventure story for the older ones.
- 6.35: Musical interlude.

EVENING SESSION

- 6.40: LET'S TALK ABOUT OUR ANIMALS—Sheep-dog Yarns. MR J. L. MOORE.
- 6.55: Musical interlude.
- 7.0: Melbourne Observatory Time Signal.
- 7.1: COUNTRYMAN'S SESSION.
- 7.25: FOR THE MAN ON THE LAND—Government Herd Tests for Pure Breeds—MR A. J. GILL.
- 7.40: The Herald news service. Cable news service.
- 7.45: THE LATEST BOOKS—MR A. E. McMICKEN.
- 8.0: Melbourne Observatory Time Signal.
- 8.0: NATIONAL BROADCASTING ORCHESTRA—Descriptive novelty, "The Evolution of Dixie" (Lake). A Fantasia depicting the gradual evolution of the American national air, "Dixie." Slowly through "The Creation," "Dance Aboriginal" and the "Minuet." The melody is developed until there emerges the immortal "Dixie." This in turn becomes a

THURSDAY, DECEMBER 12—Continued

3LO, MELBOURNE

- "Waltz," then "Jazz," and then "Grand Opera."
- 8.8: MORAN HILFORD and TOM DOWNIE, Duettists—
"In the Land of Make-Believe" (Baer).
"My Dear" (Sanders).
- 8.15: YOU WILL HEAR THE OUTSTANDING PERSONALITY OR QUESTION OF THE WEEK.
- 8.30: PAUL JEACLE AND HIS BAND—
Dance Numbers.
- 8.40: ROSA POLLOCK, Soprano—
"Where is the Song of Songs for Me?"
- 8.43: PAUL JEACLE AND HIS BAND—
Dance numbers.
- 8.53: KATE CORNELL, Entertainer
"A Queer Physician."
- 8.56: PAUL JEACLE AND HIS BAND—
Dance numbers.
- 9.6: GRACE JACKSON, Contralto—
"Little Miss Melody" (Monckton).

- 9.10: PAUL JEACLE AND HIS BAND—
Dance numbers.
- 9.20: MORAN HILFORD and TOM DOWNIE, Duettists—
"Walkin' With Susie."
- 9.23: PAUL JEACLE AND HIS BAND—
Dance music.
- 9.33: ROSA POLLOCK, Soprano—
"Sweet as Any White Chile."
- 9.36: PAUL JEACLE AND HIS BAND—
Dance numbers.
- 9.46: KATE CORNELL, Entertainer
"His Mistake."
- 9.50: PAUL JEACLE AND HIS BAND—
Dance numbers.
- 10.0: GRACE JACKSON, Contralto—
"Don't Ye Mind It Honey" (Roma).
- 10.3: PAUL JEACLE AND HIS BAND—
Dance music.

- 10.13: ROSA POLLOCK, Soprano—
"The Little Brown Owl" (Sander-son).
- 10.16: PAUL JEACLE AND HIS BAND—
Dance music.
- 10.26: GRACE JACKSON, Contralto—
"Little Brown Cottage" (Dickson).
- 10.30: British official wireless news. Meteorological information. Items of interest.
- 10.40: PAUL JEACLE AND HIS BAND
Dance Numbers.
- 10.50: KATE CORNELL, Entertainer.
"The Singing Kettle."
- 10.53: PAUL JEACLE AND HIS BAND
Dance Numbers.
- 11.0: MORAN HILFORD and TOM DOWNIE, Duettists—
Selected.
- 11.3: PAUL JEACLE AND HIS BAND.
Selected and Request Items.
- 11 30: GOD SAVE THE KING.

3AR, MELBOURNE

MORNING SESSION

- 8.15: Musical reproduction.
- 8.45: Weather data.
- 9.0: G.P.O. Chimes.
- 9.1: Sun News-Pictorial News Service. Cable news service.
- 9.5: Musical reproduction.
- 10.0: G.P.O. Chimes.
- 10.1: British Official Wireless News.
- 10.10: Announcements.
- 10.30: ARNOLD COLEMAN at the Organ.
- 10.50: THE DAILY BROADCAST SERVICE.
- 11.0: Close down.

MIDDAY SESSION

- 12.0: G.P.O. Chimes.
- 12.1: Community Singing from the Melbourne Town Hall. Conductor: Frank Hatherley.
- 2.0: G.P.O. Chimes.

AFTERNOON SESSION

- 2.1: Orchestra, Minneapolis Symphony Orchestra.
- 2.8: Tenor. MARIO CHAMLEE.
- 2.12: Piano. IGNACE HILSBERG.
- 2.20: Contralto. MARIE MORRISSEY

- 2.24: Orchestral. Miniature Concert Orchestra.
- 2.30: Entertainer. NICK LUCAS.
- 2.33: Dance Music. ANGLO-PERSIANS DANCE ORCHESTRA.
- 2.36: Comedian. AL JOLSON.
- 2.39: Banjo. HARRY RESER.
- 2.42: Soubrette. ESTHER WALKER.
- 2.45: Band—Vesella's Italian Band.
- 2.48: Entertainer—NICK LUCAS.
- 2.51: Dance Music—Anglo-Persian Dance Orchestra.
- 2.54: Comedian. AL JOLSON.
- 2.57: Band—Vesella's Italian Band.
- 3.0: Request Numbers.
- 3.20: CHRISTMAS PRESENTS.
Miss HATTIE KNIGHT.
- 3.55: Musical Interlude.
- 3.40: FOOD and COOKERY:
Gas Cooking
Miss E. NOBLE.
- 3.55: Musical Interlude.
- 4.0: OUR HEALTH AND APPEARANCE: Walking Tours and Health.
Miss EVELYN N ELLIS.
- 4.15: Musical reproduction.
- 4.45: EVENSONG, transmitted from PAUL'S CATHEDRAL.

- 5.30: Weather data.
- 5. : Close down

EVENING SESSION

- 6 Dinne Mus! Supplied by the STUDIO LIGHT ORCHESTRA.
- 7.30: What's on the Air Tonight?
- 7.32: Sp rting Results. Acceptances and barrier positions for the Moonee Valley to be held on Saturday, Dec. 14.
- 7.35: Latest Musical Releases.
- 8.0: G.P.O Chimes.
- 8.1: THE ODD MAN OUT—will discuss with DR. LOFTUS HILLS and PROF BERNARD HEINZE
"The Broadcasting Programmes
- 8.15: A special Studio Reproduction of "THE BARBER OF SEVILLE" (Rossini).
The principal characters are:—
Count Almaviva Tenor
Figaro, the Barber of Seville Baritone
Doctor Bartolo Baritone
Basilio, a music teacher Bass
Rosina, a w r d o' Bartolo Soprano
- 10.20: Weather information and Herald News. Cable News Service
- 10 30: GOD SAVE THE KING.

3DB, MELBOURNE

MORNING SESSION

- 11.0: WOMEN'S RADIO SERVICE. TRAVEL WEEK. "YOUR BABY AND MINE," conducted by Mrs Dorothy Silk. SISTER PHILLIPS, of the Baby Health Centres' Association.
- MRS DOROTHY SILK.
"Holiday Hints for Mother."
- 12.0: SYMPHONY ORCHESTRA.
"Prometheus."
- 12.30: PERCY HEMINGS.
"Hatfield Bells."
- 1.0: JASCHA HEIFETZ, Violin.
"La Fille aux Cheveux de Lin."
- 1.30: ANNE THURSFIELD.
"L'Heure Exquise."

AFTERNOON SESSION

- 2.15: ROYAL ALBERT HALL ORCHESTRA.
"Cockaigne Overture."
- 2.30: TUDOR DAVIES.
"Song of the Open."
- 3.0: CEDRIC SHARPE, Cello.
"Lullaby."
- 3.30: ELENA GERHARDT.
"I'm Fruhling."

- 4.0: CLOSE DOWN.
- EARLY EVENING SESSION
- 5.0: WHITMAN'S CONCERT ORCHESTRA.
"Suite of Serenades."
- 5.30: LEVIATHAN SESSION.
- 6.30: EMIL DE GOGORZA.
"La Paloma."
- 7.0: JACK HYLTON'S ORCHESTRA.
"Barbara."
- 7.15: MARKET REPORTS.
- 7.20: CALIFORNIA HUMMING BIRDS.
"The Whisper Song."
- 7.40: SHELLEY SHOE STORE SESSION.

- 7.55: R. REID, B.A.
A Talk on Vocations.
- EVENING SESSION
- 8.0: WILLS AND PATON'S SPONSORED SESSION.
- 9.0: PETER DAWSON.
"Two Old Tramps."
- 9.30: VICTOR SALON ORCHESTRA.
"Silent Night."
- 10.0: THE REVELLERS.
"Roam On, My Little Gipsy Sweetheart."
- 10.30: PAUL WHITEMAN'S ORCHESTRA.
"Magnolia"
- 10.45: NEWS.
- 11.0: GOD SAVE THE KING.

SPECIAL CHRISTMAS NUMBER

The next issue of The Listener In will be a specially enlarged Christmas Number containing a wide variety of Seasonable Articles in addition to the usual features.
The cover design, reflecting the spirit of the Season, is printed in colors, and was drawn by one of Melbourne's leading artists.

THURSDAY, DECEMBER 12—Continued

MORNING SESSION

- 9.0: NILSEN'S SESSION.
- 10.0: VEALL'S HOUR.
- 11.0: MADAME JEANETTE in an interesting talk to the ladies.
- 11.45: MISS M. RANDLE.

AFTERNOON SESSION

- 1.0: NILSEN'S SESSION.
- 3.0 to 4.0: NILSEN'S SESSION.
- 3.30: E. TROTMAN.

EARLY MORNING SESSION

- 7.0: "Big Ben" and meteorological information for the man on the land.
- 7.3: This morning's news.
- 7.8: Musical reproduction.
- 7.45: Mails and shipping.
- 7.48: What's on today?
- 7.50: Children's Birthday Calls.
- 8.0: Music from the studio.
- 8.15: Close.

MORNING SESSION

- 10.30: Announcements.
- 10.32: A.B.C. Racing Observer.
- 10.45: HORACE WEBER at the Grand Organ.
- 11.0: HOUSEHOLD HELPS: Domestic Notes, by Miss Ruth Furst.
- 11.10: Cables. News Service.
- 11.15: MORNING DEVOTION.
- 11.30: Musical Reproduction.
- 11.53: British Official Wireless Press.
- 12.0: "Big Ben." Stock Exchange and metal quotations.
- 12.5: TOM GUN will give a talk.
- 12.20: Weather forecast and weather synopsis. Market session.
- 12.30: Close.

AFTERNOON SESSION

- 1.0: Lunch Hour Music.
- 2.0: Stock Exchange, second call.

OPENING SESSION

- 8.15: G.P.O. chimes and announcements
- 8.16: Music for every mood.
- 8.40: Meteorological data for the country.
- 8.45: Mails and shipping information.
- 8.50: Memory melodies.
- 9.0: This morning's story.
- 9.30: A musical interlude.
- 9.40: British official wireless press.
- 9.45: New music.
- 10.2: News.
- 10.10: Musical reproduction.
- 10.40: THE AUSTRALIAN BROADCASTING COMPANY'S WOMEN'S ASSOCIATION. Conducted by Miss GWEN VARLEY.
- 11.0: G.P.O. chimes. Close down.

MIDDAY SESSION

- 12.0: G.P.O. chimes and announcements.
- 12.2: A pianoforte recital.
- 12.30: Lunch music.
- 1.0: Afternoon news.
- 1.5: Musical reproduction.
- 1.30: New songs.
- 1.40: Pianoforte recital.
- 2.10: Memory melodies.

AFTERNOON SESSION

- 2.30: Records.
- 3.0: ROMANO'S DANCE ORCHESTRA.
- 3.12: GERTRUDE GRAY, Mezzo. "At Sunrise" (Landon Ronald). "The Cuckoo Clock" (Grant-Schaefer). "Mighty Lak' a Rose" (Rose).
- 3.19: ROMANO'S DANCE ORCHESTRA.
- 3.31: Melodies of yesterday.

3UZ, MELBOURNE

- "Talkers and Singers"—Humorous Sketch. (Arranged E. Trotman.)
- 4.0: Gramophone records.
- 5.0: CRAIG'S RADIO CLUB. Conducted by Uncle George.

EVENING SESSION

- 5.30: LEVIATHAN SESSION.
- 6.0: SUTTON'S SESSION.

2FC, SYDNEY

- 2.2: A glance at the afternoon Sun.
- 2.7: Studio music.
- 2.27: Announcements.
- 2.30: THE HAPPY TRIO.
- 2.42: JAMES WALKER, Pianist—"Prelude and Fugue in D Minor" (Bach). "Gigue in G Major" (Bach).
- 2.52: THE HAPPY TRIO.
- 3.0: C. N. BAEYERTZ will speak on "Spoken English."
- 3.15: THE HAPPY TRIO.
- 3.30: JAMES WALKER, Pianist—"Scherzo in E Minor" (Mendelssohn). "Arabesque in E Major" (Debussy).
- 3.40: THE HAPPY TRIO.
- 3.55: MRS E. HUME—Celebrities I have met at the Studio.
- 4.10: THE HAPPY TRIO.
- 4.28: Stock Exchange, third call.
- 4.30: Close.

EVENING SESSION

- 5.45: Children's "Good-night" Stories, told by Aunt Goodie.
- 6.45: Dinner Hour Music.
- 7.20: A.B.C. Sporting Service.
- 7.25: Country Session. Stock Ex-

2BL, SYDNEY

- 3.45: GOODIE REEVE. "Aids to Personality."
- 4.0: ROMANO'S DANCE ORCHESTRA.
- 4.12: GERTRUDE GRAY, Mezzo. "Danny Boy" (Weatherly). "Songs My Mother Taught Me" (Dvorak).
- 4.19: ROMANO'S DANCE ORCHESTRA.
- 4.31: Radio rhythm.
- 4.45: The Trade Hour—Demonstration music.
- 5.45: Weather information. Close down.

EVENING SESSION

- 6.15: DINNER QUARTET.
- 6.45: GIRLS' RADIO CLUB, conducted by Miss GWEN VARLEY.
- 7.5: Market session.
- 7.20: Dinner Music.
- 7.45: Musical reproduction.
- 7.55: What's on the air tonight?
- 8.0: 2BL's Sound Film Feature.
- 8.20: Farical Sketch: "YOU'RE ANOTHER," produced by MISS ROBINSON and THERESA CARMO.
- 8.35: HAL STEAD, Novelty Pianist. "When the Real Thing Comes Your Way" (Spier). "I'm Fascinated with You" (Karslake).
- 8.42: SI MEREDITH and MAUDIE STEWART, in Nonsensical Nonsense—"That's All" (Low). "Ain't it Nice" (Weston and Lee). Patter. "Hundred Years from Now"

- 8.0: LIGHT OPERA COMPANY. "Belle of New York."
- 8.30: CATTANACH'S MUSICAL PROGRAMME.
- 9.0: BRUNSWICK PANATROPE RECITAL.
- 10.10: GRESHAM SINGERS. "Piccaninny Lullaby."
- 10.15: Sun News-Pictorial News Service.
- 11.0: National Anthem.

- change resume. Markets. Weather forecast. News. Truck bookings.
- 7.58: Tonight's programme.
- 8.0: FROM THE LITTLE THEATRE: "CASTE" (Robertson). (Produced by Lynwood Roberts) Characters—Maudelia McCann, aged ten. Mrs Bunch McCann, of Detroit, the mother. Mrs Sol Whipple, of Whipple's Corners, Conn., the country lady. Miss Tessie Mitford, the mental case. Mr Juba K. Butternip, of Peoria, Ill., the old man. Miss Gregory, the nurse. Buddy Brady, of New York, the ball player. Major Kellicott, the speculator. Jim Anthony, he's engaged. Sylvia Deans, she's engaged. Mary, "Sunshine." Boys and Girls.
- 10.0: CEC. MORRISON'S DANCE BAND.
- 10.15: Announcements. Late official weather forecast.
- 10.20: CEC. MORRISON'S DANCE BAND.
- 11.30: National Anthem.

- 8.52: VINCENT ASPEY, Violinist. "Second Polonaise Brillante" (Wieniawski).
- 8.59: MAY WEBSTER and PAUL DALY, Entertainers. "Good Little Boy and the Bad Little Boy" (Weston and Lee). "Someday, Somewhere" (Berlin). "Song of Sixpence" (Rose).
- 9.9: FRED ARLINGTON-BURKE will talk on "Australia—and the Recent American Financial Crash."
- 9.24: THERESA CARMO, Popular Songs—"Do Something" (Green and Stept). "I've Never Seen a Smile like Yours" (Johnson).
- 9.31: Weather information.
- 9.33: SI MEREDITH and MAUDE STEWART, in Nonsensical Nonsense—"Sun will soon be Shining" (Gibson). "Best Pal of All" (Meredith). Patter. "Our Village" (Low).
- 9.43: HAL STEAD, in Piano Novelities. "Mean to Me" (Ahlert). "Blue Shadows" (Alter).
- 9.50: MAY WEBSTER and PAUL DALY, Entertainers. "Gadabout Mama" (Weston and Lee). "There's a Cradle in Carolina" (Lewis). "It Must be Me" (Paul Daly).
- 10.0: VINCENT ASPEY, Violinist. "Malaguena Spanish Dance" (Sarasate). "Deep River" (Elman).
- 10.7: Musical reproductions.
- 10.25: News. Weather forecast.
- 10.30: National Anthem.

A Selective Crystal Receiver

WITH the increase in the number of transmitting stations the necessity for the use of more than one tuned circuit in receivers became very apparent in the early days of radio telegraphy; since

coils are mounted at right angles to each other on the baseboard.

Low Loss Secondary

The secondary circuit inductance, L3, consists of 80 turns of No. 20

providing a convenient tapping point. On that end which will be nearest L2, wind four turns of 22 D.C.C. wire; the actual number of turns in this coil must be found by experiment during actual reception.

Parts Required

- 1 panel, 14 x 7 x 3-16th inches.
- 2 .0005 mfd S.L.F. variable condensers.
- 2 dials to suit.
- 1 crystal detector.
- 1 low loss former.
- 1 baseboard coil mount.
- 5 terminals, 2 spring clips.

Construction

Having marked out the positions on the panel the various components will occupy, drill the necessary holes and mount the components thereon—the variable condensers with spindles 3 1-8 inches apart and 3 3/4 inches from the lower edge of the panel, the crystal detector in the centre of the panel between them, three terminals on the left-hand side edge (aerial, earth intermediate), and on the right-hand side two more terminal screws for the phones.

The Secondary

On the former space wind 80 turns of the No. 20 enamelled wire (4oz. will be sufficient), taking taps at each 20th turn and each end. When completed fasten the assembled coil to the rear edge of the baseboard. About 1 1/4 inches away, place the base-

(Continued overleaf).

