

# Wireless Weekly <sup>3<sup>d</sup></sup>

INCORPORATING "RADIO IN AUSTRALIA & NEW ZEALAND"

VOL. 13. NO. 21.

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A PRACTICAL SOLUTION  
 of the  
 "A-C" SET PROBLEM  
 for  
 THE LISTENER-IN

(SEE NEXT ISSUE)

**Making Air Travel  
 Safe and Sure  
 with Radio**

By J. S. W. STANNAGE  
 (Operator on the "Canberra").

How to Build a  
 Stedipower A Battery  
 Eliminator

Converting your Set  
 to A.C.

All the Programmes

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Vol. 13, No. 21  
 Friday,  
 May  
 17,  
 1929

# Wireless Weekly

*Incorporating Radio in Australia & New Zealand*

Address:  
 Box  
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## RADIO NEWS IN PICTURES



Captain Sir George Hubert Wilkins, the famous Australian explorer, who recently made a preliminary flight of exploration over the Antarctic regions, recounting some of the difficulties and experiences in Antarctic exploration to a vast Australian radio audience.



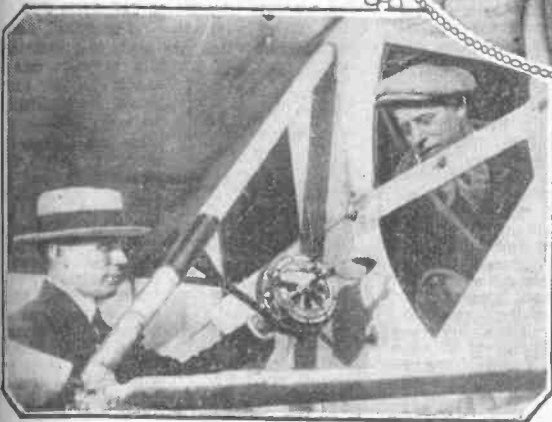
The above photograph shows the amazing extent of employment suddenly created by talkies. Since the coming of sound movies to the moving pictures, much speculation has been rife as to what machines, intricate and otherwise, go to make up a complete sound-producing unit. Probably 95 per cent. of the public which enters a theatre and views and hears motion pictures accepts this new advancement of man as a matter of course. The other 5 per cent. probably racks its brains in an effort to produce an eye picture of what machinery is used in the manufacture of the new films.



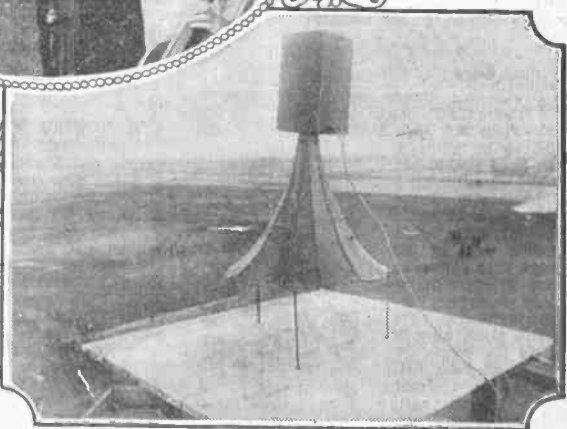
Lindsay Biggins, pianist, who has just returned to Australia, after the completion of his studies in Germany. Mr. Biggins has been secured by 3LO, Melbourne, for a series of recitals.



Edna Hattenbach, Alva Hattenbach, and John Symons, instrumental trio appearing shortly at 3LO, Melbourne, for an extended season. The Misses Hattenbach are daughters of Professor Hattenbach, of the Melbourne University.



A wind-driven siren, the noise of which, acting automatically on a sensitive electric ear, controls a 24,000,000 c.p. flood-lighting system, whereby it is possible for pilots of mail 'planes to turn on the boundary and flood-lighting systems from the air while the 'planes are some distance from the air port at night.



An "Electric Ear," which picks up sound from a wind-driven siren in an aeroplane, and automatically turns on the flood-light system at the air port. The device, which resembles a large inverted speaker of the old type, is here shown where it "listens" at night for approaching 'planes.

# BETWEEN YOU AND ME AND THE MICROPHONE



### Silence

THE 2BL announcer is to-day a proud man. Not ordinarily susceptible to the blandishments of flattery, he is human enough to appreciate the sincerity of Mrs. Want's letter. "I want to thank you for your country session," she says. "There is absolute silence the moment your voice is heard. I am sure you would be pleased to know all the nice things folks say about you—and I am quite sure they are justified in saying what they do."

### Births, Deaths, and Marriages

TO Mr. and Mrs. Harry Croot, a son. We congratulate Mr. Croot, whose services to the New South Wales Broadcasting Company have made many difficult long-distance broadcasts possible, and whose voice has often been heard over the air. We are rather pleased to have no deaths to announce; and, as we borrow our philosophy from Mr. Charles Lawrence, we are still more pleased to have no marriages to announce. Which makes three words of our title unnecessary. We only put them in on the off-chance, anyhow.



### As Humble Listeners-in

OF the future of television, David Sarnoff, of the American Radio Corporation, says: "In the meantime, it must be remembered with the poets that art is long and time is fleeting. There is no short cut in the logical unfolding of an art which promises to extend the range of the eye, as it has extended the range of the ear, to the four corners of the earth." Yes; and in the meantime, Mr. Sarnoff, shall we buy one of your expensive eight-valvers or wait until you put a television set on the market?

### 2 Fast Cars

THERE has broken out a car epidemic among 2FC's engineering staff. It began when Mr. Jack Holland bought a car. Not to be outdone, Mr. Fred Pearce has taken unto himself a Baby Austin Wasp; while it is rumored that Mr. John Tuttle spends most of his spare time gazing at cars through plate-glass windows. Violent arguments have taken place already as to the respective merits of each car, and it is thought that at an early date members of the staff may be entertained by the spectacle of its engineers racing a set distance, with Mr. Perry to hold the stop-watch. The station seethes with excitement.



### Superfluous

THE question is: Can Paris be heated by Wireless? He had imagined Paris to be already well heated by Repute.

### 'Ca' Canny

WE make no excuses for this one:—  
There was an old man from Dundee,  
Said, "Sure, I can spare a bawbee;  
A bawbee I pay  
To listen all day,  
And on Sunday my sermon is free,

### Magic

WE shall now have a little song," said Uncle Bas. "Wonderful Slumberland," by our Little Mary." It is a high tribute to Uncle Bas that this remark went unquestioned; for Uncle Bas is a Wise Man; he can do anything. And, indeed, the song came through splendidly.

### Experience

IT is reported that an Austrian station is being constructed, which may be received at any point on the earth's surface. Austria's previous experience of world-wide broadcasting, which, with the co-operation of Servia, brought answers from every point of the earth's surface, is regarded as an efficient guarantee that such a station may prove its promises.

### Numbers

THE number of persons possessing wireless sets in this world, excluding those in France, Spain, Belgium, and Holland, is set down at 70,000,000, says a contemporary. We have no idea how many people possess wireless sets in the next world, but we expect Satan's provinces will be filling up very quickly with owners of oscillating sets, programme directors, and other impossible people. Satan will have to prepare for yet another kind of radio visitor very soon, when the Government's local committees are established.

### Q?

MR. HORACE KEATS was accompanying Mr. Wally Baynes at the Town Hall during the Radio Exhibition. Mr. Baynes sang the first part of the song, and lapsed into pater, while Mr. Keats gazed at the piano, waiting for his cue. You know those moments when you are waiting for your cue; you sit still and think of nothing but the cue. So Mr. Keats was surprised to hear Mr. Baynes exclaim suddenly, out of nothingness, "Pull yourself together, 'Orace!" Mr. Keats' hands sprang to the keys, and played the chorus of the song, as had been arranged. Amazed, Mr. Baynes caught him up at the third bar. They finished together. Afterwards, Mr. Baynes explained to Mr. Keats that the words, "Pull yourself together, 'Orace," were part of the pater, and were not meant as a cue nor incitement to Mr. Keats. Half a page of pater had been sacrificed. It's a good thing some comedians have a sense of humor.

### Look Down, Dear Eyes!

EVERYONE will be pleased to hear that Ex-Uncle Peter, of 2BL, is doing very well on the Capitol's Wurlitzer. The management received a letter about him the other day. "Knight Barnett at the organ is very good, but please don't keep the spotlight on him too long, because he isn't very good looking." Uncle Peter told us this himself, adding that it was a good thing he got out of broadcasting before the coming of television.

### Difficulties

REC. MORRISON, playing with his jazz band at the Radio Exhibition one night, found his seat at the piano a little too low. He hastily removed the seat from the announcer's chair, placed it on the seat of his own chair, and was comfortable. Mr. Halbert, announcer for the night, rushed to his table from a hurried consultation with the operator to make the next announcement, and sat down, and down, and down—in fact, he went right through the chair. His feet caught the little table, which rose, quivering, into the air, with its burden of microphones, and programmes, and notes. The gallery audience, which, of course, lacks a sense of humor, thought this was a very excellent joke. We should like to know what kind of announcement Mr. Halbert made to Mr. Morrison afterwards.



### We Are Insulted

A YOUNG man swooped on to the "Wireless Weekly" stall at the Radio Exhibition, and seized a tall pile of "Wireless Weekly" back numbers. "What do you want with all those 'Wireless Weeklies,' my son?" asked Miss Morgan; "they are each and individually the same, one as another; the same issues, the same date, the same articles, the same print, from the same press." The young man had no answer; but made at to depart with his pile of "Wireless Weeklies." "But what can you want with so many?" reiterated Miss Morgan, who is, as all women, curious about many things. The young man condescended to open his mouth. "Oh, I just want to take 'em to school and sell 'em to the mugs." It is not often the "Wireless Weekly" gets kicked so casually; so we have made as much capital as possible out of it, as you may notice if we don't come soon to a full stop, which, luckily, follows immediately.



# Making AIR TRAVEL

## SAFE and SURE

(By J. S. W. STANNAGE)

Mr. Stannage, who was the operator with the Canberra when the Southern Cross was found, makes several important suggestions here regarding the carrying of wireless outfits by aeroplanes. In particular, his suggestions for the provision of aeriels and hand-driven generators on aeroplanes are the result of experience.



**O**PERATORS of air lines and their pilots have, only within the last year or so been convinced of the necessity of radio equipment for the safety of life not only on long-distance flights overseas but on short cross-country flights and regular air services. Even now some are of the opinion that a radio set is so much extra weight that could profitably be replaced by a few gallons of petrol. But it is to be hoped that the events of the past month or so will go to prove the absolute necessity of radio apparatus, both for use in the air, and on the ground should the machine be forced down.

The air liner Canberra, fitted with a small but efficient 7 watt transmitter, which could be quickly converted from a wind generator operated to a battery operated outfit, was in touch with coastal radio stations all the time she was in the air, and had she been forced down, could have maintained that touch by means of batteries. There is no doubt now that the tragedy of the Kooka-

burra could have been avoided if only poor Andy had realised that, in a small aluminium box, weighing less than 40lb., he could have carried what, to my mind, was more important than food and water—a means of giving the outside world his position. It does seem a rotten shame that two splendid fellows should have to give their lives before the country is convinced of the necessity of wireless in aircraft. But it is always that way, and always will be, I suppose. Now, as a result, we shall probably have a law compelling cross-country fliers to carry radio instead of that few extra gallons of fuel.

There is a wonderful field for experiment with radio in the air, and it seems that hams are looking for new fields to conquer, so why not try along these lines? Actual flying experiments may be out of the amateur's reach. Nevertheless there is a heap of ground work to be done in this country. Certainly the field of aerial radio is not exactly unexplored. Great strides have been made in America, and the thing has just been touched in Australia. Now, hams, get to it!

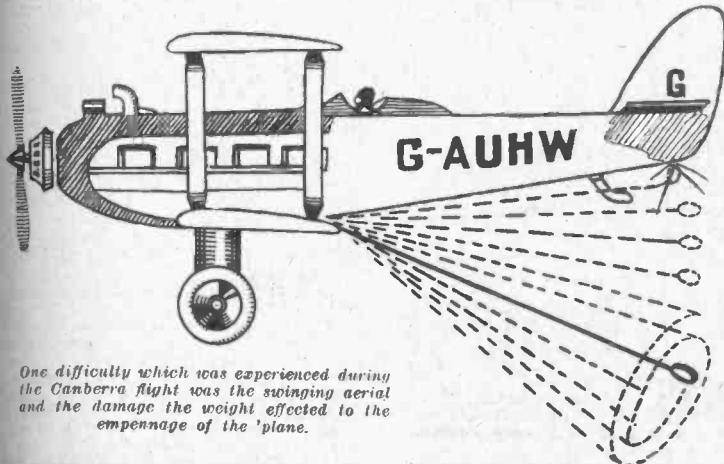
What we want is a stationary hertz antenna running along the leading edge of the top wing (or, in the case of big 'planes, inside the wing structure), to get around the disadvantage of the swinging signals of a trailing aerial. The trailing antenna and a bonded fuselage seem to fulfil all conditions for an ideal radiator except for that one disadvantage of swing. But I think a permanent aerial in the wing structure could be developed to give as great, if not a better, degree of efficiency, together with the advantage of being a permanent aerial, doing away with the weight of a reel, and its accompanying danger of striking objects when flying low, and damaging the fuselage, as mine did in the Canberra when the air was extremely bumpy. Two holes were smashed in the tail empennage on one occasion.

Then the radiation meters of the Southern Cross and the Canberra were burned out by a sudden rush of static electricity charging up the frame of the machine. This could be avoided with a hertz antenna, I should think.

The greatest necessity of the moment seems to be some efficient means of supplying the set with power in the air and on the ground. A correctly designed wind-driven generator is ideal in the air, although there are many points in design yet to be developed. The same generator could be arranged on a swinging bracket, so that, in the event of failure in the air, it could be swung inboard for repair or adjustment, then for ground work the generator could be swung inboard where it could be automatically engaged in a geared hand drive with the prop free-wheeled. Then reception in the air is a doubtful business, unless some thorough screening arrangement can be made. Even then it is doubtful.

I have flown in American machines with their ignition systems completely screened, but the induction was still too bad to read a 5 kilowatt station at 600 metres more than 200 miles away. I do not say that this is so in every case, and without screening at all—well, it is impossible to bear the 'phones on one's ears with only 2 valves in the circuit.

By the way, I met up with a most interesting receiver on this flight. The Canberra



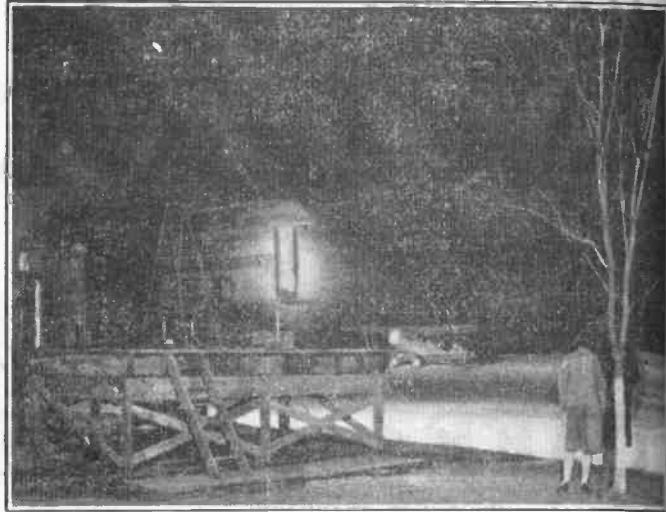
One difficulty which was experienced during the Canberra flight was the swinging aerial and the damage the weight effected to the empennage of the 'plane.

was fitted with one of Philips' latest, and with it in Wyndham, with the machine on the ground, I was able to hear 2BL and 2FC at good speaker strength with only a 10-foot aerial slung a couple of feet from the ground, in the wing, and NO EARTH. PCJ came in about the same strength and steady, while every other station in the world simply romped in ca Morse.

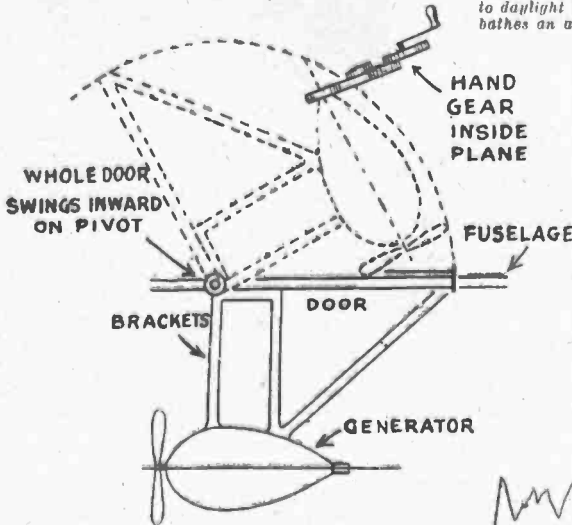
I need not describe the transmitter, as I think it has been written in these pages some time previously. But I must say that I was astounded at the results it gave, especially as it was on 29.9 metres, a wave that I know from experience is blind in parts—those parts covering sometimes as much as a thousand miles. Thanks to the excellent work put into this piece of gear by its manufacturers the New Systems Telephones, Limited, I did not once find it necessary to make any repair or alteration to the sturdy little unit.

Unfortunately the generator gave a little trouble but that was because it was of poor voltage, and the only one available in Australia, together with the fact that I could not get at it in the air to make the slight adjustments necessary, I tried, but my hair blew out by the roots, so I gave it up.

I'm going to build a transmitter exactly like that one, because I know there is not a better one in Australia for its size and power.

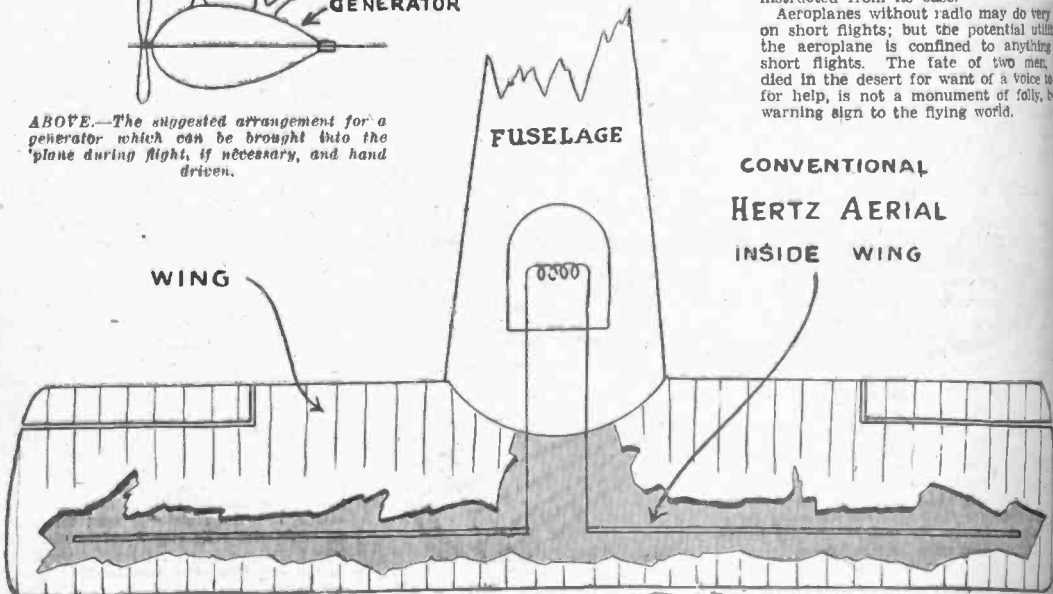


**HOW U.S. MAKES HER AIRPORTS SAFE.**—An interesting night view of the Bolling Field, U.S., Army flying field, at Washington, illuminated almost to daylight brilliance by a two million candlepower floodlight. The new light bathes an area of almost a mile in a soft light that makes night landing as safe as daylight flying.



**ABOVE**—The suggested arrangement for a generator which can be brought into the plane during flight, if necessary, and hand driven.

**BELOW**—How Mr. Stannage would like to arrange the aerial on a plane. A conventional hertz with the aerial rods running inside the wing to obviate wind resistance.



With the fast march of aerial progress comes an increasing demand for aerial communication. Aeroplanes will soon be to the world what motor buses are to its cities; aeroplanes will carry mails and packages to all parts of the globe; aeroplanes will carry passengers on world tours and long-distance visits; and are to bear the stings of future warfare. The essence of mail and passenger carrying services is reliability, and the essence of efficient machinery in warfare is perfect control. These essentials of reliability and perfect control can not be assured to flight without some system of communication between plane and earth and between plane and plane. It is useless to talk of the safety of aviation while communications are inefficient; and it is useless to talk of the aeroplane as an instrument of war while it may not be controlled or instructed from its base.

Aeroplanes without radio may do very well on short flights; but the potential utility of the aeroplane is confined to anything but short flights. The fate of two men, who died in the desert for want of a voice to call for help, is not a monument of folly, but a warning sign to the flying world.



# "B" ELIMINATOR Hints

## How to get the most out of your "B" Eliminator

By DON B. KNOCK (Associate Technical Editor)

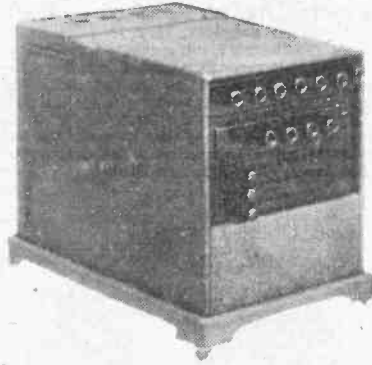
It should be to every radio user's advantage to use a B eliminator in place of the B battery, where the power for the purpose is available, but, unfortunately, there are so many who think of the initial cost of the eliminator.

Since the numerous types of devices for taking the place of batteries were developed not only have they, like every other radio accessory, advanced with the times and improved considerably, but the price of the commercial product has dropped. With the modern B eliminator, the initial cost is the last cost, and the cost of running it from the power supply is negligible. Its advantages must be offset against even the very best of batteries, and it should be remembered that, whereas the purchase of a battery constitutes what may be considered only the first instalment on a sort of time-payment basis, the B eliminator will be doing its work steadily long after the purchaser has forgotten about the price he paid for it.

Of course, there are instances where B batteries are really indispensable, but these are mostly in connection with short-wave receivers. Not so long ago a B eliminator was taboo for use as the plate supply to a short-wave receiver, but, with the improvements due to high radio frequency amplification and special valves, they may to-day be used with great success.

### QUALITY REPRODUCTION.

Even so, it is desirable to first test the short-wave receiver on a battery supply before using the eliminator. These are the main points to be taken into consideration when the B eliminator is discussed. The first is that really high quality reproduction may be easily obtained for the reason that a higher maximum voltage is available than is the case with the average battery supply. One is afraid to use ordinary B batteries up to a high voltage with super-power



initial value. The latest types of B eliminators allow the user to make the fullest use of the new super-power valves, which only give their best performance when used with a device to supplant batteries and known as plate voltage of not less than 180 volts.

Despite these obvious advantages of the B eliminator, there are often necessary certain modifications in a receiver when one is changing over from batteries (particularly dry). A receiver may be perfectly stable when used with a dry battery supply, but when a device supplying the plate voltage from the AC mains is used, certain troubles make their appearance and reception is marred owing to the necessity to limit the receiver to lower volume in the reproduction than it is really capable of.

One of the first things to look to is the last valve in the audio output of the receiver. Make sure that this is not overloaded. This means that the rated output of the eliminator must not be in excess of the valve used. Supposing that a super-power valve has been in use with a B battery of 120 volts in the last stage with a possible grid bias voltage of 10 volts.

A modern B eliminator giving an output voltage of at least 150 volts under load will necessitate an increase of the grid bias voltage on that last valve to probably 18 volts. If the grid bias is insufficient, certain distortion in the reproduction will be the outcome, and the degree of amplification will be cut down. Just a simple little matter, but one to remember when changing over to an eliminator.

The better the inter-valve coupling used in the audio amplifier, the more likely is the trouble known as "motor-boating" to develop. Don't start blaming the audio transformers—if transformers are used—because the better they are in efficiency, all the more certain is the chance of "motor-boating."

This symptom has really a simple explanation. It is brought about as a rule by back-coupling, due to the fact that the eliminator is common to all the plate circuits of the receiver and the voltages developed in the final audio stages develop across this common impedance, with the result that these voltages are re-introduced into the first audio stages or stage.

Sometimes this happens with a B battery supply, but is very rare. There is no doubt

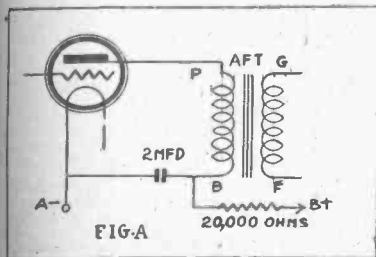
about "motor-boating," as it is called, for it greets one with a noise like the exhaust of a motor-boat, which probably prompted some American fan to use the expression. The remedy for the trouble is not difficult, and is illustrated in the diagrams where two well-known forms of inter-valve coupling are shown. The first one (Fig. A) shows the conventional transformer coupling, and the second one (Fig. B) the RCC method.

The cure lies in breaking the detector plate circuit between the coupling and the B positive supply, and connecting in series a 20,000 ohm resistance. At the end of the resistance connecting to the B positive terminal of the transformer, a 2mfd fixed condenser is bypassed to the negative A supply, which is usually earthed in the receiver circuit. This is a most effective scheme of getting over the trouble, and readers will do well to note the method, as I notice that the queries have many requests for just such information.

### RESISTANCE COUPLING.

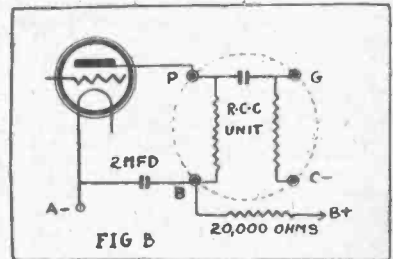
The second diagram shows how to apply it to a resistance capacity coupling. The same would apply to a choke or impedance unit coupling. The user of a radio receiver who has just started to use a B eliminator will do well to remember the following golden rule:—When starting to use the set, switch the valve filaments on first and then switch on the B eliminator at the power point last.

When the set is to be switched off, switch off the B eliminator first. By doing this it will be seen that the high tension voltage is applied at once to the plates of the valves, and does not accumulate with a voltage surge on the filter condensers in the eliminator, which it would do if the switching procedure is the other way round. A heavy voltage surge has been known to break down the filter condensers in B eliminators, although to-day the condensers in question have, in



valves, although there are the special heavy duty types to be remembered.

Next, the B eliminator gives entirely trouble-free service, unless the user is willfully ignorant and ill-treats it. The third point is that the output is uniform, and that the voltage and current are maintained at the



most cases, been vastly improved, and will stand a voltage far in excess of the eliminator output.

As an illustration of how the filter condensers hold their charge, notice how, if the eliminator is switched off and the receiver valve filaments left switched on, reception persists for a few seconds until the filter condensers are discharged completely.

In conclusion, the writer feels sure that these few words will help those readers who have changed over, or who are contemplating changing over, from B batteries to a B eliminator, to recognise the symptoms of "motor-boating," and they will know how to overcome it, and will also be able to treat the mains device with that little amount of consideration it deserves.

# PEOPLE *in the* PROGRAMMES

## Gentlemen, Our Toast is "The Ladies"—God Bless 'Em

### Miss Ruth Furst

THE question of precedence having arisen, we have decided to treat Miss Ruth Furst.

2FC's oldest feature is the Children's Hour. Then comes the Cooking Session. Many listeners requested such a session very early in the history of broadcasting, and 2FC decided to have it, and to make it so good that no one could complain about it. So they went to the fountain-head of the Australian Gas Light Company, Limited, and said, "We want one of your demonstrators, please, to give a cooking session from our studio. What about it?"

The Australian Gas Light Company, Limited, looked over its spectacles and frowned, and said, "Miss Ruth Furst is our chief demonstrator. She is the apple of our pie. She is the icing that makes our demonstrations delectable. What Miss Furst doesn't know about cookery is not to be found in cookery-



Miss Ruth Furst.

books. Avail yourselves of her services, with our blessing. May the art of cookery be advanced into the backset of the back-blocks, yea, even into the kitchenettes of newly-married flats."

2FC made suitable acknowledgments in its best pronouncing style, and very soon Miss Furst was a welcome morning guest in the homes of country and city alike. Every recipe put over the air is tried out in the company's ovens on the day it is broadcast. Nothing is left to chance.

The session has grown more and more popular. Over 15,000 individual recipes have been broadcast, and many of Miss Furst's correspondents claim to have each one of these set down in their manuscript cookery-books. People say, "Oh, did you hear Miss Furst's recipe for crushed orange sandwich? SO economical, my dear; you really MUST listen in!" Each recipe is put over slowly, in detail, and explained. Then the ingredients are called over again, so they may be checked. Sometimes static interferes, and then people write for the recipes. Sometimes a listener doesn't get quite the result expected from the prescribed mixture. For example, some listeners open their ovens to find sections of cannon-shot where cakes had been expected. Their natural curiosity under these circumstances leads them to write to Miss Furst and inquire the reason why. So Miss Furst has a fair number of letters to answer; and, indeed, during a little over three years she has written nearly 5000 letters in explanation of her lectures. Considerably more than that number of recipes have been despatched.

Miss Furst is naturally proud of the popularity of her session. It has covered the longest period allotted to a feature which is far more an educational effort than an entertainment.

### Goulburn Contralto

STATION 2BL will put on the air a new voice on Saturday, May 18, Miss Daisy Siggs, Goulburn's leading contralto. Though she has only recently attained her majority, Miss Siggs has been leading lady with the well-known Goulburn Liedertafel for the past six years. Miss Siggs is remarkably versatile, for, in addition to her concert work, she has attained great popularity as an entertainer with her partner, Mr. Eric Stuart.



### ENTRACTE

*Silence, please, in Beauty's court!  
Let the Justice thump the mallet!  
Enter, like an airy thought,  
To us, kneeling, Nea Hallett.*

*Let the Counsel read the charge  
While each eager eye besets her;  
Let him tell the world at large  
She's a Radio Soubrette, Sir!*

*"Oh, you naughty, naughty thing!"  
Cried the Judge, with tears of sadness;*

*"Tell me how you've come to sing  
Songs whose badness twines with madness!"*

*Said Miss Hallett, "I don't know—  
I can't tell why I've soubretted:  
No one told me not to, though  
If they did, I've quite forgotten!"*

*Said Miss Hallett's counsel, "Why,  
Your remarks are quite upsetting!  
You may make the lady cry  
Talking thus of her soubretting!"*

*Then the old Judge said, "Oh, dear!  
Let me say a word to cheer her;  
For I like to know she's Nea,  
Though I wish that she were  
Nea-er."*

### Miss Mona Nugent

A FEW years ago Miss Mona Nugent won the 3LO vocal scholarship. She was already an accomplished musician, having passed a Mus. Bac. degree (however a woman can obtain the title of bachelor we do not know; but it's probably a sign of the times) at the Conservatorium with first-class honors in 1925, where she studied with Mr. Edward Goll.