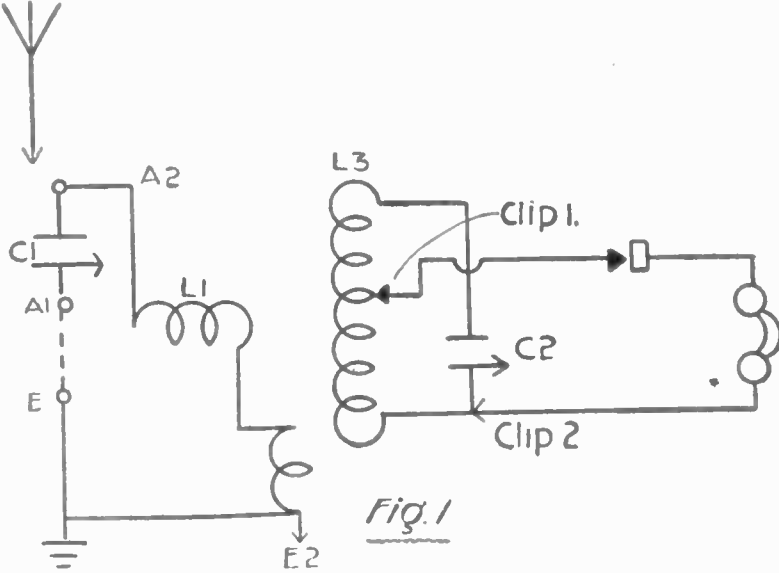


Fig. 1.—The circuit, showing the connections of the various components.

then our knowledge of transmission methods has very greatly improved. This has resulted in much greater control over factors which determine frequency and many transmitters now cause radiation on what is strictly their allocated wave length or frequency.

Nevertheless, we are still "up against it" when in the immediate vicinity of a transmitter, particularly when using crystal detector receivers. These facts led to the design and construction of the receiver described in this article.

The Circuit

The theoretical circuit is shown in Fig. 1. In this we see three inductances, L1, L2, and L3, and two variable condensers, C1 and C2. L1 and L2 shunted by the variable condenser C1 form one tuned circuit, while L3 and C2 form the second tuned circuit. Thus we have two tuned circuits, the coupling between which is also variable.

There are other factors which have been considered; since it is well known that the crystal detector itself exercises a damping effect upon any associated tuned circuit, a secondary circuit has been provided which possesses the minimum of resistance. Again, since any crystal detector is essentially a voltage-operated device, steps have been taken to impress the maximum voltage across it by suitably arranging the secondary circuit (L3, C2).

The Coupling

The aerial circuit—L1, L2, C1—is coupled magnetically to L3, C2, by the use of a very small coil, L2, which is wound on one of the extreme ends of L3. In order that no interaction between L1 and L3 can occur, these

gauge enamelled wire, space-wound on a special former. At every 20 turns a tap is taken out and a short length of bus wire is soldered to each to

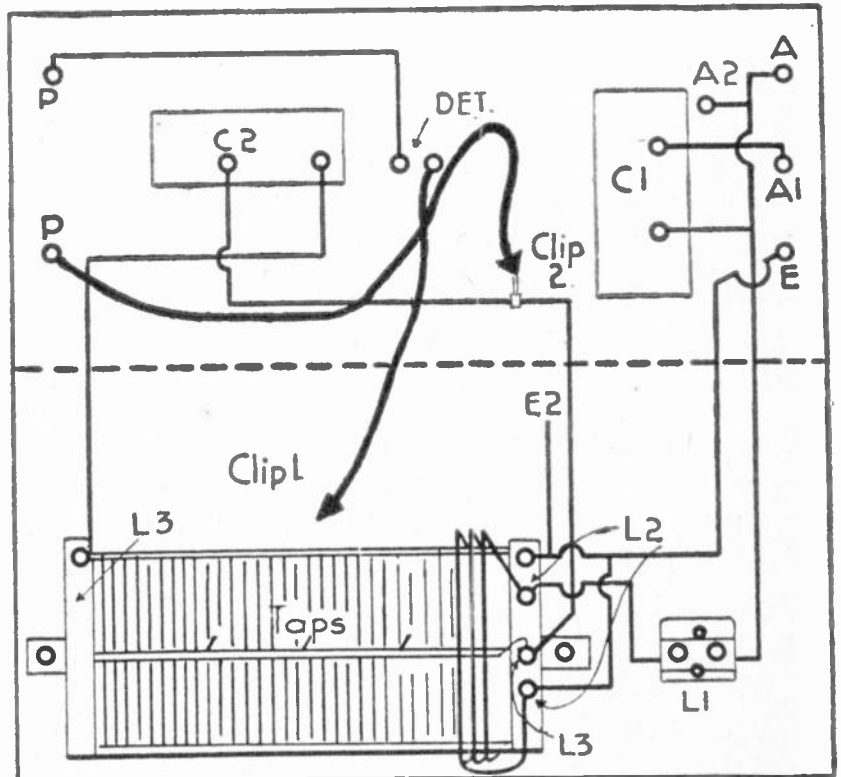


Fig. 2.—Wiring diagram of the Crystal receiver. This should be used in conjunction with Fig. 1.

Wireless Telephony to London

First Call Booked by The Herald

THE commercial wireless telephone from Melbourne and Sydney to London will be open for traffic any day in the near future: it only awaits the word from the technical experts to the Director of Posts and Telegraphs (Mr H. P. Brown) that the organisation is ready.



MR GEORGE TAYLOR
News Editor of The Herald, Melbourne.

Experimental conversations are taking place now between the experts here and in London, and delicate adjustments are being made. All the staff and apparatus and organisation are ready so far as the Post Office is concerned.

The first official call will take place between the Prime Minister of

Great Britain (Mr Ramsay MacDonald) and the Prime Minister of Australia (Mr Scullin).

The first commercial call will be between the News Editor of The Herald and the Managing Editor of the Daily News, London.

Special Box for Calls

It is hoped that the system will be in full swing in time to allow people speaking from a special box at the Elizabeth Street Post Office, Melbourne, to exchange Christmas and New Year greetings with their friends in London.

Any private subscriber in London may be called. The extension of the system to the Melbourne telephone network is likely to be accomplished early next year. Then any telephone subscriber at home here will be able to telephone by wireless any subscriber at home in London.

£9 For Three Minutes

Subject to confirmation, the price of commercial calls, Melbourne-Lon-

don will be £9 for a three minutes' conversation, the same as the London-New York service, which is now operating continuously.

The next stage

will be the provision of a permanent extended wireless telephone service whereby any subscriber in any part of Australia will be able to telephone any subscriber in any part of England

In a recent lecture, Mr Brown said that one of the possibilities of the near future was wireless telephone conversations between people in all parts of the world where there were telephone services.



MR TOM CLARKE,
Managing Editor of the Daily News, London.

Chinese Patience Results

THE final Example of "Chinese Patience" (which appeared in these columns on November 27) was solved in 46 moves, as shown below.

The undermentioned readers sent in solutions in the minimum number of moves and divide the prize offered by The Listener in.

Mrs G. Brown, 69 Speight Street, Newport; Mrs M. Graeber, 364 Russell Street, Melbourne; Mrs J. Richardson, 85 Schutt Street, Newport; Miss Isabel Engleby, 92 Queen Street, Colac; Miss N Harper, 373 Neerim Road, Carnegie; Miss J. Redfern, 49 Victoria Street, Ballarat; Miss Dorothy Richardson, 35 Schutt Street, Newport; Miss E. Ruddock, 6 A.M.P. Buildings, Ballarat; Miss E. Wade, Box 1, P.O., Ballarat; Mr P. Carlson, Duncan's Road, Werrabee; Mr T. N. Engleby, 40 Victoria Street, Ballarat; Mr J. E. Engleby, Murray Street, Colac; Mr L. Graeber, 354 Russell Street, Melbourne; Mr M. Harahan, 199 Burwood Road, Hawthorn; Mr E. R. Harper, 18 Alexandra Street, South Yarra; Mr W. Harper, "Avalon," Neerim Road, Carnegie; Mr E. John, c/o L. Pobjoy, Lydiard Street, Ballarat; Mr G. H. Kerr, Wandiligong; Mr Roy Kerr, 892 Wattletree Road, East Malvern; Mr James Richardson, 35 Schutt Street, Newport; Mr Laurie Richardson, 35 Schutt Street, Newport; Mr Leo Richardson, 85 Schutt Street, Newport.

Herewith we reprint the original layout of the final Example:—

AS JS QH KC
QC AD KH QS
JH KD AC JC
KS QD AH

(Jack of Diamonds discarded)

Solution of the puzzle. Move the cards in this order:—

KD, JH, KS, KD, JH, AD, QC, KS, AD, AC, QD, AH, JC, QD, AH, JH, KD, AD, AC, AH, KH, QH, JS, QC, KS, AC, AH, KH, QD, JC, JH, QD, QH, JS, KC, QS, JS, KC, QC, KS, KC, QC, QS, JS, JC, JH.

Total number of moves, 46.

The final lay-out of the puzzle is now as follows:—

AS KS QS JS
AC KC QC JC
AH KH QH JH
AD KD QD

Selective Crystal Receiver

(Continued from previous page).

board coil mount. It only remains to wind on the end of L3 the four turns of the 22 D.C.C. wire which forms L2, and wire up the various components. Since a wiring diagram is provided no point to point wiring description is required.

Coils for L1

For all stations above 3LO, a 50 turn honeycomb coil must be plugged into the mount. For all those stations below 3LO one of 35 turns will suffice. A coil of 25 turns should also be on hand for the reception of amateur transmissions.

Operation

Connect the aerial and earth to their respective terminals and a short piece of wire from A to A1. Join up the phones to the set of terminals on the opposite side of the panel, attach clip 1 to A2, clip 2 to E2, and place a 35 turn honeycomb coil in socket L1. Rotate the variable condenser, C1, and tune in the desired station, subsequently adjusting the crystal detector for maximum volume. Then attach clip 1 to one of the tappings on L3 and rotate C2 until signals are again heard, after which slightly retune with C1.

Further movement of clips and experimenting with the number of turns on L2 will give you all the volume and selectivity desired. The aerial on which this receiver was tested was of copper 100ft. long overall and 3ft. high. Two turns of wire to form L2 was found to be adequate, and the centre tapping point on L3 was also finally selected as the best for all purposes.

Imperia Crystal Receiver

FATHERS usually find difficulty at

Christmas time in selecting suitable presents for their boys. Radio is usually thought to be too expensive and beyond the capabilities of the younger ones. Realising this, the firm of Harringtons Ltd. has prepared a card of parts for a very good crystal receiver that anyone can assemble, all the tools required being a pair of pliers and a screwdriver.

The panel is of burl walnut and is drilled ready for the components to be attached to it.

A good fixed crystal detector is provided, and full instructions for assembling and operating are given.

The components include a variable condenser, dial, detector, panel, base-board, aerial, phones, terminals, coil, insulators, and the necessary connecting wire, together with the necessary screws.

When assembled according to the instructions, the set will bring in the four Melbourne stations at good strength, and will tune down to the amateurs.

Listen For It

A SPECIAL programme has been arranged by 5CL for the evening of Tuesday December 10. Its nature cannot be divulged yet, but suffice it to say that it will form an excellent broadcast.

Daughter of the Regiment

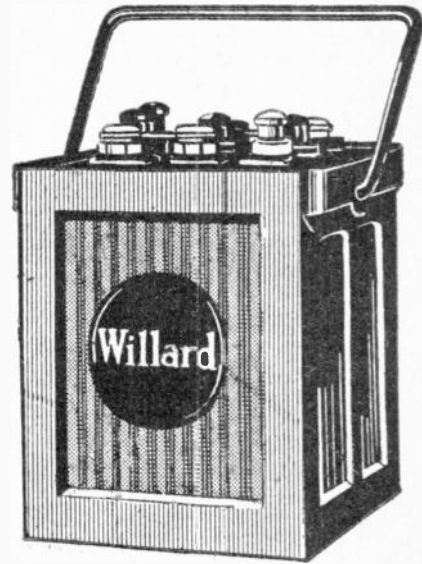
FRITZ HART is to produce Donizetti's famous opera, "The Daughter of the Regiment" for broadcasting by 3AR on Tuesday night, December 9th. The cast is as follows:— Maria, Beatrice Oakley; The Countess, Bessie Dougall; Tonio, Alan Mitchell; Sulpizio, Howard King; Ortenzio, Harold Malins; Corporal, Ray Harding.

Pounds off the Prices of Willard Radio Batteries

The genuine, long-life monobloc rubber case Willard "A" Batteries are now available at remarkably low prices, made possible by tremendous economies due to their being wholly made in Australia. Specifications of the imported Willards have been strictly followed to ensure the highest Willard standards in every battery.

The same heavy, big-capacity plates . . . the same one-piece rubber case . . . the same large terminals (colored to guide you in connecting).

The filler caps are fitted with spray-plates to prevent acid from spraying. The heaviest 3 types are fitted with spring carrying handles. Get Willard Radio Batteries — fresh and with 100 per cent. life—at Radio Stores and electrical dealers, or direct from Willard Battery Service Stations.



- | | | |
|---------------|---------|----------------|
| 1 WXX7 | | 17/- |
| 2 Volts . . . | 45 amps | |
| 2 WX7 | | £2/8/6 |
| 4 Volts . . . | 60 amps | |
| 2 WX9 | | £3 |
| 4 Volts . . . | 80 amps | |
| 3 WX7 | | £3/12/- |
| 6 Volts . . . | 60 amps | |

Willard

Monobloc Rubber Case Battery

AUSTRALIAN

GENERAL ELECTRIC
Australian General Electric Company Ltd

MELBOURNE: Cr. Queen & Lit. Collins Sts., Cl.
 BOX HILL: 197 White Horse Road.
 ALBURY: Dean Street.
 COLAC: 90 Murray Street.
 WARRARA: Johnson Street.

WILLARD BATTERY SERVICE STATION

MELBOURNE: 482 Elizabeth Street
 (6 doors north of Franklin Street).
 Phones: C2648, F4326.
 SYDNEY: McLean St., Woolloomooloo

Interference Elimination

By "TECHNIC"

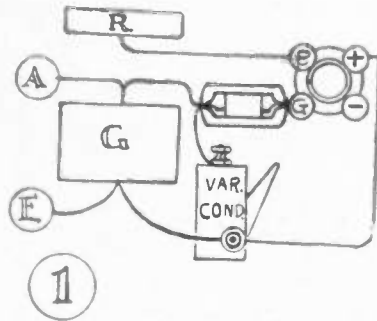
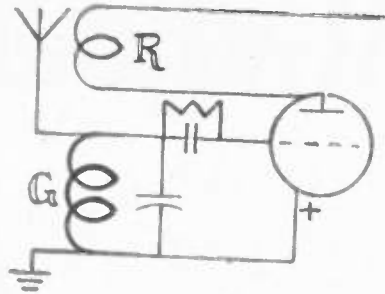
THE advent of yet another high-powered sending station has synchronised with many listeners complaining of increased difficulty in tuning out unwanted signals.

A few words on interference elimination will therefore be in season.

Numerous and various are the methods of enhancing a set's selectivity to a degree enabling complete separation of stations. Filter circuits designed to pass desired frequencies and to exclude unwanted signals come naturally to mind. Then follow the various loop aerial systems ensuring great selectivity, due mainly to their pronounced directional effects acting to narrow the field of stations offering possible interference. Merely pointing a loop in the direction of a wanted station cuts out interference from all other stations broadcasting. Thirdly, there is the method of interference elimination taking the form of dispensing with an earth connection and substituting therefor a counterpoise.

However, if a set is carefully put up, selectivity should not be hard of accomplishment. Many receivers, still doing yeoman service even though put up many years ago, have been found unselective, and therefore not suited to modern broadcast conditions. Most of these receivers will be found to be what are known as directly-coupled sets—in other words, sets with but a single coil serving as aerial and grid inductance (G, Fig. 1).

A simple method of making such a set selective is to count along the grid coil (G) to the 5th turn, and there bare the wire so that a lead of wire may be attached by solder-



1. Circuit and layout of old-fashioned radio receiver.

ing or by means of a clip to connect thereto the aerial (Fig. 2).

A better method is to make the receiver completely loose-coupled.

To do this, wind 10 turns of D.C.C. wire around a piece of card former of the same diameter as your grid coil, and attach the 10-turn coil at the beginning of coil G (Fig. 3). This 10-turn coil becomes the aerial-earth inductance, and should have its ends taken to two terminals which serve as aerial and ground posts. A variant of this method is to wind this aerial-earth coil around the grid inductance (Fig. 4).

The looser the coupling between the coils, and the fewer the turns of wire in the aerial-earth coil, the greater will be the selectivity of the set.

A popular method of ensuring greater sharpness of tuning is to call in the aid of a "wave-trap" where-with to hold offending stations.

A wave-trap usually takes the form of a tuned inductance across the aerial and ground, and in parallel with the receiving set.

The "trap" is usually tuned to the offending broadcasting station and its dial left set. Other stations are then brought in by tuning in the usual manner on the receiving set. Traps vary greatly in their simplicity and complexity (compare Figs. 5 and 9).

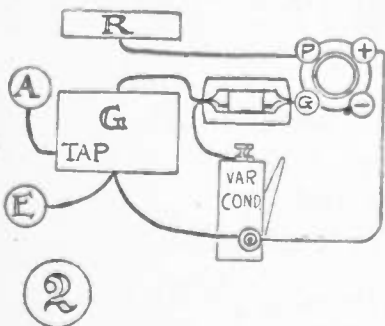
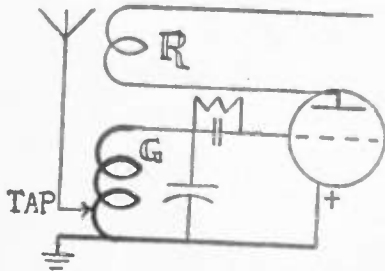
A good trap is one using a single to wind 50 turns of 22 gauge D.C.C. wire wound around a 3-inch diameter "former" and tuned with a .0005 mfd variable condenser (Fig. 5). The aerial is taken by means of a flexible wire fitted with a clip to one of the several tappings made on the coil at its 5th, 10th, 15th, 20th and 25th turns.

Another excellent "trap" is the inductively coupled affair given in Fig. 6. To put up this trap you will need to wind 50 turns of 22-gauge D.C.C. wire around a 3-inch diameter tube, taking its ends to a .0005 mfd variable condenser. On and around the centre of this 50-turn inductance 10 turns of wire are wound. One end is then taken to the aerial, and the other to the aerial-post of the receiver as shown in the sketch.

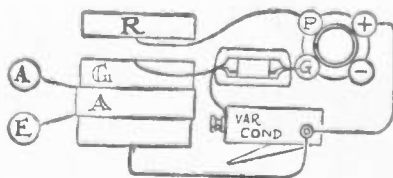
Yet another "trap" is given in Fig. 7. A 50-turn coil here is tapped at its every 5th turn to engage a lead from the aerial.

If you have a powerful set you can try the effect of a frame or loop aerial, or an indoor aerial and coun-

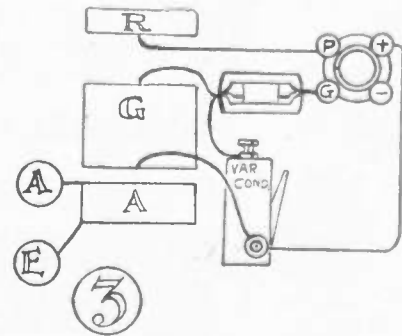
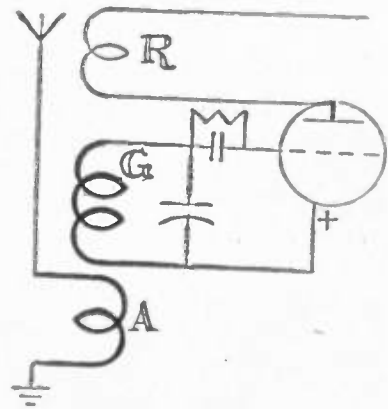
(Continued on Page 82).



2. Easiest way to improve tightly-coupled receiver.



4.—Good method of making set loosely-coupled.



3. This alteration enhances selectivity enormously.



PHILIPS

AUDIO TRANSFORMERS

27/6

FOR PERFECT REPRODUCTION OF BOTH "HIGHS" AND "LOWS"

THE transformers in your radio set may be "bottle necks" which cut off the colourful overtones which mean so much in modern radio reproduction.

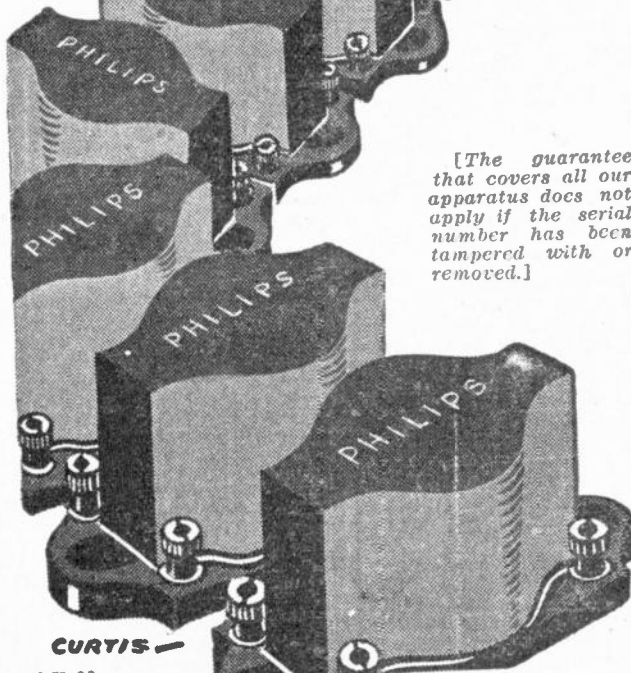
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CURTIS

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What's in the Air for Us Women

BY the time this gets into print, "Holiday Week" will be in full swing at 3DB, The Herald Broadcasting Station, and many prominent speakers will be giving advice to those who are due to spend their holidays by the beach or in the bush. Every aspect has been studied, and those who contemplate spending a holiday abroad have been well catered for, together with their less adventurous sisters who will possibly content themselves with a walking tour to the beauty spots of Victoria.

Frank Russell, who has just returned from a jaunt round the world, will tell listeners how to prepare for a lengthy tour, while speakers interested in things feminine, will discuss the most suitable type of outfit to take on a long sea voyage.

To come nearer home, the food question will be explained to those who contemplate taking a little bungalow and have to prepare their own meals, and many toothsome summer recipes will be given. No detail of the holiday has been overlooked by Miss Iris Turnbull—who has organized this helpful session—and lots of practical hints and suggestions will be given.

Dainty Gifts

At this season of the year everyone is on the look out for those dainty and inexpensive gifts which are so greatly appreciated when made by the donor. The latest novelties come to us in sealing wax—cunning little sprays of flowers and berries, delicate buds and richly tinted foliage—just the things to give the right touch of smartness to the light tweed or dust coat. Wonders can be accomplished with two or three sticks of colored sealing wax and a reel of wire, and failure is well nigh impossible, for each apparent mistake only serves to demonstrate the formation of another berry or leaf. Miss Punshon, who has had much experience in the world of arts and crafts, will give an interesting talk on the subject from 3AR on December 17, and those who want to learn how to make dainty gifts in a few moments for a nominal outlay cannot do better than tune in, and glean a little information.

RECIPE FOR WEEK — CARAMEL CREAM PUDDING

This is a delicious sweet for the hot weather, and may be served with any kind of stewed fruit. Take three eggs, one pint of milk, two ounces of castor sugar, two ounces of loaf sugar, and the juice of half a lemon. Dissolve the sugar and lemon juice in a sauce-pan on stove, and allow to get a rich golden color; then pour into a mould that has previously been standing in cold water, and cover every part with the mixture. Beat the eggs and sugar together, add the milk gradually, beating meanwhile, and pour into the mould. Cover with a greased paper and steam for one hour. Allow to cool, and, if possible, stand in an ice chest. Turn out and serve as a cold sweet.

By One of Them

The Perfect Ear

An example of "the true ear making the true artist" is demonstrated by Miss Olga Le Gray, the popular Sydney broadcasting artist, for, though she cannot read one note of

BEAUTY HINT FOR WEEK

One of the latest beauty treatments to reach us from Paris concerns sour milk both for internal and external application. By placing a small jug of milk aside daily, you need never be without your treatment. Allow to stand for two days to turn thoroughly sour, and then drink a wineglassful in place of your morning tea. If you can manage it before breakfast, so much the better, but few can tackle sour milk so early. For external application, wash the face well with soap and hot water, then dip the tips of the fingers in the milk, massage the cheeks thoroughly till all the milk has been absorbed. If the skin is very shiny, add a dash of Eau de Cologne or Tincture of Benzoin. An improvement will soon be apparent, and the skin will acquire a delicate, transparent look.

music, after having heard a song once, she is note perfect. This highly developed "ear for music" is also shared by many popular composers of today, who, though they are at sea when faced with a printed sheet of music—for they could not read a note—are able to compose great successes, simply guided by their correct ear for melody. Miss Le Gray, whose tone is richer than many who have studied singing in the orthodox manner, began her stage career with the original Follies Company, and has since toured Australia in light musical comedy, also appearing with Gladys Moncrieff in "Ma Mie Rosette." She has also been featured in prologue work in connection with many leading picture productions, and her broadcasting is an artistic triumph.

In Retrospective Mood

In our quiet moments, few of us can resist a glance back over the years, comparing times past and present, and noting the progress that has been made, both individually and collectively. No matter how hardly the years have dealt with us, everyone has at least one bright spot to illumine the pathway. Possibly it is just an old song that conjures up memories, whatever it may be. It is reminiscent of happy days, and, after all, that is all that matters.

In spite of the fact that wireless is the latest invention of the times, it keeps us in direct touch with the things of yesterday—especially when it comes to old melodies. The other day I was at community singing, and, during one well-known hymn, I noticed many elderly women were singing the harmony in fine contralto voices. I afterwards discovered that

in their youth they had been members of church choirs, and they loved to come to "Community" because it took them back to the days when they were young.

On the Beach

After tuning into four fashion talks, I am convinced that the most important item in this year's bathing outfit is the pyjama suit, which, for really practical wear, should be of floral gaiter, since this serviceable material can stand up to any amount of salt water spray. The bathing costumes are most attractive, being in fine silk and wool jersey, gaily striped and patterned, with many striking devices woven into the material. Caps, too, strike a becoming note, some particularly smart specimens being of blue and white rubber, somewhat reminiscent of the headgear worn by the American Fleet. Gipsy turban caps, and helmets with ear flaps to be neatly down over the ears and protect the "permanent" from the "natural" waves are much in demand.

Old Versus New Methods

Are you in favor of the many labor saving gadgets and devices that are to be found in the modern well-equipped home? Do you wish that your own kitchen was replete with electric stove, hot water service, electric ice chest, or that the very latest in vacuum cleaners made housework a sheer delight instead of a somewhat dreary task? Those who are not able to afford these short cuts to perfect housekeeping, may comfort themselves with the fact that they are possibly not quite beneficial from a health-giving point of view, that housework which calls every muscle into play is the best exercise possible, and without it, they would put on flesh and lose their slim silhouette. Those who wish to hear this question settled, should tune into a debate arranged at 3AR on December 16, between Mrs Clarence Weber and Dr. Loftus Hills on "Are Modern Appliances Detrimental to a Woman's Health?" Mrs Clarence Weber will take the affirmative, while Dr. Hills will stand as a champion for the fair sex.

TONIC TALK FOR WEEK

Don't tell your husband (or husband-to-be) everything. After all, it is the future that matters. A girl may have been a flirt, and yet make a most devoted wife and mother. But if she keeps dragging up confessions about other men, she is doing a very dangerous thing for herself. He will possibly argue that she is not what he thought her; that if she has had a lot of admirers in the past, she will be certain to have them in the future, or that he will never be able to trust her. Again, what good can it do for a girl to say to her fiance, "Before I met you, So-and-So was awfully keen on me, and I was rather taken with him." Many engagements have been broken on such a score, and all for nothing.

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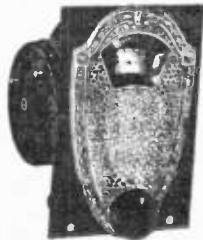
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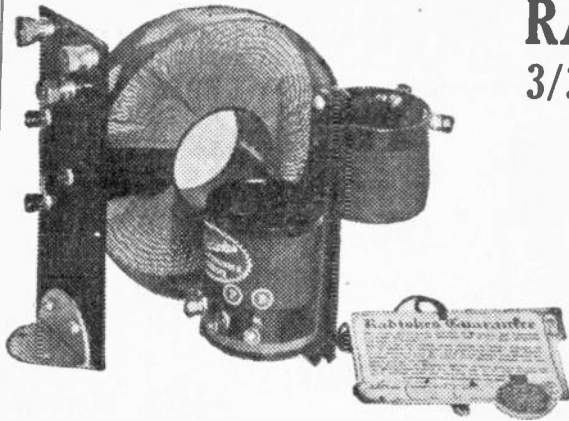
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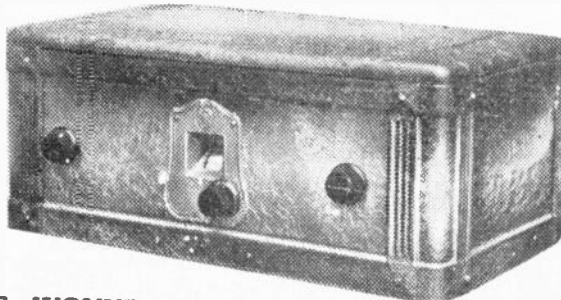
RADIOKES 3/32 and 3/33 COIL KIT

RADIOKES 3-33 COIL KIT was specially designed for use with the new Screen - grid valves. This kit consists of a special tapped Circloid Antenna Coil, which is noted for its limited field and extreme sensitivity, and a perfectly matched Band-pass Filter Coupler

for the R.F. stages. Built to RADIOKES standard, of brilliant green silk covered wire and genuine Bakelite. As used in, and specified for the A.C. and D.C. Foundation Receivers. A.C. and D.C. Types, £2/6 per Kit. A.C. 3/32 and 3/33 Kits complete, £6/7/6 each.

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available in a variety of colors, drilled and undrilled. A.C. type, £2/7/6 each.



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These resistance units are accurately and robustly constructed to stand high voltages, comparatively large currents and abnormal heat. They are made in most useful sizes, and are equipped with solder lugs for wiring and insulated brass mounting brackets. This makes for easy assembly.

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Short Wave Phone Notes

(Continued from Page 16).

All battery leads are cabled and brought to a UY or UX socket and tube base, thereby facilitating the removal or application of the batteries in one movement. Using a UY socket provides for the addition of another lead as for a screen grid valve later on.

Review of the Week

STRANGELY enough the loudest station for this week was PH1, which was not included in the list published last week because, previously, reception at this point was so weak and erratic that it was thought that the particular wave length used was unsuitable for the time of day. On Friday, however, the signal strength was so good that comfortable reception could be obtained on the speaker at about the same strength as 2FC is received on a three valve broadcast set using one audio stage. Speech and music could be

Specification of Parts

- C1 Aerial Coupler (two plate mid-get variable or similar type).
- C2 Grid condenser, .0001 mfd.
- C3 Tuning condenser (special) consisting of "Formo de Luxe" reduced to 3 fixed and 3 moving plates.
- C4 Plate blocking condenser, .002 mfd.
- C5 Smoothing condenser, 1 mfd.
- R1 Grid leak, 2 megohms.
- R2 Reaction control, 50,000 ohms variable of smooth action such as "Pilot" pattern. Carbon pile resistances not suitable.
- R3 100,000 ohms grid leak type resistor to eliminate fringe howl."

copied 100 per cent., but fading was noticeable and the wave length seemed to be swinging all over the place, making the station difficult to hold.

PH1 is one of the Philips stations at Hulzen, Holland, and operates on a wave length of 16.88. Transmission is usually made on special occasions announced from time to time. During this week it was made as a "special" for southern listeners. The power fed to the aerial amounts to 40 kilowatts.

Another station engaged in a special transmission, this time for the Near East, was W2XAF, of the G.E. Co., at Schenectady, which was engaged on every night from Sunday. Transmission for the best part, however, was spoilt by a very unpleasant rumble, and reception was not anything like that obtained usually from W2XAF.

Radio Manila, K1XR, remained on the 24.5 metre wave length this week, and was received at good strength on almost every night from 9 o'clock onwards.

G5SW, the station of the B.B.C., at Chelmsford, provided another surprise also. This station used to be received here every morning during the winter months, but lately has not been strong enough to identify. On Tuesday evening it was up to the old strength from about 10.30 to 11.45, when it closed

(Continued opposite).

Screen-Grid Radio

TALK about "Screen-Grid Radio" leads the layman to ask, "What is screen-grid radio and what does it do?" The answer is simple and starts with the explanation of the screen grid valve.

The screen-grid valve in appearance is similar to the ordinary radio valve, except that it is a little taller. It has a metal contact about the size of a lead pencil eraser on top and outside of the bulb. This contact is connected by a fine wire through the glass to the control grid in the interior of the bulb. The valve has four elements instead of three, and is further distinguishable by the fine screen "fence" which entirely encircles and protects the entire inner construction.

The advantage to be gained with the screen-grid valve in the radio frequency circuit is the greater amplification factor, which is four to seven times that of the ordinary valve. This provides a possibility of great volume without distortion. Emphasis on the word "possibility" is because it is not sufficient for a radio set to employ screen-grid valves alone. Here we come to the necessity for the careful working out of all the engineering problems caused by the tremendously increased capacity of this valve, which increases sensitivity and power of the set to the point that broadness of tuning is again a paramount problem.

To obtain knife-edge selectivity, without loss of the newly acquired power, the set must be scientifically shielded. Coils, condensers and valves must not only be individually shielded, but the type and size and manner of the shielding are of vast importance.

FINLAND'S NATIONAL DAY

THE anniversary of Finnish independence on December 9 will be recognised by the A.B.C. by an address from 2BL by Mr Harald Tanner, Consul-General for Finland. A brief outline of the history of the country's independence and notes on the republic's beautiful scenery will constitute the talk.

SHORT WAVE PHONE NOTES

(Continued from opposite page).

down. This particular transmission was announced as the midday session of the B.B.C., from 12 to 2 G.M.T., and is a regular feature, although not always up to the strength mentioned.

Stations Heard

Under this heading it is intended to publish some of the most complete lists submitted by readers of the stations heard during the week.

MR F. ELLIS ROBERTSON, Kerang, Vic., reports:—PCJ, 5.30 a.m., 23/11/29; KDKA, 24/11/29, 25/11/29; W2ZAD, 7.20 a.m., 25/11/29, two unidentified station on 31 and 32 metres, 10 p.m., 26/11/29; PLE same date and time; G.B.X. and VK2ME and K1XR every night. PHL, RFN and three unidentified stations on 22, 29, 60 just after midnight, a.m. 27/11/29.

A. MILDERN, Richmond, Vic.—PHI, 10.45 p.m.; PLE, 3AN, Sourabaya, 8 p.m. 25 and 27/11/29; RA97, K1XR, W2XAF, VK2JR, VK2HM (Lord Howe Island), VK5AW, PHI, between 7.50 and 11.5 p.m. 27/11/29.

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WILL INSTALL THE NEW

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ALL ELECTRIC 3-VALVE RECEIVER IN YOUR HOME

JUST PLUG INTO YOUR LIGHT OR POWER SOCKET
and receive immediately pure, distortionless reception, which you can control from the merest whisper to full concert pitch. THE "LISENOLA" ALL ELECTRIC 3-VALVE RECEIVER is absolutely self contained and batteryless, and is, therefore, free from the worry or trouble usually associated with battery sets.

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HYLITE 45 VOLT Heavy Duty Batteries Once you use a Hylite battery, you will always use one. For economy and efficiency purchase a Hylite. 19/6	"LISENOLA" .0005 Variable Condensers An efficient condenser well made to eliminate all back lash. Equal to those selling at twice the price. 4/11
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With the Amateurs

By Max Howden, VK-3BQ

At the present time, the DX signals are coming in very well on the 20-metre band right on from late afternoon until well into the early hours of the morning. The local stations are not slow to take advantage of this, and almost any night they may be heard in contact with stations in Europe or Asia.

For a long time vk3CX, vk3RX and vk3WX have been doing most of the watching there, but now that vk3PA has got his new UX210 in action, he is there, too. During the year he has worked with stations in 24 different countries, which is a very fine performance for the low power he uses. The latest additions to his list are vs6AG and vs7AP.

The West Australian hams seem to be getting their DX earlier in the evenings than we are, and vk6HE, with his pure DC note, can be heard at about R5 calling oh 7NE. He seems to have a schedule with this latter station at 10.30 Melbourne time. Vk6FT has been working with the Chinese station ac1BD, and, in this case, the conversation can be followed from each end. This Oriental station has a most peculiar note that sounds as if he works from a 75-cycle A.C. supply with full wave rectification. It makes his signals, that come in at about R4, very easy to pick up.

Popular Indian Station

The most popular station on this band at present is vu2DR, in India. His signals come in at anything up to R8, and are beautifully pure and steady. It is thought that he is using a crystal to stabilise the wave, but he is evidently not using it in the usual circuit. As soon as he finishes up with one station, by tuning over the band, one can hear four or five others calling him as hard as they can go. In this manner he keeps going for hours, and does not seem to stop even for meals. This makes one wonder if there are several operators who work this station in relays, the same as is done by a number of the American stations.