She studied singing under Miss Clarice Malyon, but regarded it as a millionaires might regard a pie shop on a street corner—that is, as a study of secondary importance. Miss Nugent, besides playing the piano and singing, has found time to master the violin and viola, and has often played the latter instrument in the Conservatorium Orchestra. It seems sad that the owner of so much ability should be a "member of the teaching staff of the Presbyterian Ladies' College," even though she has many "promising pupils under her care." But she bears up remarkably well considering, sings the soprano solos in the church of Our Lady of Victories at Camberwell, and occasionally finds time to sing a little song or two for 3AR, as she will on the 19th of this merry cold month.



Miss Mona Nugent.

Outside her musical and academical life Miss Nugent is equally proficient at swimming, tennis, and riding. She once suffered a broken wrist while hunting, and her excellent piano playing is even more remarkable in view of this injury; although we suppose Miss Nugent would rather it had not happened in the least.

### Successful Contralto

FEW contraltos are more popular than Miss Eileen Pascoe Webb, who, since her debut as a child vocalist and entertainer, has gone steadily from success to success. She has an excellent competition record, both in Victoria and Tasmania, both for elocution and singing, and is the holder of the ladies' championship of South Street. Miss Pascoe Webb has been associated with many Gilbert and Sullivan productions, and other musical plays produced by the J. C. Williamson company. She has also appeared as contralto soloist in "Elijah" with the Melbourne Philharmonic Society, and has made successful tours with the well-known tenor, Walter Kirby. She has been associated with 3LO since the early days of broadcasting, and is a great favorite with listeners to 2FC and other stations in the sister States. Finally, it may be mentioned that Miss Pascoe Webb has a contralto voice of rare beauty and sympathy, and always makes an immediate appeal to her audience.

# PERFORMANCES

## We May Not Hear

This article explains the prohibitions of certain copyright owners in connection with the broadcasting of a number of popular pieces.

Have you ever heard a Gilbert and Sullivan song over the air? Have you heard the operas, "Manon Lescaut," "Tosca," "Aida," or "Otello"? Why not?

IT is within the power of any owner of copyright to decide on the means by which his work is to be presented to the public, and to withhold his permission of any particular form of representation. That listeners have missed from past broadcasting programmes very few noteworthy names is an indication that authors and composers in general have taken kindly to the new medium; but there are still a number of works which are not available.

In music, perhaps, the most important are the Gilbert and Sullivan operas, from which not even a song may be broadcast. At one time the restriction was complete to such an illogical extent that in England the British Broadcasting Corporation could not perform selections from the operas, which were being mauled over by good, bad, and indifferent bands all through the country. Now, however, these selections may be broadcast, and it is anticipated that soon substantial portions of the operas themselves may be heard.

Musical plays generally have always been hard to get; but the attitude of owners of such works is changing slowly.

Many may have missed the name of Kipling; and it is a matter of extreme regret that listeners are barred from hearing poems and extracts from the prose works of this great narrator. A. E. Housman, who wrote "A Shropshire Lad," has also decided to keep his works off the air, although many of his poems may be heard from time to time in excellent musical settings by well-known composers.

Where stage plays are concerned, there are many difficulties, one of which arises from the purchases of performing rights by various theatres, the managers of which cannot always agree as to the desirability of a play being broadcast. Certain authors will allow their one-act plays to be broadcast; but not those of full length; and there are still some, including Barrie, who withhold all their plays. Not long ago Bernard Shaw and Henry Arthur Jones were among them; but the ranks are slowly thinning, and it is to be hoped that in time the broadcasting companies will be unrestricted in the presentation of the very best works of past and present writers and composers.

For the benefit of those listeners who may have wondered why the companies have never performed them, we print the following short catalogue of prohibited works.

None of the vocal items from the following operas may be broadcast. Permission has been received, however, to transmit instrumental selections, instrumental solos, and instrumental excerpts:—

COMPOSER.	OPERA.
BOITO .....	"Mefistofele."

COMAROSA .....	"Giannina e Bernardone." "Matrimonio Segreto."
PACINI .....	"Saffo."
MASCAGNI .....	"Iris."
PONCHIELLI .....	"Il Figliuolo Prodigio." "Gioconda."
PUCCINI .....	"Marion Delorme." "Boheme." "Promessi Sposi." "Edgar." "Girl of the Golden West." "Madame Butterfly." "Manon Lescaut."
RICCI .....	"Tosca." "Turandot." "Suor Angelica." "Trittico Tabarro." "Gianni." "Schicchi." "Crispino e la."
VERDI .....	"Comarre." "Hernando Cortea." "Falstaff." "Otello."
VERDI .....	"Aida." "Vestale."

Under no circumstances is it possible to broadcast any vocal items whatever from any of the Gilbert and Sullivan operas; but permission has been granted to broadcast the published instrumental selections, instrumental solos, and instrumental excerpts from any of the Gilbert and Sullivan operas.

With new musical productions which have not yet been heard in Sydney, it is not permissible to broadcast any items at all until the shows have been produced in Sydney. For example, until "The Desert Song" was played in Sydney, no items from this production could be given. The same thing applies to the new production, "This Year

Ltd., enabling the broadcasting of instrumental versions and vocal numbers from the following musical shows:—

"The Arcadians," "Belle of New York," "A Country Girl," "The Cingalee," "Canary Cottage," "Count of Luxembourg," "The Dollar Princess," "Firefly," "Floradora," "Geisha," "Girls of Guttenberg," "Girl in the Train," "Gipsy Love," "High Jinks," "Miss Hook of Holland," "Irene," "Katinka," "Kid Boots," "The Little Michus," "Lilac Time," "La Poupée," "Maid of the Mountains," "Maytime," "Merry Widow," "Orchid," "Our Miss Gibbs," "Paul Jones," "The Quaker Girl," "The Runaway Girl," "So Long, Letty," "San Toy," "Southern Maid," "Sybil," "Toreador," "Tonight's the Night," "Veronique," "A Waltz Dream," "You're in Love."

At the time this list was prepared, 20/4/29, the following new productions had not been seen in Sydney, and until they are produced no items from any of them may be broadcast:—

"Hold Everything," "Polly," "Follow Thru," "Ned Wayburn's Gambols," "Chec Chec," "The Ramblers," "My Golden Girl" (same as "My Princess"), "Rosalie," "Mister Cinders," "Lady Fingers," "Three Cheers," "Hello Daddy," "Present Arms," "Merry Merry," "Show Boat," "Oh, Please," "Golden Dawn," "Nobody's Girl," "The Treasure Girl," "The Houseboat on the Styx," "New Moon," "Manhattan Mary," "Funny Face," "A Connecticut Yankee," "The 5 O'clock Girl."

### Wireless in Switzerland

ACCORDING to the decisions of the International Radiophony Society, two exclusive wave-lengths have been attributed to Switzerland—one of 406 meters, and the other of 489 meters. The mountainous configuration of Switzerland is, indeed, little suited to normal propagation of wireless waves, and the system of one broadcasting station only would be a great disadvantage for certain parts of the country. The two chief languages of the country, German and French, also justify the use of these two exclusive lengths.

This situation has led Swiss authorities and radio societies to reorganise completely the present system of radio broadcasting. It is proposed to found two chief stations—one of 45kw., between Berne and Zurich, for the German-speaking part of Switzerland, and the other, of 16kw., near Lausanne, for the French-speaking part. Those districts which are not within the zone of perfect transmission from either of the principal stations are to be provided with secondary wireless stations at Geneva, Sion, Berne, Basle, Zurich, St. Gall, and in the Ticino. The cost of the establishment and technical installation of all the broadcasting stations will be borne by the Swiss Telegraph Office whilst the intellectual centres of the country will all contribute to the programmes.

Did you know that Rudyard Kipling and Sir James Barrie decline definitely to allow their work to be broadcast?

of Grace," which is now playing in Melbourne. Until this is actually played in this State no items from the show may be broadcast.

In connection with broadcasting solos, excerpts, or arrangements from well-known musical comedies, such as "The Arcadians," "Belle of New York," "Katinka," "Maid of the Mountains," "Our Miss Gibbs," and so on, it is necessary that all those responsible for preparing programmes for broadcasting should observe the following conditions:—  
The name of the opera or show must not be used on the programme, i.e., if the "Pipes of Pan" from "The Arcadians," was being broadcast it would have to be programmed as "The Pipes of Pan," by Lionel Monckton, just as if it was an ordinary song.

Another condition that has to be observed is that no more than one song from the same musical show may be broadcast per day.

Permission, however, has been given, by arrangement with the Australasian Performing Right Association and J. C. Williamson,

# SESSIONAL NEWS

*News direct from those people responsible for the various sessions which go to make up the general daily programmes of 2FC, 2BL, 3LO; and 3AR*

## Mr. Norman's Session

MR. NORMAN reports steady progress in his Bigger Boys' Radio Club of 2BL. So many requests have been received that he should take parties over various factories, etc., that Mr. Norman has been forced to institute a ballot among his club members, who are to select three places in their order of preference.

Arrangements for the Boy Scout Session from 2BL are now almost completed, and it should not be long before the Governor opens the session, which should prove most popular.

Mr. Norman's "Bigger Boys," who listen so enthusiastically to his session at 2BL each Tuesday evening, are reminded they may have a picture, postcard of the photograph, taken on the memorable occasion of their visit to Garden Island a week or two ago. The visit, which proved such a success, is the forerunner of many more outings which Mr. Norman hopes to arrange on similar lines. If the boys will write to the New South Wales Broadcasting Company, Ltd., Box 3934V, G.P.O., Sydney, a copy of the photograph will be sent to them.

## Mr. Cooper's Session

ON SATURDAY MORNING, Mr. G. W. Cooper will speak from 2BL, during his gardening talk, on ornamental lakes. The eye, says Mr. Cooper, never tires of water—only the throat—and there is no more beautiful ornament for a garden than a lake or pond, which reflects the sunbeams and the trees and the flowers. Lakes may be of all sizes and shapes; but care is needed in their construction; for instance, they must always be where they may have the sunshine. Mr. Cooper will explain how ornamental lakes should be planned, and talk of the various kinds of water-plants, and of their preservation, giving full details.

## Miss Varley's Session

IT was decided at the 2BL Women's Sports Association's general committee meeting on Wednesday, May 8, that the association would hold its annual general meeting at David Jones' dining-hall on Wednesday, May 29. It would take the form of an afternoon tea, and it was suggested that the directors of the N.S.W. Broadcasting Co. and their wives, and other distinguished people be invited. At the request of some of the members present, it was also decided that each club should entertain one or two speakers who have spoken during the Women's Association session from 2BL. Miss Daphne Akhurst is to be invited also. At this meeting the honorary secretary and honorary treasurer will present their reports. It was decided to commence the 2BL tennis competitions on Tuesday, May 21, when A and B grades would compete. Matches will be played at the various 2BL Tennis Club courts, and captains of each team will be responsible to send the results to Miss Varley, secretary, by the Thursday following the match.

It was also reported that the second term of the Bridge Club had commenced successfully, and that the evening Bridge Club, commencing Monday, May 13, would be held at 11 Rowe Street, at 7.45 p.m. Every club was represented at this meeting, and everyone went away feeling that the association is decidedly active, and meeting the need of its several hundred members.

## TENNIS.

Tuesday, April 30, the N.S.W. Lawn Tennis Association Courts, Rushcutters' Bay, were the scene of much enthusiasm and excitement.

Nineteen tennis teams, representing the many 2BL clubs affiliated to the association, met to play before Mrs. Roland Convooy and Miss Joyce Varley, who undertook to grade the teams for the 2BL Tennis Competition.

Ten teams were placed on the five courts at 1.30 p.m., followed by another nine teams at 3 p.m. By 5 o'clock every team had played before the graders, and the results were as follows:—

A GRADE: Ashfield 1, Mosman 1, Mosman 2, Coogee 1, Chatswood 1, Strathfield 1, Kogarah 1, Kogarah 2, Manly.

B GRADE: Coogee 2, Coogee 3, Maroubra 2, Waverley 1, Waverley 2, Bexley 1, Maroubra 1, Manly (morning), Ashfield 2, Strathfield 2.

Final arrangements were made at the next general committee meeting on Wednesday, May 8, at the N.S.W. Broadcasting Company.

This 2BL Women's Tennis Competition promises to be a great success, and very popular, judging from the enthusiasm of the 78 ladies present for the grading afternoon. The generous assistance of our president, Mrs. Roland Convooy, with her years of experience in International and Inter-State tennis, makes her an invaluable help.

## Mr. Ferry's Session

RACING broadcasts on Saturday will be from Moorefield. With regard to the Prince Humphrey case, Mr. Ferry recalls that at Easter he was able to supply Mr. Alfred Knight, of the "Sydney Mail," with a description of Prince Humphrey, which enabled Mr. Knight to continue his inquiry into the disputed identity of the Duke Humphrey—Princess Hazel colt and the Duke Humphrey—Shepherd Princess colt. Competent authorities think that a mistake has been made during the transhipment of these two colts from Woodlands Stud Farm, New South Wales, to their destination in New Zealand.

## 3LO's Sporting Sessions

BY Saturday, May 25, the positions of the Victorian League football teams in the premiership table will begin to take shape. Four matches will have been completed by then, and the prospects of the teams for positions in the four will be the subject of discussion. On that day there are two very interesting matches down for decision, and arrangements have been made for 3LO to describe both of them alternately through-

out the afternoon. The most important match will be that between Carlton and Geelong at Carlton—two very old rivals, and both of whom are well in the running for positions in the four this season. Bob McGregor, himself an old Carlton champion, will be entrusted with the task of describing the fortunes of the game, in which his old team will have a most strenuous contest, and at Footscray, where Footscray will meet Melbourne, Mel Morris, a former champion of the Richmond Club, will be behind the "mike." The broadcasting of the progress scores in all of the football games, both League and Association, will be continued on that afternoon. The scores at the end of each quarter will be broadcast as soon as they are available after each quarter, and at about half-past 5 in the afternoon the final scores in all the matches played that afternoon will be broadcast. Not only will this be confined to League and Association matches, but the results of the junior matches and of as many of the more important country competitions as are available will also be put on the air.

Interest in the form of the horses which are likely to play a part in the more important jumping races during the winter will be reaching its peak by the time the Moonee Valley meeting on Saturday, May 25, comes round, and for that reason the form of the jumpers at that meeting will be full of interest. Particularly will racegoers watch the Commonwealth Steeplechase, for that race has often been the means of introducing to them good form. For instance, last year Chaumont showed his first form in open company in that race, and he later started favorite for the Grand National Steeplechase at Flemington, a race in which he was rather unlucky, for he tumbled over just when he appeared to have the race won. Ancient Mariner has finished second in the last two Commonwealth Steeplechases. The Federal Hurdle Race, too, has given racegoers a good indication as to the prospects of some horses in the Grand National Steeplechase. Two years ago Coybeau ran second in the Federal Hurdle Race, and then went on to win the important race at Flemington, while the previous year saw Shanti win at Moonee Valley, and then run second to Sparkling Moselle in the Grand National. All of the races at the meeting will be described by Eric Welch for 3LO, Melbourne.

On Friday night, May 24, Eric Welch will talk from 3LO, Melbourne, on the form of the horses engaged at the Moonee Valley races on the following day. On Saturday morning he will be on the air again to broadcast his final selections for the races, which will be run that afternoon. The acceptances and barrier positions for the meeting will be broadcast at half-past 4 on Thursday, May 23.

Aspendale Park Racing Club will provide the attraction for Melbourne racegoers on Wednesday, May 22. An attractive programme has been prepared, and all of the events will be described over the air from 3LO, Melbourne, by Eric Welch, whose selections for the meeting will be broadcast during the night news session on Tuesday, May 21. The acceptances and barrier positions for the meeting will be broadcast at 5 o'clock on Monday, May 20.

# The Function of R.F. CHOKE COILS

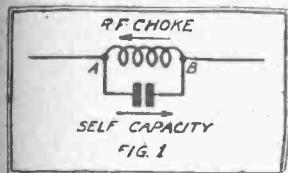
*How to employ this useful component to advantage in a receiver. The questions of impedance and capacity are also dealt with.*

HERE is an increasing tendency in modern radio circuits to employ a radio frequency choke coil, in order to separate the radio frequency component of the plate current in a circuit from the audio frequency or D.C. component. In the ordinary plate circuit we have two currents flowing. First of all, there is the steady current from plate to filament, due to the emission of electrons by the latter, and this current is varied by the application of varying voltages between the grid and filament of the tube.

The actual current, therefore, varies somewhat, and this current is equivalent to two currents, one a steady current, and the other alternating. We are interested only in the pulsating portion of the current, the steady component being a necessity, an unwanted part. It is often found that better results are obtained if the two components are separated.

The plate circuit of a vacuum tube is divided into two parts. One of these contains a radio frequency choke and a B battery; the other a small condenser and the active portion, if one may so term it, of the tuning circuits associated with the particular tube.

The radio choke is designed to offer a very high impedance to any variation of current, but not appreciably to affect the B supply.



On the other hand, the coupling condenser forms a complete barrier to the steady D.C. current, but offers a comparatively low impedance path to the varying currents. The actual impedance offered by the condenser to the flow of the radio frequency component of the current depends upon the value of the capacity. The smaller the condenser the higher becomes the impedance, and vice versa.

This effect is often utilised in controlling the amount of energy supplied to various portions of the circuit. A specific example is that of a Reinartz circuit, in which the amount of current flowing through the regenerative coil is controlled by placing a variable condenser in series. The smaller the value of this condenser the less will be the current flowing through the regenerative coil, and so the tendency for the circuit to oscillate is maintained under adequate control. This, however, is an aspect of the question which does not concern us at the present moment, the portion under discussion being the radio frequency choke.

Now a choke is simply an inductance coil wound to comply with the particular condi-

tions required. It is well known that an inductance offers no impedance whatever to the passage of steady current (neglecting the effect of the resistance of the coil), but if the current varies in any way, then opposing E.M.F.s are called into play, which tend to restrict the variation of current. In other words, an inductance coil always tries to maintain the current through the coil.

The choking effect is dependent upon the inductance and the frequency. Consequently, in order to provide a suitable high impedance at a very high frequency, only a comparatively small inductance is required. As the frequency is reduced, that is to say, as we increase the wave-length, a larger inductance is required in order to obtain an adequate choking effect.

An interesting question arises at this point, however, and that is whether there is any limit to the inductance to which a choke coil may be wound. Associated with this question is that of the effect of the self-capacity of the coil. There is a general impression that a choke coil must be one having a very low self-capacity, the reason given being that any appreciable capacity across the coil would act as a shunt for the radio frequency component, and so destroy the choking action.

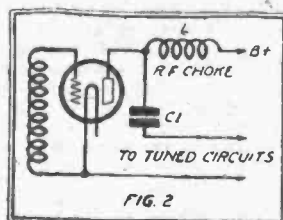
While this is correct to some extent, the effect does not operate quite in the way which is popularly assumed. A choke coil is really a simple parallel tuned circuit. There is the inductance of the choke coil itself, and there is a small shunt capacity due to the self-capacity of the coil. A certain portion of the current will flow through the inductance, and a small portion through the shunted capacity.

These two currents do not flow in the same direction. When the current is flowing in a particular direction through the inductance, the current through the capacity is flowing in exactly the opposite direction. The result is a circulatory system of currents is

obtained, and the actual current flowing through the whole system is really the difference between the two currents in both branches of the system.

The effect of the self-capacity may increase the circulating current, but it reduces the total current flowing through the choke. As the value of the self-capacity is increased the current in the capacity branch increases up to a point where it becomes equal and opposite to that in the inductive portion of the circuit.

At this point it will be obvious that the total external current will be nothing, and obviously such a system would be an ideal choke. This condition of affairs, of course, corresponds to the point at which the choke coil is tuned in by its own self-capacity to



the frequency of the current. The circuit then becomes a rejector, pure and simple, just as in the case with a tuned plate arrangement.

The point to note particularly is that as the self-capacity increases towards the actual value required to tune the choke, so the impedance of the whole arrangement rises consistently until it reaches a maximum at the point where the self-capacity actually tunes to the frequency. Beyond this point, however, the impedance falls again, and the current flowing in the capacity branch begins to swamp any current in the inductance branch, so that the arrangement becomes more and more nearly equivalent to a simple condenser.

The actual size of the capacity effect depends entirely on circumstances. As the inductance of the coil is increased the actual choking effect or impedance of the arrangement increases progressively up to a point at which the arrangement actually tunes to the particular frequency in question. If we exceed this point, that is to say, if we use the coil at a frequency above that to which it is tuned (or a wave length below the natural wave length), then the impedance of the arrangement falls off. This falling off, however, may not be very rapid for some time, and it is possible to obtain a form of choking effect, even when the coil is being used at frequencies far in excess of the natural frequency. The B current, of course, flows through the resistance, but the radio

**NEXT  
WEEK**

*In the next issue of "Wireless Weekly" will be described the SELECTRACRYS Receiver.*

*This is an extremely sensitive receiver employing a crystal detector which provides for purity of reception.*

frequency current finds the smaller capacity too great a barrier, and seeks alternative paths. Of course, if the capacity were fairly large, even as large as .001 (a value which one would normally consider as a small capacity), then the choking effect would vanish altogether, but since the self-capacity is comparatively small, the arrangement still offers an appreciable impedance to the radio fre-

quency currents, and a form of choking action is obtained.

This arrangement has an advantage, in that it can be used over a wide band of frequencies. A coil ceases to be a pure choke after the tuning point is passed, and although it may operate effectively, it will not be as efficient as a choke specifically designed for a particular band of frequencies. It can

be seen, therefore, from these considerations that a radio frequency choke does not act in the manner in which it is popularly supposed. In many cases it is not actually a choke at all, but a capacity with a resistance in parallel. There are many circuits in which such an arrangement of a choke coil works to perfection, while there are other circuits in which deleterious effects result unless proper choke is used.

## :-: How to Service Radio Sets :-:

When doing any service job, make a complete list of everything the customer has, and file it. You know what could replace any one of his list to advantage. Sell him through the mail.

### BATTERY SERVICE.

#### IX

Countless times radio service men have been called for the simple reason of transposed leads to the storage battery, or wrong polarity.

The radio owner becomes sufficiently intimate with his radio set to start the economy of unhooking his own battery and carting it to the charging station. He calls for it, and proudly snaps the clips back on terminals. He washes his hands, and comes back to pull the switch.

Not even side tone.

He starts pattering and stuttering and cranes his neck over the back of the set, ready to pounce on an open connection, if he knows what that is, and, after a miserable half-hour, calls the service man.

If absolutely no side tone occurs, look at the "A" battery polarity first. If not marked, or the positive pole is not larger than the other, or no green corrosion is evident on the positive pole, merely switch the clips. If this is not the trouble with the radio, use your test leads, and find the proper polarity with the polarised voltmeter before shooting further trouble.

#### X

No radio is ready to receive further service than reading the batteries, unless the batteries are renewed when found necessary. If a service man is not travelling via automobile with a supply of "B" batteries, it would be necessary for him to return and hook up the new batteries upon their delivery; therefore, it is not necessary to carry batteries in the test kit to tire out a man.

Tests are inter-combined between the set and the kit to such an extent the test cords are merely clipped on the set batteries.

When reading dry "B" batteries, remember that a cold reading, that is, a reading after the batteries have been standing idle and recuperating, is not a true reading of condition.

You may take this reading to ascertain whether or not you can proceed with your tests, but, after the valves have been lit for 10 or more minutes, read them again with full load on.

A battery that first reads 4 1/2 volts may give a reading of only 4 1/4 volts after the skin power has worked out, and the full current remaining in the cells manifests itself.

Discriminating owners can be converted to changing their "B" batteries when the voltage has dropped to, or just below, 4 1/2. Explain to them that the voltage of a battery does not start to drop until the current has been drained considerably. Then it takes longer time for the first three volts to drop than it does approximately the next

The third article of the series on Servicing Radio by an experienced business man in radio.

ten. So, when a battery has reached a reading of 4 1/2 volts, you know it is on a rapid decline. At 3 3/4 volts, battery "static" asserts its power for reception destruction. A "frying" hiss distinguishes run-down "B's."

Warm batteries read higher than when they are cold.

Do not install "B" batteries too small for the number of valves in a set. Five valves or less will take the medium size, but above this number of valves the current consumption is so great it would not take long to bring about a voltage drop on the medium size; so install heavy duties. If the customer mentions price, explain the above to him.

#### XI

When reading "O" batteries use the two voltage leads of your tester. "O" batteries are not consumed by the use of current. They last in a set their full shelf life. "O" batteries function only to impress a higher negative potential on the grid, thereby giving it a greater power to repel electrons, and offer a bias to balance the grid circuit and stop distortion or blocking.

"O" battery values are dependent on the amplifying factors of the valves and the plate voltage, but sufficient for this book on service; the following values are given for different amplifying valves:—

Tube.	"A"	"B"	"O"
UX 201A .....	6	90	4 1/2
UX 199 .....	4	90	4 1/2
UX WD11 .....	1 1/2	90	4 1/2
UX 120 .....	4	155	2 1/2
UX 112 .....	6	135	9
UX 171 .....	6	180	4 1/2
UX 210 .....	8	425	35
UX 216A .....	6	45	1

"O" batteries are used in most cases for the audio amplifiers only, as the negative grid bias on radio frequency amplifiers is taken care of by other means, such as potentiometers, etc., except in some cases of super-heterodyne intermediaries, where a small value is used, one cell or 1 1/2 volts being sufficient.

#### XII

When you service a customer's set, are you interested in the water level of his storage battery? 99 per cent. of the time you don't even think of this when shooting trouble. You overcome the trouble, and let it go at that.

Carry a supply of distilled or pure water if you travel via auto. Fill the battery to one-fourth inch above plates, and know you did a good job. I say, fill the battery to one-fourth inch above plates. I said that to bring out this point.

When a battery discharges, the sulphuric acid leaves the electrolyte and enters the plates. This brings the level lower. When

the battery is being charged the sulphuric acid is driven back into the electrolyte thereby bringing the level higher.

Before adding water, read the battery with a hydrometer. If it shows low, or around 1.150, and the plates are covered, do not add water, but, if the reading is above 1.250, and the level is low or below the top of the plates, bring it up to one-fourth inch thereabouts above the plates.

Never add sulphuric acid, as this does not evaporate. If the acid is low from leakage, spilling, or having been continuously run over in charges by having too much water added, charge the battery fully, add the electrolyte, and refill with a 150w solution.

Storage batteries that have been used on automobiles or misused in charging may have sulphated plates which continuously foul and cause cracking or "static" noise in the radio. If a radio gives out noise in winter months, and the "B" batteries are O.K., it is ten to one the storage battery belongs somewhere else than on a radio. Sell them a new one.

Carry hydrometers as part of your supply in the automobile. If the customer has no hydrometer to read his storage battery, simply test his battery with a new one, tell him when to use it, explain its care, and add it to the bill. He wants and needs a hydrometer, but would never think to buy one otherwise.

Release the vent caps if you put the battery on charge with the customer's charger. If there is no charger it is simply a matter of self to hook a trickle charger up to the storage battery, combined with an automatic switch, and tell the customer he is now independent of battery service stations, being saving money.

Do not ask him if he wants to buy a battery charger. Nine times out of ten he will say, "No." Hook one up and then explain its utility. Even explanations are not always necessary. You are the service man there to make his radio better for him. If in your judgment, he should have a trickle charger or an overnight charger, install it and bill him.

If you hook up a trickle charger, be sure to use an automatic switch.

This makes a nice demonstration, and in doing the customer a favor by eliminating sources of trouble. Show him how nice it automatically turns on the charger when you turn off the set, and vice versa.

Carry some battery cables in the car. When you get to one of those radios where bell wire, No. 14, and some picture wire is used for hooking up the batteries, install the cable. There is profit in all of such things, and the customer is glad, because he probably did not know there was such a thing

# THE MICROPHONE PRESENTS—

## English Baritone

ALFRED CUNNINGHAM has managed to fit in a couple of broadcasting engagements before he goes away again on tour, and 2FC listeners will hear him on Sunday night, May 26. His second appearance is set down from 2BL, on Sunday, June 2.

## Dandies

THE Blue and Gold Dandies, winners in the recent Radio Elsteddof, are busy preparing another revue to be given at 2BL on the evening of May 29. Theirs is one of the best concerted "air" shows offering, and a sparkling hour is promised on this evening.

## "Spread Eagle"

"SPREAD EAGLE," the present bill at the Playbox Theatre, is described as a very exceptionally thrilling drama of love and international intrigue, which throws a strong and searching light on the tendencies of the day. The scenes are laid in New York and Mexico, and are vivid and picturesque; while the dialogue is witty, and bristles with barbed and saucy reference to the great and near-great of our modern fool life. Its chief glory is irreverence, and it makes its points with a bold, almost diabolical, mixture of irony and melodrama. "Spread Eagle" is the second Playbox Art Theatre play to be heard over the air, and it is in the hope of introducing the work to a larger group of drama lovers that Mr Duncan Macdougall, the producer, has consented to have the play broadcast. The play was written by George S. Brooks and Walter B. Lister, and will be heard from 2FC on May 29.



DUNCAN MACDOUGALL.

## Melbourne in the "Forties"

AN interesting talk will be given from 3AR on May 20 when, under the auspices of the Historical Society of Victoria, Mr. C. R. Long will speak on "Melbourne in the 'Forties'." There are many people still living in Melbourne who remember when sheep and cattle were browsing in Collins Street, and when Bourke Street was marked by a few buildings.

## Negro Spirituals

GERTRUDE GRAY, whose flexible soprano voice has charmed listeners throughout Australia, will be on the air from 3LO on May 23 in some request numbers and negro spirituals. Miss Gray is a past graduate of the Albert Street Conservatorium, and after taking her diploma gravitated to the chorus of the Melba-Williamson Opera Company. At the close of the grand opera season comic opera opened its doors, and as a member of the Gilbert and Sullivan Opera Company, playing principal parts, she toured Australia and New Zealand for two years. She is a most popular figure at the broadcasting studios of 2BL, 3LO, 3AR, and is a particular favorite with listeners to 5CL.

## Empire Society

THE New South Wales branch of the Royal Empire Society will hold its annual dinner on Empire Day, at the Hotel Australia, and the speeches and musical programme will be broadcast by 2BL, between 9 and 10 p.m. Miss Dorrie Ward and Mr. A. E. Y. Benham are the soloists. It is anticipated their Excellencies, the Governor-General and Lady Stonehaven will be present.

## Interviews

STATION 2BL is arranging an interesting series of personality interviews. The personality for the evening of May 30 will be Captain J. H. Watson, the research secretary of the Royal Australian Historical Society. He served as a young man in the British Army in India, and is proud of the fact that he still has to report as an officer of the reserve to military headquarters, although he has passed the allotted span of four score years. Erect, keenly alive, and active, Captain Watson would pass for a man very much younger. He is a great authority—perhaps Australia's greatest authority—on Australia's early history, and his contributions to historical literature are marked by close research. Recently Captain Watson presented a unique collection of Australian historical records and pictures to the Mitchell Library. He rather guiltily admits to being the culprit who first introduced rabbits to Australia.

## Conservatorium Graduates

A SHORT instrumental recital will be given from 3AR on May 25 by Florence Elsworth (piano) and Dorothy Taylor (violin), two gifted young Melbourne musicians, who are rapidly coming to the front rank of artists. They are both graduates of the University Conservatorium, also Ormond Exhibitionists, and have appeared many times at students' concerts in connection with the Conservatorium. Miss Taylor is a member of the student's orchestra, and has been associated with Miss Elsworth on many musical programmes.

## Specially for Orchardists

PROSPECTIVE orchardists should make a note of the talk to be given from 3LO on May 20 when, under the auspices of the Department of Agriculture, Mr. J. M. Ward, superintendent of Horticulture to the department, will speak on the selection and planting of fruit trees.



Madame Goossens-Viceroy, who has arranged a classical programme for May 22.



Brunton Gibb, winner of the Interpretation Competition, who will be heard from 2FO on May 21.

## "Paul Jones"

THE next light opera production to be undertaken by Leo Packer is "Paul Jones," which is to be staged at 2FC on the evening of May 27. The play has been condensed to two hours, and during the short interval between the first and second halves, Mr. C. C. Faulkner will relate some more of the "True Tales of a Journalist"—some of the most interesting and laughable anecdotes ever heard on the air.

## "Bodington Calling"

ON Saturday night, May 25, "Bodington" the Red Cross Home at Wentworth Falls, will celebrate the official opening of the installation of wireless throughout the hospital. "I can think of no more fitting occasion than this for a visit from your hospital concert party," wrote the matron to the New South Wales Broadcasting Company. "You were so good in working hard for this gift for us."



CHARLES LAWRENCE.

When Charles Lawrence was asked if he would be free on that night, he promptly replied: "'Bodington' calling? Then all other engagements are cancelled." He is taking with him John Benjamin Arthur Prince, Dorothy Dewar, and Maisie Ottey, and promises to make it a red-letter day for the friends on the Mountains for whom he has such a soft spot in his heart. The children's session will be given from the hospital, instead of the usual hour from the studio, and the evening entertainment will commence at 8 o'clock.

## Salvation Army Congress Choir

IN connection with the annual Salvation Army Congress the choral service to be held at the Melbourne Exhibition Building on May 19 will be broadcast by 3AR. The choir and male quartette will contribute vocal items, instrumental solos, duets, and trios will be a feature of the programme, and a speech will be given by the commissioner. The orchestra will be heard in selections from well-known oratorios, and the programme will close with the "Hallelujah Chorus," rendered by the staff band.

## Naval Disarmament

A TALK of more than usual interest will be given from 3LO on May 21 under the auspices of the University Extension Board, when Mr. P. D. Phillips, M.A., LL.B., will speak on "Naval Disarmament."

## Metro Quartette at 3LO

THE Metro Quartette, a distinctly clever and popular combination of male voices, will again be on the air from 3LO on May 25 in a well-arranged programme of vocal selections. The individual members—Percy Mather (first tenor), Percy Tonkin (second tenor), Wm. Dolg (first bass), and Wm. Todd (second bass)—are all well-known soloists, and have gained successes both in the concert and competitive world, and their ensemble work leaves nothing to be desired.

**Sun Aria Prize Winner at 3LO**

**ERNEST WILSON**, the popular young Geelong baritone, who is frequently on the air from 3LO has added another milestone to his artistic career by carrying off the Sun Aria Prize in the recent Ballarat competitions, and was very successful at Wonthaggi, when he carried all before him. Possessed of a fine resonant voice, which shows to great advantage in stirring martial ballads, Mr. Wilson should go far in his profession, while his genial personality makes him a firm favorite with all his audiences.

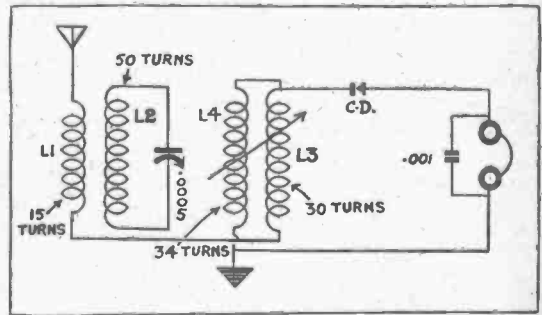
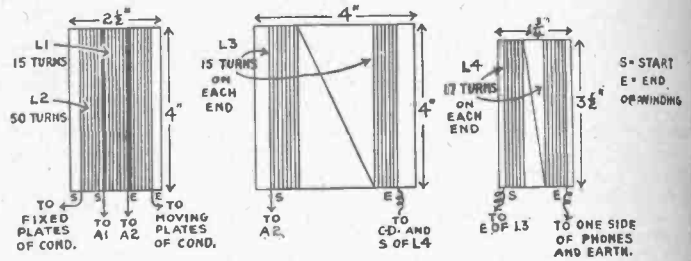
**Melba's Birthday**

**MAY 19** is quite a memorable date in Australian musical history, for it marks the birthday of the famous prima donna, Dame Nellie Melba, who has done so much to establish the musical reputation of Australia overseas. She made her debut in Brussels in 1887 and at Covent Garden in 1888, since when her career has been one of unbroken success. To celebrate her birthday a special gramophone recital of her records will be broadcast from 3LO. The programme has been carefully arranged, and includes many familiar gems of song with which Dame Nellie Melba's name has been associated since she commenced her career.

**Talented English Pianist at 3LO**

**MISS GWENDA PAUL**, the talented English pianist, who is giving a recital from 3LO on May 22, is a past graduate of the Royal College of Music, London, where she trained for five years, and had the advantage of being able to hear the greatest pianist of the present day. In addition to much concert work she has given recitals in the Wigmore Hall, London, and was much in request as an artist in London society functions. Miss Paul has also appeared as soloist and played concertos with the London Symphony and Albert Hall orchestras, and has been associated with many famous musicians. She is quite at home before the microphone, having broadcast from both London and Dundee. Miss Paul is very keen to make the acquaintance of Victorian listeners, who will always be ready to appreciate her artistic work.

**THE KUG CRYSTAL SET**



Owing to repeated requests we are publishing again the circuit diagram, with details of the coils for the KUG crystal receiver, described in WIRELESS WEEKLY for February 8th, 1929. In the original circuit diagram, the coils L4 and L3 were indicated in the wrong positions. In practice they are in the reverse position as shown here. This should not materially affect the selectivity claimed for this crystal receiver, but those readers who have used the previous coil arrangement and complain of lack of selectivity should note the difference with the coils as correctly shown.



**THE BIBLICAL DRAMA**

By H.W. VARNA

I AM rather sorry that various clergymen, laymen, and a small section of the press have taken an adverse view of my production of "Daniel," on Sunday night, May 5. I do not suggest that the drama should ever take the place of church services—let me say this

at the outset.

But none can deny that our treatment of the story was very reverent. From what I have heard it was quite effective. The story of Daniel could scarcely have been more vividly brought home to the minds of listening audiences.

The fact is that the Bible is full of dramatic matter, which is much better rendered by a body of experienced people than by those who have no dramatic experience. All epic works are dramatic—Homer is dramatic; Dante, Milton, and Shakespeare are dramatic—that is why these works live for the public of all ages.

If Homer had imparted simply the essences of his philosophy, as Chesterton puts it, namely that life is a Battle, and that life is a Journey, instead of writing the Iliad and the Odyssey; if Shakespeare had been content to say, that life is man's struggle with the elements of his own nature, instead of writing his plays; if the scribes and seers who combined to produce our Bible had been satisfied to say that Life is the service of our God and the love of our fellows, then there would have been no Greek philosophy, no Romantic philosophy, and no Christian religion. The vehicle of all epic works is the story, and the soul of all stories is their dramatic structure.

times inattentive, minds, the stories in which our faith is illumined. To older individuals, who know their Bibles, the dramatic rendition would be an accentuation of their knowledge and appreciation, and would aid the denominations by stimulating a new interest in the interpretation of divine parables.

Since I have given up the active pursuit of my own profession, I have had several prominent clergymen come to me for further development of their speaking powers. It has proved astounding to them that they have been able to get so much more power of expression in conducting their services through the observance of simple rules of rhetoric, dramatic gesture, and a knowledge of the art of voice production.

For the dramatist such effects are simple, and a thorough knowledge of the value of words and the correct method of delivering them is his profession. Moreover, the actor must study his part, and play it sympathetically—he must LIVE the character. No actor can afford to be irrelevant when he plays in divine drama.

So an actor in Bible dramas, and his dramas, are not to be despised; they do a service, not only for Christian people, but for the churches, whose duty it is to spread and maintain the doctrines of Christ.

The earliest Romance dramas were religious; morality plays they were called, and they were fostered by the churches to spread Christian doctrine, and to enlarge the knowledge of the public in doctrinal matters. So, in the twentieth century, with a new medium, we repeat the same old stories.

I feel that occasional renderings might be given to bring home to young, and some-



# B.B.C. What do these Letters Mean

*Most regular-listeners have heard these famous letters at some time or other, but how many know what they stand for. Our London correspondent outlines the activities of the great concern behind these simple initials in this article.*

By J. E. GRAHAM

THE letters, "B.B.C.," known to almost every man, woman, and child in the British Isles, are not so familiar to Australian wireless "fans." They stand for "British Broadcasting Corporation," the wonderful organisation that controls broadcasting in Great Britain (and Northern Ireland). Over here broadcasting is a State monopoly, and no one but the B.B.C., therefore, may carry on a broadcasting service.

The B.B.C. began in 1922 as the "British Broadcasting Company, Ltd.," and the shareholders were some 300 radio manufacturers and others. On the board were representatives of the great wireless firms—Marconi's, Metropolitan Vickers B.T.H., etc.—which firms subscribed £60,000 towards the venture out of a total of £100,000. It was early decided that a single, centrally-controlled, non-competitive service would be the most suitable. No direct profits were to be derived, and the American example of using the microphone for advertisements was condemned. The license fee was fixed at 10/ per annum, irrespective of type of receiver used and status of listener. (Later, however, it was decided to give free licenses to blind persons.)

A network of stations was arranged, and this included eight main stations (London, Birmingham, Manchester, Newcastle, Bournemouth, Cardiff, Glasgow, and Aberdeen), and a dozen relay stations. Later the super-power station, Daventry, 5XX, and also another main station, Belfast, were erected. All these stations were completed by the end of 1924. So much for the original scheme.

## "Corporation"

In 1926 a committee was appointed by the Government to go into the whole question of broadcasting, and in its report it advised that the State should take over the broadcasting organisation as it stood. This was done, merely from the idea of public policy, as the B.B.C. had by this time become a very powerful organisation. (This was well shown during the general strike of 1926, when the whole country was dependent on broadcasting for its news.) The recommendations of this committee were adopted, and on January 1, 1927, the "British Broadcasting Corporation" came into being, and the board of directors became a board of governors nominated by the Government. From the listener's point of view there was no change (except, perhaps, that the quality of the programmes was not so good for the first few months of the new regime). The old company, with all stations, machinery, etc., was taken on by the Corporation as a going concern under the directorship of Sir John Reith. Its powers were set forth in its Royal Charter, and among these was the power to issue publications (such as "The Radio Times," "World Radio," "The Listener," and many booklets and pamphlets), the power to collect and broadcast news, the power to extend its services (subject to the approval of the P.M.G.). In connection with this last power the Corporation wasted but little time in preparing an entirely new network of stations, which is known as the "Regional Scheme."

And this can be briefly explained thus: "The Regional Scheme implies the re-organisation of transmitters so that the present low-power stations are replaced by fewer and higher-power stations, in general with two wave lengths. Basic to the scheme is the desirability of giving more widespread distribution of signal strength, and at the same time of enabling at least one alternative programme to be received on simple apparatus."

The general idea is to have five regional stations, each using two wave lengths (and giving two programmes). Each station is to have a power of 30 k.w. These stations are to be kept away from the more densely populated areas (i.e., London, Manchester, Cardiff, Glasgow, and Belfast), in order to do away with "wipe out" in these areas. The first of the new high-power stations, an experimental one, was erected at Daventry in 1927, under the call of 5GB. This has proved eminently satisfactory, and accordingly work has commenced on the first regional station proper, at Potter's Bar, on the northern outskirts of London. This is now almost complete, and should commence operation during 1929.

The "two-programme idea" has been introduced, in order to try to satisfy everybody. While the station is transmitting on one wave length, classical music or a talk, it will be giving a variety entertainment or dance music on the other wave length. So everyone can listen to what he or she prefers! And those who have larger sets will be able to receive all the other regional stations as well—ten programmes in all—the listener's paradise!

And now, to describe some of the activities of the B.B.C. during 1928.

## Empire Broadcasting

THE experimental short-wave station 5SW, using a power of 10 k.w., was in operation throughout the year. The transmissions have proved that nothing in the nature of a regular service is possible at present, and it is considered that great improvement in receivers will have to be effected before satisfactory long-distance telephony becomes possible. At the moment fading is the great problem.

## Controversy

PROBABLY the most surprising event of the year was the decision of the P.M.G. to lift the ban on controversy. By the charter of the B.B.C., they were not allowed to express opinions on matters of public policy, or to make statements involving matters of political, religious, or industrial controversy.

Suddenly the Chancellor of the Exchequer (Mr. Winston Churchill) announced in the course of a broadcast speech that he thought this ban was ridiculous. **THE BAN WAS REMOVED WITHIN A WEEK!**

## Technical Progress

THIS was considerable, and all improvements were made with the regional scheme in view, so that further alterations in the near future should not be necessary.

Studios are now "padded" with wall-paper backed by felt, and drapery has been done away with. "Synthetic" echoes are used to lessen the dead effect of studios. These are accomplished by using a loud speaker and

a second microphone, from which the "voice" is also fed to the transmitter, but with a slight time lag.

Land-lines are now being converted as far as possible from the overhead to the cable type, and thus the danger of interruption by winter storms is minimised. The land-line network has been extended internationally, and recent broadcasts from abroad include those from Menin Gate, Vienna, and Brussels.

## The Broadcasts

AS regards the actual matter broadcast, the year was an eventful one, and many and varied were the subjects. Novelty broadcasts included descriptions (with actual noises) of the great military searchlight tattoo at Aldershot, where the Army has its annual "show off"; the R.A.F. pageant at Hendon, the Air Force equivalent of the tattoo; the "Ceremony of the Keys" at the Tower of London, when the Tower is locked up for the night with great formality; the Oxford and Cambridge boat-race, described from a launch following the race for the second time; tennis at Wimbledon; the Derby and the Grand National from Epsom and Aintree racecourses, respectively; athletics; boxing, football, etc.

From the studios dramatic performances totalled 41, of which ten were Shakespearean plays. Also the first of George Bernard Shaw's plays to be broadcast, "The Man of Destiny," is included in this number.

Some 30 operas were performed at the studios, and individual acts were relayed many times from the Royal Opera House, Covent Garden.

The London Promenade Concerts, or "Proms," were revived under the auspices of the B.B.C., and 16 were broadcast. These proved very popular. The orchestra was that of the Queen's Hall, with Sir Henry Wood conducting.

National concerts from the Royal Albert Hall had to be abandoned, owing to its acoustic defects. They were given, instead, from the Queen's Hall and the People's Palace.

Among the performances given were those of the Wireless Military Band, the London Wireless Orchestra of 36 players, the Wireless Singers (a choir of eight), and, of course, numerous dance bands, including the regular B.B.C. one, under the direction of Jack Payne.

Variety entertainments form a great part of the B.B.C. programmes, but it would take too long to describe even 1 per cent. of the artists who gave these. Suffice it to say that the outstanding "act" of the year was once again that of Sir Harry Lauder.

This, then, is a brief account of the constitution and work of the B.B.C., really a very wonderful organisation, though, "like all the great ones of the earth, it has its detractors." It is said that broadcasting in Great Britain has yet to be equalled in another country—and I find it very easy to believe.

# Wireless Weekly

Incorporating "Radio in Australia and New Zealand."

FRIDAY, MAY 17, 1929.

## FOUNDATIONS LAID

THE new system of broadcasting control, outlined in the specifications for the tenders for programmes summarised in our last issue, suggests many difficulties. What private enterprise has been able to do in the past with a fairly free hand may become a very different matter under Governmental supervision, and interference from semi-official bodies and officials.

But, even in spite of this, the services in experienced hands should continue to develop. There is no longer the uncertain stage of commercial experiment to face. Private enterprise has developed efficient services, and laid the foundation of a sound structure.

In the course of the five years in which they have conducted broadcasting, the holders of the licenses at present terminating, have been subjected to a fair share of criticism, but, considered in the proper light, there is no doubt that they have accomplished much.

People are too ready to judge the past in terms of the present. Five years ago the future of broadcasting was most uncertain, and it was all the Government could do to persuade anybody at all to take up this new baby. No one could tell whether the new system would be a satisfactory commercial venture; even technically it was doubtful whether radio would last long enough to die out or to be superseded by a further development.

It was left to private companies to undertake the risk, financial and otherwise, of establishing the organisations requisite for the development of broadcasting services throughout the States. Most of the companies valiantly kept to the task with no returns for their investment in sight; but their reward was to see services they had inaugurated come to fruition just before they were required by the Government to retire from the business. The pioneering was planned and carried out courageously, and the future is a totally different picture to-day from what it was five years ago.

Thus, on what private enterprise has founded, the Federal Government proposes to erect a new system of service, limiting the amount available for programmes, and leaving those who undertake to provide them a vast unknown obligation in new relay stations. The experiment may be successful. And, again, it may not.

## Relay Stations in Victoria

DURING the year 1926, 3LO realised that country listeners were not receiving an adequate service, and, in conjunction with experts from the University, carried out extensive tests, with the object of remedying the short-comings. Static, fading, and distortion were the chief "bug-bears," and it was decided, as a result of the tests, that relay stations were necessary.

Application was made by 3LO to the Commonwealth Government for the necessary permits to erect four of these stations of equal power to Braybrook station, but these permits were refused. Now, after a lapse of three years, the Government announces its intention of erecting relay stations, after extensive tests—the same as those of 3LO—carried out by the Radio Research Board. Had 3LO been granted the necessary permits, these relay stations would have been in operation early in 1927, and a chain system of broadcasting, similar to that of the B.B.C., would have been established.

Many listeners think that 3LO and 3AB receive between them the whole of the license fees paid in Victoria. This is not so. Three shillings from each license goes to Amalgamated Wireless for royalties, amounting to over £43,000 a year, and up to 2 to the copyright people; 1/ is deducted by the Government for administration tests, and the balance of 18/ is available to pay for programmes, transmission, and the thousand and one things that go to make up the services of the two big broadcasting stations, extending over 20 hours every day in the year, requiring nearly 100,000 items, in some of which, such as symphony and mass productions, over 100

### Wireless Licenses

THE official figures have been issued showing the number of licences in force in the Commonwealth at the close of the month of April. Good increases are shown in each State, with the exception of Queensland and West Australia. The totals for April were as follows:—

State.	In force.	Increase.	Ratio.
N.S.W.	96,877	1,390	3.97
Victoria	143,393	1,461	8.17
Queensland	24,627	15*	2.69
South Aust.	23,186	244	4.01
West Aust.	3,767	23*	.93
Tasmania	4,467	140	2.12
	296,317	3,197	4.69

\*Decrease.

artists are engaged.

You often hear it mentioned that many artists repeat themselves from 3LO. Unfortunately this is inevitable. When one realises that every baritone and every soprano and contralto have respectively the same songs, and that successful broadcasting singers must have about 150 numbers in their repertoire, the problem is understandable.

## Building a Set . . . . . No. 1



The Big Idea Dawns in Henry.



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

**Not News to Me**

Dear Sir,—I agree with "Country Listener," in "Wireless Weekly" of May 3. 2BL has been asking for such a complaint for a long time in regard to its irregularity in giving out the news in the day-time. After hurrying home so often to hear the news at the time stated in published programme, and being "had," as the news was never given out, I cut 2BL out, and time myself now to get the news from 2FC, and am happy to say that I am never disappointed. Station 2FC is always to be relied on to keep to its time-table; but if, for some reason, an item cannot be presented at the time as stated, I always notice Mr. Cochrane has the courtesy to explain to listeners. In the matter of punctuality 2BL should take a lesson from 2FC.—Yours, etc.,

ANOTHER COUNTRY LISTENER.

Hannam Vale.

**Busy Folk**

Dear Sir.—"Country Listener's" first growl is at "Wireless Weekly," which publishes news 8.15 a.m., when it does not commence until 8.30. The 12.48 news, shipping, and market reports vary, and the time does, too (naturally). At 6.30 we are a little more patient. I agree with "Country Listener" that news is what we look for most, and our own news first always, please. Then we, who are busy folk, can switch off and read the remainder when our paper arrives. But I certainly do not agree with "Country Listener" re personal explanations. I have never been bored with them (if any). If I had a choice I would say: News, 8.30 a.m., 12.30 or 1 p.m., and 6.30 p.m., always allowing the G.P.O. to strike first, and, at a time of intense interest (such as the loss of the Southern Cross), that any special item of interest be announced following the striking of the hour. I can understand how "Country Listener" feels when he misses the news.—Yours, etc.,  
Wolumba.

**The Bugler**

Dear Sir,—I listened in to the broadcasting of the Anzac service at the Memorial Stone in Canberra, and I was much impressed and carried away when the bugler played the "Last Post" and the "Reveille" at the conclusion of the service—just after the Governor-General's address. Without doubt it was the finest I have ever heard at any such service, and I would be obliged if you could help me to find out the name of the player. I looked in the "Sun" the following morning, but, though mention was made of the Canberra City Band, no mention was made of the bugler. Could you or any of your readers help me, through your Safety Valve page?—Yours, etc.,

"INTERESTED RADIO USER."

Lakemba.

**Beginning of the End**

Dear Sir,—Why on earth are we worried so much by the daily press about the broadcast of that Daniel play on Sunday night. Who cares about Daniel plays or about musty old church services, anyway? I tell you, if it wasn't for stations like 2UW, which puts through a really decent programme of music on Sunday night, the metropolitan listeners would go to work on Monday morning just like nervous pale-faced wrecks. It's all very well for parsons and other people, who have got religion badly, to make a row in places which seem only too pleased to conduct it, but what I say is, you never get the other side of the case. Look here—in New South Wales we have, or are supposed to have, at our disposal, two A class stations. The policy of these stations has been stated often enough—they want to have a choice of programmes. That is, when 2FC is broadcasting one class of entertainment, 2BL, according to the company itself, should be broadcasting another class of entertainment. Now look at Sunday evening. For one and a half hours, from seven o'clock to half-past eight, we get nothing but church services from each station. It is time somebody had the courage to tell the church-lovers where to get off, and to wade through the meshes of "hypocritical sanctity, which have been raised by interested parties to prevent logical inquiry by a long suffering public. Till then it.

Yours etc.,  
J. REDDING.

Wollstonecraft.

**Special**  
**"WIRELESS WEEKLY"**  
**Supplement**

IN the issue of "Wireless Weekly" for May 31 will be a special supplement containing a complete list of all Australian broadcasting stations, amateur stations with QRA'S, and a list of international S.W. stations.

This supplement will be given away free with every copy of "Wireless Weekly." A large demand is expected since a complete list of stations has not been published for some time, and readers should make certain of obtaining their copy by placing an order with their newsagent now.

**"Goes Out and Gets 'Em"**

Dear Sir,—Add me to your list of satisfied owners of the "Go-Getter"! I have no technical knowledge of radio, the receiver being constructed point by point from your article in "Radio" of December, 1927. Since construction, some months ago, it has certainly lived up to your claims. Given good conditions the "Go-Getter" will "go out and get 'em." On some occasions during the current month G5SW has been received at speaker strength as late as 7.45 a.m. A recent relay of the Glasgow station was particularly clear and strong.

On Sunday afternoon, March 9, KGO was received at sufficient volume to be heard anywhere in the house until 6 p.m., the whole of the Saturday night's programme from Oakland being easily followed. Prior to commencement of the musical programme messages were broadcast to the various members of the Byrd Expedition to the South Pole.

Other stations logged are PCJ, PCL, PRE, PLG, RFM, 2XAD, Berlin, etc. Paris is sometimes heard below 15 metres, apparently carrying out duplex-telephony with Buenos Aires, for the announcer is heard repeating, "Allo, Buenos Aires; Paris vous appele." Modulation is perfect.

I have recently been using a coil, covering the broadcast band, and am surprised at the excellent volume given from all the A class stations, and also 2GB, 2UE, 2KY, and 3UZ at full speaker strength.

In conclusion, I consider the "Go-Getter" not only a short wave receiver of the highest order, but also a very efficient and cheap set for use on the broadcast band.

Yours, etc.,  
Lismore. N. E. TIFORD.

**State v. National Radio**

Dear Sir,—What do the Government's broadcasting tenders mean? That is what everyone is asking. Do they mean that no one will tender? On the face of things it seems almost impossible that Australian broadcasting can be run on national lines. The difficulties of distance are too great. Moreover, there doesn't seem to be much doubt that we in New South Wales and Victoria will have to contribute to the entertainment of people, in other States. I object very strongly to paying for other people's entertainment. I think there should be some public expression of opinion in the matter. The best plan would be to let each State run its own programmes on its own money. As it is, the prospects of better broadcasting after July look even more dismal, if that is possible, than they did four years ago.

Yours etc.,  
F. H. THORNLEY.

Coogee.

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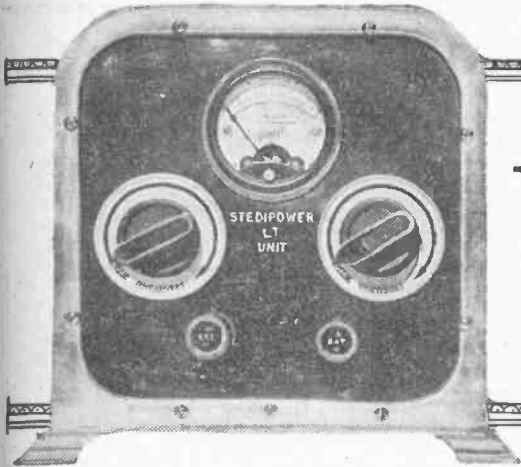
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# A Stedipower A Battery Eliminator

*An Addition that Converts Your Set for AC Use*

By DON B. KNOCK, Associate Technical Editor

IT is now almost a year since the news filtered through to Australia that something in the nature of an A battery eliminator which presented no complicated difficulties, and which every radio user could build up from stock components, had been evolved by Mr. Percy Harris, whose name is well known in radio circles the world over. The reports from the thousands of British enthusiasts who built the "Stedipower LT Unit" he described were very gratifying. Its development was noted in Australia, but, for the reason that it has been (until recently) impossible to obtain the necessary electrolytic condensers in a form suitable for the man in the street, little or nothing has been said about it.

When these condensers were eventually available in Australia, the article was still further delayed, owing to the lack of the essential components in New South Wales. Very few of our readers have heard much about this type of A eliminator, and now, at a time, during the Radio Exhibition, when considerable interest is aroused in the future of the all-electric set, a description will, no doubt, be very welcome.

There are various ways in which a wireless receiver may be supplied with A and B power and be described as "all-electric." Supposing you are using a good B eliminator, DC valves and a trickle charger that really charges. To all intents and purposes your set is an all-electric set, for the reason that the B eliminator does its job on the spot, and the A battery never has to be moved for charging if the trickle charger is doing its work.

Do not imagine that this applies if you try to keep a heavy-duty car accumulator up to scratch with a trickle charger. That would be like trying to tickle an elephant with a feather!

Next we have the method of feeding valves from an AC supply, with the filaments wired in series, and a B eliminator for the plate supply. Then comes the more conventional method of using special AC valves with an independently-heated cathode. Together with the B eliminator, this is the truly all-electric receiver, and, in its many forms, as pro-

## The Parts for the Stedipower A Eliminator are:—

1 special transformer and two chokes (double choke unit). (Transformer for 240-volt AC mains, step down).

1 special Westinghouse dry rectifier.

2 TOC electrolytic condensers, 1500 mfd each.

1 baseboard,  $1\frac{1}{2}$  by 7 by  $\frac{1}{2}$  inch.

1 bakelite panel, 7 by 7 inches (1-in.).

1 Ferranti, Jewell, or Weston 0 to 8 moving-coil voltmeter.

1 10-ohm Igranic porcelain rheostat.

1 30-ohm Igranic porcelain rheostat.

2 terminals (marked A positive and A negative).

2 5-amp. fuse holders.

1 plug-adaptor, with flex.

Heavy-gauge wire for wiring up (14 or 12 gauge tinned copper wire).

duced by commercial manufacturers, is achieving great popularity.

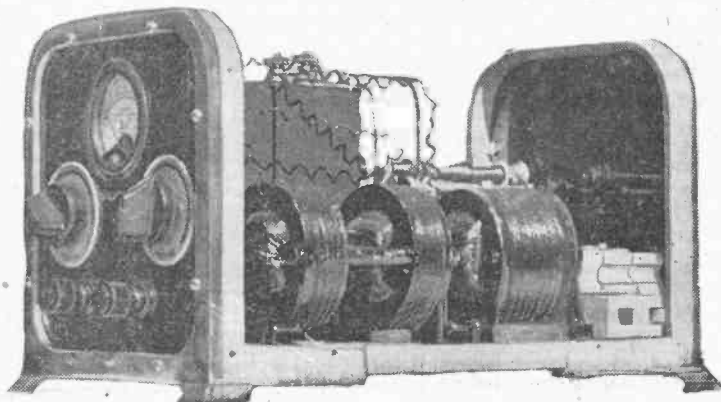
One requirement must be taken into consideration, however, and this has been somewhat overlooked. There are many home constructors of wireless receivers who would like to convert their existing sets for total power operation, but are dubious about using AC

valves. There is no reason why this should really be so, as the operation of the AC valve, with its independently-heated cathode, is a natural sequence of events, and may be readily understood upon mastering the theory of the ordinary valve. What could be a more satisfactory way of approaching the problem of the conversion of the existing set than by leaving it as it is with regard to the valves in use, installing a B eliminator (if not already done), and feeding the DC valves through a special but simple device, taking its actuating power from the AC mains exactly as the B eliminator does?

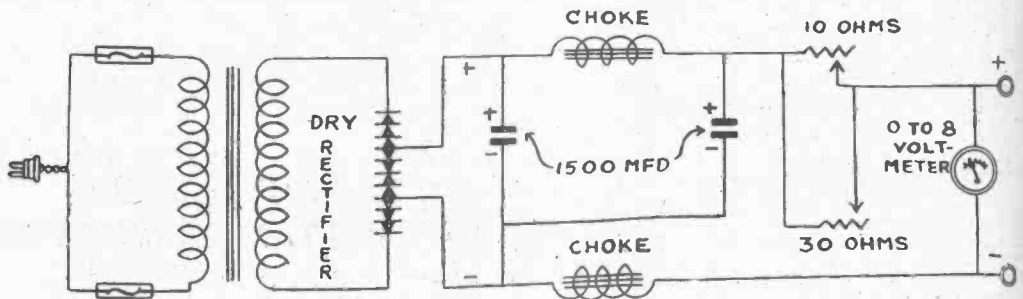
This is where the Stedipower A battery eliminator fills a long-felt need, and as all the component parts are now in stock at all leading Sydney dealers the story of the unit is here told for the edification of those who are likely to be interested—and they must be legion.

First of all, it is necessary to say exactly what the Stedipower A eliminator does. It is a simply-constructed unit, which, when connected to the alternating current mains, entirely replaces the accumulator and supplies to any set pure, direct current, free from trace of hum, with a steady voltage and negligible cost of running. No alterations are required in an existing set to connect up this unit, and this at once gives it a great advantage. It is not normally possible to tell the difference in the supply from this unit and an accumulator fully charged, and, once it has been adjusted to suit the particular set it is used with, no more attention is required than to switch it on and off whenever the set

is operated. The owner of the usual multi-valve receiver knows that to maintain a continuous service he needs two accumulators, unless he possesses a 2-amp. battery-charger, and religiously puts the charger on to his accumulator every night before retiring. On the other hand, he might keep one battery charging while the other is in use. In England, particularly, it was found that the high cost of charging caused a tremendous increase in popularity of the 2-volt class of valve, and the writer has noticed a tendency in Australia, also



# CONNECTED TO AC MAINS, REPLACES ACCUMULATOR AND SUPPLIES DC



to use more of the 2-volt valves than has been the case previously.