Not long ago I was asked by one of these American stations if I could run a 48-hour continuous test. I asked the operator there if he worked or slept, and got the reply, "Oh, this is a college station, and there are over 20 operators here." That kind of work is doubtless very interesting from the DX point of view, but it is doubtful if much experimenting could be done from there.

The Byrd Expedition

While the Australian hams are busy working with stations to the west, the New Zealanders are calling stations in North and South America. The signals from most of them are about R7 here with an occasional one, such as z14AO or z11FW, reaching R9 at times. This latter station had a long QSO with lu8DJ during the week, and followed it directly by hooking up with vu2DR. The Byrd Expedition to the Antarctic appears to be in New Zealand waters at present, and the signals from its station, WFA, can sometimes be picked up in the amateur band. The other night it could be heard handling traffic there, but as a rule this is done on a slightly higher wave length.

It is surprising how well the signals from up north come in on this wave length and vk4JR, vk4BH in Queensland, and pk1JR and pk4AZ in Java are R6 and QSA5 almost any night. All these signals are pure D.C., so that it is possible to copy them even when QRN is bad.

Just the last few days there has been a new station working on 20 metres, but it is not operated by a new ham. Old vu2KT, who will be remembered as one of the pioneers of 10 metre DX last year, and who has worked direct with England on that wave length from India as well as working with several Australian stations, has been moved to Shanghai. Before leaving the old base he designed and built a new set for use from his new QRA, and he is now working it under the call-sign xu2UU. His signals are very steady, and come in at anything up to R6. His note is not as pure as it used to be from his old station, vu2KT, but the chances are that he has much more difficulty in getting a good power supply at the new station. There is about 60 per cent. D.C. in the note, but it is not evenly balanced and gives a slight half cycle effect.

He was very interested to hear of the 10 metre activities in the different countries, as he has been out of touch with the hams while travelling, and was very pleased to hear that g20D was still at it. So far, he has had no opportunity of testing the new set on 10 metres, but was going to do so on Sunday.

From now on xu2UU will be on

RED GUM BILL'S SHORT WAVE SET

By Campbell McCay
 Old Bill 'as built a short wave set.
 Wen first 'e starts to tune
 You orter 'ea: 'he squeals 'e'd get,
 But them is ever soon.

'E moves the knobs the leastest bit
 And everything comes right;
 So listening in you sees 'im sit
 For more than 'arf the night.

There's times the tactics is so bad
 They's all you seems to 'ear;
 Them is the times 'e drops 'is jad
 And tunes in to woi's near.

It stands to reason, wen waves run
 Round 'arf a world in girt,
 They ain't as clean as wen begun—
 They's bound to pick up dirt.

Jest take yerself, if you should drive
 On bush roads in a cart
 In summer time, wen you arrives
 You're gritty, every part.

If by volcaners waves 'ave scud,
 Right off you sees it plain,
 They gets messed up with boitin' mud,
 If you 'ave 'arf a brain.

Serpose a whirlwind's in good form,
 Wen they cross desert sand,
 Or they bung through a thunderstorm
 You gets it wen they land.

Then, if you tunes Amerikers,
 Along with 'em there comes
 Pop-crackin' and a mash of burrs
 Made 'orrible with 'ums.

So 'tain't my wish to listen much
 To waves from oversea,
 Like Japanese and Chows and such—
 The Aussies will do me.

the air on 10.5 metres for a few minutes at the beginning of each hour from 9 a.m. till 4 p.m., his time, every Sunday. He is particularly interested in the test that is being held between g20D and vk3BQ, and is going to keep careful watch in the hope that he can help by giving comparative reports on the signals from each end. Before leaving India, as already stated, he picked up signals from both these stations on 10 metres, so that he hopes to be able to do the same again, but at the same time during this test, making it a triangular contact.

On the 20 metre band the input power to xu2UU is about 30 watts, while on 10 metres it is only 15 watts. This is higher power than that used at vu2KT. The aerial is the same for both wave lengths, being fundamental zepp for 20, and full wave for 10 metres.

Conditions On 40 Metres

The conditions were not good on 40 metres, but the usual schedules could be kept without much trouble. The only noticeable difference was that vk5BY could not be heard working his schedule with the other "fives" at 10 a.m., Melbourne time. Vk3PA reports having done some good DX on this band during the week, but had no luck on Sunday. There was a very noticeable absence from this band in Tasmania, but this was caused by the holding of a field day over in Hobart. The wave length used for this was about 84 metres.

Field Day in Hobart

Early on Sunday morning vk7AH and vk7CH set out with a portable set in a motor car. Their object was to instal a set in some unknown and well-screened place (in this case limited to within 15 miles of Hobart) and to call at specified times. Then, some time later, the searching parties were to set out to locate them. There were four search parties, each supplied with a direction-finding receiver, a map of the surrounding country carefully marked in degrees, and a sealed envelope, in which were full particulars for finding the transmitter in case any of them had not located it by 4 p.m.

The four parties were led by vk7JK, vk7CW, vk7LJ, and vk7WM. The first three mentioned went fairly straight to the transmitter, and eventually found it well hidden among the trees at the side of the road just outside Kingston. The other carload had the bad luck to start looking for the transmitter in the opposite direction, and had to turn back after opening the sealed envelope after the time had expired.

The full report of the different signal strengths at different places along the roads, etc., will be both interesting and useful.

It was a pity that vk7DX was unable to get away on this occasion, but he will certainly do so next time.

The transmitter at vk7WT — the headquarters of the Tasmanian Division of the Wireless Institute — has now been completed, and is working well. It is crystal-controlled, and can be found just below vk7LJ, who up to now has been doing a good deal of the official Institute traffic handling.

This Xmas Give
Your Friends

DIAMOND BATTERIES

"The Cells That Excel"

Numbers of your friends own Radio Sets — what better gift than a "Diamond"? Long after Xmas has passed Diamond Batteries will help to provide clearer reception and better entertainment by enabling you to hear programmes clearly and more naturally.

Diamond Batteries are built on the "Section-Protected" principle and are "8 Weeks Fresher." They are extra insulated and protected at every point against leakage. Send for Free Catalogue and Prices of "A," "B" and "C" Batteries.

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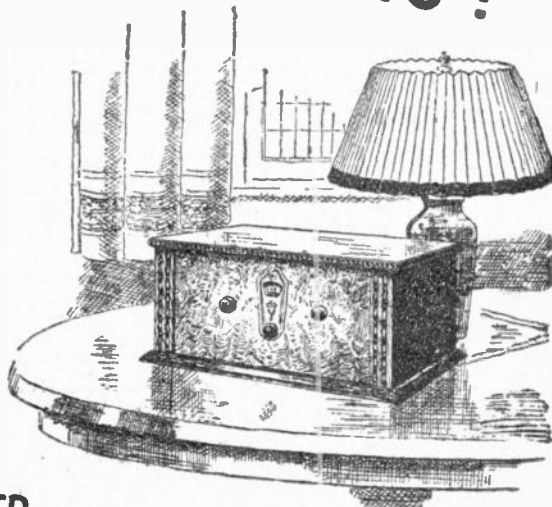
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Terms to Suit You

Pick These Book Titles! NAME THEM & WIN £25

Conditions of Competition No. 26

Each picture represents the title of a book, and is included in the list below.

Write only one title under each picture.

Entries close by noon Wednesday, December 18, at The Listener In office, Send as many entries as you like but each one must be on a set of pictures cut from The Listener In and filled in separately. All your entries must be enclosed in one envelope. WRITE YOUR OWN NAME AND ADDRESS CLEARLY IN BLOCK LETTERS ON THE BACK OF THE ENVELOPE.

Sign each entry in space provided on the coupon below the pictures.

Write the number of the Competition (26) on the envelope.

Each entry stands on its own, and in making a claim you must not say "I have 9 (or more) right" unless they are all in the same set of puzzles. If you have six right in one set and six right in another you cannot claim to have 12 correct.

Keep a copy of your solutions. The correct names will be published in The Listener In of Tuesday, December 24, when you will be told how the prize is to be claimed. You may have to make a claim.

In the event of a tie, the prize money will be divided. Should no person succeed in correctly naming all the titles the prize will go to the competitor who has the greatest number of correct answers.

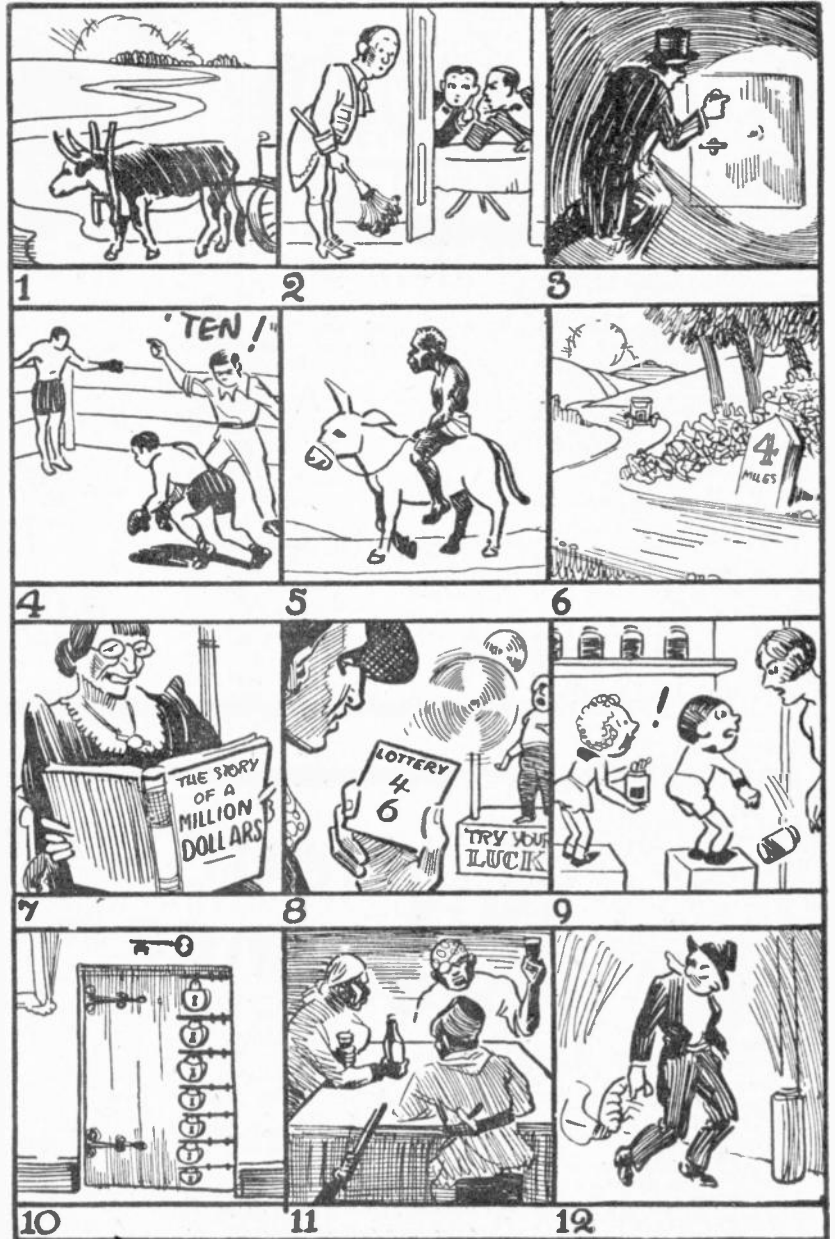
No employe of The Listener In or its allied publications may compete.

No responsibility can be accepted for the loss or delay of any entries. Proof of posting cannot be accepted as proof of delivery. Mutilated or altered entries will be disqualified. Competitors enter this competition on the distinct understanding that the Editor's decision is final and legally binding.

All the titles represented in the Puzzle Pictures on this page are contained in this list.

List of Book Titles from which the Accompanying Picture Puzzles are set.

- | | |
|---------------------------|--------------------------|
| A Gentleman With a Duster | The Black Gang |
| Across the Plains | The Black |
| Dapple Grey | The Blue Hand |
| Dead Man's Step | The Boxing Contest |
| Door With the Seven Locks | The Final Count |
| Faltering Footsteps | The High Road |
| Fortune's Fool | The Key Above the Door |
| Found Out | The Merry Men |
| Homeward Bound | The Million Dollar Story |
| In Mischief Again | The Pace of the Ox |
| Lottery | The Pair of Spectacles |
| Lone House Mystery | The Terrible People |
| Prisoners of the Sea | The Thief in the Night |
| Raffles | The Yellow Snake |
| River of Stars | Travel With A Donkey |
| Send Round the Hat | Wheels of Chance |
| Sign of Four | Whispers |
| The Big Town Round Up | |



ENTRY FORM

I (NAME)

ADDRESS

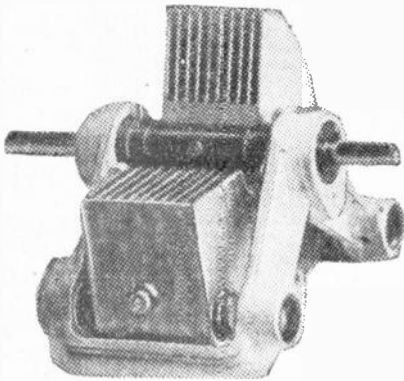
..... enter The Listener In Competition No. 26, and agree to accept the Editor's decision as final and legally binding.

Address envelope Books Competition No. 26, The Listener In, Box 1861Q, G.P.O., Melbourne, C.1.

Tested By Us

The "Manens" Condensers

FOR laboratory work precision instruments are required for accurate measurements and adjustments, and for the same reasons the wireless enthusiast who wants the best reception always puts quality apparatus into his equipment. This is specially true of the short wave man whose components must be reliable if consistent work is to be done.



The sturdy construction of the "Manens" variable condenser is here shown.

It was, therefore, with interest that we examined samples of the "Manens" Condensers, the product of an Italian firm, La Societa Scientifica Radio. Three types of condensers were examined comprising small fixed condensers, high voltage condensers and variable condensers.

The small condensers are suitable for use in receivers and low power transmitters and are made in the usual capacities while each is tested to withstand 2000 volts, A.C. The dielectric is of mica and the plates of copper, the whole being pressed together under pressure and enclosed in a heavy gauge brass container in such a manner that the pressure is always constant. Terminals are provided for connecting as the condenser is designed for mounting in the wiring of the set. The capacities are very accurate and remain constant.

The other type of "Manens" fixed condenser is made for very high voltage work. The Type T1 has a working voltage of 3000 volts A.C. and is tested at 6000 volts, while the T2 has double this rating and it is made in sizes necessary for transmitting. The T type is fully enclosed in a polished metal container the terminals being brought out through pyrex insulators.

Good Laboratory Instruments

The "Manens" variable condensers are beautifully made and should prove very popular with short wave listeners as they are purely laboratory instruments. Both sets of plates are milled out of a solid block of metal, the plates being very thick. A solid cast framework is used to support the stator through two pyrex insulators which pass through it. The rotor turns on ball bearings at each end and is hollowed out to take a two diameter shaft while connection to the frame is made through a pigtail, while the design is such that considerable force is necessary to buckle either set of plates while the spacing is such that the condensers will stand 1000 volts.

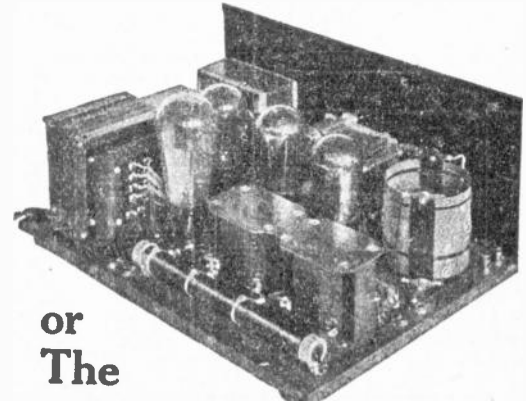
The condensers are noiseless in operation, and due to their massive construction, should not alter their calibration. We can recommend these condensers to those who want to install high quality components in to their radio equipment.

MYSTERY MUSIC

MUSIC emanating from the base of the 400ft. steel mast at the Pennant Hill radio station proved an interesting attraction to a group of country newspaper proprietors who visited the A.W.A. station this week. All visitors to Pennant Hills examine this phenomenon, as it is really uncanny. The mast stands on enormous glass insulators, which prevents electrical energy induced into the mast from escaping to earth. A switch is provided for the purpose of "earthing" the mast, and if this switch is nearly closed a spark leaps from the mast across the gap.

The aerials hanging from the mast transfer to it energy from station 2FC, which is only a few yards away. When the spark leaps from the mast it heats the air and produces a sound wave.

will
9/10 Make Your Battery Set All Electric



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SIMPLICITY ALL ELECTRIC THREE

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ASK YOUR DEALER FOR LEAFLET Showing Diagram and full Particulars

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349-351 FLINDERS LANE MELBOURNE and at 32 Clarence Street, Sydney.

The Radio Doctor

(Continued from Page 19).

ADDING SELECTIVITY TO THE COUNTRYMAN'S THREE.—Could you suggest any alterations which would make the Countryman's Three-valve selective enough for use in South Melbourne? V.M.M. (South Melbourne, Vic.).

The circuit can be made more selective, but by so doing its efficiency is reduced to the level of the ordinary d.c. tube in an r.f. amplifier stage followed by the regenerative detector and the pentode amplifier stage. The use of this set, where you are situated, is therefore inadvisable.—1.

CAPACITY OF TUNING CONDENSER.—(1) What capacity condensers, and what size coils, would be necessary to tune from 200 to 520 metres in a straight out Schnell? Can the coils be purchased? (2) Is it possible to polish ebonite? If so, could you tell me how to do so?—"Mack" (Ararat, Vic.).

Coils of 15 in the aerial, 45 on the grid, and 80 on the reaction, in conjunction with a .00025 mid. capacity tuning condenser and a .00025 mid. capacity reaction condenser, are needed to cover this wave band. It should be possible to purchase these coils. They are, however, very easily constructed. Ebonite may be brought up to a very fine finish using "Brasso" metal polish and velvet.—1.

BATTERY CHARGING.—I have a 21 amp. dry rectifier type of battery charger. Will the battery discharge back through the charger if the electric supply be cut off?—(CHARGER, Coburg, Vic.)

It is usual to apply 12 volts to such a rectifier, which gives an output of 2½ amps. Therefore from Ohm's law it becomes apparent that its resistance is about 4.8 Ohms. With such

a low resistance in the rectifier which is connected in series with the secondary circuit and the battery, the battery would discharge itself back through the circuit. With the valve type of rectifier this cannot occur, since it is only while the current from the mains is flowing and accordingly the filament is alight, that the battery can be charged or discharged back through the charging source. Hence this latter cannot occur.—2.

RECEIVER THAT SHOCKS.—(1) When I put the speaker-lead terminals in post I touched a screw in the front panel, and received a slight shock. Is there anything wrong with the set? (Set was switched off). (2) When the set was switched off static was heard from the speaker. The lead-in is close to telephone line. The set is close to a telephone instrument. Can you explain this?—"ATWATER" (Nenarrup, Vic.).

This is quite in order. The screw probably fastens a shield to the panel and is therefore connected to ground. No signals of any description should be heard when the receiver is switched off. However, a statically charged aerial might cause the speaker windings to be energised. A broken down output filter condenser would also cause the noise. Suggest you see the agents of this set.—1.

"RHEOSTAT" (Nambour, Qld.).—Our experience with reflex circuits is that they are very unreliable; that is to say in some cases they work in many they don't. Again, the only advantage (if it is one) is the saving of one valve, or possibly two. This scheme was tried in some forms of superheterodynes, in which one valve worked as an oscillator and

first detector, but all modern types employ separate valves. Years have shown that "one valve one job" is a good maxim. For these reasons we have avoided reflex circuits, believing it to be in the interests of readers to do so. You may have success with the circuit; worth a trial at all events. Again, the Unidyne never became popular and suitable valves are now obsolete. You must remember that it is necessary to use receivers which have a high degree of selectivity in the cities, and this is very true of S.G. valve circuits. Such is not the case in outback country centres where we think a S.G. valve used as an R.F. amplifier would function very well. We suggest one utilising the tuned anode method of amplification and the aerial tapped half way down the aerial tuning inductance.—2.

"WIREJERKER" (East Brunswick, Vic.).—The real difficulty will be to get the transformers you mention. We understand they are unobtainable. Moreover, we believe you would be better served if you made a transformer to suit the rectifier and then you would know just where you stood. Doing otherwise is merely working in the dark. If you care to repeat your query, telling us what you require as an output, we will be pleased to assist further.—2.

PUZZLED (Brankholme, Vic.).—This is because the old batteries when connected to a new one immediately start to reduce the new one to their own level. Since the internal resistance of the old cells is very high the total output is, of course, very much reduced. It is bad practice to use old and new cells together for the above reasons. It is very likely that the hum you experience is due to the defective or run-down batteries.—2.

T.G. (Rozelle, N.S.W.).—Make sure you have a good short earth connection. A faulty ground connection would result in hand capacity. If the tuning condenser were of inferior type, rattling noises when tuning with the detector circuit in oscillation will be evident.—1.

J.E. (South Melbourne, Vic.).—The valves are connected in parallel, not in series. Two pentode valves may be connected in this manner to handle greater volume.—1.

"AL FIEND" (Windsor, Vic.).—Although a.c. valves are used in this receiver, a B C eliminator must be incorporated to supply plate and bias current. You could use B batteries instead of the eliminator.—1.

"WOOPEE" (Collingwood, Vic.).—Some people claim good results for the circuit that you enclose. A better method is to connect a resistance in series with the bias terminal of the audio transformer and the A negative terminal of the valve. The B negative is then connected to the Bias terminal of the audio transformer. To calculate the value of the resistance divide the grid voltage required by the plate current of the valve in amperes.—3.

O.K. (Box Hill, Vic.).—The circuit you supply is correct. The eliminator will deliver sufficient current to supply the receiver.—3.

"RADIOIT" (Kooyong, Vic.).—We cannot advise as to the respective merits of radio components.—3.

E.W.T. (Abbotsford, Vic.).—You would want a power pack that will supply at least 60 milliamperes at 250 volts to operate the amplifier properly. It could be used in conjunction with an existing receiver.—3.

H.L.R. (St. Peter's, S.A.).—The eliminator will supply up to three valves. It could not be used in conjunction with your four-valve receiver. Good results with the eliminator should be obtained when using it in conjunction with a three-valve receiver incorporating an a.g. r.f. stage, a regenerative detector and a single transformer coupled audio frequency amplifier stage, using an ordinary general purpose amplifier tube.

W.R. (Glenferrie, Vic.).—The trouble is due to the interfering station having altered its location to Burwood. A wavetrap, as shown on our first page of this section, will cut out interference from the station.—1.

A.P. (Canterbury, Vic.).—See the answer to W.R., Glenferrie.—1.

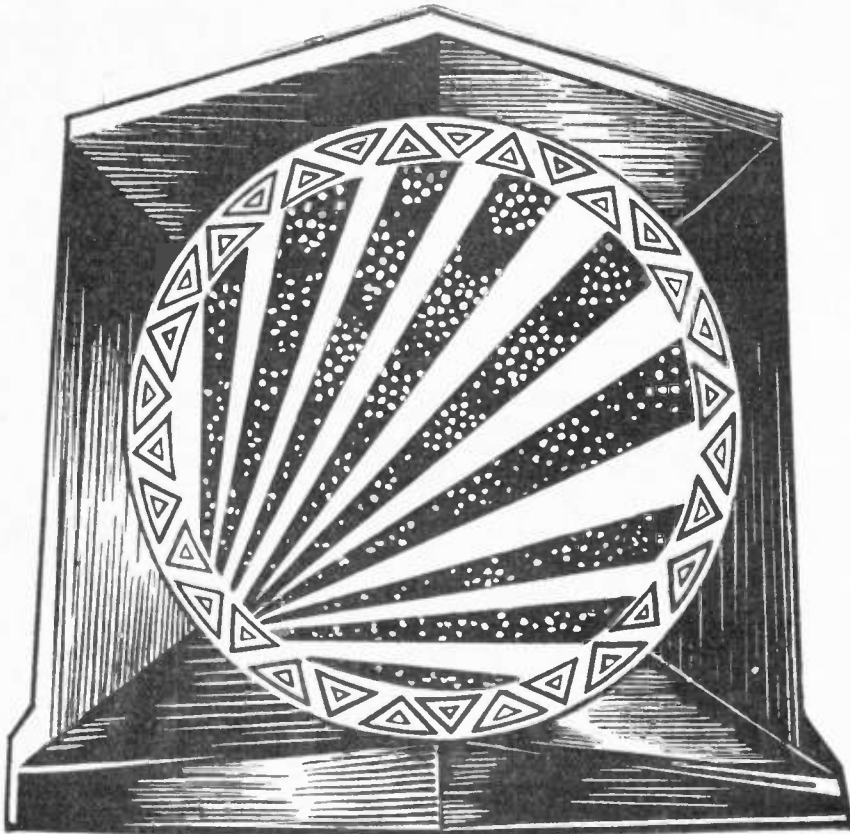
WHAT VALVE TO USE

The third of a series of Valve-characteristics—Details of Mullard Valves.

Valve	Flament Current.	"B" Volts.	"C" Volts.	Amplification Factor.	Mutual Conductance.	Plate Impedence.	Normal Plate Current in Milliamps.	A.F. Output in milli-watts.
2 VOLT D.C. VALVES								
P.M.1 H.F.	.1	150	1.5	13.5	480	30,000	1.5	—
P.M.1 LE	.1	150	2	9.5	450	30,000	2.75	—
P.M.1A	.1	150	1.5	38	500	72,500	.5	—
P.M.2DX	.25	150	4	13.5	1500	9,000	2.5	38
P.M.2	.15	150	15.4	5.4	620	8,750	3	42
P.M.252	.30	150	22	3.2	1000	3,800	7.5	87
4 VOLT D.C. VALVES								
P.M.3	.06	150	4.5	18.5	860	16,000	1.5	57
P.M.3A	.08	150	1.5	35	550	63,000	.65	—
P.M.4DX	.1	150	4.5	12.5	2100	6,000	2.5	—
P.M.4	.1	150	7½	7	1000	7,000	3.75	50
P.M.254	.25	150	22	3.15	900	3,500	10	180
6 VOLT D.C. VALVES								
P.M.5X	.06	150	4.5	17.5	940	19,000	2	—
P.M.5B	.06	150	1.5	37	500	74,000	.8	—
P.M.6D	.1	150	6	18	2000	9,000	4	—
P.M.6	.1	150	9	7.1	1250	5,700	6	90
P.M.256	.25	150	22	3.15	900	3,500	12	180
A.C. VALVES, INDIRECTLY HEATED								
AC3, 1-5 volt; 102T, 2-5 volt; AC4, 5 volt.								
A.C.3	1.1	180	9	10	1232	7,800	6.5	130
102.T	1.5	180	12	10	1503	6,650	7	270
A.C.4	.25	180	25.5	3.8	2620	1,450	30	808

(Continued on Page 73).

At Xmas—Enjoy RCA —Give RCA



Model 100-B Loudspeaker

R.C.A.'s most popular speaker . . . with eight special features, including weather-proof corrugated cone to ensure a broad tone-range without rattling; an improved tone filter to prevent distortion caused by high-frequency harmonics and summation notes; extra heavy pole pieces and armature to obviate the possibility of saturation and to improve volume.

Here's distinction, too! Richly grained as rare African mahogany with a unique Sicilian front of black-and-silver rays, and dull metal border.

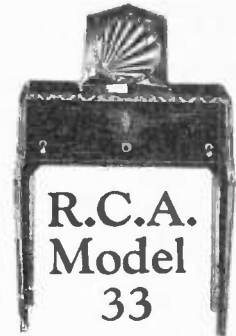
The Model 100B was £7/10/; Now

All R.C.A. Sets and Speakers are available on easy terms. At leading department stores and electrical shops in city or country, or at the A.G.E. Showrooms.

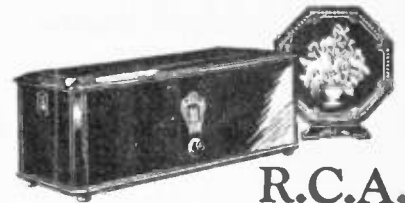
£6

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The set for efficient country operation! 6-valve, all-electric console—grained like the 100B speaker, as rare African Mahogany with Champeve Enamel border in Aztec motifs. Finest tone quality. Set with radiotrons. Was £45. Now **£39**



Screen Grid Model

The ideal set for city and suburbs. Specially designed by R.C.A. for perfect performance with the screen-grid Radiotron. Price, complete with Radiotrons, £55. Model 103 Loudspeaker £8/10/.

44



R.C.A. RADIOTRONS

Available in all types at all Radio dealers and wholesalers. The newest is The UX221—with the low "A" battery consumption rate of .06 amps. Use it instead of UX201A and your batteries will last four times as long. Price **13/6**

The Finest "Value for Money" Proposition In Radio Today!

PROVE IT FOR YOURSELF!

It is easy to make claims for a receiver — it is another thing to prove them. We make this claim because we honestly believe that, if you will take the trouble to test Atwater Kent Radio, you will agree that a better receiver could not be bought at anywhere near the price.

You will find every desirable feature in Atwater Kent — glorious Tone, tasteful Beauty, extreme Simplicity, and, above all, unfailing Reliability.

Atwater Kent Dealers everywhere are ready, at any time, to demonstrate receivers to you. Visit your nearest Dealer today.

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MELBOURNE, C.1. **MELBOURNE, C.1.**

Country Dealers Everywhere

ATWATER KENT RADIO

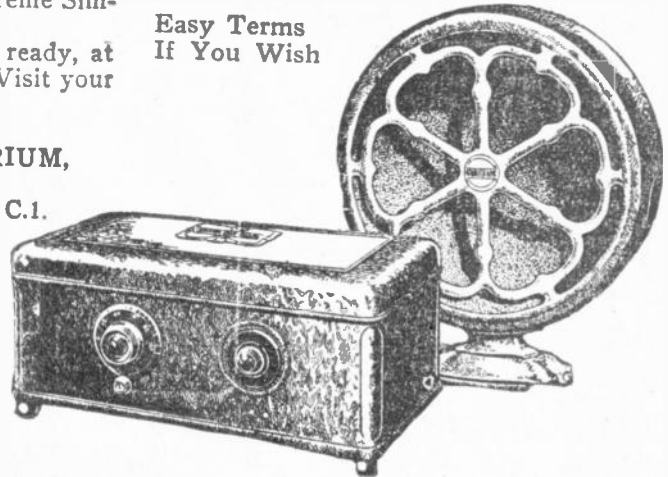
Australian Wholesale Distributors:
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Electric 6, complete with Speaker.
£52/10/.

Electric 7, complete with Speaker,
£59/10/.

Battery 6 Models, complete with
Speaker and All Accessories.
£37/17/6 to £49/10/.

Easy Terms
If You Wish



When sluggish reception says "Battery Done" —

—and long after—Siemens owners continue to "bring-in" stations in all parts of the world with full strength and clarity.

The reason is easy to find. Siemens Batteries are not only backed by long experience but are built in conformance with the highest principles of battery construction. They are built—above all—to endure.

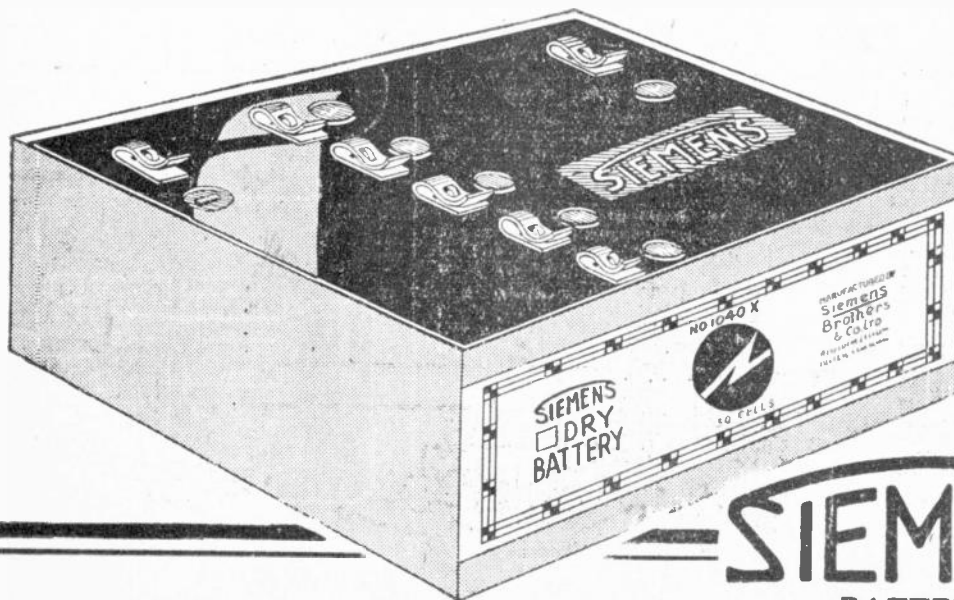
PRICES—

- Super Radio No. 1035X, 50 volts.
List Price, 37/6 each.
- Super Radio No. 1040X, 45 volts.
List price, 25/ each.
- Grid Bias C Battery No. 1073X.
4½ volts. List price, 2/9 each.

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- BRISBANE: 132-4 Charlotte St.
- NEWCASTLE: 45 Watt St.



SIEMENS

BATTERIES

The Radio Doctor

(Continued from Page 70)

A.D.G. (Nth. Rye, N.S.W.).—The terminal number one is for a second aerial connection. It is used to obtain greater selectivity. The aerial lead is merely connected to this terminal when it is desired to separate interfering stations.—1.

S.G.B.D. (Ballarat, Vic.).—Turns should be removed from the grid end of the detector grid coil. We have not published the circuit of a d.c. eliminator. Any standard B eliminator filter and voltage divider system may be used to utilise the d.c. mains as B supply.—1.

"Sertem" (Hawthorn, Vic.) writes:—I see in recent issues of The Listener in that readers are inquiring about a station operating on about 49 metres, the closing announcements of which are accompanied by music. This station is W9XF (WENR) on a wave length of 6020 kilocycles (approx. 49,834 metres), and is operated by Great Lakes Radio Broadcasting Co., 72 W. Adams Street, Chicago, Illinois, U.S.A. W9XF is received here at good strength between 5 p.m. and 6 p.m. M.M.T. on Fridays and Saturdays.

Re foreign station that sounds like Chinese on about 29.5 metres, that is received here late at night, I think this station is HVA2, situated at Hanol, Tongking, French Indo-China, the wave length of which is 10170 kilocycles (approx. 29,539 metres).

Could any of your readers give me particulars of a station using the call sign M2U, heard on phone on about 24.5 metres?

"Siam" (Footscray, Vic.).—There was no mistake in the Crystal article. Suggest you closely examine your wiring. 6.

"Beginner" (Malvern, Vic.).—You would get better results if you built the improved Reinartz Two.—6

J.A.G. (Richmond, Vic.).—A four-valve set article such as you require will be arranged at a later date.—6

G.C. (Yarraville, Vic.).—Afraid you will not be able to make your Variometer Crystal Set sufficiently selective to cut out unwanted stations. Would suggest rebuilding it according to the description given in the 3DB Crystal Receiver.—6.

S.M.T. (Coleraine, Vic.).—This whistle is due to audio frequency oscillation. To prevent this, completion of primary and secondary circuits of the amplifier must be brought about by bypassing of the bias and B positive terminals of the amplifier transformers. Each transformer secondary F terminal, as well as being connected to their respective bias taps, should be connected to filament negative or ground through .01 mfd capacity fixed condensers. The same must be done with the B terminals of the two transformer primaries. The cases of the transformers should be earthed. In order to prevent the whistle when the pickup is used, earthing of the frame of the pickup itself may be necessary.—1.

A.B. (Northcote, Vic.).—Some of the parts could doubtless be utilised in the construction of another receiver. They would be unsuitable for use in a short wave receiver. A number of good two valve circuit descriptions have been given. 1.

"VIBRATION" (Ormond, Vic.).—It would appear that reaction is at fault, that the speaker will not carry the volume or is not correctly adjusted. Too many turns on the reaction coil or else it is too close to the secondary or a plate voltage on the detector valve plate will cause this trouble. You might also try the effect of earthing the cores of the transformers. We do not think the valves are faulty.—2.

D.A.D. (Cremorne, N.S.W.).—(1) It is impossible to tell the flux density of either the iron or wire without actual measurement. The iron may possibly have a flux density of 80000 lines per sq. inch. (2) Possibly you could use the meter in that manner if the resistance were known. We regret we do not know the resistance, but as it is one of the cheaper type, probably 20 to 30 ohms per volt, why not measure it with a "B" battery and a milliammeter? (3) This tool works on the principle of an arc as between the tool and article to be marked. It requires direct current for operation, and as such has a limited application we doubt its efficiency; the marking element is a carbon rod.—2.

R.D. (Kensington, Vic.).—See the November 13th issue for details of the crystal receiver you require.—1.