The Stedipower unit will operate equally well 2, 4, or 6 volt valves, and has enough reserve power to run a receiver using two stages of RF amplification, detector, and two stages of audio amplification, with a push-pull output, so the reader will see that it caters amply for the needs of all.

The original model of the Stedipower unit was designed to give a maximum output of 1 ampere, this being considered sufficient with the majority of British valves, but, as there are used in Australia a great number of American valves which require more amperage, the special rectifier and filter unit allows a higher total output current.

In operation the unit is perfectly silent, and, with a five-valve Neutrodyne receiver, it would have been hard in the test of the model illustrated to realise that anything else but an A battery was supplying the filament power, unless the operator had been blind. The beauty of the thing is that there are no acids to worry over and spill, no valves to burn out, and no distilled water to be constantly added. Once the unit is adjusted and installed, the on-off switch for the mains does the trick. If at any time it is desired to change the Stedipower unit from one set to another, a slight adjustment on one of the control knobs is all that is required.

The internals of this real boon to radio mankind consist essentially of the following. To supply filament current up to 1½ amperes at 6 volts from the AC mains:—

1. A step-down transformer to supply voltage of a lower value suitable for the set.
2. A full-wave rectifier, which will satisfactorily rectify current of 2 amperes.
3. A filtering system, which must absolutely eliminate all trace of ripple.
4. A voltage adjustment control.

No. 1 is an easy matter to deal with, as such a transformer is readily available in different forms on the market, and is cheap to buy.

No. 2 is not a simple matter for the radio who contemplates making his own, and the writer earnestly advises all those who are

thinking of so doing to forget the idea before starting. It is NOT an easy process to make a dry rectifier, such as the one which has been specially evolved for the Stedipower unit.

There are other rectifiers which could be used, but they are all continual sources of trouble. Point No. 3 is the biggest snag. Most readers who have had anything to do with B eliminators and the construction and repair of them will know what constitutes the usual filter system. Filtering is done by a combination of chokes and condensers. It is an easy enough matter to design a choke which will carry the maximum current of 1½ amperes, as required, but when the condensers are considered it puts a different complexion on things.

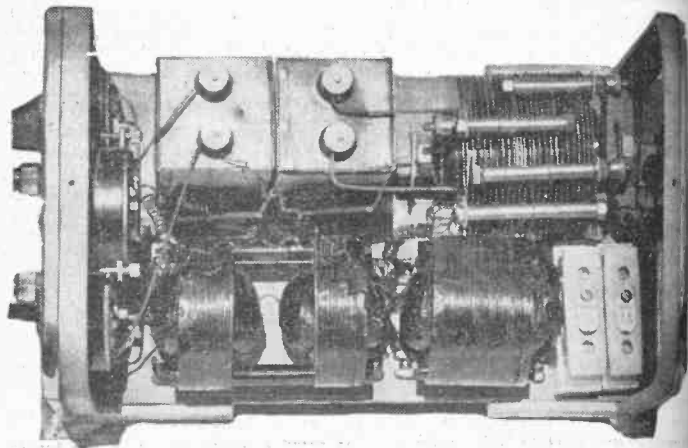
In his initial tests of the original unit, Mr. Harris went to a lot of trouble to determine what was the necessary capacity to effect good smoothing of the rectified output. He found that, whereas it was easy enough to obtain good smoothing in a filter circuit, using the average choke of 50 henries inductance, with 2, 4, or 8 mfd. capacity, owing to the special chokes necessary to pass 1½ amperes, even a capacity as high as 50 mfd. had not the slightest effect on the intensity of the hum from the rectifier!

He further stated that it was impossible to tell even by ear whether the capacity was

connected or not. This presented a very serious problem, and it looked as if the proposed Stedipower unit was doomed before it started. To obtain the requisite smoothing capacity it would require a very large number of the average size and capacity of filter condenser, and the space taken up by these and the expense rendered the idea out of the question.

About this time a new form of electrolytic condenser had been developed by the well-known TCC Company, of whose well-known green case condensers there are many hundreds of thousands in use in Australia. The new form of electrolytic condenser has a capacity of 1500 mfd., although it is very little larger in physical dimensions than the usual 4 mfd. filter condenser.

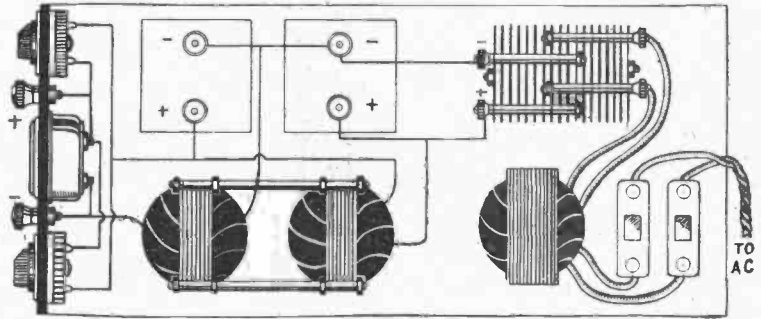
Mr. Harris was able to reach his objective by the use of these condensers, the principle of the A eliminator being essentially filtering by a very high capacity and low inductance, the chokes having a value of only 1 henry each. Having reached this stage, the next step was to work out a practicable piece of apparatus, which gives the necessary ease of control, and in connection with this it was essential to pay particular attention to the voltage adjustment control, as, whatever device was provided, it had to be capable of carrying up to 2 amperes without over-heating.



# RUNNING COST NEGLIGIBLE: VOLTAGE STEADY: FREE FROM HUM

As mentioned before, all the parts for the complete unit are now available on the market here, and the resistances chosen by Mr. Harris in the original model are included. These are the Igranic porcelain rheostats. They have a resistance value of 10 and 30 ohms respectively, as may be seen from the circuit diagram. They are wired in shunt, so that a balancing adjustment according to the load required may be made.

The baseboard for the complete Stedipower unit measures 14 by 7 inches, with a bakelite panel, 7 by 7 inches, to carry the output, voltmeter, and controlling rheostats. No details are given for the construction of the transformer and chokes, as the complete kit of parts may be obtained cheaply, and will be stocked in large quantities by all leading dealers. If there are readers who insist on making their own, the transformer secondary should deliver 10 volts AC at up to 2 amperes, but should be tapped at intermediate



The lay-out of the parts can be seen from the wiring diagram, and checked up with the circuit diagram. Both are so simple that no mistake should occur in the connections. One point must be remembered in connection with the TCC electrolytic condensers. The terminals are marked with a red and black bushing (indicated by positive and negative in the drawings), and under no circumstances must these connections ever be reversed, or the condenser will be ruined.

Another important point to remember is that these condensers cannot be used for smoothing high voltages, as in a B eliminator; they will only stand up to low voltages, as in the Stedipower A eliminator. Two 5-amp. fuses are included in series with the mains to the step-down transformer.

It would be a good idea to connect the power-plug for the B eliminator for your receiver across the input to the transformer, so that, when all adjustments are complete, and the A eliminator is regulated to supply your set at the desired voltages, the house power-point switch operates both the A and B supply to the set, making it an all-electric set, which responds instantly, and does not have to wait for cathodes to heat up, as in AC valves.

In the original Stedipower unit, illustrated in the photographs, a cover of perforated sheet steel is provided, although not shown. When it is fitted, the complete unit looks very neat. A fair amount of heat is generated in the rectifying unit when the eliminator is in operation, and the perforated sheet is used so that there will be an outlet

for this. It is not advisable to enclose the whole with a cover, which will not allow the heat to disperse, or the action of the rectifier may become impaired in time.

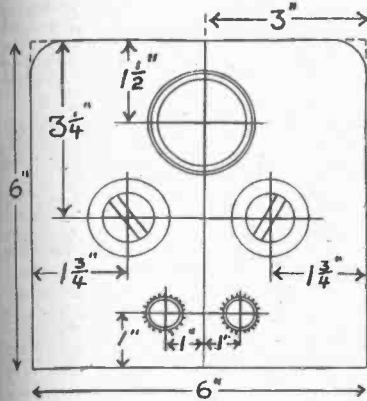
When connecting up the Stedipower A eliminator to an existing receiver, make sure that the switch of the receiver is on, and the mains switched off. Once the adjustments have been made the entire switching of the set should be done from the mains.

Adjustments are simply made by means of the two rheostats until the needle of the voltmeter reaches the voltage figure for the valves in the set. If a fairly heavy load is taken by the set, it is possible that the voltage will not reach 6 volts at first, even with the resistances at the "full on" position. This is because it takes a minute or so for the rectifier to get into full operation.

It will be necessary to watch the voltmeter carefully for the first few minutes, checking up on the resistances as the voltage rises slowly.

Once the unit is adjusted it may be left at the correct setting for the receiver consumption indefinitely, and no further adjustments need be made, unless there is any serious fluctuation in the AC mains.

This brief article on the Stedipower A eliminator will stimulate interest in those readers who are thinking of making changes to existing receivers for power-point operation, and it provides at once the easiest, yet a most effective, way. In the writer's opinion, it is one of the most outstanding developments in battery elimination, providing, as it does, a source of DC supply, perfectly filtered, free from hum, and constant in operation.



points on the secondary. The special Westinghouse dry rectifier will deliver up to 5 volts DC.

The first thing to do is to drill the panel and mount the meter, rheostats, and terminals, as shown. This voltmeter should be accurate and of reliable make, such as Ferranti, Jewell, or Weston, and the hole can be very easily cut in the bakelite for the mounting of this by means of a drill. Draw a circle the size of the drum of the meter on the surface of the bakelite, and drill around the edge until the centre drops out, afterward finishing off with a round or half-round file.

## Hum Suppression in Dynamic Cone Depends on Proper A Condenser

THE usual practice in most AC dynamic loud-speakers to-day is to employ a low-voltage rectifier, together with a 2000 mfd. A condenser for filtering out the hum. This arrangement is reasonably inexpensive, and, if the proper condenser is employed, results in a minimum of AC background.

However, the A condenser does not always eliminate the hum, even if its capacity is of the order of 2000 mfd. The trouble is obviously not due to capacity. Sometimes two A condensers of the exact same capacity will not perform alike with regard to

hum elimination. One will work well, while the other will fail to eliminate hum.

In seeking an answer to this technical puzzle, we have asked the advice of Harry W. Houck, chief engineer of the Dubilier Condenser Corporation, who has had extensive experience with chemical A condensers, as well as with other types.

"Just why one A condenser should prove a good hum filter, and the other should fail, even when the capacity is the same in both cases, we do not know for certain," states Mr. Houck. "There is some peculiarity in the chemical action with which we are not

altogether familiar at this time. We have noted this feature in making tests with many makes of A condensers. By good fortune, our condensers happen to be highly efficient in eliminating AC hum, and for that reason are widely accepted as standard.

"It should be noted," continues Mr. Houck, "that a filter condenser usually increases the voltage, due to the increased efficiency of the rectifier. This should be considered in designing the dynamic field coil, which must be capable of handling the full current."

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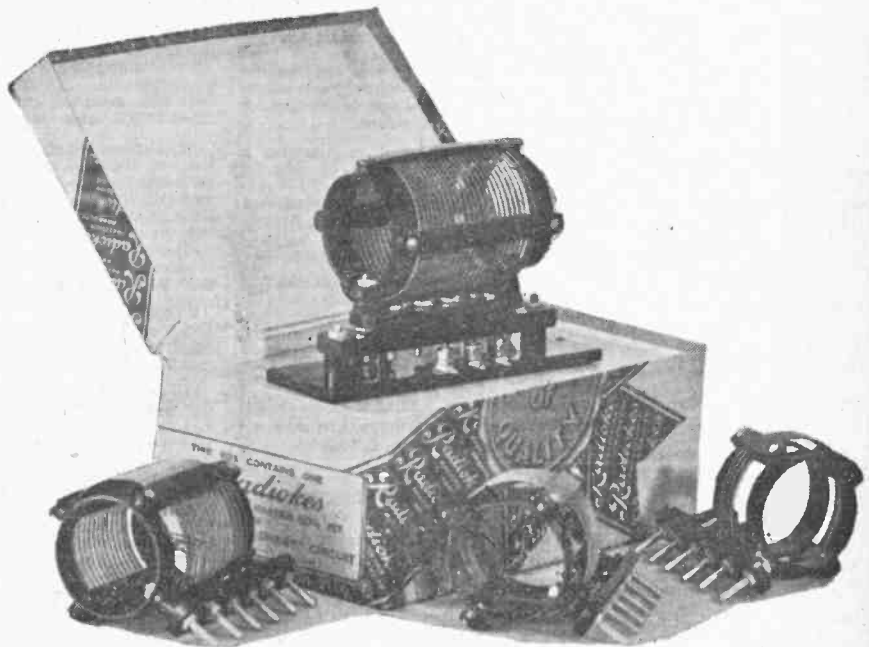
## RADIOKES COMPONENTS

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This is a sample of Radiokes Quality Components, namely the Radiokes Short Wave Screen Grid Coil Kit, selling at 72/6 per kit. The sheer beauty and excellence of finish of Radiokes Products would tempt any constructor to use them, but there is more at stake than "looks." Efficiency is that which counts in a competition, and here these quality components have shown their worth. Radiokes components are designed for "efficiency plus," and that point is foremost in the "ham's" mind.

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Many thousands of delighted fans visited us at the Radio Exhibition, with congratulatory comments, and recorded their pleasure and satisfaction from their choice of Radiokes components. There was not one complaint or dissatisfied constructor come before our notice—truly a wonderful record.

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# How to Judge an All-electric Radio Receiver

Every visitor to the Radio Exhibition must have realised that the all-electric set has come to stay. The surprisingly cheap prices shown for two, three, four, five, and six valve jobs attracted many hundreds. Those readers contemplating the purchase of one of these new receivers this winter will be interested in this article by a well-known American authority.

IMPROVEMENT will always continue in the radio art, and he who awaits perfection will neither purchase nor enjoy radio. Were the same policy followed with respect to the purchase of motor cars, some forty million people would still be walking because the ultimate automobile, after a quarter of a century has been devoted to development in this field, is not yet here.

The radio receiver of to-day is a product which, both from the musical and technical standpoint, is capable of many years of service. It will not be greatly outclassed in the musical quality of its output for a long time. In sensitiveness, selectivity, fidelity of reproduction, simplicity of control, and convenience of maintenance, it has reached high standards. In appearance, efficiency, compactness, simplicity of installation, and automatic operation, considerable progress may still be looked forward to, but none of these factors mean great changes in the fundamental output of the radio receiver, that is, reproduced musical programmes. We have passed through the period of revolution and have come to the era of refinement in this radio world of ours. There is no longer any excuse for delay in purchasing a high-grade manufactured receiver.

A radio receiver employing valves which obtain their filament or heater currents from an alternating current electric light line without the use of rectifying devices and with a built-in tube rectifier for the plate and grid biasing potentials is known as an AC Electric Set.

There are a number of receivers of this type on the market. With skilful engineering and high-grade components, they offer carefree and high-quality reception. If carelessly designed, they may give a marred output because of excessive hum, and unreliability of service due to failures in vital parts. It should not be thought, however, that a set is necessarily good because it does not hum. If poor audio transformers are incorporated they may not be capable of amplifying the low-frequency hum produced by alternating current. The problem of the uninitiated in distinguishing between the inferior and the superior type is perplexing. The name and reputation of the manufacturer, the endorsement of men technically qualified to judge radio products, and the pages of high-grade publications, which censor and check the statements made in their advertising columns, are helpful sources of information and guidance.

Practical tests can be made by the technically untutored buyer, when a set is being demonstrated, which will protect him against the purchase of a power set of inferior design. The principal characteristic of a poorly designed receiver, deriving its A, B, and C potentials directly from the light mains, is the excessive hum experienced when the set is adjusted to sensitive reception.

A dealer, selling a radio set subject to

hum, is likely to concentrate his demonstration upon the reception of strong, near-by stations. Ask him to tune-in a weak station, preferably one fifty or a hundred miles away, during the day time, or one several hundred miles away at night, requiring that the sensitivity or volume control be turned up all the way to get the station comfortably. Then slightly detune the set. Without the covering effect of the music, you should then get a direct indication of how much the receiver hums under unfavorable conditions, provided, of course, that a loud speaker is used which reproduces the very low notes. To be entirely satisfactory, the hum should be so weak that it cannot be heard in a quiet room ten feet from the loud speaker which the prospective purchaser will use.

Be careful there is no hum to be heard when set is adjusted to sensitive reception.

It is quite possible to attain this standard, but it costs money. A great discrepancy in price between two sets having the same sensitiveness, tone quality, and appearance, is often accounted for by the complete absence of hum in the more expensive receiver. The hum test is a simple one and should be made by every purchaser, regardless of his technical qualifications.

### MEETING MODERN STANDARDS OF FIDELITY.

If there is one quality in radio receiving sets which has been appreciated by manufacturers, it is the ability to produce good tone. Briefly, to obtain good tone quality requires that the set have: (1) Adequate power supplied the loud speaker by the use of a UX-171 type output valve, or even by the still more powerful UX-210 type; (2) an audio amplifying system which covers the tonal scale and (3) a loud speaker adequate to handle the volume and tonal range supplied it. To the non-technical reader, these requirements may seem difficult to appraise. But a simple test reveals a great deal about the tonal capacity of a receiver. Ask the dealer to tune-in a strong, near-by signal and bring it to full volume. Although the music is uncomfortably loud, using the output valves mentioned, it should not, even with very strong signals, be scratchy, stringy, or drummy. Music should be simply loud with tonal quality unaffected.

The second test is to listen critically with the set at moderate volume for the instruments producing low tones, like the cello, drums, or the organ. If these appear to be in their proper proportion, without being overshadowed by the treble, the receiver is capable of handling low tones.

There is much danger of selecting a set which exaggerates the low tones, a characteristic easily demonstrated in speech. A low, throaty, ringing effect, which makes words difficult to understand, is an indication of over amplification of low tones. A receiver

omitting low tones, usually gives harsh, unsympathetic, but clear speech. Speech over the telephone is quite easily understood, but the rich sympathetic quality of a good voice is lost because of absence of low tones in telephone transmission.

### TESTING FOR SELECTIVITY.

Selectivity is necessary under modern receiving conditions, particularly in congested areas. Generally speaking, the more valves a set has, the more likely it is to be selective, because each stage of radio-frequency amplification adds another filter circuit. It does not necessarily follow, however, that a great number of valves means great selectivity any more than a great number of cylinders mean great power in an automobile.

The pick-up system used is a valuable guide in determining the selectivity. Given an equal number of stages of radio-frequency amplification, an antenna set is likely to be less selective than one with a loop. A receiver lacking in selectivity can often be improved by shortening the antenna.

Selectivity is simply tested, but it is hardly possible to set down any definite procedure since local conditions play an important part; while a receiver may be perfectly satisfactory in one district, it might fail badly elsewhere, where the conditions and requirements are different.

There are some receiving sets so lacking in selectivity that the nearest station (we do not mean a so-called "super-power" station) can be heard over one-fourth to one-eighth of the entire dials' scales, while a few high-grade receivers pick up the same station over only two or three degrees of the dial. The signal should tune-in fairly sharply without long fringes over which it is heard weakly above and below the point where it is heard at full volume. The selectivity with a weak and distant station is no indication of the receiver's performance under ordinary conditions.

### EVALUATING SIMPLICITY OF CONTROL

The third factor, and one of great importance, if the entire family is to use the receiver, is its simplicity. Only three controls are essential to the operation of the receiver: (1) An "on-off" switch; (2) a volume control, and (3) station selector. The "on-off" switch should take care of all power supply connections, such as those of the chargers and power supply units, as well as the filaments of the tubes themselves.

The volume control should enable you to bring the loudest, near-by station down to a whisper, without impairing its quality, while the station selector should give you the complete parade of broadcasting stations, up and down the scale, without requiring any other adjustment. Set the volume control to a weak station and turn the dial from top to bottom and the stations should come in in

Watch for exaggeration of low tones. Tonal quality must be unaffected.

the order of their frequency, this depending, of course, on their power and distance.

If at the low end of the dial the tone quality of the station cannot be cleared up without cutting down the volume control the receiver is not properly balanced and probably radiates, and thus interferes with other receivers on the short wavelengths. The functioning of volume control and station selector should not be interdependent.

Receivers having a single station selector and designed for antenna (as opposed to loop) operation, generally require an extra stage of radio-frequency amplification generally untuned. This extra stage only con-

tributes little amplification and does not materially affect the selectivity. Because of this consideration, the fallacy of rating a receiver's capabilities by the number of valves it possesses is obvious. Its sensitiveness and selectivity are dependent upon the number of stages of tuned radio-frequency amplification.

The buyer is often perplexed by the great number of receivers, apparently similar, but possessing a wide range of price. The factors of tone quality, selectivity, and volume capacity may be roughly tested upon demonstration, but unreliability develops only in service. Beware of the receiver that is too

cheap, particularly one having power supply incorporated in it, because filter condensers may break down and mechanical difficulties may arise in service. It is true that very large quantity production decreases costs, but as with everything else, you do not get something for nothing. The extra cost of purchasing a set having back of it the name of a well-known manufacturer, is a protection against the hidden factor of unreliability. There is no reason for tolerating an unreliable receiver because the instrument which the buyer has at his command nowadays requires virtually no attention other than the periodic renewal of valves.

# A NEW CIRCUIT BREAKER

**H** AILED as one of the electrical industry's most important developments of recent years, the invention of a circuit breaker based on a fundamentally new method of interrupting an electric current—the only new method advanced in 25 years—was publicly announced for the first time at the annual meeting of the American Institute of Electrical Engineers, recently.

Three papers read to the institute revealed the revolutionary character of the device, which is called the Deion circuit breaker, the name being derived from the essential feature of its operation, the deionization of an electric arc. Dr. Joseph Slepian, of whose engineering genius the device is a product, read one of the papers, dealing with its theoretical and mathematical aspects. Dr. Slepian is a member of the research staff of the Westinghouse Electric and Manufacturing Company.

In accomplishing the deionization process, the Deion circuit breaker drives an electric arc over a metallic path at the rate of 2400 miles per hour—much faster than a rifle bullet. The arc itself has a temperature of 5000 degrees Fahrenheit, the highest temperature ever attained, and one-half the estimated temperature at the sun's surface. Yet, in spite of this terrific heat, the speed of the arc is so great that a cotton thread held directly in its path is not even scorched.

A circuit breaker is a switch—large circuit breakers are used in great numbers in power-stations, the same way as small electric light switches are used in homes. As its name implies, the function of a circuit breaker is to stop the flow of electric current by breaking the metallic path over which the current passes.

Essentially, a circuit breaker consists of two metallic contacts, which can be drawn apart. The device is called upon to play the dual roles of Dr. Jekyll and Mr. Hyde; when the contacts are together, the breaker must be a perfect conductor; when they are separated, it must be a perfect insulator.

When the circuit to be broken is carrying thousands or hundreds of thousands of horse-power, the mere pulling apart of the metallic contacts a reasonable distance is not sufficient to stop the passage of the electricity. The current's "momentum" causes it to span the intervening gap in the form of an electric arc. It is this phenomenon of arc-ing that has made circuit breaking one of the most vexing problems in electrical engineering, a problem which had never been solved satisfactorily before Dr. Slepian's invention of the Deion device.

The best method of extinguishing circuit-breaker arcs heretofore known to engineers, and the method now in general use everywhere, is to immerse the separating contacts in oil. Oil is a good insulator. Thus, when

*The only new method of interrupting an electric current advanced in 25 years.*

the metallic contacts are drawn apart, the oil stops the formation of, or "quenches" the arc.

But oil, besides being a good insulator, is also a good fuel. The electrical industry has for many years had as one of its chief goals the development of a better means of interrupting currents, preferably without oil. Dr. Slepian's Deion method eliminates entirely the use of insulating oil. No attempt is made to "quench" the arc, but when the arc is formed it is driven at a mad pace over a circular race track until it dies of exhaustion.

When assigned by Westinghouse officials to undertake research on circuit breakers, Dr. Slepian began, as a preliminary to his later work, an intensive study of the formation and structure of electric arcs. Knowing that an electric arc is essentially a stream of ions, he conceived the idea that if the ions could be removed, there would be no arc.

After five years of analysis and calculation, Dr. Slepian discovered a method of using a magnetic field to drive an arc at the terrific rate of 2400 miles an hour. Arcs travelling at ordinary speeds, and coming in contact with metal would melt the metal rapidly, and use the metal's ions to prolong its life. With the Deion breaker's extraordinary arc-ing speed, however, this pro-

cess is just reversed. The arc is driven into a series of copper plates, where it is broken up into a series of small arcs, and the copper, rather than giving up its ions, removes ions from the arc instead. If one of these small arcs should come to a stop for a twentieth of a second, the copper plates would melt instantly, and fuse together.

The copper plates, into which the arc is driven, are circular in shape. The magnetic field which drives the arcs causes them to follow a circular path around these plates. Thus, when an imprisoned arc has made the circuit of the plate 30 or 40 times, it is completely drained of ions that its life is snuffed out.

Circuit breakers embodying the Deion principle have been made in a variety of forms, and Westinghouse officials are confident that the principle can be extended to solve a great host of difficult switching problems. The list of applications to date include small safety switches, electric magnetic switches for starting and stopping motors, small circuit breakers for 2500 volt service, and large breakers for 15,000 volt service.

An outstanding feature of the Deion circuit breaker is its ability to stand repeated short circuit tests, without the need of maintenance or attention. One of these breakers was recently given 100 operations at current values ranging from 5000 to 15,000 amperes, without any maintenance whatever.

The speed of the circling arcs churrs the air into such a turbulent state that special openings in the arc-ing chamber are used to give the machine the necessary ventilation.

Electric railroads and street railway systems will benefit greatly by the new development, it is declared. Installation of Deion breakers also will make for greater reliability of central stations, it is said.

Development of the Deion breaker also spells the doom of the light fuses, which stand as sentinels over the wiring systems of residences. Now, rather than replacing a blow-out fuse when a current overload occurs, it is necessary only to push the handle of a small circuit breaker to reinsert the electric drive.

## Conservatorium Concert

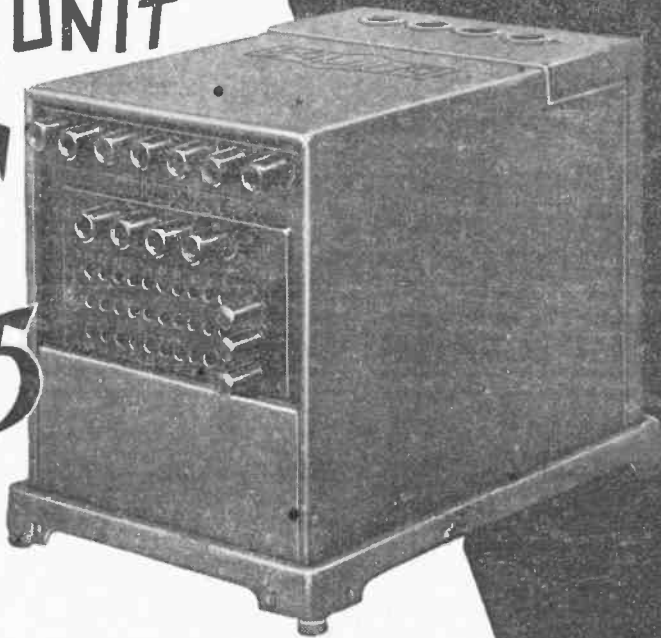
A VERY fine programme of English music has been arranged by Miss Mary Campbell, of the Albert Street Conservatorium, and will be broadcast by 3LO on May 22. Assisting artists will be Dawn Harding and Millicent Osmond, who will contribute vocal numbers; while violin and piano solos and duets will be rendered by Muriel Campbell (violin) and Ida Scott (piano). As is usual at these concerts Miss Mary Campbell will preface the items with a brief talk about the composer, which will greatly add to the appreciation and enjoyment of listeners.



Although reproduced here at the normal size of a transformer, if this huge Philips transformer model were used in the constructor's set of to-day, it is questionable if there would even be room for a valve socket. It actually stands 18 inches high, and is 2 feet wide at the base; the terminals are nickel-plated, just as in the real unit, which is to be seen standing on top of the model. Much interest has been caused by these oversize dummies, which are used in displays by Philips Radio.

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**£10.15**



**A** LWAYS a "best-seller" at the old price, the Philips 3003 "B" and "C" Power Unit will be even more popular at the new reduced figure. Just think! No more dry batteries at all, but an ample supply of never failing power from the light socket. Once the best values have been determined for your tubes, the Power Unit plugs may be forgotten—how unlike the erratic voltage-drops of "B" Batteries. And if at a later date you wish to use A.C. Valves, you just require a Philips Filament Transformer to obtain ALL power from the light socket.

**PHILIPS**

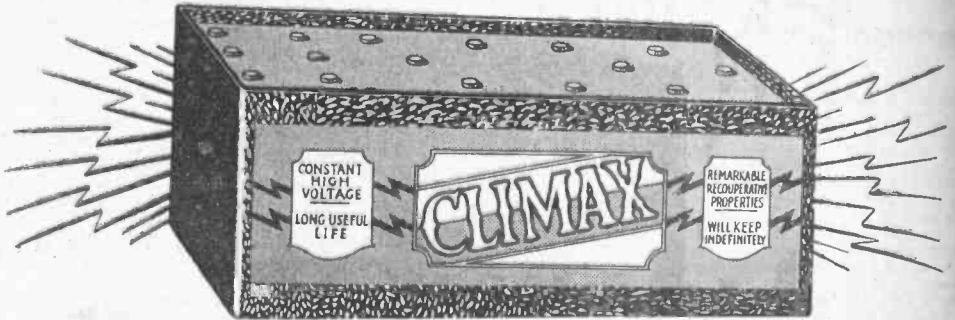
**POWER SOCKET APPARATUS**

Do you know all about the ingenious switch on the Philips Trickle Charger?

9B21

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The “Climax” formula does not include either of these chemicals.

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Noise and unsteady operation need never be reckoned with if your set is “Climax” equipped!

Undoubtedly, the “Climax” in battery making has been reached in this new-process-product, so aptly named.

## CLIMAX “B” BATTERIES

30 Volts, 8/-; 45 Volts, 12/-; 60 Volts, 16/-; 90 Volts, 24/-.

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*Equip Your Set With “Climax” To-day and get Maximum Results !*

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# PROVING RADIO!

**No. 21** The remainder of the conventional symbols are treated this week in preparation for the construction of a simple receiver with which readers of "Proving Radio" will be able to receive the Morse lessons specially to be transmitted for the Proving Radio Club by VK2KB. An examination paper also appears in this issue.

**H**ERE ARE SOME MORE SYMBOLS, but there are so many that they must be treated very briefly at present, as we must get on with a little more theory and a few more experiments.

Our first symbol is the loop aerial. The loop aerial is usually about a dozen turns of flexible wire wound on a cross batten two feet square. Note how the centre (or commencement of the loop) is "hooked" over the other turns, showing that no contact is made at these points.