"KENTWATER" (Maffra, Vic.).—The list you require is available in the A.W.A. Handbook. The majority of the B class stations have listed their powers and wave lengths at the beginning of the programme pages.—1

From "Three-Valves" (Horsham, Vic.).— Could any reader let me know the call sign of a station I picked up Wednesday, November 25, on 3LO's wave length at half past twelve. Immediately 3LO shut down. This station came in at good speaker strength. A man and woman were talking about Coconut Beach, Florida. I had them well for about 10 minutes and then they faded and came back for about five minutes and faded right away.

J. MACD. (Mont Albert, Vic.).— The "Valve Base Coil Two," described in the issue of November 21, 1928, is being used by many to bring in international phone signals. 1.

"AMPLIFIER" (Coburg, Vic.).— You will obtain much better results if you use an output transformer suited to the speaker and valves you are using. The arrangement you suggest is quite practicable, but each by-pass condenser should be of at least 6 mfd. capacity. 1.

E.O. (Mayfield, N.S.W.).— Suggest you pay a visit to a bookdealer and obtain a book on the fundamentals of radio. This will impart sufficient knowledge for you to follow theoretical circuits and wiring diagrams. Drake's encyclopedia would be the most suitable work. 1.

On Thursday evening, 28th inst., I received a transmission from an amateur station, writes "A New Chum" (Albury, N.S.W.), but I could not get his call sign. The time was approx. 10.15 p.m. The volume was R3, at times fading out to R2. At 10.20 a march was played, followed by an announcement which I did not get. 10.35, string music. The station closed down at approx. 10.35 p.m. It was working on the 200 metre band. Hoping that you may be able to help me.

"ENQUIRER" (Kerang, Vic.).— Make sure that the filament connection to each tuning condenser is to the movable plates. Also that you have a good ground connection.—1.

R.L.P. (Broadview, S.A.).— No errors appeared in the constructional details of the receiver you mention. Both of the valves will give faithful reproduction. The pentode valve is designed more for use in single amplifier stages. Used in the second stage of a two-step amplifier, the pentode valve is extremely likely to overload. The B405 should be used in the second stage of a two-step amplifier circuit, and then a volume controlling resistance should be used to prevent overloading of this power tube when listening to powerful signals.—1.

R.G.D. (Merbein, Vic.).— The cells you mention unless of a special commercially constructed type, cannot be used to supply "A" current to your receiver.

The only reliable type of cells you could employ would be the Amplion Carboncell or the Leclanche type of "A" battery available from Mr Davies, of Empire Arcade, Flinders Street, Melbourne.—1.

S.P.P. (Albany, W.A.).— We regret being unable to supply the information you require. The radio amateurs' hand book, published by the A.R.R.L., is available to you at a cost of a few shillings, and gives complete transmitting data.—1.

"UNIT" (Koumala, Q.).— See this section each week for valve characteristics. From these you can obtain a combination of tubes best suited to your requirements. We cannot recommend any particular make of valves through these columns. A three valve receiver incorporating a stage of r.f., a regenerative detector and an amplifier stage would give best results where you are situated.—1.

"VOLT" (Casterton, Vic.).— The trouble can usually be cured by the placing of a fixed condenser of about 002 mfd capacity across the secondary of the audio transformer. A variable resistance of 600,000 ohms is connected in parallel with this condenser, and is used as a volume control.—1.

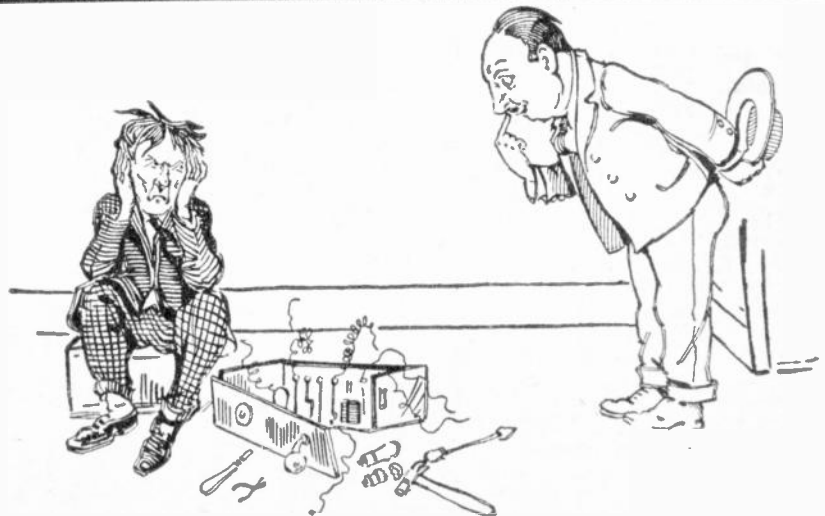
"CIRCUIT" (Chelsea, Vic.).— See Vol. 4, No. 37, for details of an amplifier. The addition of a wavetrap will not improve the volume of this interstate station.—1.

LICENCE No. 52,202.— By using two or three rectifiers in parallel, this eliminator may be used to supply B current to your receiver. The r.f. and detector stages of this circuit eliminator when using at least two 201A tubes sume a negligible plate current. The input to used. The C positive connects to the B negative in parallel. Gauge 28 stallon may be all valves should not exceed the output of the tube. A.C. valves should be used if the "A" portion of the eliminator is to be utilised. The former should be square. The 201A rectifier converts the a.c. output of the transformer secondary into pulsating d.c. current, which is made smooth and free from hum by the choke and filter condensers.—1.

"LEARNER" (South Melbourne, Vic.).— Shielding of the r.f. stage will simplify and make a better job of neutralising the circuit. All that will be necessary will be a sheet of copper placed across the baseboard, so as to separate the r.f. from the detector and amplifier section of the set. The coils should be no nearer than 1 1/2 in. to the shield. The shield should be earthed.—1.

A.E. (South Melbourne, Vic.).—We have no accurate data on the valve you mention, but it will probably have American characteristics. Thus the filament voltage will be 2.5. To use a penthode with it, you would need a transformer giving 4 volts and 2.5 volts. It is not necessary to put the set in a metal cabinet.—3.

(Continued overleaf).



THE SYMPATHETIC ENQUIRER—"Anything wrong with the radio?"

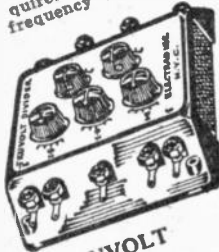
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ELECTRAD
INC.

The Radio Doctor

C.K.F. (Sydney, N.S.W.).—This type of eliminator should be quite able to take care of the current taken by your receiver. On load, the output voltage should be above 100, while off load the voltage should be at least 150.—1.

"SHORT WAVE" (Seymour, Vic.).—Using a 5 plate tuning condenser, coils of 3, 3 and 5 turns on a 2in. diameter former should be used. Larger grid coils should be wound to cover higher wave lengths, the reaction and aerial coil sizes being adjusted to suit each grid coil by testing to obtain even oscillation over the range of the tuning condenser. The aerial coil should be adjusted to avoid "dead spots" due to harmonics of the aerial coming into tune with the detector grid circuit. It is not possible here for us to give you the exact sizes. These must be discovered by test and by listening to certain continuous operation stations at each end of the band over which each coil will tune. See the short wave notes in the issue of Dec. 4.—1.

D.A.W. (East Malvern).—The receiver was designed for the pure reproduction with plenty of volume, of gramophone recordings and transmissions from the local stations. As far as we are aware, interstate reception is not guaranteed for this combination and, without alteration to the r.f. side of the circuit, you can hope for little in this direction. If you were to erect an outdoor aerial, you would be unable to bring in interstate transmissions owing to interference from the local "A" class transmitters. Suggest you see the agents again for further information.—1.

W.H. (Maribyrnong, Vic.) writes.—Could any reader tell me what station this would be? Dial reading 79, just above FC, Sydney, logged at 12.30 a.m., Sunday, 24/11/29. Music, announced fox trot and waltz at about 12.45 and then broke into a lot of patter in foreign language, speaking very fast, followed by either Market reports or stock exchange news in foreign tongue, finally shut off at about 1.15 a.m. The music was clear, but the announcing blurred. Announcements was made both in English and a foreign language.

"ENQUIRER" (Colac, Vic.).—For the information re the Astor set, suggest you get into touch with the makers of this receiver, Louis Coen Wireless, Melbourne. The stations you heard were evidently Japanese.—1.

J.H. (West Wyalong, N.S.W.).—See the issue of May 15 for valve base coil details.—1.

A.T.M. (Middle Brighton).—The first speaker you mention is recognised as being one of the best available.—1.

A.H.D. (Oakleigh, Vic.).—Connect a fixed condenser of .00035 mfd. capacity across the grid leak connected between the detector tuning coil and the detector grid. As you are able to obtain a wide range of "C" bias voltages, the grid leak connected between the transformer secondary and the grid of the first amplifier valve can be omitted and the connections to this component connected across. The earth terminal should connect to "A" negative. According to your circuit, the r.f. stages are operating with no grid returns. The connections between the earth terminal and the "A" negative terminal will put this right.—1.

"BROWN GOOSE" (Werrimwell, Vic.).—We regret we are unable to publish a full descriptive article as you require. Amperites are by no means necessary. If using an accumulator "A" supply in conjunction with valves of the same filament voltage as the accumulator, rheostats and controlling filament resistances of any description may be omitted and the filaments wired so that they are receiving their rated filament voltages direct from the filament supply. The valves of today are designed to operate best at their rated filament voltages. A variable grid leak also is by no means necessary, and will do very little towards improving reception.—1.

R.K. (Yambuk, Vic.).—See Vol. 5, No. 52, for details of a three valve circuit suitable for portable use. The pentode amplifying stage is equal to two ordinary stages, and saves space which is essential in the design of a practicable portable receiver.—1.

O.O.P. (Keith, S.A.).—See the issue of November 13 for details of the stabilising unit.—1.

"SIMPLEX" (Mount Gambler, S.A.).—Pleased to hear of your excellent reception with s.g. three valve receiver. We will be glad to offer further information when you so desire.—1.

(Continued opposite.)

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H.K.B. (Parkdale).—The power pack may be installed in a cupboard of the console. This will not affect the operation of the receiver or introduce any appreciable increase in hum. The effect of using the eliminator on the lower voltage mains supply will be to give output voltages of approximately a fifth less than would be normally. No harm can be done to the eliminator. The filament heater transformer must be suited to your mains' voltage. See a dealer regarding the selection of valves for the receiver. We cannot pass opinion on any make of valves.—1.

R.H. (Tintalra, Vic.).—Results should be improved by increasing the height of the aerial to 40 feet. The insulator should be about 2 feet from the top of the mast. The use of two insulators, at each end of the aerial span is advisable, as this will prevent leakage in wet weather. The lead-in should be supported at a distance of about a foot from the side of the house. The lead in can be taken through the wall at any position.—1.

M.C.T. (Box Hill).—The installation of a wave-trap would enable you to cut out interference from the offending station. Suggest you get someone with a good knowledge of radio to make the installation for you.—1.

"NIBRET" (Williamstown, Vic.). — The number 1 terminal is for the aerial when the second circuit is used. It will not matter if the coils are not in the exact centre.—1.

"CRYSTAL CLEAR" (Glen Iris, Vic.). — See the November 30 issue for details of a crystal receiver to suit your requirements.—1.

"AUDIO" (North Williamstown, Vic.). — The "Clough" system of amplification as described in the "Filtered Four" valve set article in Vol. 5, No. 29. — 1.

C.O.P. (Keith, S.A.).—There are many factors entering into the matter. The two most likely are "skip distance" and "out of range." The reception you indicate and position or setting of the dial also indicates one of two things. Either your aerial is too long or there are too many turns on the coil. Usually the station you receive comes in about 30 on the dial. An aerial having an overall length (that is, inclusive of the lead-in) of 100 feet is the general thing. We would expect a fair amount of static with such a large aerial. Why not try a single valve receiver as something more logical?—2.

E.D.L. (Lithgow, N.S.W.).—It will be necessary to make some slight alterations to the kit arrangement, and use a trimmer condenser. The unit marked "ch" is an R.F. choke, the coupling condenser, C, is .0005 mfd. fixed, otherwise the arrangement is conventional. Diagram of circuit herewith, which will make matters plain.—2.

G.S. (Charleville, Q.).—Was very interested in your letter. There has, however, been very little demand for an article on d.c. eliminators. A d.c. eliminator to give a perfectly humless output is very easily constructed and adjusted; in fact, more so than with alternating current eliminators.—1.

R.Q. (Kew, Vic.).—The coil, L1, is of 30 turns of gauge 24 d.c.c. wound at the end of a piece of 3in. diameter former. At a distance of about a quarter of an inch from the end of this coil the coil, L2, consisting of 45 turns of the same wire is wound. The tap should be taken at the centre of the coil as this is reached. C1 is a midget 23 plate condenser. C2 a 23 plate type s.l.f. tuning condenser. C3, of .0008 mfd.; usually 13 plates are incorporated in the construction of a condenser of this capacity. C4, the amplifier by-pass condenser, should be of .006 mfd capacity. Base note reproduction will tend to be emphasised if higher values are used in this position. C5, the grid condenser, should be of no more than .00025 mfd capacity. The detector grid leak should be a fixed type of reliable make.

We cannot advise any particular make of a.c. tubes. Suggest that you show the circuit to the dealer from whom you purchase the tubes. The detector and first amplifier stage valves are indirectly heated, while the last stage tube is an ordinary three element directly heated power tube. The audio transformer should have a ratio of 3 to 1. The B positive terminal should be connected to approximately 45 volts and B2 to the maximum positive B voltage, in the vicinity of 135. A negative voltage of approximately 9 should be applied to the C-1 terminal, while C-2 will take a lower voltage of about 4 volts. The bias voltages should be adjusted to suit the tubes and the voltage B battery or eliminator used.—1.

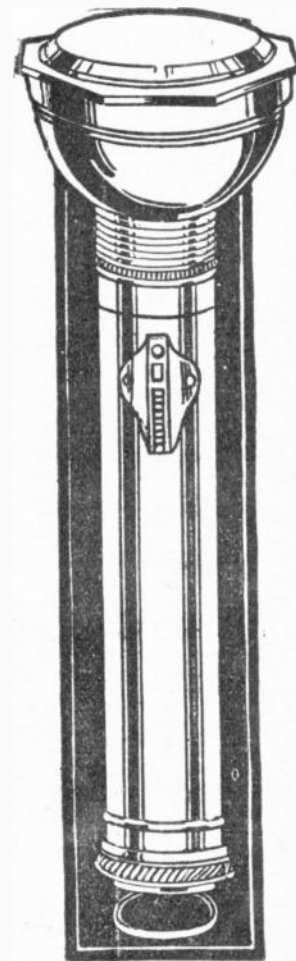
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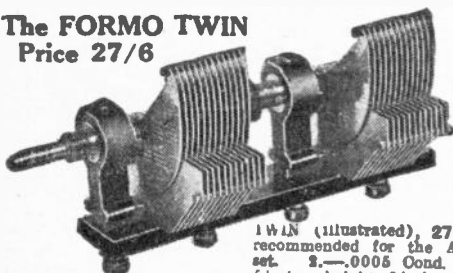
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The Radio Doctor

(Continued).

"AMATEUR" (Hamilton, Vic.)—The a.g. tube can be used with only very moderate success in a standard neutrodyne circuit. By increasing the primary neutroformer turns to about 40, and using very fine gauge wire, some efficiency might be obtained, but it is doubtful if the alterations would result in much noticeable improvement on the results you are obtaining at present. There is little to choose between any of the three receivers you mention. Would suggest that you see the three valve a.g. tuned anode set described in this issue for details of the construction of one of the best three valve s.g. circuits.—1.

W. MacF. (Hawthorn, Vic.)—The reaction coil wound at the filament end of the detector grid coil connects the beginning of the fixed plates of the reaction midjet condenser. The other side of the coil connects to the plate terminal of the detector valve socket. The plate terminal of each r.f. valve socket connects to the S.G. by-pass condenser and positive terminal. The plate connection to each r.f. tube is, of course, to the terminal at the top of each valve. Two power valve in parallel in the last amplifier stage will enable the set to handle more volume without distortion. We cannot advise any particular make of speaker through these columns. See the guaranteed advertisements in this journal. The arrangement may be easily adapted for use with a.c. valves. B or A battery trouble could be the cause of the signals fading away after a few minutes in the Reinartz receiver.—1.

From G.C.H. (Sydney, N.S.W.)—On Sunday, 1/12/29, at 1635 G.M.T., I received some "ham" on 20 metres. Music was played and it was very rough but at R8 "Misery Farm" was played. At 1650 it called C.Q. or C.W. His note was rough. He announced "VK2XC Sydney," but I cannot find his address. Could any S.W. listener let me know if they have his address.

H.H.B. (Kew, Vic.)—Where the receiver was tried out it is very difficult to obtain a decent earth connection in the sandy soil. A counter-poise strung under the aerial and used as an earth connection might give some results, but this is doubtful.—1.

"ENQUIRER."—We regret having no information with regard to the Bruno Bradley Quartette Coil Kit. Some reader may be able to forward the required data.—1

H.R. (Darebin, Vic.) — (1) The circuit, as submitted by you, showed the rectifiers in series, which is not correct. The parallel arrangement was shown in suggested diagram of connections. (2) In contra-distinction to that statement, we have always believed that the inductance, and hence the magnetic field, played an all important part in a choke. This opinion is also held by Professor Delenbro, Ph.D. If you place the coils so that they oppose each other, and they are of equal size, one cancels the effect of the other one out, and hence the inductance becomes non-existent. (3) There is no reason why the buffer condensers across the two plates should not be used. We never questioned doing that. (4) The gauges given are correct; if no current is to flow in the pot, where is the magnetising force coming from? It is not a question of voltage but the ampere turn. If this is not so, why did you quote the pot winding as requiring 4000 ampere turns! The pot coil will measure 8 inches between end checks 26 gauge wire D.C.O. winds 42 to the inch. The 1600 turns will take up a length of 8 inches, and a depth of one inch on each side of the centre leg.—2—

J.H.G. (Leighton, W.A.)—Unless the aerial is coupled to a tapping on the r.f. grid coil instead of straight to the grid end of the coil, as in your enclosed circuit, results obtained from this arrangement will be indifferent. The aerial should be connected to the 30th tapping of a coil of 45 turns of 28 d.c.c. wound on a 2 1/2 inch diameter former. This will be the r.f. grid coil. The coil L2 should be also of 45 turns of the same wire on the same diameter former. The r.f. primary consists of 45 turns of gauge 40 enamelled wire wound at the filament end of the detector grid coil. Without the use of small capacity tuning condensers it will not be possible to handle the receiver satisfactorily on wave lengths below 100 metres.—1.

(Continued on Page 78).