We have treated inductance coils. A coil that is tapped shows the approximate tapping places, and the arrow shows that the inductance is variable. An astatic coil is merely one in which half or portion of the turns are wound in an opposing direction. Loose coupled coils are those which are separated by air for some considerable (electrical) distance. When the coils are very close to each other, they are said to have tight coupling, or are closely coupled.

Ganged condensers are merely a number of variable condensers, the rotor plates of which are operated off the one spindle. Our symbol shows the rotor plates connected together.

The screen-grid valve is merely an ordinary valve with another grid introduced. The grid symbol (as we learnt last week) is shown by a wavy line.

A potentiometer is nothing more than a variable resistance, and is shown the same as a variable resistance or rheostat. The parts of the circuit in relation to this symbol will show what component is referred to.

A single cell is shown by two lines, one of which represents the positive plate (thin line) and the other (the thick line) representing the negative plate. Remember that the negative plate has a superfluity of electrons, and this is shown by giving the negative plate a thicker line than the positive. A "B" battery, i.e., the battery that supplies current to the plate of the valve, is shown just the same, with the exception that a few dotted lines indicate that there are a number of cells connected in between the two poles.

You will remember that an audio frequency choke is shown by means of a coil, which surrounds a core. You should also remember that R.F. transformers have no core. The same applies to an R.F. choke. This has no core, and is simply shown as a coil of wire. In order that no error may be

made, the letters "R.F.C." (Radio Frequency Choke) usually appear near this symbol.

The next symbol requires no explanation. Two symbols are shown, and both represent a switch.

The plus sign usually refers to the positive, and the minus the negative poles of a battery. MFD. is an abbreviation for Microfarad, which is a millionth of a farad, and a farad is the unit of capacity.

The "A" battery is that which supplies filament current in order that the filament may heat and supply electrons. The "B" battery is that which makes the plate of the valve positive with respect to the filament, and attracts the electrons. The "C" battery is that which supplies a positive or negative bias to the grid of the valve, thus controlling the rate of flow of electrons to the plate.

The next symbol, you will notice, is a variable condenser with the letters N.C. above it. These letters represent the words Neutralising Condenser. This latter is a component used in radio receivers in order to synchronise the R.F. stages, in order to make up for the capacities formed between the valve elements.

A variometer is a continuous coil of wire, part of which may be rotated inside the other in such a manner that one-half may be inclined at an angle with respect to the other half. Actually the variometer is only a tuning device, which enables one to alter the capacity without the use of condensers.

The next symbol, grid condenser and grid leak, should be easily understood. You see that the left hand of the condenser (fixed) symbol (which has been treated before) is connected to one side of the grid leak (also previously treated) and the other sides of each component are connected together.

Of course there are other symbols, but these will not concern us yet. You will get a greater insight into these components as we make use of them in circuits.

And now make note of the following sentences, which summarise some of your previous work. These points are important, and they have a direct bearing on some approaching experiments.

A buzzer is an electromagnetic device which has a vibrating member for opening and closing its own electrical circuit.

A battery is a combination of two or more electric cells.

An audio frequency is one capable of producing sound in the human ear, and in radio

is considered to be between 16 and 30,000 cycles per second.

The capacity or "capacitance" of a condenser is a measure of its ability to store up electrical energy.

A Chopper is a device for rapidly opening and closing a circuit.

A dielectric is an insulating substance that allows electro-static induction to act across it, as the insulating medium between the plates of a condenser.

### EXAMINATION PAPER.

[N accordance with many requests, an examination paper appears hereunder. Write on one side of the paper only, setting out the question and answer legibly. Forward to "Proving Radio," c/o. "Wireless Weekly," 51 Castlereagh Street, Sydney, and enclose stamped addressed envelope for return of examination paper. Papers will be checked and marked, and points will be awarded for neatness.

How do the like poles of a magnet behave towards each other?

What is A.C.?

How would you define D.C.?

How many kinds of Magnets are there? Explain their differences.

What is a Leyden Jar, and what is it used for?

How is the Leyden Jar charged?

What is a dry cell? What is the maximum voltage of a dry cell?

Upon what factors do the amperage of a battery depend?

What is depolarisation? How may it be nullified in a wet battery?

What happens when matter is copper plated?

What is a discharger?

What is a Dynamo?

What name is given to the electrical generator of alternating Current?

Is it correct to say that current can be generated? State your reasons for this answer.

What is an electroscopes used for?

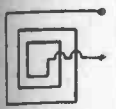
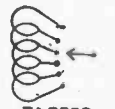
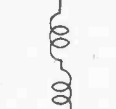
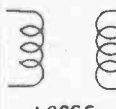
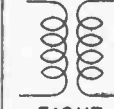
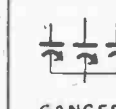

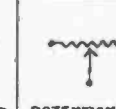
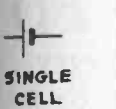
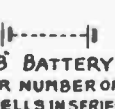

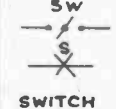

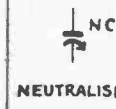
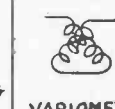
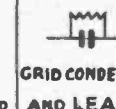
What is an electrophorus?

What chemical action takes place during electro-plating?

Why is a horseshoe magnet stronger than a bar magnet?

What are "lines of force"? Give another name for "lines of force."

What is Magnetism? How can it be compared to electricity?

							
LOOP AERIAL	TAPPED INDUCTANCE	ASTATIC COIL	LOOSE COUPLING	TIGHT COUPLING	GANGED CONDENSERS	SCREEN GRID VALVE	POTENTIOMETER
							
SINGLE CELL	B BATTERY OR NUMBER OF CELLS IN SERIES	RADIO FREQUENCY CHOKE	SWITCH	MFD	NEUTRALISING	VARIOMETER	GRID CONDENSER AND LEAK

What would happen if a needle were to be magnetised and suspended?

What is the voltage and amperage of three cells in parallel if each cell gives 1½ volts at 30 amperes?

What is the maximum voltage of any one cell?

What is the maximum voltage and amperage of four cells, each 1½ volts at 30 amps. when connected in series?

What is a polarity indicator?

What is a rectifier? What is the principle of the rectifier? Give another name for Static Electricity, and state your reasons for giving this name.

What polarity has the carbon rod in any battery?

What is water composed of?

What direction is taken by the magnetic lines of force in a bar magnet?

If the negative pole of a magnetised needle was placed near the negative end of a piece of iron that is magnetised by means of a battery, what would happen? What would happen if the battery was removed?

What is an ampere?

What is a volt? From whom have we the word "volt"?

What is the Atomic Theory?

What is an atom?

Explain the action of electrons in (a) a conductor, (b) an insulator.

What is an audio wave?

What is the limit of Audible Range?

What is a condenser?

What is the resultant capacity of (a) two .0005 condensers in series, when the condensers are of the fixed type, and (b) the resultant capacity of two variable condensers of the same capacity in parallel?

What (electrically) would be a perfect insulator? Does one exist?

Explain the construction of the Atom.

What are the conductance figures?

What is conductivity?

What is a cycle?

What is meant by Chemical Rectification? Name another type of rectification.

Is the earth a resistor or a conductor?

What is a transformer core?

What is meant by a current surge, and what is the cause of it?

What does D.C.C. mean?

What principle does the Dead Beat Pendulum show?

These questions will now appear regularly each week.

### Proving Radio Club News

THE Proving Radio Club is spreading far afield. Groups have been formed at Hawkesbury River, Coff's Harbor, and Newcastle, and the following letter shows that a group is to be formed in Victoria.

"I am anxious to form a 'Proving Radio Club' amongst a group of friends, all Radio Bugs. Could you kindly forward me a Member's Certificate? I believe personally that the 'Proving Radio Club' is the best opportunity an A.O.P.C. aspirant can have. Yours sincerely, (signed) Wm. Brown 23, Mackay Crescent, South Warrnambool, Victoria."

Welcome, Mr. Brown. We're sure you can form a good club at Warrnambool. Your membership certificate has been forwarded, and your letter passed on to the Hon. Organising Secretary. Please let us have reports weekly.

COFF'S HARBOR GROUP.—The meeting of the local branch of the "Proving Radio Club" was held last night (2/5/29). The members present were:—Messrs C. Debenham (chairman), W. H. T. Ridding, J. M. Burke, R. Jacobs, T. Hannan, and H. Smith. The chief business of the evening was a discussion in connection with a letter received from the Honorary Secretary. The experiment conducted at the meeting was electroplating, and this was a great success. We decided to repeat these

experiments at next meeting for the benefit of those who were unable to attend. Mr. Jacobs has kindly lent the use of his typewriter, and Messrs. Hannan, Jacobs, and Bourke intend to forward a circular letter to all set-owners in the district, urging them to join the club.

SPECIAL MORSE CLASSES are being arranged, and VK2KB has kindly consented to transmit Morse lessons for the benefit of club members. These lessons will be on 160 metres, and instructions for building a one-valve receiver suitable for the reception of these transmissions will appear in "Proving Radio" shortly. We would welcome other ham assistance. Thanks, VK2KB, for giving us a start in this direction.

AT THE RADIO EXHIBITION quite a number of new club members joined up. The names of these members will appear in reports as submitted by group leaders.

DULWICH HILL GROUP.—Owing to Mr. Hook having to attend a special executive meeting it was decided to spend the evening constructing a three-valve Rehnart receiver. Sufficient material was found in Mr. Hook's junk box to do the job, using a fancy metal panel. A start was made when one member volunteered to draw the schematic diagram. As he did this he explained each part and what its duty was; then a start was made on the practical side of the job. Owing to 14 members being present, three of whom were visitors from other groups, it was decided to break the group up into three parts, one to wind the coils, one to lay out and drill the panel, and the other to lay out and wire the baseboard. As we were unable to finish this by 11 p.m. it was decided to hold it over until some other night. At the previous meeting the usual Morse practice was carried out. Members are making good progress. It was decided to approach certain experimental stations with a view to getting assistance over the air. The hon. secretary, Mr. Hook (Phone, Petersham 3272), will welcome any assistance that any hams may feel disposed to offer. Another matter discussed at the meeting was the production of a Morse key. One member submitted a sample casting from which a first-class key can be produced. These can be obtained from the hon. secretary at cost price (5/).

SPECIAL EXECUTIVE MEETING.—Amongst other things dealt with at this meeting was the decision of Coff's Harbor group to amalgamate. This we welcome. It is a lead which other clubs should certainly follow. (You all know the axiom, "United We Stand, Divided We Fall," and the study of this subject is no exception to the rule.) A new departure was made at the executive meeting held on the 6th inst. The executive members were all present, together with three leaders of new groups that will start this week. (City No. 2, Haberfield, and Kogarah); also two members whose groups will start next week (Auburn and Punch-bowl). The new departure was a demonstration of the Winhurst machine, produced by the Dulwich Hill Group. Mr. Trentlgas, who has studied this subject, consented to read a paper on this subject. The innovation received the heartiest approval of all present. It was resolved that this idea should be carried out every week in future; also that the paper and the machine would be at the disposal of all groups in turn.

SUMMER HILL GROUP.—At the meeting held on May 1 general business was dealt with, after which we proceeded with the Atomic and Electronic theory. We spent an interesting and instructive evening. Diagrams were drawn on a blackboard by members illustrating their points.

CITY NO. 1 GROUP.—No report has been received from City No. 1 Group this week.

CONCORD WEST GROUP.—This group held a revision night, when experiments recently carried out were discussed and revised.

## "The CAPTAIN" to HIS "COMRADIOS"

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

### Coming Events

Saturday, June 1.—Australian Universities Champion Eighths on the Yarra

Tuesday, June 18.—School Clubs Dance, at the Ambassadors.

Wednesday, June 26.—The Scots O.B.U. dance, at the Ambassadors.

Wednesday, June 26.—Old Sydney Dinner at Usher's.

Wednesday, August 7.—Old Sydney Dance at the Ambassadors.

Dates should be sent to "The Captain" at least a month ahead.

### Stooping Shoulders

I quite agree with T.J. (Newcastle) that we Australians are inclined to slouch. I put it down to a natural conserving of energy under our warm sun, so that when called on for any special effort our whole reserve force is called up. That may be holding on as a very patriotic way of explaining our loose habit of standing and walking, but our feelings are quite at leisure. All the same, there is something in the argument that a loose carriage or restful deportment means pliancy and ability to stand a continued severe strain when suddenly faced with the need. Don't run away with the idea that I advocate a stoop. Far from it! But you will often notice the hardened croaker, footballer, oarsman resting, with every muscle apparently limp, until the call of action galvanises him into a sudden burst of steel and whirling speed.

### An Easy One

But stooped shoulders may so easily develop into a hollow chest, with all the air that such a man (or woman) is prone to. The upper walls of the chest should be "held high," to put it in a way for all to understand. This means that the lungs get their full complement of air, and so the blood and muscles are enriched and strengthened, thus being put into a condition to withstand the millions of vicious little germs waiting to pounce on our weak spots, inside and out! An easy cure for "stoop" is to straighten up firmly and square the shoulders every time you pass through a door-gate. It soon becomes a habit and instinctively one begins to walk straight and upright and move along easily and freely.

### Tennis Court

In answer to A.R.C. (Thirlmere), there's no "cure" for a tennis court running east and west. You are bound to get the sun in the eyes in the morning and afternoon, and at this (winter) time of the year the day's play will be shorter, on account of the slanting rays being later before noon and earlier after noon. Sun glare may be avoided to some extent with darkened glasses, but they spoil your play and judgment to some extent.

### Tennis Net

Tennis nets should be so fixed to the posts that they may be removed easily and quickly at a moment's notice. Frost, dew, and rain soon cause a net to break up. Take it in after every day's play, and put it out in a dry shelter, also it will keep in good order for longer if you roll it. It's worth while as it makes it so easy to put it up again. The net may be soaked in Stockholm tar to make it waterproof. Nets can be bought



This improved "Four-Fifty" will give either a boosting or trickle rate at a snap of the switch in the output leads. These two rates are 1.3 amps. and .5 amps. both "just right" for their purpose.

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already soaked, or if you have made a net any sports dealer will have it done at a very small expense. The same method is used in preserving rope quilts against damp. I don't object to the smell at all. I confess I rather like it. It reminds me of board ship, and all the joys of sea travel. The smell of a ship is a reminder of very "upplish" moments to some, but I am humble enough to say again, I like it!

### Nature Study

To F.J. (North Sydney), I suggest the following Australian Nature Study books:—

"Australian Nature Studies" (Dr. Leach), 12/6.  
"Nature Studies in Australia" (Gillies and Sutherland), 3/6.

There are, of course, scores of others, but for general all-round use these two beautiful books cover a wide ground.

### An Irish Book

The same Comradio wants to know a good book typical of Irish life, wit, and humor. Any one of the delightful books by Somerville and Ross can be sincerely recommended. There is also that one by Donn Byrne with the lugubrious title of "Hangman's House," but the contents are far from being heavy. A collection of pleasant reminders of Erin's joyous wit and hearty bungling is "Irish Bulls and Blunders," by Jerrold; but this is not a book in the ordinary sense of a continuous story, being a series of short paragraphs and sentences, embracing hundreds of laughs and chuckles.

### Boot Strap

Many boys (and men) use boot straps to support the foot during a game, especially football and hockey. All the same, F.M. (Rockdale), I would only advise the use of a supporting strap if your foot was really inclined to feel weak and turn over. If not, don't use it. See that your foot is quite warm and pliant before you go on the field. A good rubbing by a friend will soon bring this about. Take my tip, never begin any game with cold feet, either at the end of your legs or in your mind!

### Bruised Heel

It does not follow that, because you have soaked your heel in "boracic acid and water," as you put it, M.B. (Vaucluse), that it "ought to be cured." There is such a thing as using boracic in too strong a solution. That is no good. See that the bruise is clean, of course. Then use a smear of vaseline or petroleum jelly. If the wound is clean, a chemist may give you an ointment of mercury, which is a rapid healer. But, in any case, you must rest the foot. It will never heal if you try to continue playing. Put a covering of lint or cotton-wool over the bruise, and draw the sock on very carefully, so as not to be in contact with the broken skin. This is very important, as the dye from a sock or stocking may easily poison the heel. Take no risk. If it does not heal quickly and shows any sign of suppurating (pus) see your doctor immediately. It will be less painful to do so, and much cheaper in the end.

### My Book-shelf

A book which every Junior Comradio will really enjoy is "The Road to Widgewong," by Lee Leslie. It will do equally well for boys or girls up to say, fifteen years of age. The story of two boys' adventures on their long tramp from Sydney through the bush roads to Widgewong is a very thrilling and joyous story. It is written by a man who knows all about the bush, with its surprises and charm, its excitement and, sometimes, its fearful loneliness. Any newsagent or bookseller in Australia can supply this excellent yarn for youngsters at 3/6.

### Greetings

And now, Comradios, till next Sunday morning at 10.15 from 2FC, take my old greeting: "Good wishes to you all, Comradios. Cheers!"

—THE CAPTAIN.

# HITTING BELOW the BROADCAST BELT



Short-wave and Amateur Notes by VK2NO

42 METRES.

ON 42 metres the usual congestion exists among the hams, and everywhere one hears the same old yarn: "No good trying to work outside Australia until after 10.30 p.m." Brute force seems to be the only method, and I heard one well-known local ham threaten to install a back to back 1929 Xmitter with two T250's. Terrible threat, everyone would have to lurch to the other end of the frequency to keep out of the way! Perhaps it he does that a reprisal in the form of two 500 waters back to back may have effect! Whatever may be suggested, there are licenses and power rating to be considered.

CALL SIGNS.

ONE or two inquiries have reached us asking why Australian experimental transmitters are using the letters VK before their call signs. For instance: VK2NO instead of OA-2NO as before. This has already been explained in "Wireless Weekly," but a further explanation will help. The old intermediate throughout the world have been dropped and instead of such an intermediate there is a prefix which is in an integral part of the call sign. By this is meant that Australian 2NO is no longer, but is now Australian VK2NO. Similarly with New Zealand ZL2AC and so on. The famous American short-wave broadcast station 2XAF is now W2XAF, and is always referred to in this way.

According to the Washington Conference regulations our broadcasting stations are using the wrong call signs, and it seems that 2BL and 3LO should be VK2BL and VK3LO.

RADIO PROVED.

ALL hams who read QST will remember the following skit, but for the benefit of the BCL to whom QST means nothing, the following definition of electricity is given:—"Electricity is something that starts the Lord Knows Where and ends in the same place. It is faster on its feet, being 1.36 of a second speedier than its nearest competitor—backyard gossip—and when turned loose in Europe will get to the United States five hours before it starts. Nobody knows exactly what it is, because it has never stood still long enough. It is like your girl's younger brother in that you never know what to expect next, and the only way to handle it is with a switch. Rubber is the only thing that will stop it, which is why rubbernecks never get shocked, and rubber heels are shock absorbers—so they say in the subways. Electricity is sometimes known as science gone crazy with the heat, and if you can understand its manoeuvres you can do anything with it except open a can of peanut butter with it at a picnic. It had been locked up in ignorance throughout many centuries until Ben Franklin let it out with a pass key, and since then it has been pulling off more new stunts than the Russian Government. With it you can start a conversation or stop one perpetually, cook dinner, curl your hair, press your trousers, blow up a battleship, run an automobile, or signal Mars, and many more things are being invented.

"Like the price of Rib Roast, lightning seldom hits twice in the same place, but once it does hit there is little left.

"The Lord said, 'Let there be light,' and now all we must do is to press the button."

I AM still doing it—hitting below the belt. Evidently the readers of these short-wave notes do not want a really good receiving condenser to help them along their SW dialings, for the response to my appeal for suggestions for a new heading has so far been very meagre.

As stated before, the best suggestion wins a JB 00014 tuning condenser, and so far the only suggestions have been the following:

"Adrift on the Short Waves."

"DX Gossip."

"Chasing the Short Wave Bug."

"Chasing the Aether."

"Get Out and Get Under."

"Short-waves Up-to-Date" (depicting a flapper plus marcel waves, etc.).

These suggestions seem one and all to have a familiar ring. The competition is still open, and those who read through these notes are asked to forward their ideas.

### Radio Exhibition

THE Exhibition this year shows the great increase in interest in short-wave reception, and everywhere visitors are heard making inquiries about SW receivers.

JAVA STATIONS.

IT may be of interest to short-wave fans to have a few details of the stations operating in Java. These transmissions are frequently very well heard. Of the four stations operating, the lowest in wavelength is PLE (once well known as ANE) on 15.74 metres, with an output power of 25 KW. The second is PLF (late ANH) on 17.4 metres with the same power. The third is the highest powered, and has just been completed, namely, PLG, operating on 18.88 metres. This station has an output power of 60 KW. The fourth station of this well-known group uses 25 KW and operates on 27.8 metres, with the call sign PLR. PLE and PLG may often be heard testing with 2ME Sydney on Wednesdays from 8.30 to 10 p.m. Sydney time.

SHORT-WAVE WORKINGS.

G5SW has been varying considerably in the early mornings for the last few days, being very strong one morning and the next suffering from surging or high speed fading. This station has been heard testing telephony with W2XAD.

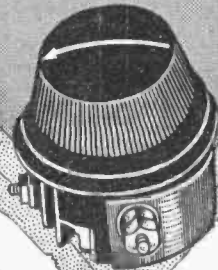
One of the best short-wave 'phone transmissions heard in Sydney has been the new station in Suva working with 2ME. PHH and PCJ have both been coming through well also, the latter station sending a special message to all those interested either as exhibitors or visitors to the exhibition, and also congratulations on the reported excellence of the show.

KGO CALLING.

ON Wednesday afternoons, those enthusiasts who can make it convenient to be near their SW receivers should make a point of looking for KGO through W6KN from 3 p.m. Sydney time. This station is usually very strong and the quality of the modulation a pleasure to listen to. There are a fair number of the Australian and New Zealand experimental transmitters to be heard on the 80 metre band with telephony transmissions in the evenings at the present time. Static has not yet entirely left this band and is spasmodic. On nights when it is free the Russian station RFN on 75 metres is like a local, but apart from the music, which is excellent, the speech may come from another planet for all the average fan will be able to make of it.



# EMMCO'S NEW RHEOSTAT BAKELITE FRAME



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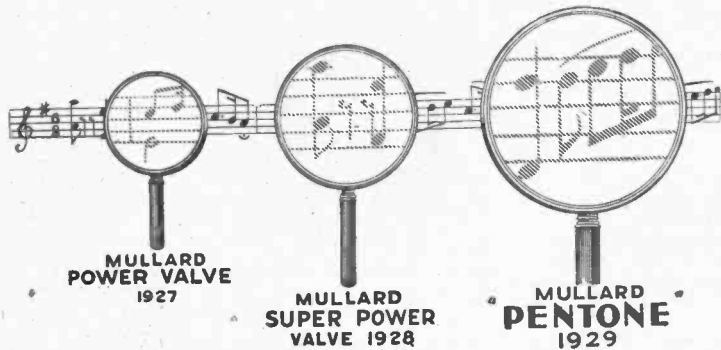
Type F325 for Radiotron Valves. 3 Tappings. Price ..... 35/-  
Type FA15 for Arcturus 15 Volt A.C. Valves. Price ..... 30/-  
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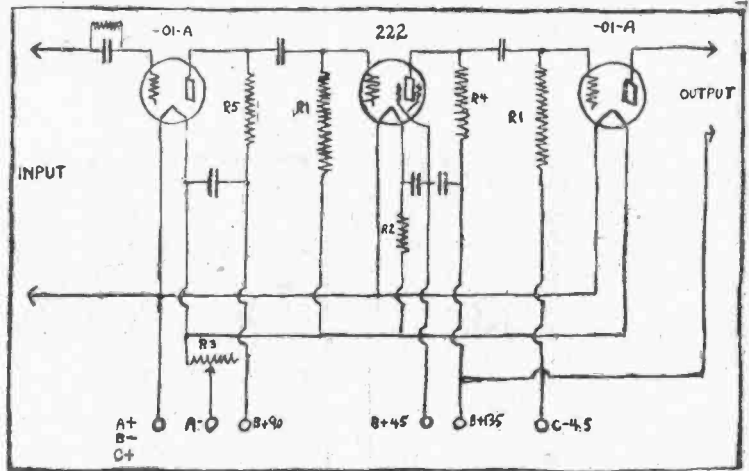
# A SCREEN-GRID AUDIO AMPLIFIER

This short article illustrates the use of the S.G. Valve in an unusual function

ALTHOUGH the remarkable potentialities of the screen-grid valve are generally recognised to-day, and are being exploited more and more, the idea is generally prevalent that this valve is uniquely a radio-frequency amplifier, and, therefore, unsuited to any other function. This is certainly not the case. As a space charge audio amplifier, the screen-grid valve provides excellent volume per stage.

In employing the screen-grid valve as an audio amplifier, special transformers, designed particularly for this purpose, may be employed. However, a straight resistance-coupled amplifier is preferable for many reasons, and is certainly the least expensive. The unusual characteristics of a very high impedance plate load and a very low capacity feed back of the screen-grid valve combine in producing a tonal quality of the first order.

Due to the enormous amplification factor of the screen-grid valve, it is advisable to employ only one stage of this kind, and to place same immediately following the detector, in order that the power output of the valve may not be exceeded. The accompanying diagram shows a good circuit, and is offered merely as a suggestion, since the radio experimenter may work out his own version of a screen-grid audio amplifier. It



will be noted that the detector valve works into a resistive load of 50,000 ohms, R-5. R-2 is a 20-ohm resistor that provides the necessary voltage drop to give the grid a negative bias of 1½ volts. R-4 should have a resistance of 250 ohms, while R-1 and R-1 are grid leaks of 3 megohms each. R-3 is a conventional rheostat of 6 ohms.

Because of the enormous amplification in a screen-grid audio amplifier, the resistors must be selected with care. They must be accurate, in the first place, and must not

be subject to sudden resistance changes or fluctuations. The resistors must be moisture-proof. Metallised resistors fulfil these various requirements, and for this reason are being widely applied to experimental and commercial screen-grid circuits. Recent developments have made possible the introduction of very low resistance metallised resistors, so that the advantages of this type are now available in low ohmmage applications, quite as well as in the high ohmmage applications.

## CHEMICAL CONDENSER PROBLEMS

(BY HARRY W. HOUCK)

THE problems of high-voltage paper condensers are totally different. While condensers and low-voltage chemical com-much has been said and done with regard to the former, since they play such an important part in socket-power radio, little has been said, yet much has been done with regard to the latter. Otherwise, high-capacity condensers would still remain a rash dream.

The high-voltage condenser must be carefully insulated so as to prevent the breakdown of the dielectric. When the dielectric does break down, as the result of excessive voltage or old age, the condenser is useless. On the other hand, with the low-voltage condenser the dielectric is simply a microscopically thin film of gas formed as the result of chemical action when the current flows from one plate to the other. The dielectric is ample at low voltages. However, if excessive voltage is applied and the dielectric film breaks down, it is immediately reformed by chemical action, and the condenser is said to be self-healing.

The main problem with the chemical A condenser is that of leakage, for any leakage is a definite drain on the power supply and is therefore undesirable. While a poor A condenser may have a leakage current in excess of 25 milliamperes, at its rated voltage, this leakage indicates a chemical action in

the condenser. As there is only a limited quantity of chemical in a condenser when this becomes exhausted, the useful life of the unit is over, and it ceases to have any condenser action. We have sought a rapidly forming dielectric of sufficient electrical strength to prevent breakdown and leakage, with the result that we have reduced the working leakage to about one milliampere.

It is interesting to note that a chemical A condenser acts as a battery as well as a condenser. A considerable current flow from an A condenser that has been left standing, may be noted with the aid of a microammeter. This energy, it will be noted, is quite apart from that stored by the condenser action, which is rapidly dissipated once the condenser is disconnected from the charging source. The battery action indicates chemical action, which in turn means that something is being consumed or corroded in order to generate electricity. We have found this battery action to be a safe guide as to the merits of a chemical condenser, for the lower the battery action the longer the condenser will last. In our own condensers we have reduced the battery action to practically an absolute minimum.

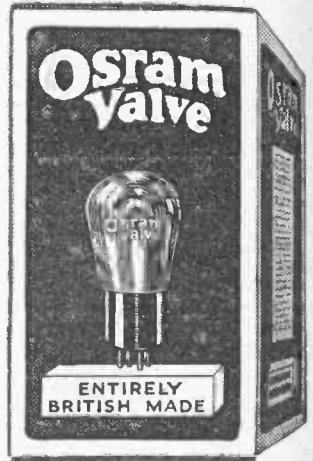
Of course the chemical condenser is self-healing, which is one of its attractive features

aside from enormous capacity at low cost and in compact form. If the condenser is self-healing, why does it not last for ever? That is a question often asked, since in the usual paper condensers it is the breakdown of the dielectric that causes trouble. But unlike the paper condenser, the chemical condenser dies a slow death. It does not end its life with a loud blow-out. Instead, its capacity dwindles slowly at first and then more rapidly, and finally the capacity is too small to do effective work. A properly designed and constructed chemical A condenser should serve at least 10,000 hours without having its capacity reduced appreciably.

The chemical condenser is best suited for low-voltage work, such as in A-eliminator or filament supply units in conjunction with rectifiers, or again for supplying low-voltage rectified current for the field coil of a loud-speaker. A chemical A condenser rated at 6 volts can be used up to a 14volt peak. Condensers of this type can be made for working voltages up to 24. Essentially, however, the chemical condenser lends itself best to low-voltage operation.

In the chemical condensers we have achieved enormous capacity at low cost and in compact form, simply by putting a microscopically thin gaseous film to work. While the principle is simple enough, many technical problems have had to be solved, and the production of these condensers calls for meticulous supervision.

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# Local Programmes, Friday, May 17

## 2FC

### EARLY MORNING SESSION

Announcer: A. S. Cochrane.

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

### MORNING SESSION

Announcer: A. S. Cochrane.

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

### MIDDAY SESSION

Announcer: A. S. Cochrane.

12.0: "Big Ben" and announcements. 12.1: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Summary of news, "Sydney Morning Herald." 12.10: Rugby wireless news. 12.13: A reading. 12.30: Studio music. 1.0: "Big Ben." Weather intelligence. 1.3: "Evening News" midday news service; Producers' Distributing Society's report. 1.20: Studio music. 1.28: Stock Exchange, second call. 1.30: Popular studio music. 2.0: "Big Ben." Close.

### AFTERNOON SESSION

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

2.30: Programme announcements. 2.32: The book-lover's corner. 3.0: "Big Ben." Popular music. 3.30: Romano's Cafe dance orchestra, conducted by Bennie Abrahams. 3.40: From the studio: Daniel Hardy, baritone. 3.46: A reading. 4.10: Violet Hunt, contralto: (a) "Be Good" (Leoni), (b) "The Swallow" (Brahms), (c) selected. 4.17: Romano's Cafe dance orchestra, conducted by Bennie Abrahams. 4.27: From the studio: Rev. Father T. A. Walsh, S.J., will speak on "A Legal Wit." 4.40: Daniel Hardy, baritone. 4.46: Stock Exchange, third call. 4.48: Violet Hunt, contralto: (a) "The Gleaner's Slumber Song" (Wolthow), (b) "Where Corals Lie" (Elgar). 4.54: Studio music. 5.0: "Big Ben." Close.

### EARLY EVENING SESSION

Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man." Letters and stories; music and entertainment. 6.10: The Farmyard Five, from Kookaburra Gully. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.48: Weather and shipping news. 6.50: Rugby wireless news. 6.55: Late sporting news by the 2FC racing commissioner. 7.0: "Big Ben." Late news service. 7.10: A recital of dinner music.

### EVENING SESSION

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Popular music. 7.45: Programme announcements. 7.48: From Her Majesty's Theatre, by arrangement with J. C. Williamson Ltd.—2FC interviews Marie Bremner. 8.0: "Big Ben." By arrangement with J. C. Williamson Ltd., the first act of the "Desert Song." Music by Sigmund Romberg.

Cast:

Musical director: Will Quintrell.  
Sld El Kar (The Red Shadow's Lieutenant) ..... Herbert Browne  
Mindar ..... Cecil Pawley  
Hassl ..... Colin Crane  
Neri (first appearance in Sydney)  
Maud Pomeroy  
Hadji (first appearance in Sydney)  
John Ronald

Benjamin Kidd (Society Correspondent, Paris, "Daily Mail")

Herbert Mundin

Pierre Birabeau (The Red Shadow)

Lance Fairfax

Capt. Paul Fontaine . . . Sidney Burchall

Azuri . . . . . Stephanie Deste

Lieut. La Vergue (first appearance in Sydney) . . . . . Ronald Pomeroy

Lieut. Du Bassac . . . . . Robin Blair

Margot Bonvalet . . . . . Marie Bremner

General Birabeau . . . . . John Ralston

(Governor of a French Moroccan Province.)

Susan (his ward) . . . . . Renee Murphy

Edith . . . . . Eileen Percival

All Ben Ali (Caid of a Riff tribe)

Douglas Herald

Clementina (a Spanish lady)

Maud Zimba

(First appearance in Sydney.)

Synopsis of Scenes, Act 1:

Scene 1: Retreat of the Red Shadow in the Riff mountains. Evening.

Scene 2: Outside General Birabeau's House. Same evening.

Scene 3: A room in General Birabeau's house. A few minutes later.

Musical Numbers—Act 1.

Prelude and Drinking Song.

"Ho!" Riding Song of the Riffs—Lance Fairfax, Herbert Browne, and Chorus.

"Margot"—Sidney Burchall and chorus gentlemen.

"I'll be a Buoyant Girl"—Renee Murphy.

Ensemble—

(a) "Why Did We Marry Soldiers?"

Chorus ladies.

(b) French Marching Song—Marie Bremner and chorus ladies.

"Romance"—Marie Bremner and chorus ladies.

Trio—

(a) "Then You Will Know"—Lance Fairfax and Marie Bremner

(b) "I Want a Kiss"—Sidney Burchall, Marie Bremner, and Lance Fairfax.

"It"—Herbert Mundin, Renee Murphy, and ladies of the ballet.

"The Desert Song"—Lance Fairfax and Marie Bremner.

Finale.

9.25: From the studio: Weather report.

9.26: Will Carter. Australian bush stories.

9.36: Carlos Fakola, novelty pianist.

9.46: Charles Lawrence, entertainer.

9.56: Will Carter, bush cameos.

10.6: Carlos Fakola, novelty pianist.

10.16: Charles Lawrence, entertainer.

10.28: Late weather, and to-morrow's programme.

10.30: National Anthem. Close.

## 2BI

### MORNING SESSION.

Announcer: A. C. C. Stevens.

8.0: G.P.O. chimes. Weather report, State and metropolitan. 8.3: Studio music. 8.30: G.P.O. chimes. News and information service from the "Daily Telegraph Pictorial." 9.0: G.P.O. chimes. Studio music. 9.30: G.P.O. chimes. Half an hour with silent friends. 10.0: G.P.O. chimes. Close.

### MIDDAY SESSION.

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. 2BL Women's Sports Association Session, conducted by Miss Gwen Varley. Talk on "Needlecraft," by "Fris-cilla" (Mrs. Norton). 11.30: Advertising hints. 11.40: Women's session, conducted by Mrs. Cranfield. 11.45: Nurse May will speak on "Infant Welfare." 12.0: G.P.O. chimes. Special ocean forecast; weather report. 12.3: The Melody Trio. 12.30: Shipping and mails. 12.35: Market reports. 12.48: "Sun" midday news service. 1.0: The Melody Trio. 1.30: Talk to children and special entertainment for children in hospital. 2.0: G.P.O. chimes. Close down.

### AFTERNOON SESSION.

Announcer: A. C. C. Stevens.

Accompanist: Kathleen Roe.

3.45: G.P.O. chimes. The Melody Trio.

4.0: G.P.O. chimes. Doris Orr, soprano—(a) "Deep in My Heart," (b) "Cupid" (Sanderson). 4.7: Captain A. C. C. Stevens will speak on "400 Miles in a Canoe on the Niger." 4.22: The Melody Trio. 4.33: Doris Orr, soprano—(a) "I Love to Hear You Singing" (Wood), (b) "June is Calling" (Sanderson). 4.40: A talk on "Empire Shopping Week." 4.50: The Melody Trio. 5.5: "Sun" news service. 5.12: The Melody Trio. 5.25: Producers' Distributing Society's report. 5.27: Popular music. 5.37: Features of the evening's programme.

### EARLY EVENING SESSION.

Announcer: Basil Kirke.

5.40: Children's session, conducted by Uncle Bas. Music and entertainment; letters and stories. 6.30: "Sun" news and late sporting. 6.40: Dinner music recital. 7.7: Australian Mercantile, Land, and Finance Co.'s report; weather report and forecast, by courtesy of Government Meteorologist; Producers' Distributing Society's fruit and vegetable market report; grain and fodder report ("Sun"); dairy produce report ("Sun"). 7.25: Mr. Plm and Miss Pam in advertising talks, handy hints, and nonsense. 7.53: Anad. special. 7.55: Programme and other announcements.

### EVENING SESSION.

Announcer: Basil Kirke.

Accompanist: G. Vern Barnett.

8.0: G.P.O. chimes. Light Orchestra, conducted by Horace Keats—

(a) Overture, "Light Cavalry" (Suppe).

(b) Second selection, "Merrie England" (German).

8.20: Ernest M'Kinlay, tenor—

(a) "O, Vision Entrancing" (from "Esmeralda") (Thomas).

(b) "Yesterday and To-day" (Spross).

(c) "Elegie" (Massenet).

8.31: Light Orchestra, conducted by Horace Keats—

"Chopiniana" (Finck).

8.46: Ernest M'Kinlay, tenor—

(a) "Mignon" (d'Hardelot).

(b) "A Boat Song" (Ware).

(c) "Sylvelyn" (Sinding).

8.57: Weather report.

8.58: C. R. Dexter will give last-minute racing information.

9.14: Light Orchestra, conducted by Horace Keats—

"L'Enfant Prodigue" (Wormser).

9.30: Billee Cresswell, popular vocalist.

9.37: Light Orchestra, conducted by Horace Keats—

(a) "Three Mask Dances" (Wood).

(b) Selected.

9.52: Billee Cresswell, popular vocalist.

10.0: G.P.O. chimes. Late "Sun" news service.

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

10.28: From the studio—Late weather report.

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

10.57: To-morrow's programme

10.59: Romano's Cafe Dance Orchestra,

11.30: National Anthem. Close.

## 2GB

10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20: Music. 10.30: Women's session, by Miss Helen J. Beegling. 11.30: Close down. 2.0: Music. 2.5: Women's Radio Service, by Mrs. Dorothy Jordan. 2.50: Music. 3.15: Close down. 5.30: Children's Session, by Uncle George. 7.0: Music. 7.30: Feature story. 8.0: Mr. Gregory Valentine, violinist. 8.8: Miss Ethel Muller, contralto. 8.15: Instrumental music. 8.23: Mr. Clement Q. Williams, baritone. 8.30: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.35: Miss Jeanette Paterson, pianist. 8.45: Address. 9.0: Weather report. 9.3: Instrumental music. 9.10: Miss Ethel Muller, contralto. 9.20: Mr. Gregory Valentine, violinist. 9.30: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 9.35: Instrumental music. 9.40: Mr. Clement Q. Williams, baritone. 9.50: Miss Jeanette Paterson, pianist. 10.0: Dance music. 10.30: Close down.

# Interstate Programmes, Friday, May 17

## 3LO

**MORNING SESSION.**  
11.0: To-day's Radio Recipe: Fish Patties. 11.5: Grace Tyers will continue her series of talks on "Great Russian Writers and Their Stories." 11.25: "Au Fait" will speak on "Fashions-Tailored Effects." 11.45: Under the auspices of the Department of Health, Dr. Scantlebury will speak on "Some Aspects of Infant Welfare."

**MIDDAY SESSION.**  
12.0: Melbourne Observatory time signal. 12.1: British official news; news from Rugby; Reuters' and the Australian Press Association cables; "Argus" news service. 12.15: Newmarket stock sales; special report by the Associated Stock and Station Agents, Bourke Street, Melbourne. 12.20: The Station Orchestra: Overture, "Princess Jeune" (Saint-Saens); "Springtime" (Wright). 12.30: Ciella Genoni M'Neill, soprano: "Egl' Ia" from "The Daughter of the Regiment" (Donizetti); "Serenade in Summer" (Denza). 12.37: Stock Exchange information; prices reported by the Australian Mines and Metals Association from the London Stock Exchange this day. 12.43: The Station Orchestra: "Suite, "Cinderella" (Hosmer). 12.50: Jack Stocks, "The Woman Hater" (12.57: The Station Orchestra: "Suite Romantique" (Ketybey). 1.5: Meteorological information; weather forecast for Victoria, New South Wales, South Australia, and Tasmania; ocean forecasts; river reports. 1.55: The Station Orchestra: "Bridal Procession" (Greig); "After Twilight" (Steindal). 1.20: Dorothy Stephen, entertainer. 1.25: The Station Orchestra: "The Pesth" (Kowalski). 1.30: Jack Stocks. 1.37: The Station Orchestra: Selection, "The Last Waltz" (Strauss). 1.45: Close down.

**AFTERNOON SESSION.**  
2.15: The Station Orchestra: Overture, "Hamlet" (Tschaiikowsky). 2.25: Dawn Asheton, Coloratura soprano, with Lazzio Schwartz, Hungarian violinist. "A Canto of Music" (Hungarian and Bohemian Folk Songs and Violin solo). 3.5: The Station Orchestra: "Andante, in Violin Sonata, Op. 12" (Beethoven). 3.15: Miss Frances Fraser, the soloist. This afternoon is entitled: "A German Idyll." 3.40: The Strad Trio (Cecl Parkes violin, Myra Montague piano, Frank Johnstone 'cello). "Trio Op. 99." B Flut" (Schubert). "First Movement only." 3.50: Ciella Genoni M'Neill, soprano: "Berceuse" (Gounod). "The Vain Suit" (Brahms). 3.57: Cecl Parkes, violin: "Ave Maria" (Schubert). "The Boat" (Kreiser). 4.5: The Strad Trio: "Suite in A Major" (Handel-Parke). 4.14: Ciella Genoni M'Neill, soprano: "Solveig's Song" (Grieg). Selected. 4.21: Frank Johnstone, 'cello; "Passepied" (Offenbach). "Dance Rustique" (Squires). 4.27: The Strad Trio: "The Distant Lake" (Kutnicke). "Anoakia" (Kutnicke). "Cavata" (Mozart). "The Boat" (Schubert). "Scherzo" (Reissiger). 4.40: News service, Stock Exchange information. 4.50: Close down.

**EARLY EVENING SESSION.**  
5.0: Answers to letters and birthday greetings by "Billy Bunny." 5.5: Musical interlude. 6.30: Captain Donald McLean will tell some more thrilling adventure stories.

**EVENING SESSION.**  
7.50: Madame Soward: "French Without Tears." 7.55: Stock Exchange information. 7.15: Official report of the Newmarket stock sales by the Associated Stock and Station Agents, Bourke Street, Melbourne. Latest truck orderings for next week's market. Fish prices. River reports, rainfall, weather synopsis, market reports by the Victorian Producers Co-operative Company, Ltd. Farm and dairy production and carcass and meat reports. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the Past. 7.46: Under the auspices of the Department of Agriculture, W. C. Rugg, notes on eggs, will speak on "Foultry Feeding for Egg Production." 8.0: A maker of history.

**NIGHT SESSION.**  
8.1: Programme announcements.  
8.2: Jedral Trio (Alva Hattenbach violin, Edna Hattenbach 'cello, John Simons piano)—  
The Trio—  
Andante and Scherzo from Trio in D Minor (Mendelssohn).  
Alva Hattenbach violin—  
"Romance Andante" (Sarasate).  
The Trio—  
"Allegretto" (Mozart).  
8.3: Dawn Asheton and Lazzio Schwartz, Coloratura soprano and Hungarian violinist—  
Forty minutes of colorful music from many musical lands.  
Transmission from Meiba Hall, University Symphony Orchestra (conducted by Professor Bernard Helmer).  
9.5: Orchestra—"Symphony No. 1" (1st and last movements) (Brahms).  
Soprano, Mona Nugent—  
"J'ai pleuré en regardant" (Hue);  
"Les Pilles de Cadix" (Delibes).  
Orchestra—  
(a) "Meditation," from "Thais" (Massenet).  
Soloist, Constance Ziebell.  
(b) "Moment Musical" (Schubert).  
Solo, Mona Nugent—  
"Thou'rt Like Lovely Flower" (Liszt).  
"The Secret" (Schubert).  
Orchestra—  
"Tone Poem, "La Grand Paque Russe" (Rimsky-Korsakov).  
10.5: News service. British official wireless news from Rugby; meteorological information; road notes; supplied by the Royal Automobile Club of Victoria; announcements.  
11.1: Eric Welch will speak on to-morrow's races at Williamstown.  
10.75: "The Kausia," Hawaiian instrumentalists—  
Ten minutes' island music.

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10.35: Jack Stocks, "The Woman Hater"—  
"A Benedict's Benediction."  
10.45: Ern Hall's Radio Revellers, with Hugh Huxham—  
"To-day, To-morrow, Forever" (Nichols).  
"Who Knows?" (Dixon).  
"Lady of the Morning" (Burton).  
"I'm Crazy Over You" (Lewis).  
"Old Man Sunning" (Dixon).  
"Wipin' the Pat" (Baer).  
"My Dream Sweetheart" (Hall).  
"Guess Who's in Town" (Razall).  
"That Stolen Melody" (Fisher).  
Selected.  
11.30: God Save the King.

## 3AR

**MORNING MUSICAL SESSION.**  
11.0: Records. 11.15: The Kausia (Hawaiian instrumentalists). 11.22: Ballads. 11.35: The Kausia (Hawaiian instrumentalists). 12.20: British official wireless news service. 12.30: Close down.

**AFTERNOON SESSION.**  
Announcer: John Stuart.  
3.0: Terpsichorean Tintinabulations. 3.30: The Jedral Trio (Alva Hattenbach, violin; Edna Hattenbach, 'cello; John Simons, piano). "Andante" (Tschaiikowsky). "Cradle Song" (Schubert). "Gevotte" (Lind). Piano solo, "Air" (Rameau). "Vals" (Rachmaninoff). Trio, "Larghetto" (Mozart). "Menuetto" (Beethoven). "Spanish Dance No. 1" (Moszkowski). 4.0: Beautiful Ballads. 4.30: Close down.

## 5CL

**MORNING SESSION.**  
Announcer: C. G. Gounod. 11.0: Chimes. 11.1: Morning melodies. 11.15: Kitchen craft and more talk. 11.45: Mr. L. G. CABT will speak on "The Work done by the Automobile Association." 12.1: Chimes. 12.15: General news service; British official wireless news. 12.32: Railway; Stock Exchange; meteorological information. 1.0: Chimes. 1.1: Community singing from the Adelaide Town Hall. 2.0: Close down.

**AFTERNOON SESSION.**  
3.0: Chimes. 3.15: Programme, including—Solomon Sisters, instrumentalists; Marcelle Bernard, soprano; Tom Dorrington, banjoist; Reg. Harris, tenor. 4.15: A short lecture with illustrative recording, by Horace Perkins, Mus.Bac. A.M.U.A., "Friedrich E. Flacc" (Bach), (Philadelphia Orchestra), "Allegro" (Tietto) (Kehudi Menuhin).  
6.0: Chimes. 6.15: Birthday greetings, correspondence, songs, and stories by "Miss Waverley." 6.30: Interlude of dinner music. 6.50: 5CL's special programme, as supplied by the Associated Stock and Station Agents. 7.0: Stock Exchange information. 7.6: General market reports. 7.10: Mr. Keith Minchin. 7.25: Leo Thielcke's first lesson on the fox-trot. 7.40: Mr. A. Grenfell Field, M.A., A.R.C.G., will continue his talk on "Pioneers of Australia."  
8.0: Chimes.  
8.1: Boake-Smith's Palais Royal Band. "Forty-seven Gingers-Headed Sailors" (Barony). "High Up On a Hilltop" (Baer).  
8.2: Will Runge, comedian. "The Birdies Now" (Friend).  
8.11: Phil Peake, baritone. "Danny Boy" (Weatherly).  
8.14: Boake-Smith's Palais Royal Band. "There's a Rainbow Round My Shoulder" (Johnson). "Me and the Man in the Moon" (Lealie).  
8.17: "Ricky Ricky Shack" (Tobias).  
8.24: Will Runge, comedian. In Semelutia.  
8.27: Boake-Smith's Palais Royal Band. "Lily of Laguna" (Stuart).  
8.30: "The Swan" (Sain).  
8.33: Gwyn Collett, contralto. "My Dearest Heart" (Arthur Sullivan).  
8.37: Boake-Smith's Palais Royal Band. "Boogie Woogie" (Johnson).  
8.44: Mr. C. T. Medigan, M.A., B.Sc., P.O.S., will conclude his series of talks on "Life in the Antarctic."  
9.0: Chimes.  
9.1: Meteorological information, including semi-phrase titles.  
9.2: Oversea grain report.  
9.3: Boake-Smith's Palais Royal Band. "That's a Good Day" (Sidd). "Some Day Somewhere" (Pollock). "I Can't Do Without You" (Berlioz).  
9.12: Oswald Summerton, trumpeter. Selections from "The Merry Widow."  
9.15: Boake-Smith's Palais Royal Band. "That's Her Now" (Vellen). "Glad You're in the Army" (Vollen). "Sally of My Dreams" (Kernell).  
9.25: Phil Peake, baritone. "Vale" (Kennedy-Russell).  
9.29: Boake-Smith's Palais Royal Band. "Out of the Dawn" (Donaldson). "Mother I Still Have You" (Johnson). "Somebody in Rags" (Johnson).  
9.35: Will Runge, comedian.  
9.38: Boake-Smith's Palais Royal Band. "All By Yourself, with the Moonlight" (Sisford). "Dream House" (Davis). "Dem Golden Slippers" (Fox).  
9.43: Gwyn Collett, contralto.

## 4QO

**MORNING SESSION.**  
11.0: Music. 11.5: Social news. 11.15 a.m.: Lecture, a cookery and household talk by the "Etiquette Girl." 11.45: Wurlitzer organ. 12.0 noon: Close down.

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

**AFTERNOON SESSION.**  
3.0: A programme of records. 3.30: Mail train running times. 3.31: From St. John's Cathedral, a recital by Mr. George Sampson, F.R.C.P. (City Organist). 4.15: This afternoon's news. 4.30: Close down.

**EARLY EVENING SESSION.**  
6.0: Mail train running times; mail information; shipping news. 6.8: Dinner music. 6.25: Commercial announcements. 6.30: Bedtime stories, conducted by "The Sandringham Girl." 7.0: News and Stock Exchange news. 7.6: Metal quotations. 7.7: Market reports. 7.30: Weather information. 7.35: Penwick's stock report. 7.40: Announcements. 7.43: Standard time signals. 7.45: To-morrow's sporting fixtures reviewed.

**NIGHT SESSION.**  
Announcer: E. Humphreys.  
A programme, arranged by Mr. Sydney May. 8.0: From the studio. Jill Manners (soprano). "Solovig's Songs" (Grieg). Frank Currow (bass). "The Song of the Bow" (Aylward). "A thought for to-night" (Will H. Lister). "Where Are We Now?" Eric Hayne (violinist). (a) "Minuet" (Mozart). (b) "Tandem" (Goose). Part-songs, "Annabel Lee" (Robertson). Pat M'Onigly (soprano). "To-night and All the Year" (Phillips). Vera Parker (contralto) and Frank Currow (bass), vocal duet, "A Dream" (Bartlett). Lou Lambert (baritone).

- "Heaps o' Lakin's" (R. Conningsby Clarke).
- 9.52: Boake-Smith's Palais Royal Band.
- "A Siren's Dream" (Pollack).
- "I Just Roll Along" (Trent).
- 10.0: Oswald Summerton, trumpeter.
- 10.4: Boake-Smith's Palais Royal Band.
- "Girl of My Dreams" (Clapp).
- "Flower of Love" (Dreyer).
- 10.11: Phil Peake, baritone.
- "Grey Days" (Johnson).
- 10.15: General news service. British Official Wireless news. Meteorological information. A.C.L.'s sporting service, supplied by "Silvius," including selections for Gawler and Williamstown races to-morrow.
- 10.30: Boake-Smith's Palais Royal Band.
- "Mexican Serenade" (Terese).
- "Beautiful" (Shay).
- 10.35: Gwen Collett, contralto.
- "Because" (Guy d'Hardelet).
- 10.30: Boake-Smith's Palais Royal Band.
- "Without You Sweetheart" (De Sylva).
- "Old-fashioned Locket" (Windrow).
- 10.45: Oswald Summerton, trumpeter.
- Selections from his repertoire.
- 10.48: Boake-Smith's Palais Royal Band.
- "Together" (Smith).
- "Dream Sweetheart" (Wendell).
- "Just Like a Melody Out of the Sky" (Donaldson).
- "Adore" (West).
- 11.0: Close down.

**6WF**

12.30: Tune in. 12.35: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin supplied by the Meteorological Bureau of Western Australia. 1.3: Musical programme from the studio, including items by the Studio Trio, comprising Miss Audrey Dean, piano; Miss Edna Waterman, cello; Mr. H. T. Newton, violin. 2.0: Close down. 3.30: Tune in. 3.35: Musical programme, relayed from the Primrose Cafe de Luxe; vocal items from the studio. 4.30: Close down. 6.45: Tune in. 6.48: Bedtime stories for the kiddies by Uncle Duffy. 7.5: Light music by the Studio Trio. 7.30: Commercial and general information. 7.45: Talk on "Racing" by the Sporting Editor of the "Truth" Newspaper Co., Ltd. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Musical programme from the studio, including items by the Karoola Instrumental Duo and vocal artists; Miss Audrey Dean, pianist. 8.50: Late news items by courtesy of the "Daily News" Newspaper Co., Ltd.; station announcements, ships within range announcements, late weather bulletin. 8.57: "Gardening" Talk by Mr. James Conarty. 9.15: Programme continued from the studio. 10.30: Close down.

**104.5 METRE TRANSMISSION.**

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

**7ZL**

**MIDDAY SESSION.**

11.30: Musical selections. 11.34: Midlands weather forecast. 11.35: Musical selections. 11.55: Weather report. 12.0: G.P.O. clock chimes the hour. 12.0: Shipping information. Ships within wireless range. Matrimonial. Housewives guide. Commercial news. 12.8: Musical selections. 12.11: British official wireless news. 12.20: Musical selections. 12.29: Announcements. 12.33: Musical selections. 12.55: News service. Railway auction produce sales, held at railway. 1.10: Musical selections. 1.30: Close down.

**AFTERNOON SESSION.**

3.0: Chimes. 3.1: Musical selection. 3.4: Weather forecast. 3.5: Musical selections. 4.15: Reading from the "Weekly Courier." 4.30: Close down.

**EARLY EVENING SESSION.**

6.15: Musical selections. 8.30: "The Story Lady." 6.45: Musical selections. 7.0: Answers to letters and birthday greetings by "Uncle David" and "The Story Lady." 7.10: News service; Railway Auction Produce Sales held at Railway; Tasmanian District weather report; announcements.

**EVENING SESSION.**

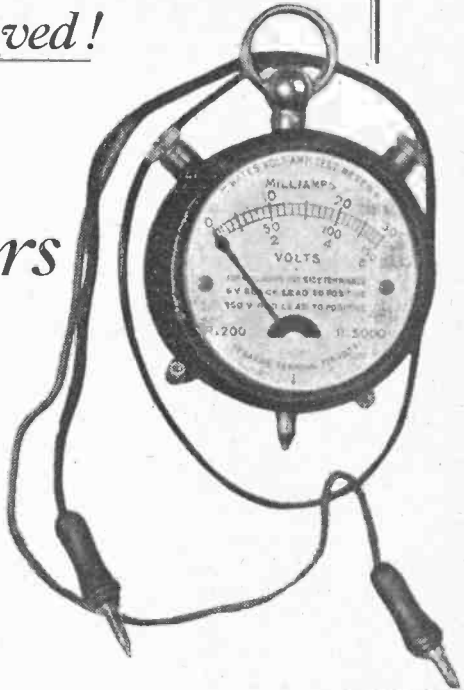
7.15: Sid Jones will speak on "Premiership Prospects." 7.30: A studio concert by 7ZL's artists. 7.30: Doris M'Coubric (contralto)—  
"Danny Boy" (Weatherly).  
"Dear Heart" (Mattel).  
7.37: Joyce Okines (elocutionist)—  
"The Idle Shepherdesas."  
7.40: Jessie Robertson (soprano)—  
Selected.  
7.47: Mischa Elman (violin solo)—  
"The Dew is Sparkling" (Rubenstein).  
"Capriccio" (Mendelssohn).  
7.54: L. Maddock (baritone)—  
"Rolling, Rolling Stone" (Pisher).  
"Sylvia" (Speaks).  
8.1: Jas. Compton (cornet solo)—  
"Because" (Teschemacher).  
"Absent" (Glen).  
8.8: Doris M'Coubric (contralto)—  
"Homing" (Del Riego).  
"I Heard You Go By" (Wood).  
8.15: Joyce Okines (elocutionist)—  
"Bus Concert."  
8.23: Jessie Robertson (soprano)—  
Selected.  
8.30: Light Opera Co.—  
"Songs of the Past."  
Parts 3 and 4.  
8.37: L. Maddock (baritone)—  
"Friend of Mine" (Sanderson).  
"Salam."  
8.42: Harry Goss-Custard (organ solo)—  
"Spring Song."  
8.46: J. M. Counsell—  
"A Musical Hour with the Old Masters."  
"The History and Development of Music."  
9.45: News service. Railway auction produce sales held at railway. British official wireless news. Weather information. Hobart Stock Exchange quotations. Market reports from Messrs. Roberts and Co., Wise and Striving, and T. Thorpe and Co. Railway week-end information.  
10.0: Chimes.  
10.1: Close down.

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# Local Programmes, Saturday, May 18

## 2FC

### EARLY MORNING SESSION

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

### MORNING SESSION

Announcer: Eric Bessemer.  
 10.0: "Big Ben" and announcements. 10.2: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.30: Last minute sporting information by the 2FC Racing Commissioner. 10.40: Studio music. 10.45: A talk on "Gardening" by J. G. Lockley ("Redgun"). 11.0: "Big Ben." A.P.A. and Reuters Cable Services. 11.5: Close down.

### MIDDAY AND AFTERNOON SESSIONS

Announcers: Laurence Halbert. Ewart Chapple.  
 Note: Race results from Victoria Park. 12.0: "Big Ben" and announcements. 12.2: Stock Exchange information. 12.4: The Popular Trio. 12.10: "Sydney Morning Herald" news service. 12.15: Rugby wireless news. 12.20: The Popular Trio. 12.50: From Moorefield. Description of the races in the running. From the studio: Popular music by the Popular Trio. Vocal items by Nellie Moodie, mezzo—(a) "I Heard You Singing" (Coates), (b) "A Little Coon's Prayer" (Hooper), (c) "What a Wonderful World It Would Be" (Lohr), (d) "Slave Song" (Del Riego), (e) "The Smoking Room" (Arundale), from Song Cycle, "The Little White House"; (f) "The Night Nursery" (Arundale), from Song Cycle, "The Little White House." 4.45: Complete sporting and racing resume. 5.0: "Big Ben." Close.

### EARLY EVENING SESSION

Announcer: A. S. Cochrane.  
 5.40: The chimes of 2FC. 5.45: The Children's session, conducted by the "Hello Man." Letters and stories. Music and entertainment. 6.40: Stock Exchange information. 6.45: Weather and shipping news. 6.47: Rugby wireless news. 6.52: Late sporting news. 7.0: "Big Ben." Late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats—(a) "Valse des Fleurs" (Tschalkowsky), (b) "Serenade Passonne" (Silesu), (c) "A Waltz Dream" (Strauss), (d) "Brown Eyes I Love" (Coates). (e) "Solveig's Song" (Grieg), (f) "The Fiddler of June" (Elliott).

### EVENING SESSION

Announcer: Laurence Halbert.  
 Accompanist: Ewart Chapple.  
 7.40: Popular music. 7.45: Programme announcements. 7.48: A record recital. 8.0: To-night we are arranging a theatrical transmission from one of Sydney's leading theatres. 10.30: From the Studio: Late weather report; Studio Dance Band, conducted by Cec Morrison. 10.57: To-morrow's programme. 10.59: Studio Dance Band, conducted by Cec Morrison. 11.30: National Anthem. Close.

## 2BL

### MORNING SESSION

Announcer: A. C. C. Stevens.  
 8.0: G.P.O. chimes. Weather report, State and metropolitan. 8.3: Studio music. 8.30: G.P.O. chimes. News and information service from the "Daily Telegraph Pictorial." 9.0: G.P.O. chimes; studio music. 9.30: G.P.O. chimes; half an hour with silent films. 10.0: G.P.O. chimes. Close.

### MIDDAY SESSION

Announcer: A. C. C. Stevens.  
 Note: Results from Moorefield and Victoria Park, by arrangement with Sun Newspapers Ltd. 11.0: G.P.O. chimes. Women's session, conducted by Mrs. Cranfield. What's on at the pictures and theatres. 11.30: Advertising hints. 11.40: Talk on "Gardening" by Mr. Cooper, Park Superintendent, City Council. 12.0: G.P.O. chimes. Special ocean forecast and weather report. 12.3: Studio

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music. 12.30: "Sun" news service. 12.40: Studio music. 1.0: "Sun" news service. 1.10: Studio music. 1.40: "Sun" news service. 1.50: Studio music. 2.0: G.P.O. chimes. Close.

### AFTERNOON SESSION

Announcer: Eric Bessemer.  
 Accompanist: Kathleen Roe.  
 2.55: Race results and announcements. 3.0: From the Sydney Sports Ground: Description of the football match. 3.15: From the studio: Daisy Siggs, contralto: (a) "The Ships of Arcady" (Head), (b) "The Little Brown Owl" (Sanderson), (c) "I will await thee" (Coningsby Clarke). 3.30: From the Sydney Sports Ground: Description of the football match. 3.45: From the studio: Daisy Siggs, contralto—(a) "Boat Song" (Ware), (b) "Look Up, Oh Heart" (Del Riego), (c) "I Heard a Bluebird Singing" (Crockett). Race results; popular items. 3.55: From the Sydney Sports Ground: Description of the football match. 4.15: From the studio: Race results; studio music. 4.25: From the Sydney Sports Ground: Description of the football match. 4.45: From the studio: Sporting resume; studio music. 5.0: G.P.O. chimes. Close.