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The Grand Opera All-Electric Three

ONE of the latest Australian-built all-electric receivers to come under the notice of the Technical department is the Grand Opera all-electric three, which was sent us by the distributors, Messrs. A. J. Veall, Swanston Street, Melbourne. This receiver is one built in the workshops of one of the leading Melbourne amateurs who, for years past, has made a special study of transformer and power-pack design.

The receiver follows latest trends inasmuch as its controls have been reduced to two—the tuning control and the volume control. The circuit arrangements are such that a regenerative grid leak detector precedes two stages of transformer coupled audio frequency amplification, the coupling mediums being the well-known Grand Opera audio transformers.

Particular attention has been paid to the design of the detector circuit,

connection of aerial, loud speaker and pick-up. Three aerial connections are provided so that all reasonable selectivity needs are catered for. No earth is used with the receiver and this, in itself, cuts down much of the interference which is usually picked up by all electric receivers.

The Power Pack

For the technician the most interesting portion of the Grand Opera is the power pack, which converts the alternating current into the direct current necessary for the set's "B" and "C" battery supply and the transformers which step down the "raw" a.c. for use on the filaments of the valves. This power unit is extremely compact yet efficiency has not been sacrificed for size. The unit is heavier than is usually the case in small a.c. sets, and from observation it would appear that the power unit could be

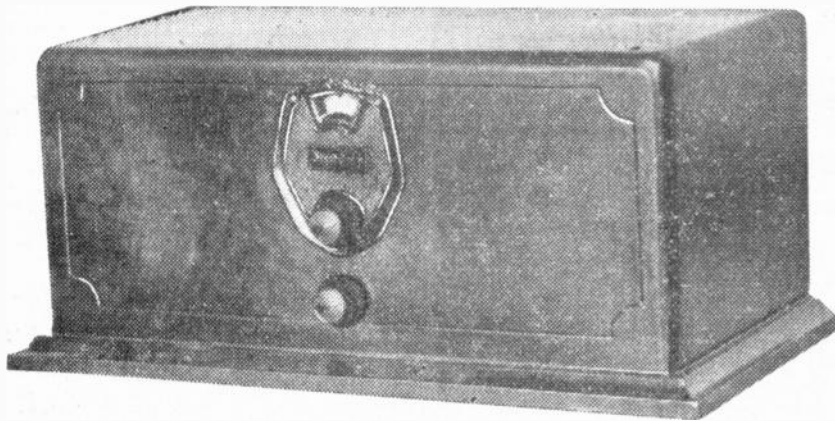
MARCONI VALVE TYPE S410

WE recently received a sample of the Marconi S410 type of valve for test. It worked very satisfactorily in the conventional circuit. The characteristics are as follow:—Amplification factor, 180; impedance, 200,000 ohms; normal slope, .9 MA/V; filament volts, 4 volts max.; filament current, .1 amps; plate voltage, 100/150 max.; screen grid volts, 60/90 max.; over-all size, 5½ in. long by 2 in. wide.

The filament is surrounded by the normal type of grid. Outside this is the screen grid. This latter is rectangular in shape, and has a circular plate which almost touches the glass tube. Control grid and filament connections are to the usual pins in the base. The screen grid is joined to the usual plate pin, and the plate is joined to an insulated terminal at the top of the glass tube.

Used in the well-known "tuned anode" class of radio frequency amplifier circuit, a total amplification of about 40 was obtained. Used with transformer coupled circuits, amplification fell away slightly. It was noticed that an R.F. transformer which had more turns in the primary circuit than in the secondary gave the best results, both for efficiency (amplification without oscillation) and selectivity.

In all the tests, however, the valve functioned well, and it can confidently be recommended to anyone requiring a good screen grid type.



Simplicity of control is a feature of this receiver.

and use has been made of low loss coils which are wound on ribbed former. Silk covered wire, space-wound, allows greatest efficiency from the coil and prevents any lowering of this gain during damp weather.

The a.c. valves employed in the receiver are the UY227, indirectly heated tube in the detector stage, the UX226 directly heated tube in the first audio amplifying stage and the UX171 directly heated power valve in the last stage.

Coupled with the fact that the response characteristics of the audio transformers are such that very even amplification of low intermediate and high notes is obtained, the output design of the set is arranged for high quality reproduction at comparatively great volume.

A point of interest is the inclusion of terminals for the connection of the phono, pick up should it be desired to use the audio side of the set as a radio gramophone.

The receiver is compactly built and makes use of sub-panel construction to save space and to hide the wiring. Terminals are provided on the back edge of the sub-panel for

depended upon to give long service. The windings are specially arranged to give maximum efficiency, and the transformer core is heavy enough to prevent the output voltage dropping under load.

The choke and filter system is good, and this is reflected in the "humless" operation of the receiver. The rectifier valve is the well known UX280 which is capable of supplying much more current than would ever be required by the Grand Opera Three.

Our tests with the receiver showed that high quality interference-free reception was the general thing which the set, and even when a large aerial was used on the first aerial tap no difficulty was experienced in tuning out powerful local stations for the weaker interstate transmissions. The tuning of the set was delightfully simple, while the tone quality was all that could be desired.

There is no doubt that the Grand Opera Electric Three is a well designed receiver and as it makes use of 90 per cent. of Australian components it should appeal to all patriotic radio listeners who are in search of a high quality local receiver.

Joe Brennan

THE ever popular panto dame although by no means new to listeners, will, with the assistance of his indispensable partner, Ida Newton, produce something new in radio entertainment for broadcasting by 3LO on Tuesday and Wednesday nights, December 10th, and 11th. These will probably be the last radio appearances of the inimitable Joe and Ida before their departure for America.

Radio Matinee

THE broadcasting programmes are now enriched by the inclusion of a special daily Radio Matinee at 3LO. This afternoon's matinee is arranged as a feature radio show upon the continuity scheme and usually a novel theme is adopted around which the programme is built.

Old Music for "Macbeth"

MR JACKSON'S presentation of "Macbeth" from 2FC on Wednesday, December 14, will be accompanied by the incidental music written for the play in 1630 by Matthew Locke, "the father of English opera." The Witches' Music will be played by the Artique Trio—Madame Evelyn Grieg (dulcitone), Miss Veta Wareham (treble viol) and Mr Keith Kennedy (viol de Gamba). The witches' songs will be rendered by Maurice Ballance, Agnes McDiarmid, Peggy Dunbar and Norman Francis.

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Cosmos 2 Volt Valves, UX	10/6	4/11
"C" Batteries, 4½ volt	3/6	2/9
Ray-o-vac Dry Cells	3/6	3/
Blue Spot 66A Speaker Unit, shop soiled	30/	24/6
Amsco .0005 S.L.F. Condensers	16/6	13/6
Dalmon "B" Batteries, 45 volt		10/9
Dalmon "B" Batteries, 60 volt		14/3
Dalmon "B" Batteries, 90 volt		20/
Eclipse Vernier Dials	4/6	2/6
Timmons Magnetic Speakers..	£5/5/	£3/15/
Brunet Transformers, shop soiled	19/6	15/6
Little Tattler Phones, 4000 ohms	18/6	13/6

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RUNDLES JEWELLERS and RADIO
Cor. Lit. Collins & Elizabeth Sts., City
ENTRANCE ON CORNER

The Radio Doctor

(Continued).

"KIETHBURG" (Camberwell, Vic.)—Although the "A" dry cells are new, it would appear from your description that they are at fault. Suggest you have them tested by some dealer. 1.

F.J. (Ipswich West, Qld.)—Using a .0005 mfd capacity tuning condenser of standard type, a tuning coil of 45 turns is needed to cover the most useful band of broadcast wave lengths suitable for reception of Australian broadcasting stations. However, in order to tune down to the lowest of the amateur transmitters, it was found necessary to reduce the size of the grid coil in the actual set to 38 turns, this being due to the tuning condenser having a larger maximum capacity than .0005 mfd. In building the set make the grid tuning coil one of 45 turns, reducing turns later if it is found that the set will not tune down to 200 metres. 1.

"COUNTRYMAN" (Castlemaine, Vic.)—Use a r.f. grid tuning coil of 55 turns, and a detector grid tuning coil of the same size when using these capacity tuning condensers. The aerial and r.f. primary coils and reaction coils will remain the same size. 1.

"AGED 14" (Caulfield, Vic.)—The eliminator should supply either of these receivers. Provision should be made in the eliminator for the connecting of another rectifier tube in parallel with the first. The output voltage from the eliminator will be approximately 120 under load. All constructional data is given in the article. 1.

H.S. (East Malvern, Vic.)—The circuit you enclose is correct. However, it would be better to connect the aerial to a grid coil tapping instead of to the centre of the reaction coil. Where you are situated, connect the aerial to the 40th turn of the 45 turns grid coil. To place a bias on the grid of the amplifier tube, connect the F terminal of the transformer secondary to a "C" bias terminal instead of to filament negative as at present. The positive C battery terminal should be connected to the A negative. The bias voltage used will be dependent upon the tube used and the voltage applied its plate. The bias voltage should be adjusted to as high a value as will give good reproduction without distortion on loud passages. This will ensure minimum consumption of B battery current. 1.

"SACKVILLE" (Bexley, N.S.W.)—The bulb will be connected between the negative terminals of the "B" battery and the "B" neg. A pos. terminal on the receiver. 1.

"SHORT WAVE CRANK" Sydney, N.S.W.)—The circuit is O.K., but is not suitable for short wave reception without the use of smaller capacity tuning condensers. Copies of the No. 5 No. 4 issue are still available. Further short wave set descriptions may be published. For valve data you require see the valve characteristic charts, being published week by week in this section. We cannot pass an opinion on any of the condensers you mention. All are good. 1.

"PERPLEXED" (North Melbourne, Vic.)—The cost of the parts will depend upon the quality of the material purchased.

F.S. (Brunswick, Vic.)—The eliminator may be used to supply B current to your receiver. Have forwarded copy. 1.

"PERPLEXED AGAIN" (Sandringham, Vic.)—The wire wound in a spiral in the eliminator is a resistance to limit the rate of charge to that which the rectigon tube will handle. In order to reduce the rate of charge further to that suitable for the charging of your four volt accumulator, another resistance must be made. This should consist of gauge 22 Eureka resistance wire wound in spiral fashion in the same manner as the charger resistance. This spiral is then wound around a 2in. wide piece of fibrous cement sheet about 6in. long. Two clips make contact with the resistance spiral. Connect the negative charging terminal to the negative of the battery. Connect positive charging terminal to one clip of the resistance; the other clip connects to the positive battery terminal. The ammeter can be connected in either positive or negative charging leads. The amount of resistance between each clip will determine the rate of charge. Adjust the clips until the meter is reading one amp. 1.

"NOVICE" (Adelaide, S.A.)—See the August 28th issue for short wave details. 1.

Mr. Colin H. McLeod, "Riverview," Nagambie, Victoria, writes: It may interest you to know of the results which I have obtained with the "Little Wonder" single valve set, a description of which was published in The Listener In in September, 1927.

All Australian "A" class (except 6WF) and most "B" class stations are received at excellent headphone strength in all seasons, and the remaining stations logged are brought in at a fair strength on winter nights.

The following stations were logged on this set—Victoria: SLO, SAR, 3UZ, 3DB, 3EX, 3RI, 3BY, 3AM, 3GT, 3KR, 3FG, 3EF, 3BH, 3JR. New South Wales: 2FC, 2RL, 2GB, 2UE. Queensland: 4QG. South Australia: 6CL, 5ON, 5KA, 5BG. Tasmania: 7ZL. West Australia: 6WF. New Zealand: 1YA. Japan: JOAK, JOBK.

The set is operated 80 miles due north of Melbourne, and is connected to a very efficient aerial system.

"VOLT" (Casterton, Vic.) writes: V.F.E. enquirea (13/11/29) re short wave station K.I. Have never heard a call with only one letter after the initial K. It would probably be KEE, whose identity I would like to trace. It is probably situated in California or the Philippines. Have heard it sending telegrams, London to Tientsin.

Inform "Sertem" (L.I. 20/11/29) PLI will be situated in Bandoeng, Java, likewise PL, followed by any other letter, after using up the alphabet he commences another series, commencing VM. Have never heard VLI, but have picked up VLI at midday.

Can anyone name KUW.1 (Morse) using three valves, headphones. It comes out unpleasantly loud. EAM (Madrid) is also too loud for headphones reception. Another station coming out well is Java (phone) speaking to Amsterdam. Have heard him outside 30 yards away from the loud speaker (3 valves).

In the issue of 20/11/29 you explain the meaning of the terms R1, R10 as applied to the degree of audibility. To what type of receiver do they apply—an 8-valve superheterodyne or a humble one-valver?

The terms apply to any receiver. The comparative strength of a signal may be determined by the operator once he has become familiar with his receiver. An R8 signal on a single valve receiver would be an R3 signal on a two valve receiver. 1.

The Radio Doctor

"BEELIM" (Gardenvale, Vic.). — Since the output of the B.H. Raytheon valve is 350 milliamperes, it will be necessary to use fairly heavy wire in both primary and secondary coils. This means for the primary winding 24 gauge wire and 850 turns. The secondary will consist of 2940 turns of 26 gauge wire, double cotton covered wire to be used in both windings. Since this rectifier is one of the full wave type, a centre tapping point will be required in the secondary winding. To facilitate finding this, suggest you wind the secondary in two sections, and take the centre tapping from the outer turn of one, and the inner turn of the adjacent coil. You have two methods of placing the coils. The usual arrangement is to place the primary on one leg, and the secondary on the opposite leg of a square core. You could place all coils on one leg, the primary in the centre, and the two sections, one on either side of the primary coil. In both cases, the core requires a measurement of 1½ x 1½ inches on the legs which pass through the coils. If you adopt the usual ar-

angement, an overall size of 6½ x 5 inches, with a winding space of 3½ x 2 inches, will be sufficient.—2—

"R.M." (Surrey Hills, Vic.). — It will be best to make the coils first, using wire which will carry the current safely, and taking care to wind the cores carefully. Doing this will mean that we will not be confined to a given core size. This will permit careful winding and correct attention to insulation, which may not be possible otherwise. Prepare a cardboard former which will allow a core leg measuring 1½ x 1½ inches, to pass through the centre portion. The former had better measure 8½ inches between end checks. In one such former wind 920 turns of 24 gauge wire D.O.C. This will be the primary winding. Wind evenly throughout. On a similar former wind the following coils: Eleven turns of 16 gauge D.O.C. wire. This is the winding for 2½ volts; 11 turns of 14 gauge D.O.C. for 2½ volts, 6 amps.; and 21 turns of 18 gauge D.O.C. wire for the rectifier filament lighting. All these low potential coils should be placed next to the core. There is sufficient space in the former to place them side by side, using one turn of thick waxed string between each coil. When these coils have been wound, and the centre taps taken out, place labelling tags on each lead. Slip a piece of spaghetti over each lead, and take them out to the ends of the former. Over these coils, wind at least one layer of Empire cloth. Over this assembly, wind the high voltage secondary. This will consist of 2520 turns of 28 gauge D.O.C. or silk covered wire. This winding is also provided with a centre tapping point.

When coils are finished, place them side by side, a quarter of an inch apart; then measure up and find out the size of core which will be required to enclose the coils, leaving a quarter of an inch clearance between the coils themselves and the core, thus as the formers measure 8½ inches, and they are made of 1-8 thick cardboard, one of the measurements of the winding space will be 4½ inches, as the legs are 1½ inches wide, and thick, one of the overall sizes will be 7½ inches.—3—

FITZROY RADIO CLUB VK 3FY

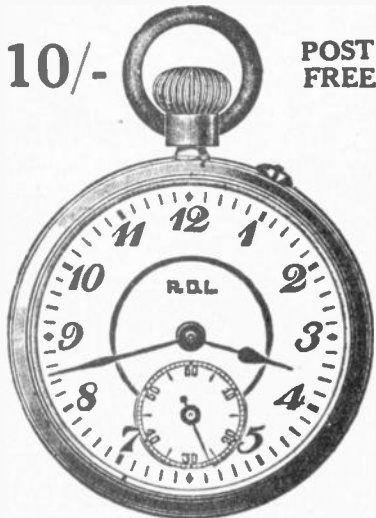
On December 16 the Fitzroy Radio Club will hold a social evening in St. Luke's Hall. Members are requested to obtain particulars from the secretary.

Preliminary arrangements are being made for the club's second field day, to be held early in the new year.

Reports are welcomed on the transmission of VK 3FY. At the time of writing a UX210 tube is used in a T.P.T.G. circuit, with grid modulation. In the power supply a half-wave rectifying system is used.

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4 perfect diamonds.
Others from **£6.**



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18ct. Gold Ring,
4 perfect diamonds.
Others from **£7.**



9ct. Gold 38/-
Splendid 9ct. Gold, 15 Jewelled Ladies' Wristlet Lever, special movement, direct from best Swiss Factory, guaranteed for 5 years. Others from **28/6**

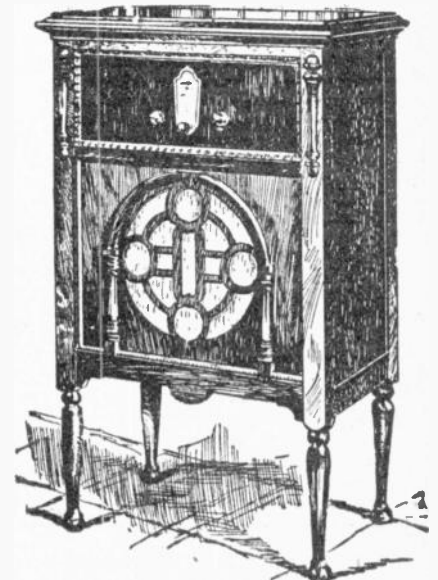
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is not an aid to reception



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It operates direct from an ordinary electric socket, using no more current than an average electric light globe. Single dial control gives simple tuning.

Call and hear it, or for further particulars about this and other Westen-Gray radio and phono-radio models, write your name and address in the margin and post this page to us.

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238 Collins St., Melbourne, C1.
(PATON)

A PAGE FOR LITTLE LISTENERS

Conducted by "Wiry" the Wireless Cat

Dear Little Listeners,—

WHAT do you think of Binko? He is actually entertaining a Hop Hound in his office! I keep peeping in to see if it is really true, and I assure you, my dears, I find it hard to believe my own ears, and eyes. It happened like this:— Binko, his head wrapped in four wet towels, to keep his brains moist, was sitting in his office writing his songs. I heard his pretty voice mumbling over the rhymes, "It, Bit, Fit, Hit, Lit," and knew that he was very busy, indeed, and not to be disturbed. When Winks, the office kit, tried to rush in with a visiting card, I pushed him back with a heavy paw. "Binko's NOT to be disturbed!" I said firmly. The office kit lifted his eyebrows. "I have his orders," he mewed, in a very pert voice. "Ah, and what might THOSE be?" I growled. "No one is to be admitted but Hilda, the Hop Hound," he made answer at once. I was too shocked even to speak, after those strange words.