### EARLY EVENING SESSION

Announcer: Basil Kirke.  
 5.40: Children's session, conducted by Uncle Bas. Music and entertainment; letters and stories. 6.30: "Sun" news service. 6.40: 2BL Dinner Quartette: (a) "Flower of Love" (Mendoza), (b) "Verschmiate Liebe" (Lincke), (c) "Cavalleria Rusticana" (Mascagni), (d) "Camel Bells" (Lohr), (e) "Serenade" (Drigo), (f) "I'm Sorry, Sally" (Florio). 7.7: Complete sporting and racing resume. 7.30: Mr. Pim and Miss Pam in advertising talks, handy hints, and nonsense. 7.53: An ad. special. 7.55: Programme and other announcement.

### EVENING SESSION

Announcer: Basil Kirke.  
 Accompanist: G. Vern Barnett.  
 8.0: G.P.O. chimes. Will and Barbara James, instrumental and vocal—  
 (a) "Roses of Picardy,"  
 (b) "Bohemian Girl" (Balfe).  
 8.10: The Troubadours.  
 8.20: Josef Kaartinen, saxophonist—  
 (a) "Chopin Nocturne" (Kaartinen),  
 (b) "Dolly Dimples" (Alter).  
 8.27: Popular programme.  
 9.27: Weather report.  
 9.29: Will and Barbara James, instrumental and vocal—  
 (a) "Just Like a Melody,"  
 (b) "That's How I Feel About You,"  
 (c) Selections, "Rhapsodie Hongroise" (Liszt).  
 9.39: The Troubadours.  
 9.54: Josef Kaartinen, saxophonist—  
 (a) "Romans" (Tschalkowsky—trans. Kaartinen).  
 10.1: Romano's Cafe dance orchestra, conducted by Bennie Abrahams.

10.12: From the studio: Nea Hallett, popular vocalist.  
 10.19: Romano's Cafe dance orchestra, conducted by Bennie Abrahams.  
 10.28: From the studio: Late weather report.  
 10.30: Romano's Cafe dance orchestra, conducted by Bennie Abrahams.  
 10.57: To-morrow's programme.  
 10.59: Romano's Cafe dance orchestra, conducted by Bennie Abrahams.  
 11.30: National Anthem. Close.

## 2GB

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

## 2UW

5.30 p.m.: Children's Hour, conducted by Uncle Jack. 6.30: Close down. 7.0: Musical programme. 10.0: Close down.

## 2UW

### Friday, May 17

### MIDDAY SESSION.

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

### EVENING SESSION.

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

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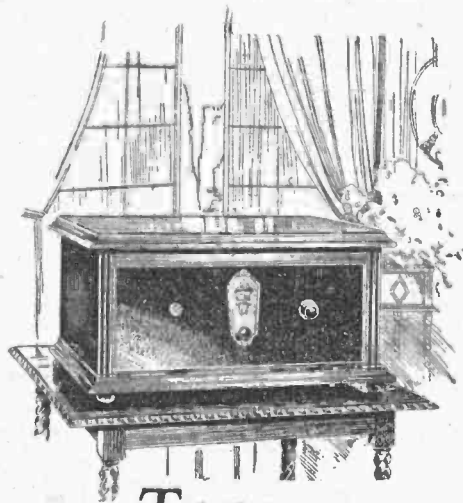


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8.40: A one-act drama, entitled "Evidence" (produced by Jack Ham). Characters: Chief Inspector Lavery, C.I.D., Jack Ham; Bates, a constable. Geo. Knight; Beldor, a butler; Malcolm Symons; Chance Crichton, Lloyd Taylor. Time: 41 a.m. Scene: Philip Gaylor's study in his house at Maida Vale.  
 8.55: Unley Orchestra.  
 9.7: Edna Lawrence, contralto.  
 9.14: Malcolm Gilhem, trumpeter.  
 9.20: Unley Orchestra.  
 9.27: Phyllis Everest, soprano.  
 9.34: Reed and Harding, Hawaiian duo.  
 9.40: S. Mills Rogers, bass-baritone.  
 9.47: Unley Orchestra.  
 9.57: Edna Lawrence, contralto.  
 10.4: P. H. Nicholls, assisted by Bessie, Francis, in a Shakespearean Interlude, "King Lear."  
 10.24: Unley Orchestra.  
 10.30: Modern dance records.  
 11.0: Close down.

**6WF**

12.0: Tune in. 12.5: "Racing Anticipations," repeated for the benefit of our country listeners. 12.7: Musical programme from the studio, including pianoforte solos by Miss Audrey Dean; vocal items. 12.44: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin, supplied by the Meteorological Bureau of Western Australia. 1.2: Close down. 2.0: Tune in; sporting session, description and results of races run at the Perth racecourse will be broadcast during the afternoon; quarter-time scores of the various football matches will be given also. 5.30 (approx.): Close down. 6.45: Tune in. 6.48: Bedtime stories by Aunty Amy. 7.12: Sports results. 7.30: Commercial and general information. 7.45: Music. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Vocal and instrumental artists from the studio. 8.30: Relay from Temple Court Cabaret of dance music by Merv. Lyon and his Symphonie Orchestra. 8.50: Late news items by courtesy of the "Daily News" Newspaper Co., Ltd.; station announcements; late weather bulletin; ships within range announcement. 9.5: Programme continued from the studio. 10.30: Close down.

**104.5 METRE TRANSMISSION.**

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

**7ZL**

**AFTERNOON SESSION.**

3.0: Chimes. 3.10: Description of Bay View Handicap, 1 1/4 mile, Williamstown. 3.15: Transmission from the North Hobart Oval, football match, North Hobart v. Cananore, described by Sid Jones. 3.45: Description of Autumn Steeplechase, 2 miles, Williamstown. 3.50: North Hobart v. Cananore. 4.15: Description of Gellibrand Handicap, 6 furlongs, Williamstown. 4.20: North Hobart v. Cananore. 4.45: Description of Beach Welter, 1 mile, Williamstown. 4.50: All sporting results to hand. 5.0: Close down.

**EARLY EVENING SESSION.**

Announcer: Jack Broadbent.

6.0: All sporting results to hand. 6.30: Uncle David. 7.15: News session.

**EVENING SESSION.**

7.30: H. H. Facy will speak on "The Relief of Mafeking."

7.45: J. M. Counsel will give a talk on the career of Melba.

8.0: Chimes "Faust."  
 Broadcast of Gounod's famous and popular opera.

8.6: Duet, Enrico Caruso (tenor), Geraldine Farrar (soprano)—

"O nuit d'amor" (Gounod).  
 "Il se fait tard" (Gounod).

8.13: Quartet, Dame Nellie Melba, John McCormack (tenor), Edna Thornton (contralto), Mario Sammarco (bass)—

"Bella Figurilla dell a'mour" (Verdi).  
 Dame Nellie Melba (soprano)—  
 "Ave Maria" (Verdi).

8.20: Giuseppe de Luca (bass)—  
 "Dio Possente, dio d'amor" (Gounod).  
 "Di Provenza il mar" (Verdi).

8.27: Beniamino Gigli (tenor)—  
 "Spring Gentil" (Donizetti).

"Salve, diamora, casta e pura" (Gounod).

8.34: Geraldine Farrar (soprano)—  
 "O Dieu! que de bijoux" (Gounod).  
 "Il erait un roi de Thule" (Gounod).

8.48: De Croot and the Piccadilly Orchestra—  
 "Faust", parts 1 and 2 (Gounod).

8.55: Royal Opera Orchestra—  
 "Ballet Music" ("Faust"), parts 1 and 2 (Gounod).

9.3: Pasquale Amato (baritone), Margaret Matzenauer (contralto), "Ahi Paito ardor" (Donizetti).  
 Pasquale Amato (baritone), Marcel Journet (bass)—

"A volte saute!" (Gounod).

9.10: Enrico Caruso, tenor, Scotti, baritone, Journet, bass—

"Bella figlia dell a'mour" (Verdi).

9.17: Rachel Morton (soprano)—  
 "The Loves Me" (Gounod).  
 "The Ramparts of Seville" (Liszt).

9.24: Titta Rufo (baritone)—  
 "Vous qui faites l'endormie" (Gounod).  
 "Rammenta i lieti di" (Gounod).

9.31: Marcel Journet (tenor)—  
 "Le veau d'or" (Gounod).  
 "Il etait sous le feuillage Sombre" (Gounod).

9.38: Louise Homer (contralto)—  
 "Le parlate d'amour" (Gounod).  
 "Stride la vampa! la folla indormita" (Verdi).

9.45: Victor Male Chorus—  
 "Le Veau d'Or" (Gounod).  
 "Soldiers' Chorus" (Gounod).  
 "Land of Hope and Glory" (Elgar).

9.52: Theodor Challapine (bass)—  
 "Vous qui faites l'endormie" (Gounod).  
 "Le veau d'or" (Gounod).

10.0: News session. Close down.



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## Local Programmes, Sunday, May 19

### 2FC

#### MORNING SESSION.

Announcer: A. S. Cochrane.

10.0: "Big Ben" and announcements. 10.2: News service. 10.20: The Captain to his Comrades. 10.35: The Comrades' Book Shelf. 10.40: Studio music. 11.0: "Big Ben." From St. Marks, Darling Point: Morning service, conducted by the Rev. Canon E. Howard Lea. 12.15 Approx.: Close down.

#### AFTERNOON SESSION.

Announcer: C. R. Hall.

2.30: Programme announcements. 2.32: The Cheer Up Society, conducted by Uncle Frank. 3.0: "Big Ben." From the Lyceum Hall, Pitt Street, Pleasant Sunday Afternoon service, arranged by the Central Methodist Mission. 4.30: "Big Ben." From the studio, C. S. Yarwood will give "Humorous Selections." 4.45: Studio music. 5.0: "Big Ben." Close.

#### EVENING SESSION.

Announcer: Laurence Halbert.

6.0: "Big Ben" and programme announcements.

6.2: A talk by C. R. Hall.  
6.20: Pianoforte solos by Kathleen Roe.  
6.30: Suzanne Ennis, contralto.  
6.37: Kathleen Roe, pianist.  
6.47: Suzanne Ennis, contralto.  
6.54: From the Lyceum Hall, Pitt Street—Evening service arranged by the Central Methodist Mission, Empire Service.  
Preacher: Rev. S. J. Hoban, D.D., of Melbourne.

Anthem, "The Radiant Morn" (Woodward), Choir. Conductor: V. W. Peterson, B.C.  
Introit, "Jesu, Stand Among Us"; Invocation, "May the Words of Our Mouth." Rev. A. J. Gould.  
Hymn 974, "Praise to Our God." Prayer.  
Hymn 1110, "Our Lord for Christ." Lesson.  
Solo, "Able With Me" (Liddle), Miss Bessie Cooke.  
Prayer.  
Intimations, Offertory.  
Anthem, "God is Our Refuge and Strength" (Minshall), Choir.  
Hymn 767, "Jesus Shall Reign."  
Sermon, Rev. S. J. Hoban, D.D.  
Hymn 915, "The Day is Past and Over." Benediction.  
Vesper.

8.30: From one of Sydney's leading theatres—A concert arranged for charitable purposes. Programme supplied by leading artists, including the N.S.W. Police Band.  
10.0: "Big Ben."  
National Anthem. Close.

### 2BL

#### MORNING SESSION

Announcer: A. C. Stevens.

11.0: G.P.O. chimes. From the Burton Street Baptist: Morning service, conducted by Rev. H. G. Curtis. 12.15 Approx. From the studio: "Sun" news service. 12.30: Studio music. 2.0: G.P.O. chimes. Close.

#### AFTERNOON SESSION

Announcer: Basil Kirke.

3.0: G.P.O. chimes. From St. Thomas' Church of England, Enfield: Anniversary service. 4.0: From the studio: Studio music. 5.0: G.P.O. chimes. Close.

#### EVENING SESSION

Announcers: Basil Kirke and G. Vern Barnett.

Accompanist: G. Vern Barnett.

6.0: Children's session, conducted by Uncle Bas.

6.30: From the Newtown Congregational Church: Organ and orchestra recital.  
Organist: Allan Weekly.

Orchestral leader: Miss Howson.  
(a) Orchestra, "Sacred Wreath" (No. 25) (Voigt).

(b) Orchestra, "The Lost Chord" (Sullivan).

(c) Orchestra, "The Evening Hour" (Kussner).

(d) Organ solo, "Traumerel and Romance" (R. Schumann).

7.0: Evening service, conducted by Rev. Mearns Massey.

Doxology. Short prayer. "Gloria" (chanted).  
Hymn 15: "Onward, Christian Soldiers."

Lesson: The pastor.  
Solo: "God is Everywhere" (Cohen).  
Children's hymn, 2: "Sing to Jesus" (Jamourneau).

Healing prayer.  
Duet: "He is the Same" (Morrison).

Esme Weekly and Essie Brooks.  
Children's hymn, No. 8, "Hark to the Tramp of Children" (Jamourneau).

Notices: Questions for May.  
Offertory anthem by Sunbeam Choir.

Hymn No. 3: "The Depth of Love" (Jamourneau).

Messages to sick friends.  
Hymn by children, No. 11, "Light at Eventide" (Jamourneau).

Silent prayer.  
Address: "The Child—The Future Citizen." The pastor.

Closing hymn, No. 3, "O God Our Help in Ages Past."  
Benediction.

School Vesper.  
Church Vesper.

Retiring hymn, No. 1, "Bring to the World Your Music" (Jamourneau).

Orchestra: "Look, ye Saints."

8.30: From the Manly band rotunda, Manly Beach: The Manly Municipal Band, conducted by James Fheloung.

9.30: Norman Janson, baritone.

9.37: Gerald Walenn, violinist.

9.44: Norman Janson, baritone.

9.51: Gerald Walenn, violinist.

9.58: Late weather, and to-morrow's programme.

10.0: National Anthem. Close.

### 2GB

10.0: Organ music from St. Alban's Church, Regent Street, Sydney. 10.30: Morning service from St. Alban's Church. 12 noon: Close down. 3.0: Musical session. 5.30: Children's Session, by Uncle George. 7.0: Lecture from Adyar Hall. 8.0: Music from studio. 8.15: Concert arranged by courtesy of Messrs Winkworth and Sons—piano solos by the Uebel-Lechleiter Piano. 8.23: Miss Mary Neal, contralto. 8.30: Miss Annette Kerr, violinist. 8.38: Mr. J. Sim Allan, baritone. 8.45: Miss Gladys Aubin, soprano. 8.52: Uebel-Lechleiter Piano. 9.0: Miss Mary Neal, contralto. 9.7: Miss Annette Kerr, violinist. 9.15: Mr. J. Sim Allan, baritone. 9.22: Uebel-Lechleiter Piano. 9.28: Miss Gladys Aubin, soprano. 9.35: Close down.

### 2UW

10.30 a.m.: Music and request numbers.

1.0: Close down. 5.30: Children's Hour, conducted by Uncle Jack. 6.30: Close down. 7.0: Musical programme. 10.30: Close down.

### 2GB

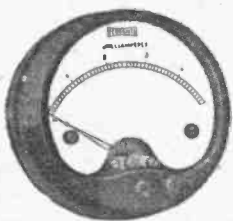
#### Friday, May 24.

10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20: Music. 10.30: Women's Session, by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's Radio Service, by Mrs. Dorothy Jordan. 2.50: Music. 3.30: Close down. 5.30: Children's Session, by Uncle George. 7.0: Music. 7.30: Feature story. 8.0: Miss Thelma Lansdowne, contralto. 8.7: Mr. Reginald Duncan, violinist. 8.15: Mr. Cecil Houghton, tenor. 8.22: Instrumental music. 8.30: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.35: Miss Elsie Peerless, soprano. 8.45: Address. 9.0: Weather report. 9.3: Instrumental music. 9.10: Miss Thelma Lansdowne, contralto. 9.20: Mr. Reginald Duncan, violinist. 9.30: Humorous interlude. 9.35: Mr. Cecil Houghton, tenor. 9.45: Instrumental music. 9.50: Miss Elsie Peerless, soprano. 10.0: Dance music. 10.30: Close down.

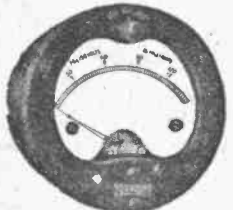
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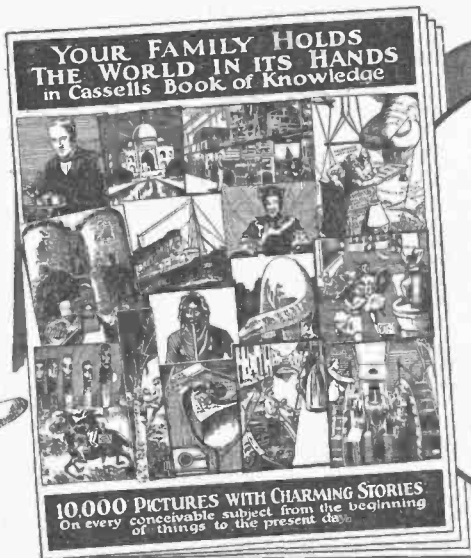
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# Interstate Programmes, Sun., May 19

## 3LO

### MORNING SERVICE.

10.30: Bells from St. Paul's Cathedral. 10.45: Express train information. British official wireless news from Rugby. News from yesterday's papers 11.0: Morning service from First Church of Christ, Scientist. 12.15: Close down.

### AFTERNOON SERVICE.

2.0: Sonora Recital of the world's most famous records. 3.0: Pleasant Sunday Afternoon Service, transmitted from Wesley Church, Longside Street, Melbourne. Chairman, Rev. J. H. Chln. 4.30: Close down.

### CHILDREN'S HOUR.

5.45: Shipping information. 5.47: Answers to letters and birthday greetings, by "Bobby Bluegum." 6.25: "Brother Bill" will speak on "Florence Nightingale." 6.45: Adult birthday greetings. 5.47: Bells from St. Paul's Cathedral, Melbourne.

### EVENING SERVICE.

7.0: Evensong (choral), St. Paul's Cathedral.

### NIGHT SERVICE.

8.30: Brunswick City Municipal Band—Military Overture, "La Militaire" (Raymond).  
8.40: Florrie Gordon (contralto)—"Yonder" (Oliver).  
"Loch Leven" (Russell).  
8.45: Brunswick City Band—Selection, "Saviour of the Opera" (Rimmer).  
8.57: Herald King (basso cantante)—"The Shepherd" (Dunhill).  
"Whether Must I Wander?" (Vaughan Williams)  
9.7: Dawn Assheton (soprano) and Laszio Schwartz (violin)—"Melodies from Many Lands."  
9.37: Florrie Gordon (contralto)—"Abide With Me" (Liddle).  
"They Say" (Warwick Evans).  
9.44: Brunswick City Band—Air Yarle, "Rockingham" (Trenchard).  
March, "The Storm Flend" (Greenwood).  
9.54: Announcements. News.  
10.0: God Save the King.

## 3AR

11.0: Morning service from Central Mission, Wesley Church, conducted by Rev. J. E. Cain. 12.15: British official wireless news. Express train information. Announcements. 12.30: Close down.

### AFTERNOON SERVICE.

2.45: Choral service by the Salvation Army, held in conjunction with their annual Congress meetings. Transmission from the Exhibition Building. 4.30: Close down.

### EVENING SERVICE.

5.0: "Eggs Rabbit." Stories for the Children. 5.30: Close down.

### NIGHT SERVICE.

7.0: A Musical Treat. Beautiful Ballads  
6.0: The Strad Trio (Cecil Parkes, violin; Myra Montague, piano; Frank Johnston, 'cello)—Trio, "Opus 1, No. 3, in C Minor" (Beethoven).  
Allegro con brio.  
Andante and Variations.  
Menuetto.  
Prestissimo.  
8.23: Russell Callow (tenor)—"When the Night with Chilly Silence."  
"Ah, Moon of My Delight."  
8.30: Cecil Parkes (violin)—"Caprice Viennois" (Kreisler).  
"The Girl with the Flaxen Hair" (Debussy-Parkes).  
"Tambourin Chinois" (Kreisler).  
8.35: Lindsay Biggins—  
"Tambourin" (Rameau).  
"Sonata in G Major" (Mozart).  
9.5: Mona Nugent (soprano)—  
"Moonlight" (Schumann).  
"The Secret" (Schubert).  
9.12: Frank Johnston ('cello)—  
"Air from Nina" (Pergolesi).  
"Guitar" (Popper).  
9.19: Russell Callow (tenor)—  
"An Evening Song" (Blumenthal).  
"At Dawning" (Fitzman).  
9.25: William Tainsh.  
9.38: Mona Nugent (soprano)—  
"When You Slept" (Kjerulf).  
"Way, The My Heart Should Break" (Tschalkowsky).  
9.45: The Strad Trio—  
"Extract from Rosamunde" (Schubert).  
"Passe Pled" (Debussy).  
9.52: News service. Announcements  
God Save the King.

## 4QG

### MORNING SERVICE.

11.0: The complete morning service will be relayed from St. Andrew's Presbyterian Church, Creek Street. 12.15: Close down.

### AFTERNOON SERVICE.

2.15: The afternoon service will be relayed from the Church of Denmark, George Street. 3.15: Conclusion. The band concert will be relayed from the Brisbane Botanic Gardens. 4.30: Close down.

### NIGHT SERVICE.

7.0: The complete evening service will be relayed from St. Andrew's Presbyterian Church, Creek Street. 7.30: Evening service. At the conclusion of the church service the concert by the Brisbane Municipal Band will be relayed from Wicham Park. 9.30: Oolse down.

## 5CL

### MORNING SERVICE.

10.45: Carillon of bells from Adelaide Town Hall. 11.1: Service from St. Francis Xavier's Cathedral, Pontifical High Mass. Presided over by the Archbishop of Adelaide, including special choral and solo items rendered by the Choir, with organ and orchestral accompaniment. 12.10: British official wireless news. 12.15: Close down.

### AFTERNOON SERVICE.

3.0: Chimes. 3.1: A pleasant Sunday afternoon service from Maughan Church, Franklin Street. 4.0: Chimes; close down.

### EVENING SERVICE.

6.0: Chimes. 6.1: Birthday greetings, correspondence, songs, and stories by "Miss Wireless." 6.4: "The Bird Lady" and "The Sunshine Songsters." 7.1: A Religious Service from Pirlie Street Methodist Church. The annual Convention of Methodist local preachers and Laymen's Association. The Choir will render an anthem. Soloists: Mr. E. Fairhurst Derbyshire.

### NIGHT SERVICE.

8.20: Gieneg Municipal Band (conductor, M. T. S. May)—  
March, "Appreciation" (Powell).  
Cornet duet, "Ida and Dot" (Losey).  
8.28: Gwen Collett, contralto—  
"O Divine Redeemer" (Mendelssohn).  
"O Rest in the Lord" (Mendelssohn).  
8.35: Norman Sellick, violinist (accompanied by Lilian Keen)—  
"Ave Maria" (Schubert).  
"The Bee" (Schubert).  
8.41: Herbert King, tenor—  
"God Touched the Rose" (Mary Brown).  
"Noel" (Adolphi Adams).  
8.48: The Operatic Quartette (Marcelle Berard soprano, Herbert King tenor, Gwen Collett contralto, Fred Guster bass)—  
Excerpts from Grand Opera.  
9.3: Gieneg Municipal Band—  
Selection, "Maid of the Mountains" (Simson).  
9.16: Marcelle Berard, soprano—  
"Vavatina" from "Lucia de Lammermoor" (Donizetti).  
9.22: Norman Sellick, violinist (accompanied by Lilian Keen)—  
"Swing Song" (Ethel Barnes).  
"Minuet" (Boccherini).  
9.28: Fred Guster, bass—  
"She Alone Charmeth My Sadness" (Gounod).  
9.34: Gieneg Municipal Band—  
March "Victor's Return" (Rimmer).  
9.40: Mr. F. H. Nicholls in an interesting talk on how to "Be Good to Yourself."  
9.52: General news service.  
10.0: Close down.

## 6WF

10.25: Tune in. 10.30: Special half-hour for the enthusiastic listener-in. 11.0: Morning service relayed from Salvation Army Postress. 12.15: Close down. 3.30: Tune in. 3.35: Musical programme from the studio; Mr. L. J. Owen, pianist. 4.30: Close down. 7.0: Tune in. 7.5: Bedtime stories for the kiddies. 7.30: Evening service relayed from St. George's Cathedral. 8.45: Band concert by the Perth City Band, conducted by Mr. Les. M. Price. 10.5: Close down.

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## 7ZL

### MORNING SERVICE.

10.45: Transmission from the Trinity Church, Hobart. 11.0: Transmission from the Melville Street Methodist Church. 12.30: Close down.

### AFTERNOON SERVICE.

3.30: A programme of sacred and classical music, arranged by James Counsel. 5.30: Close down.

### EARLY EVENING SERVICE.

6.15: Chorus singing (conductor, Trevor M. Morris, of the Children's Special Service Mission). 6.45: Bertha Southey Bramhall will read a Tasmania fairy tale, "Goblin Hill." Part 2.

### EVENING SERVICE.

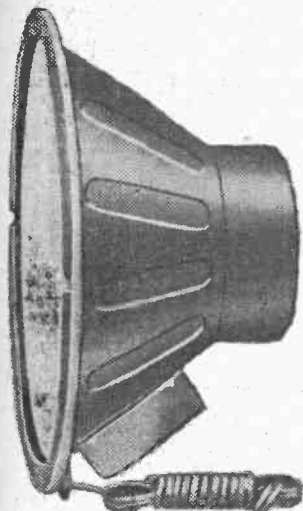
7.0: Transmission from the Memorial Congregational Church, Brisbane Street. 8.25: A programme of sacred and classical music, arranged by James Counsel. 9.45: News service. 9.50: Close down.

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# Local Programmes, Monday, May 20

## 2FC

### EARLY MORNING SESSION.

Announcer: A. S. Cochrane.

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

### MORNING SESSION.

Announcer: A. S. Cochrane.

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

### MIDDAY SESSION.

Announcer: A. S. Cochrane.

12.0: "Big Ben" and announcements. 12.2: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Summary of news, "Sydney Morning Herald." 12.10: Rugby wireless news. 12.13: A reading. 12.30: "Evening News" midday news service. 12.50: Studio music. 1.0: "Big Ben." Weather intelligence. 1.3: Producers' Distributing Society's market report. 1.5: From the Aeolian Hall—Lunch-hour chamber music recital by the Sverjensky Instrumental Ensemble. 1.35: From the studio—Stock Exchange, second call; studio music. 2.0: "Big Ben." Close.

### AFTERNOON SESSION.

Announcer: Laurence Halbert.

Accompanist: Ernest Chapple.

2.30: Programme announcements. 2.32: The Book Lover's Corner. 3.0: "Big Ben." Popular music. 3.30: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 3.40: From the studio, Alma Sainsbury, mezzo—(a) "A Birthday" (Huntington); (b) "Sing, Joyous Bird" (Phillips). 3.48: A reading. 4.10: Nancye Rouse, violinist, "Aria" (Bach). 4.17: Alma Sainsbury, mezzo—(a) "Waltz Song" (Tom Jones) (G.Ferman); (b) "A Little Rose Bud" (Schubert). 4.24: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams. 4.34: From the studio—Popular music. 4.45: Stock Exchange, third call. 4.47: Studio items. 5.0: "Big Ben." Close.

### EARLY EVENING SESSION.

Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's Session, conducted by the "Hello Man." Letters and stories, music and entertainment. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.48: Weather and shipping news. 6.50: Rugby wireless news. 6.55: Late sporting news. 7.0: "Big Ben." Late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats—(a) "La Rose" (Aschet). (b) "Pierrette" (Chaminade). (c) "The Magic Waltz" (Strauss). (d) "Orientale" (Cul). (e) "Three Songs" (Brahms). (f) "Loin du Bal" (Gillet). (g) "Canzonetta" (Tschaiowsky).

### EVENING SESSION.

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Popular music. 7.45: Programme announcements. 7.48: A record recital. 8.0: G.P.O. chimes. Studio Orchestra, conducted by Horace Keats—  
(a) Selection, "Hansel and Gretel" (Humperdink).  
(b) Danse Macabre" (St.-Saens).  
8.20: Debate by the Sydney School of Arts Debating Society, successful competitors in the Radio Elstedford.  
8.50: William Dallison, tenor.  
8.57: Dagmar Roberts, pianist—  
"Scherzo in B flat Minor" (Chopin), by request.  
9.7: Weather report.  
9.8: Laurence Macaulay, baritone.  
9.16: Studio Orchestra, conducted by Horace Keats.  
(a) Selection of Russian Airs" (arr. Schumann).



Miss Dagmar Roberts, pianist who will give a recital from 2FO tonight.

(b) Intermezzo, "The Jewels of the Madonna" (Wolf-Ferrari).  
9.31: William Dallison, tenor.  
9.38: Dagmar Roberts, pianist—  
(a) "Juba" (Detti).  
(b) "Sing a Song of Sixpence" (Livens).  
(c) "Girl with the Flaxen Hair" (Debussy).  
(d) "Prelude in A Minor" (Debussy).  
9.48: Laurence Macaulay, baritone.  
9.53: Studio Orchestra, conducted by Horace Keats—  
(a) Extracts from the Ballet Suite, "Scheharazada" (Rimsky-Korsak).  
(b) Ballet, "I Vespri Siciliana" (Verdi).  
(c) Overture, "Fingal's Cave" (Mendelssohn).  
10.20: Late "Evening News" service.  
10.28: Late weather and to-morrow's programme.  
10.30: National Anthem. Close down.

## 2BL

### MORNING SESSION N

Announcer: A. C. C. Stevens.

8.0: G.P.O. chimes. Weather reports—metropolitan and State. 8.3: Studio music. 8.30: G.P.O. chimes. News and information service, from the "Daily Telegraph Pictorial." 9.0: G.P.O. chimes. Studio music. 9.30: Half an hour with silent friends. 10.0: G.P.O. chimes. Close.

### MIDDAY SESSION

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. 2BL Women's Sports Association session, conducted by Miss Gwen Varley. 11.30: Advertising hints. 11.40: Women's session, conducted by Mrs. Cranfield. 11.45: Nurse May will speak on "Infant Welfare." 12.0: G.P.O. chimes. Special ocean forecast, and weather report. 12.3: The Melody Trio. 12.30: Shipping and mails. 12.35: Market reports. 12.48: "Sun" midday news service. 1.0: The Melody Trio. 1.30: Talk to children, and special entertainment for children in hospital. 2.0: G.P.O. chimes. Close. Note: Race results will be broadcast by arrangement with "Sun" Newspapers.

### AFTERNOON SESSION

Announcer: A. C. C. Stevens.

Accompanist: Kathleen Roe.

3.45: G.P.O. chimes. The Melody Trio. 4.0: G.P.O. chimes. Bunty Stuart (contralto). (a) Danny Boy" (Weatherly). (b) "Good-morning, Brother Sunshine" (Lehmann). (c) "Hush Song" (Kahn). 4.7: A talk by Captain Fred Aarons. 4.22: The Melody Trio. 4.33: Bunty Stuart (contralto). (a) "Hame" (Davies). (b) "My Ain Wee Hoose" (Munro). (c) "Ye Banks and Braes of Bonnie Doon" (Lees). 4.40: A talk on "Empire Shopping Week." 4.50: The Melody Trio. 5.5: "Sun" news service. 5.15: The Melody Trio. 5.25: Results of the trots. 5.29: Popular music.