It took two saucers of cream to make me feel sufficiently strong to enter Binko's office. There was that Hop Hound, sitting in the waste paper basket, in the cosiest way possible, while Binko was singing the song he had just composed in honor of her. He was singing it so loudly that every word seemed to stick into my brains, and here it is:—

"I knew a little bit of dog,
One fine day;
It grew into a lot of dog
An-l went away.
Give me fourpence,
For fourpence is my pay!
It grew into a lot of dog and went away!"

"Bravo, Binko," shouted the happy Hop Hound, and, rolling up the song carefully, she pattered out. Binko turned again to his songs, so what could I do but just sit down and tell you all about it! Please forgive Binko, if you can. I really think he meant no harm.

Yours, with many purrs,
WIRY.

Prize Winners:

SENIORS.—Binko's Broadcasting Trio. You see from the picture how the bad boys should have been sitting. Nancy Prout, 150 Scotchmer Street, North Fitzroy, N7, and Stuart Seale, "Keleln," Rosebrook, via Port Fairy, are the lucky winners

JUNIORS.—THE CHRISTMAS TREE. The girl chose the book and the boy the football. Prizewinners: Maisie Young, "Stratherie," Ensay, Victoria, and Gordon Hankin, 3 Rathmines Road, Auburn.

SNATCHES FROM PUSS PROGRAMMES

Broadcast by "Wiry"

This time we have Fanny Furryfoot to talk to the kittens. They ALL love her.—Wiry.
Midnight Session.
Hurl Brick Avenue,
Near House Studio.

Old Time Session

12.0: Chorus: The Yellow Yodellers.
"Old Cats at Home."
"Oh, Let Me Like a Lion Leap!"

12.20: Solly Scratchem. Violin Solo.
"I Passed by the Hen House, Because it was Locked."

1.0: Captain Scornpup's Lecture.
"Tigers I Have Tamed."

1.30: Police message. Will anybody knowing the whereabouts of Harold Haunt-the-Pantry tell him to hasten there at once. A fish supper awaits him.

2.0: The Dodge Brick Don't Care Band will render dance items.
"When You and I were Mousing."
"The Lost Chop."

"No One Knows How Much I Love Stew."

"The Horrible House Dog."

2.40: Tonight's Great Thought.
"Come let us fill the midnight air with joyful melody, nor heed the boots and bits of bricks that whizz by uselessly."

2.50: Fanny Furryfoot talks to the kittens.

Endless Emmie: "No, my little kitkat, you must not go to sleep with your tail in your mouth. Oh-Oh-no. You might never come undone, you know, and that would never do. Chase your tail as much as you like when you are awake, but, Emmie, dear, get your mother to wind it round a little peg before you go to sleep, and it will be quite curly when you wake up again.

Timmy Tired Tongue: The pattern would never come off the saucer, however hard you licked, so be content with just drinking the milk. Inhale eucalyptus on your whiskers for your bad cold.

WIRELESS WILLIE AND BROADCAST BILL



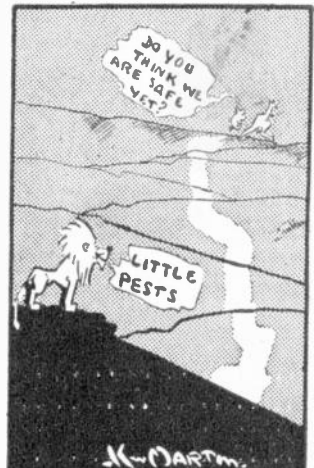
Wireless Will and Broadcast Bill
Called upon a lion;
Hailed him by his Christian name,
Said, "How are you, Brian?"



Broadcast Bill said, "He's quite tame,
Wouldn't seek to harm us;
And his temper, mild and meek,
Never could alarm us."



Just then Brian gave a jerk,
Screwed up all his features,
Shouted out with mighty roar—
"WHO ARE YOU BOLD CREATURES?"



Wireless Will and Broadcast Bill
Leapt away in sorrow,
And they never stopped until
Five o'clock tomorrow!

S.H.

WEEKLY COMPETITIONS

HERE are two more jolly competitions to puzzle over, little listeners. Get busy right away and see that your answers reach "Binko," The Listener In, Flinders Street, Melbourne, not later than FIRST post Monday, December 16. Look for results on this page in Listener In dated December 25. See that you put your age, and your full name and address, of course. There are two five shilling prizes for the Seniors (one for a boy

the post, and that would never do. Remember, Juniors must be under eleven years old and Seniors over eleven.

SENIORS. — Here's a nice puzzler. Take the letters B.I.N.K.O.W.I.R.Y., and make up two sentences. The first word must begin with B. The second word must begin with I, and so on, as I have shown you in the example I have done. Of course, you mustn't use MY sentence, but you will be able to think of ones a lot better, I am sure. The first sentence has five words, and

LITTLE LISTENERS! Watch for next week's special Christmas issue. There will be a surprise for you. Easy competitions and MORE prizes.

the second sentence only four. Study my example carefully before you start. The two prizes go to the cleverest answers sent in by the girl and boy over eleven years old. Cut out my example and send it along with your entry.

JUNIORS. — Here's something to guess, Juniors. I'm sure if you look at the picture the artist has drawn you will be able to give a guess at the little boy's name. It isn't very hard, so have a try.

What You Have to Do

Cut out the picture carefully and paste it neatly (mind the paste, it's a terror to stick on Binko's whiskers



What is the little boy's name. You will find clues in the above picture.

and one for a girl) and two half-crown prizes for the juniors, one for a girl and one for a boy. Now, don't put it off until tomorrow, or you might miss

BINKO'S LETTER BOX

Many thanks and two purrs each from Wiry and Binko for your jolly little letters. Neville Dawson, Dorothy Andrews, Knox Brown, Hazel White, Fred Morey, Lyla Cavill, Hilda Ashworth, Norma Raynor and little Jean, Beryl Braid, Mary Power, Edna Learmonth, Dorothy Tatterson, Mary Benson and her little sister.

Elsie Dunn, Doris Woods, Lorna Brebner, Gladys —, whose birthday is October 5, Olive Berg and Bunny, and, of course, the three kittens. Alan Tarr, Richard Jardine, Alex Gibson, John Gibson, Lorna Dadds, A. O'Kane, Gregory Leaney, Hazel Miles, Nancy Crowe, Rupert Matthews, Dorothy Valentine, Trixie Yaxley, Claire Scott, Emily Myers, Rita Robson, Jean Smale, Elsie Holt, Trixie Grey, Frances Framea, Cavell Bishop, Pearl Laitson, Beryl Pretty, Murray Tatlov, Jack Rowell, Max Moar, Hazel Fraunfelder, Ron, Enderly, Minnie Yaxley, Mary Loth, Stan and Ron, of Cheviot.

Knox Brown.—Glad to hear from a scout, Knox, Dorothy Andrews.—I am glad you are calling the little hop-bound Binko. I hope he will always be a nice dog. Fred Morey.—Of course, if your nanny's dog is very nice you can give him a little purr from me. Lyla Cavill.—Many thanks for your good wishes. Norma Raynor.—My best love to the six pesians. Are they any relation to my friend Peter, do you think? Beryl Braid.—Your little song will be in the column just as soon as possible, Beryl. Thank you for your nice letter. Mary Power.—You must get better quickly, Mary, so that you can ride that pony at Christmas time. I send him a pat. Edna Learmonth.—Love to Donald, Mary Benson.—Please tell me your sister's name so that I can put it in her song.

Elsie Dunne.—Hope you passed that exam, Elsie. Write and let me know. Lorna Brebner.—You must enter for the senior competitions as you are over 11, Lorna. Olive Berg.—We think it is lovely of you to call the kitties Binko and Wiry. Alan Tarr.—Mind you do not fall off that bike, Alan. Glad you like the "Page" so much.

Alex Gibson.—You write very nicely, Alex. Haven't you been to school? Gregory Leaney.—Congratulations on winning the silver medal. What did you think of Monty Manz getting

mensles? He must have copied you. I use the plaits to tie my whiskers up at night, and I gave some to Wiry, too. Nancy Crowe.—I think I'd like your big grey cat. Let me know how you got on with your merit. Rupert Matthews.—Let me know if you have received your prize-money, please. Dorothy Valentine.—You DO write a nice long letter, Dorothy. Wiry and I were most interested to read about your family of cats, and send all the four of them our best love. Trixie Yaxley.—Remind me to your 20 canaries. I should LOVE them, I know. Wiry sends purrs. Emily Myers.—What a nice letter, Emily. I will think about the crossword puzzle.

if you use too much) on a piece of notepaper. PRINT what you think is the boy's name underneath the picture. Remember that it is his Christian name and surname that are needed. Be sure you post it in time for Binko to receive it not later than FIRST post on Monday, December 16. Two half-crowns go to the senders of the right names. None of the entries are opened until the end of the competition, so everybody stands the same chance. The prizes go to the senders of the first two letters containing the right name that Binko opens.

BINKO'S SONGS

Every week Binko sings a few songs about Little Listeners. If you would like to be mentioned, just send a note to "Binko," The Listener In, Herald Buildings, Flinders Street, Melbourne. Mark your letter, "Binko's Song." Then watch this column.

Mavis Chadwick had a birthday,
She would like me to remember;
I don't know the date exactly,
It was some time in November.

So we send her lots of greetings,
Even tho' we're late, not early;
And we hope that all the nice things
Happen to this little girlie.

I have a little song to sing
Of Beth and Marjorie;
Stenner is their other name;
I know how glad they'll be
When they spy their little song.
They listen in each night,
For Robby Bluegum they enjoy;
Now—have I got it right?

Glory and Hazel Butcher,
Binko didn't forget 'bout you.
But "Binko's" a busy old pussant,
With thousands of things he must do;
We'd love to be round in your dairy;
It would be like a beautiful dream,
If Glory and Hazel should ask us
To lap up a canful of cream.

LAST WEEK'S CORRECTIONS

Lois McDonald is only nine,
Her curls are black and long,
Her eyes are grey, that's all I'll say,
And that's her little song.

Anthea Micstris
Is fourteen years of age;
She thought she'd like a little song
To read in Wiry's Page.

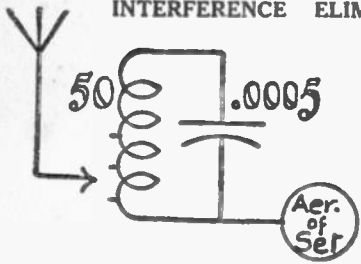
She has a friend named Tasma,
Whose song I wrote before,
And now my space is over—
I can't write any more.

BINKO.



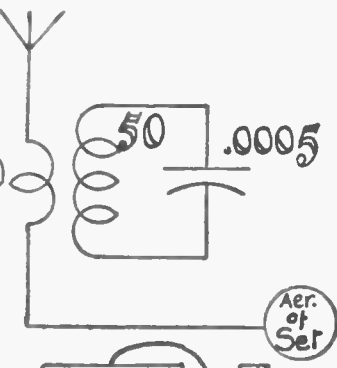
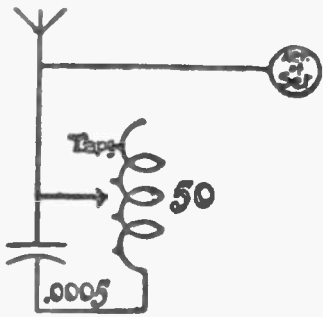
This is how the broadcast trio should be arranged.

INTERFERENCE ELIMINATION (Continued from Page 60).

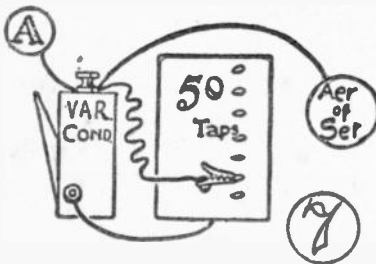


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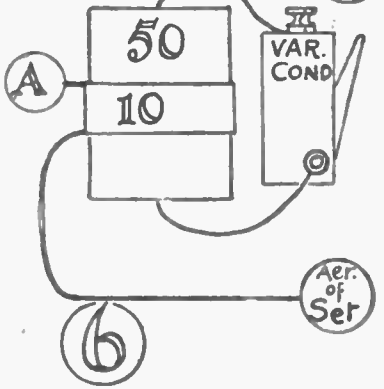
The simplest form of wave-trap.



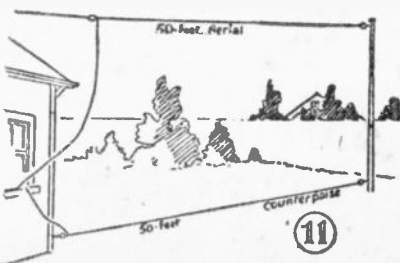
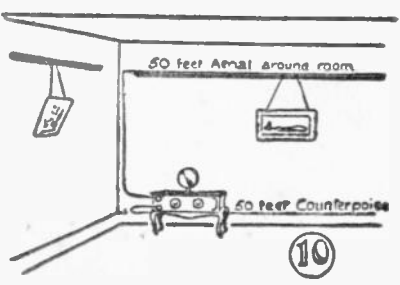
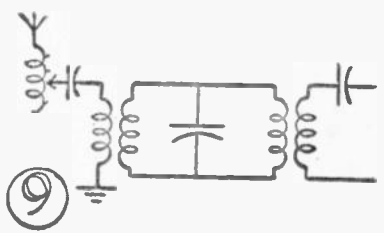
A more efficient type of rejector circuit.



Another popular interference eliminator.



Complicated system of interference elimination.



Indoor and outdoor systems of aerial-counterpoise.

terpoise system. The loop's directional aid to selectivity is unsurpassed, and should be more generally availed of by owners of the larger sets.

A simple indoor aerial-counterpoise system can be made by attaching 50ft. of flex wire to the aerial post of your set and taking it around the picture-railing of your room, and running a 50ft. length of the same wire around the skirting board (Fig. 10).

Should your receiver not be a powerful one (say a one or two valve set), you should try a counterpoise beneath your outdoor aerial.

The easiest method is to attach some insulators to your aerial mast 3in. to 10in. above the ground, and take some covered aerial wire (the same length as your aerial) thereto. This counterpoise wire takes the place of your earth wire. Really you use two aerials, one under the other (Fig. 11). A counterpoise sometimes works better if placed about 10ft. in the air under the aerial wire. Figs. 12 and 13 show elaborate counterpoises affected by radio fans when broadcasting or transmitting.

Adverting to the matter of using a loop, a few details concerning their construction will not come amiss. There is, of course, a definite size of loop, or frame, and, likewise, a definite number of turns of wire which go to produce the most effective reception on a given wave length. Large frames of few turns are the most suitable for broadcast reception. Four turns of wire on a four-foot frame is the best size and will give a tuning range of approximately 190 to 600 metres.

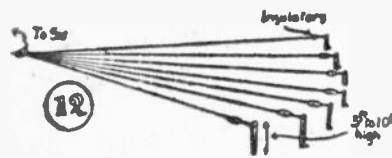
An endeavor should be made to space the wire so that the inductance value of the frame is at maximum whilst resistance is kept at the lowest possible. Generally speaking, a spacing of a quarter or three-eighths of an inch is found best for broadcast wave lengths.

No. 20 S.W.G. wire, insulated, is good material to use, though many prefer thin, flexible wire specially made for the purpose.

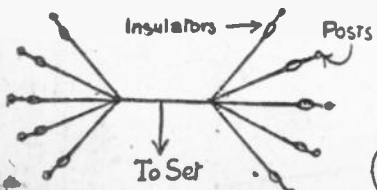
The box type of loop gives best results, and, as with all things "wireless," care in construction is of paramount importance.

One radio experimenter, in an endeavor to cut out interference, dispensed with his coil-system altogether, and substituted therefor, two four-foot loops—one of four turns, the other of two turns, to serve as reaction coil. These loops were made variable after the style of the spider-web coil variometers of the early days of radio. The experiment was so successful that he later fitted a portable receiver with the same system and with equally good results. Of course, he used smaller loops with more turns for his portable set.

Those constrained to try this system of giving their coil-unit the go-by, will require to follow the circuit given in Fig. 1. Coil G will become the four-turn loop, and coil R the two-turn reaction coil.



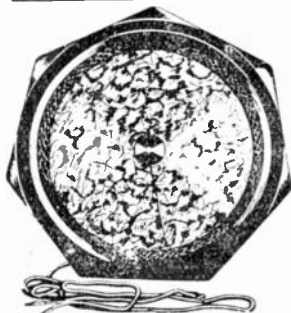
12



13

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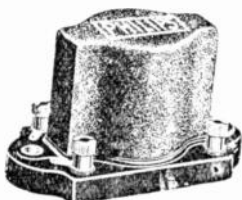
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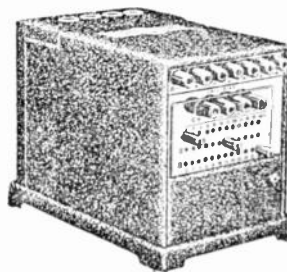
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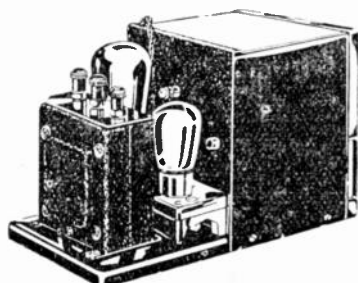


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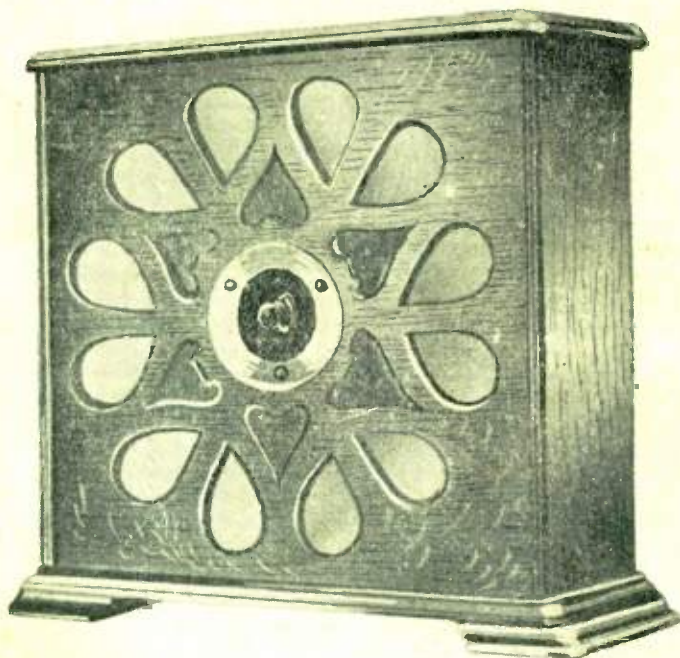
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