5.37: Features of the evening's programme.

### EARLY EVENING SESSION

Announcer: Basil Kirke.

5.40: Children's session, conducted by Uncle Bas. Music and entertainment. Letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette. (a) "March of the Tin Soldiers" (Pierne). (b) "Pleurez, mes Yeux" (Bergers). (c) "Chant d'Amour" (Dyck). (d) "Prelude in G Minor" (Rachmaninoff). (e) "The Gingsales" (Monckton). (f) "There's a Rainbow" (Jasson). 7.7: Australian Mercantile, Land and Finance Co.'s report. Weather report and forecast by courtesy of Government Meteorologist. Producers' Distributing Society's fruit and vegetable market reports. Grain and fodder report ("Sun"). Dairy produce report ("Sun"). 7.25: Mr. Pim and Miss Pam in advertising talks, handy hints, and nonsense. 7.53: An Ad. Special. 7.55: Programme and other announcements.

### EVENING SESSION.

Announcer: Basil Kirke.

Accompanist: G. Vern Barnett.

8.0: G.P.O. chimes. Varsity revels. Half a dozen students whose voices are particularly well suited to the microphone are coming along to-night to sing the newest Varsity songs and tell the newest Varsity stories. They promise to make good use of the hour which has been given them.  
9.0: G.P.O. chimes. Weather report.  
9.1: Sammy Cope (xylophone).  
9.8: Sketches by Graham and Manning. Duet, "Under the Chestnut Tree" (Scott).  
Solo, "When Will the Sun Shine for Me?" (Sliver).  
Dorothy Manning.  
Duet, "Them Were Days" (Gellatly).  
9.18: David Craven (baritone).  
9.27: Sammy Cope (xylophone solos).  
9.36: Sketches by Graham and Manning—Solo, "Quack, Quack" (Hylton).  
Harry Graham.  
Duet, "When Father Went Out Shopping" (Gordon).  
9.46: David Craven (baritone).  
9.53: G. J. Hill will speak on the "Idiosyncrasies of the Motor-car."  
10.8: Late "Sun" news.  
10.15: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.  
10.28: From the studio. Late weather report.  
10.30: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.  
10.57: To-morrow's programme.  
10.58: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.  
11.30: National Anthem. Close.

## 2GB

10.0: Music. 10.10: Happiness talk, by A. J. Bennett. 10.20: Music. 10.30: Women's Session, by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's Radio Service, by Mrs. Dorothy Jordan. 2.50: Music. 3.30: Close down. 3.30: Children's Session, by Uncle George. 7.0: Music. 7.30: Feature story. 8.0: Miss Betty Ramsay, contralto. 8.7: Miss Ade Brock, pianiste. 8.15: Mr. Scott Fox, baritone. 8.22: Instrumental music. 8.30: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.35: Miss Elsie Brown, soprano. 8.45: Address. 9.0: Weather report. 9.3: Instrumental music. 9.10: Miss Betty Ramsay, contralto. 9.20: Humorous interlude. 9.25: Instrumental music. 9.5: Mr. Scott Fox, baritone. 9.45: Miss Ade Brock, pianiste. 9.55: Miss Elsie Brown, soprano. 10.5: Dance music. 10.30: Close down.

## 2UW

### EVENING SESSION.

5.30: Children's Hour, conducted by Uncle Jack. 6.30: Close down. 7.0: G.P.O. clock and chimes; request numbers. 7.45: Wireless Talk—Hints and Advice, by Mr. E. Homfray. 8.0: Music. 9.0: G.P.O. clock and chimes; comments on foreign affairs, by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.



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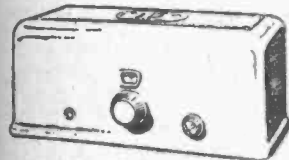
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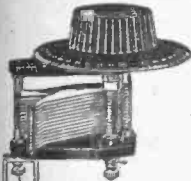
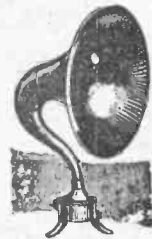


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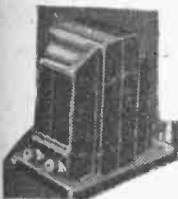


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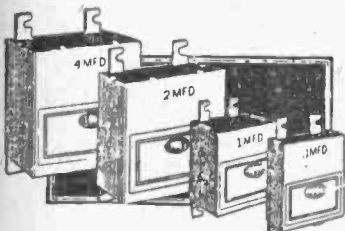
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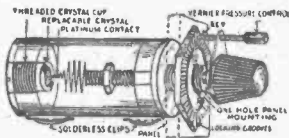


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# Interstate Programmes, Monday, May 20

## 3LO

### EARLY MORNING SESSION.

7.15 to 8.15: See Friday.

### MORNING SESSION.

11.0: 3LO Housewife. To-day's Radio Recipe. Gingerbread. 11.35: Miss Olga Parker will continue her series of "Stories to Tell the Children." 11.45: Under the auspices of the St. John Ambulance Association, Miss Edith Wells will speak on "Home Nursing." 11.55: Under the auspices of the National Safety Council of Victoria, E. J. Book will speak on "Some Aspects of Safety."

### MIDDAY SESSION.

12.0: Melbourne Observatory time signal. 12.1: British official wireless news from Rugby. Reuter's and the Australian Press Association cables. "Argus" news service. 12.15: Newmarket stock sales. Entries for the market for Tuesday, Wednesday, and Thursday, by the Associated Stock and Station Agents, Bourke Street, Melbourne. 12.20: Community singing, transmitted from the King's Theatre, Russell Street, Melbourne. Conductor, F. J. Mackay. Ern. Hall's Radio Revelers, with Hugh Huxham. "The Kaulais." Jack Stocks, "The Woman Hater." 12.40: Stock Exchange information. 12.43: Community singing resumed. 1.45: Meteorological information. Weather forecast for Victoria, New South Wales, South Australia, and Tasmania. Ocean forecasts. River reports. Rainfall. 1.50: Close down.

### AFTERNOON SESSION.

2.15: The Station Orchestra. 2.40: Moran Hilford (basso). 2.47: The Station Orchestra. 3.0: Captain Donald MacLean. 3.15: The Strad Trio. 3.33: Cecil Parkes (violin). 3.48: Moran Hilford (basso). 4.6: Dawn Assheton (coloratura soprano) and Leszlo Schwartz (violin). Forty Minutes' Recital of Songs from Many Lands. 4.10: The Station Orchestra. 4.30: Rodina Down (soprano). 4.37: The Station Orchestra. 4.50: "Herald" news service. Stock Exchange information. Acceptances and barrier positions for Adelaide. 5.0: Close. 5.6: Answers to letters and birthday greetings by "Billy Bunny." 6.25: Musical interlude. 6.30: William C. Groves will tell the children more about "The Peter Pan" of the Pacific. 6.45: "Billy Bunny" hasn't finished yet.

### EVENING SESSION.

7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. 7.43: Birthday Greetings. 7.45: Out of the Past. 7.46: Under the auspices of the Department of Agriculture, J. M. Ward, Superintendent of Horticulture, will speak on "The Selection and Planting of Fruit Trees." 8.0: A Maker of History.

### NIGHT SESSION.

8.0: Ern. Hall's Radio Revelers—"Shivering" (Doody).  
"Promise Me" (An Booth).  
"Ready for the River" (Moret).  
"What'll You Weather Bel" (Plantadosi).  
"Do You?" (Cohn).  
"Do You?" (Plantadosi).  
8.18: "The Kaulais." Hawaiian Instrumentalists—"Kohala" (Arr. Kail).  
"Awa" (Awaiti).  
8.25: Ern. Hall's Radio Revelers—"Pa's Old Hat" (Guy).  
"Colombo" (Nichols).  
"I'll Tell Her Ove' Heels in Love" (Thayer).  
"Sunny Boy" (Brown).  
"Sally of My Dreams" (Kernell).  
"My Angelina" (Wayne).  
"My Mother's Eyes" (Baer).  
8.43: Announcements.  
8.45: Hoffman's Dance Band—Waltz, "Dorwellen."  
8.52: Syd. Exton (tenor)—"Then You'll Remember Me" (Balfe).  
8.55: Hoffman's Dance Band—Barn Dance, "Golden Slippers."  
9.3: Jack Stocks, "The Woman Hater"—"Parodies of the Past."  
9.6: Hoffman's Dance Band—Quadrilles, "The World."  
9.24: Old-time Chorus, Graham Burgin and the Boys of the Village, Mrs. Campbell at the piano.  
9.30: Hoffman's Dance Band—Waltz, "Little Grey Home in the West."  
9.37: Syd. Exton (tenor)—"Alice, Where Art Thou?" (Asche).  
9.40: Hoffman's Dance Band—Schottische, "Kerry Mills."  
9.47: Announcements and Greetings to All Old-timers.  
9.52: Hoffman's Dance Band—Lancers, "The Arcadians."  
10.10: Old-time choruses, Graham Burgin and the Boys of the Village.  
10.16: News service. British official wireless news from Rugby. Meteorological information. Announcements.  
10.25: Hoffman's Dance Band—Waltz, "Luxemburg."  
10.32: Sid Exton (tenor)—"Tom Rowling."  
10.36: Hoffman's Dance Band—Alberts, Popular Melodies.  
10.53: Old-time Choruses, Graham Burgin and the Boys of the Village.  
"Varsouviana."  
11.7: Jack Stocks, "The Woman Hater"—"More Parodies of the Past."  
11.14: Hoffman's Dance Band—"The Royal Irish."  
11.30: God Save the King.

## 3AR

10.0 to 10.59: See Friday. 11.0: Beautiful Ballads and Orchestral Chefs d'Oeuvre. 12.20: British Official wireless news. Announcements. 12.30: Close down.

### AFTERNOON SESSION.

Announcer: John Stuart.  
3.0: Ballads. 4.0: The Jedral Trio. 4.15: Miss P. Verbury will speak.

### EVENING SESSION.

6.0: A Musical Chef d'Oeuvre. 6.32: Vocal Variations. 7.10: News service. Announcements. 7.20: Beautiful Ballads.

### NIGHT SESSION.

8.0: E. C. E. Taylor will speak on "School Life and School Sport."  
8.15: Under the auspices of the Historical Society of Victoria G. R. Long will speak on "Melbourne in the Forties."  
8.30: The Station Orchestra—Overture, "Titus" (Mozart).  
"Souring" (Schumann).  
8.40: Piano Recital—Ina Mornement.  
"First Movement of Sonata, No. 2, C Major" (Beethoven).  
"Serenata" (Albeniz).  
"Cancion" (Albeniz).  
"Melodia in G Flat" (Paderewski).  
"Minuet in G Major" (Paderewski).  
"Song of the East" (Cyril Scott).  
9.0: The Station Orchestra—"Bonnes Pitoies" (Massenet).  
9.10: Dawn Assheton (coloratura soprano) and Laszlo Schwartz (Hungarian violinist) in folk and character songs of all lands.  
9.30: The Jedral Trio—"Trio in E Flat Major" (Beethoven).  
Piano Solo, "Album Leaf" (Caesar Cui).  
Trio, "Alia Turca" (Mozart).  
"Cradle Song" (Una Bourne).  
"Entr'acte" (Schubert).  
"Tempo Menetto" (Beethoven).  
9.50: Pirates, Peroris and Peru. Captain Donald MacLean. "Feats of the Mighty."  
10.5: The Station Orchestra—"Scenes Pittoresques" (Massenet).  
"Mosaïque" (Beethoven).  
10.20: News service. Announcements. God Save the King.

## 4QG

### EARLY MORNING SESSION.

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

### MORNING SESSION.

11.0: Music. 11.5: Social news. 11.15: Lecturette. 11.45: Wurltzer organ. 12.0 (noon): Close down.

### MIDDAY SESSION.

1.0: Market reports and weather. 1.20: Lunch-hour music.

### AFTERNOON SESSION.

3.0: Records. 3.30: Mail train running times. 4.15: This afternoon's news. 4.30: Close down.

### EARLY EVENING SESSION.

6.0: Mail train running times; mail information, shipping news. 6.5: Wurltzer organ. 6.25: Commercial announcements. 7.30: Bedtime stories, conducted by "The Sandman." 7.0: News in brief. 7.5: Stock Exchange news. 7.8: Metal quotations. 7.7: Market reports. 7.25: Penwick's stock report. 7.30: Weather information. 7.40: Announcements. 7.43: Standard time signals. 7.45: Lecturette: "The Children's Music Corner," conducted by "The Music Man."

### NIGHT SESSION.

Announcer: H. Humphreys.  
8.0: The Kao Maoli Duo—In selected numbers.  
8.5: Harry Humphreys—"A Dickens' reading: 'Pugin's Last Night Alive'" (from "Oliver Twist").  
8.17: Billie Bailey (soubrette)—Popular number.  
8.25: The Kao Maoli Duo—In selected melodies.  
8.30: Will H. Lister—"A Thought for To-night: 'Someone's Heaven.'"  
8.35: Mary McNeish (soprano)—"Happy Summer Song" (Kahn).  
8.39: A Wurltzer organ record.  
8.40: W. W. Crisp (tenor)—"Mary Adeane" (Capel).  
"The Fishermen of England" (Phillips).  
8.55: The Kao Maoli Duo—Hawaiian instrumentalists.  
9.0: Metropolitan weather forecast.

### RADIO COMEDY.

9.1: A radio comedy, "The Boatman's Mate" (W. W. Jacobs).  
George Benn ..... Ernest Barry  
Mrs. Travers ..... Ernest Barry  
Mrs. Waters ..... Dulcie Scott

### BAND PROGRAMME.

9.30: An impromptu programme of music by the Citizens Band (conductor, A. Kaeser).  
B-between band items the following will be broadcast—  
Jill Manners (soprano)—"Prince Charming" (Newington).  
"Love Will Find a Way" (Tate).  
10.0: "The Daily Mail" news; "The Courier" news; weather news. Close down.

## 5CL

MORNING SESSION  
11.0 to 2.0: See Friday.

### AFTERNOON SESSION.

3.0: Chimes. General programme, including Station Quartette, Clelia Genoni McNeil (soprano), M. Harmony Two (instrumentalists), Phil Peake (banjo), Phyllis Everett (contralto), Tom Dorkey (banjo). 4.55: Stock Exchange information. Close down.  
6.0: Chimes. 6.1: Birthday greetings, correspondence, songs and stories by "Auntie Peggy" Ltd. Dinner music. 7.0: Chimes. 7.1: Stock Exchange information. 7.6: General market reports. 7.10: Mr. George Quinn (chief horticultural instructor of the S.A. Agriculture Department) will speak. 7.30: 5CL Twinkler Boys' Club.

### NIGHT SESSION.

8.0: Chimes.  
8.1: Holden's Male Voice Choir—"On the Sea" (Bueki).  
"John Peel."  
"Little Heather."  
8.11: Ethel Gaul (soubrette)—"The Little Red Schoolhouse" (Al. Wilson and Chas. Brennan).  
"Too Tired" (Little, Sizemore, and Sharp).  
8.18: Clelia Genoni McNeil (soprano)—8.25: Lewis Jones (violinist)—"Gentle" (Goss).  
"Valse Triste" (C. Scott).  
8.31: Holden's Male Voice Choir—"Lovely Night" (Ronald).  
"Must. I Stand Part From Thee" (Lehmann).  
"The Long Day Closes" (Sullivan).  
8.40: Ethel Gaul (soubrette)—"He Loves Her" (Grant Clarke and Edgar Lisle).  
"Mantel" (Edgar Lisle).  
8.46: Clelia Genoni McNeil (soprano).  
8.53: Lewis Jones (violinist)—"Am Moor" (Schubert).  
"Romance" (Max Bruch).  
9.0: Chimes.  
9.1: Meteorological information, including Sea-phenon tide.  
9.2: Overseas grain report.  
9.3: In-club dance might from 3LO.  
9.30: General news service; British official wireless news. Meteorological information. Announcements.  
11.0: Close down.

## 6WF

12.30: Tune in. 12.35: Markets, news, and sports results. 1.0: Time signal. 1.1: Weather bulletins supplied by the Meteorological Bureau of Western Australia. 1.3: Fan-trope Hour, relayed from Maxx Musgrove's, Ltd., Lyric House, Perth. 2.0: Close down. 3.30: Tune in. 3.35: Afternoon tea programme relayed from the Carlton Cafe; vocal items from the studio. 4.30: Close down. 6.45: Tune in. 6.48: Bedtime stories by Uncle Duffy. 7.0: Close down by the Perth Piano Trio, comprising: Mr. A. Lynch, violin; Mr. R. Brearley, cellist; Mr. H. Staley, piano. 7.30: Commercial and general information. 7.45: Talk by Lieutenant-Colonel Le. Sord, Director, Zoological Gardens, South Perth. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Concert by the R.B.L. Band, conducted by Mr. George Melior—"New Colonial," "Melodious Revue," "Birds of Paradise," "John O' Gaunt," "Opera Bouquet," "Lion's Bride," "Indian Love Lyrics," "Children of the Regiment" 8.20: Talk, "Mystic Java," by Mr. J. Cowie, of the Orient Touring Co. 8.50: Late news items by courtesy of the "Daily News" Newspaper Co., Ltd.; station announcements; ships within range announcement; late weather bulletin. 9.5: Programme continued from the studio. 10.30: Close down. 104.5 METRE TRANSMISSION. Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 6.15 p.m.

## 7ZL

MIDDAY SESSION.  
11.30 to 1.30: See Friday.

### AFTERNOON SESSION.

3.0: Chimes. 3.4: Weather information. 4.1: "Aunt Edna" will speak on "Cloths." 4.30: Close down.

### EARLY EVENING SESSION.

6.15: Music. 6.30: Lloyd Broady, "Moonbeam on the Lake" (Fitzpatrick), "Minnet in C" (Beethoven). 7.0: "Uncle David." 7.5: B. R. Reynolds on "Tasmanian Birds." 7.15: News session.

### EVENING SESSION.

7.30: Under the auspices of the Tasmanian University, Professor A. L. McAulay will speak on "The Universe." 7.45: Geo. Collis, Tasmania's

champion wrestler, will speak on "Physical Culture." 8.0: Chimes. 8.15: Concert celebrating the birthday of Australia's prima donna, Dame Nellie Melba. 8.15: Dame Nellie Melba, soprano, "Ave Maria" (Gounod); Mrs. R. D. Hay, contralto, "Quist" (Sanderson), "Shanvoah"; De Groot and Piccadilly Orchestra, "Faust" Selection, part 1 and 2; Doreen Ellison, soprano, "Pete" (Williams); Royal Opera Co. Orchestra, "Faust," movement 3 and 4 (Gounod); L. Maddock, baritone, "An Old English Love Song" (Allitsen); Royal Opera Co. Orchestra, "Faust," movement 5 and 6 (Gounod); Gwen Davidson, soprano, "Vol Che Sapete" (Mozart); Mischa Elman, violin solos, "Capriccio" (Scarlatti), "Fantasia from Garden Scene" (Gounod); Jean Hibbard, soprano, "Serenade" (Brayer); duet, Caruso (tenor) and Farrar (soprano), "O Nuit d'Amour" (Gounod); San Francisco Symphony Orchestra, "Caprice Viennois" (Kreisler); duet, Lila Harvey (contralto) and Doreen Ellison (soprano), "O Lovely Night" (Ronald); E. Brown, violin solo, "Song of India" ("Sadko"); quartet, Caruso (tenor), Farrar (soprano), Journet (bass) and Gilbert (mezzo-soprano), "Seigneur Dieu" ("Faust," Gounod), "En Quo! Toujours Seule" ("Faust," Gounod); San Francisco Symphony Orchestra, "Coppelia Ballet" (Delibes); duet, Madame Lucy Atkins (soprano) and Frank Furness (baritone), selected; Mark Hambourg, piano solo, "La Cathedrale Engloutie" (Debussy); duet, Pasquale Amato (baritone) and Margarete Matzenauer (contralto), "A Votre Sante" ("Faust," Gounod); Mischa Elman, violin solo, "Hungarian Dance, No. 7, A Minor"; duet, Pasquale Amato (baritone) and Margarete Matzenauer (contralto), "Ahi l'Alto Ardor" (Donizetti). 9.50: News session. 10.0: Chimes. 10.1: Close down.

## Lismore Radio and Electrical Exhibition

ENCOURAGED by the success of its last year's radio and electrical exhibition at Lismore, the Richmond River Listeners' League is going to repeat the event this year, on May 23, 24, and 25, but the coming display will be greatly enlarged. A larger hall has been engaged, and the space available has been over-applied for, and distributed pro rata to the applications by an independent committee.

Last year the league had at its exhibition all that was shown in Sydney, but less of it, so that, as is natural in the country, the display was smaller, though representative. During the past 12 months there has been a reduction in the price of electrical current in Lismore, and this has popularised electrical labor-saving devices. This section of the exhibition will be stronger than ever before, for a number of prominent electrical firms have opened branches in Lismore during the past 12 months.

Some very neat amateur sets last year drew eulogistic remarks from Mr. W. S. Crawford, radio inspector in the P.M.G.'s Department, and this year prizes are offered for the best amateur-built multi-valve, short-wave receiver, or adaptor, screen-grid receiver, and best piece of home-constructed radio apparatus. Some Sydney firms are sending their Town Hall displays to Lismore when the Sydney exhibition closes, and there is no doubt that the exhibition will attract thousands of people, for it is in a town of 12,000 people, and in the centre of the most thickly populated rural area in the Commonwealth.

Exhibitors will be well treated by the league this year. The league does not need large reserves of cash, and from the net profits it has been decided to give exhibitors a rebate of 50 per cent. on the money they have paid as space rents. This action is appreciated, and has made the league popular with the trade. The fact that control is relieved from trade interference also makes for greater harmony, and though the league secured the largest hall in Lismore, it was not able to grant all space applications.

While the listeners' organisations in the cities have mostly died from inanition, the Richmond River body has increased its membership each year, and draws its supporters from a wide area. This has only been possible through the work of an enthusiastic committee that takes its radio seriously and believes that set-owners benefit by having an organisation to voice their wishes.



As exhibitors were restricted from demonstrating at the recent Radio Show—SIX-SIXTY products were not represented.

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# Local Programmes, Tuesday, May 21

## 2FC

### EARLY MORNING SESSION

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

### MORNING SESSION

Announcer: A. S. Cochrane.

10.0: "Big Ben" and announcements. 10.2: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.30: Last-minute sporting information, by the 2FC Racing Commissioner. 10.40: Studio music. 10.50: Pianoforte reproduction. 11.0: "Big Ben." A.P.A. and Reuter's cable services. 11.5: Close down.

### MIDDAY SESSION

Announcer: A. S. Cochrane.

Note: Race results from Menangle will be transmitted as received. 12.0: "Big Ben" and announcements. 12.2: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Summary of news. "Sydney Morning Herald." 12.10: Rugby wireless news. 12.13: A reading. 12.30: The Popular Trio. 1.0: "Big Ben." Weather intelligence. 1.3: "Evening News" midday news service; Producer's Distributing Society's market report. 1.20: The Popular Trio. 1.35: Stock Exchange, second call. 1.30: The Popular Trio. 2.0: "Big Ben." Close.

### AFTERNOON SESSION

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

2.30: Programme announcements. 2.32: The Book Lover's Corner. 3.0: "Big Ben." From Paling's Concert Hall. A recital by the students of Mischa Dobrinski. 4.0: "Big Ben." From the Studio: A reading. 4.25: Popular Trio. 4.45: Stock Exchange, third call. 4.47: Popular Trio. 5.0: "Big Ben." Close.

### EARLY EVENING SESSION

Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man," assisted by Aunt Ely. Letters and stories, music, and entertainment. 6.30: Dalgely's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.48: Weather and shipping news. 6.50: Rugby wireless news. 6.55: Late sporting news. 7.0: "Big Ben"; late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats—(a) "Serenade d'Amour" (Walden), (b) "Three Dream Dances" (Coleridge-Taylor), (c) "Under the Lilac Bough" (Schubert), (d) "Siegmund's Love Song" (Wagner), (e) "Die Nebensouner" (Schubert) (f) "There are Fairies in Your Eyes" (Klein).

### EVENING SESSION

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

7.40: Popular music.  
7.45: Programme announcements.  
7.48: A talk on "Empire Shopping" week.  
8.0: "Big Ben." From Pitt Street Congregational Church: An organ and pianoforte recital by Lillian Frost and Esther Kahn—"Allegro Con Brio" (Concerto I) (Beethoven).  
8.15: From the studio: Virginia Bassetti, contralto.  
8.22: Brunton Gibb in humorous talks.  
8.32: Leo Rowan, tenor—  
(a) "Love is Mine" (Gartner).  
(b) "When Song is Sweet" (Sans Souci).  
8.39: From Pitt Street Congregational Church: An organ and pianoforte recital by Lillian Frost and Esther Kahn (a) "Largo" (Beethoven) Concert I.  
(b) "Rondo" (Beethoven), Concert I.  
8.54: From the studio: Brunton Gibb con-

tinues his series of topical questions: "Oh, by the Way . . ."

9.5: Weather report.  
9.7: Virginia Bassetti, contralto.  
9.16: Albert Cazabon, musical director of the Prince Edward Theatre: Violin solos.  
9.26: Leo Rowan, tenor—  
(a) "Angels Guard Thee" (Godard).  
(b) "A Song Remembered" (Coates).  
9.33: From Pitt Street Congregational Church: An organ and pianoforte recital by Lillian Frost and Esther Kahn (a) "Serenade" (Widor).  
(b) "Merry Wives of Windsor" (Nicola).  
9.48: From the studio: Albert Cazabon, violinist.  
9.58: Studio dance band, conducted by Cec. Morrison.  
10.3: Late "Evening News" service.  
10.18: Studio dance band, conducted by Cec. Morrison.  
10.28: Late weather.  
10.30: Studio dance band, conducted by Cec. Morrison.  
10.37: To-morrow's programme.  
10.59: Studio dance band, conducted by Cec. Morrison.  
11.30: National Anthem. Close.

## 2BL

### MORNING SESSION.

Announcer: A. C. C. Stevens.

8.0: G.P.O. chimes. Weather report, State and metropolitan. 8.3: Studio music. 8.30: G.P.O. chimes. News and information service from "Daily Telegraph Fictorial." 9.0: G.P.O. chimes. Studio music. 9.30: G.P.O. chimes. Half an hour with silent friends. 10.0: G.P.O. chimes. Close.

### MIDDAY SESSION.

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. 2BL Women's Sports Association session, conducted by Miss Gwen Varley. 11.30: Advertising hints. 11.40: Women's session, conducted by Mrs. Cranfield. Sister Parry speaks on the work of the St. John Ambulance. 12.0: G.P.O. chimes. Special ocean forecast and weather report. 12.3: Studio music. 12.30: Shipping and mails. 12.35: Market reports. 12.48: "Sun" midday news service. 1.0: Studio music. 1.30: Talk to children and special entertainment for children in hospital. 2.0: G.P.O. chimes. Close. Note: Race results from Menangle will be broadcast by arrangement with "Sun" Newspapers.

### AFTERNOON SESSION.

Announcer: A. C. C. Stevens.

Accompanist: Kathleen Roe.

3.45: G.P.O. chimes. Popular music. 4.0: G.P.O. chimes. Ann Melhuish, soprano. 4.7: Berenice Arthur, pianist. 4.17: Romano's Cafe Dance Orchestra, conducted by Bennie Abraham. 4.30: From the Studio: Ann Melhuish, soprano. 4.37: "Sun" news service. 4.40: Romano's Cafe Dance Orchestra, conducted by Bennie Abraham. 4.50: From the Studio: Berenice Arthur, pianist. 5.0: G.P.O. chimes. "Sun" news service. 5.7: Studio items. 5.17: Pianoforte reproduction. 5.34: Racing resume. 5.37: Features of the evening programme.

### EARLY EVENING SESSION.

Announcer: Basil Kirke.

5.40: Children's Session, conducted by Uncle Bas. Music and entertainment. Letters and stories. 6.0: Mr. Norman speaks to the "Bigger Boys." 6.45: "Sun" news and late sporting. 6.55: 2BL Dinner Quartette—(a) "Dawn" (Matt), (b) "Three Dances" ("Hello, America"), (Finck), (c) "An Easter Romance" (Haines), (d) "Come" (Dagar). 7.7: Australian Mercantile, Land, and Finance Co's report. Weather report and forecast, by courtesy of Government Meteorologist. Producer's Distributing Society's fruit and vegetable market report. Grain and fodder report ("Sun"). 7.25: Mr. Pim and Miss Pam in advertising talks, handy hints, and nonsense. ("Sun"). 7.53: An ad. special. 7.55: Programme and other announcements.

## EVENING SESSION.

Announcer: Basil Kirke.

Accompanist: G. Vern Barnett.

8.0: G.P.O. chimes.

From the War Memorial Hall, Rose Bay—The monthly concert programme arranged by the Rose Bay Music Club. Assisting artists: Mollie de Gunst, Rex de Gramme Rega Stanley Clarkson, Conservatorium String Quartet. Mr. Oswald Anderson will give a short address on "What have our Musicians done for Broadcasting?"

Conservatorium String Quartet—

First Violin, Gerald Walenn.

Second Violin, Lloyd Davies.

Viola, Alfred Hill.

Cello, Gladstone Bell.

"String Quartet in E Flat, Op. 12"

Adagio Non Troppo—Allegro Non Tanto.

Canzonetta.

Andante Expressivo.

8.31: Mollie de Gunst—

(a) "Gentle Youth, Ah Tell me Why"

Molto Allegro Vivace.

(Arne).

(b) "The Little Sandman" (Brahms).

(c) "The Wild Rose" (Schubert).

9.26: Willmarks, Australian bush stories.

8.51: Stanley Clarkson—

(a) "The Erl King" (Schubert).

(b) "Sapphic Ode" (Brahms).

(c) "The Two Grenadiers" (Schumann).

9.5: Community singing.

9.10: From the Studio: "Bringa" will speak

on the Aborigines.

9.30: From the War Memorial Hall, Rose

Bay—

String Quartet—

(a) "An Irish Melody" ("Londonderry

Air") (Bridge).

(b) "Irish Reel" ("Molly on the Shore")

(Grainger).

Mollie de Gunst—

(a) "Chanson Indoue" (Rimsky-Kors-

koft).

(b) "Serenade" (Strauss).

(c) "A Birthday" (Woodman).

10.0: Stanley Clarkson—

(a) "Break, Break" (Lavater).

(b) "The Derby Ram" (Old Country

Rhyme) (Hurlstone).

10.10: Community singing.

10.15: From the Studio: Late "Sun" news.

10.28: Late weather and to-morrow's programme.

10.30: National Anthem. Close.

## 2GB

10.0: Music. 10.10: Happiness talk, by A. E. Bennett. 10.20: Music. 10.30: Women's Session, by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's Radio Service, by Mrs. Dorothy Jordan. 2.50: Music. 3.30: Close down. 5.30: Children's Session, by Uncle George. 7.0: Music. 7.30: Talk from the Radio Service Department by Mr. Stan Crittenden. 8.0: Mr. Victor Earle, baritone. 8.7: Mr. Gregory Valentine, violinist. 8.15: Miss Hilda Boyle, soprano. 8.22: Instrumental music. 8.30: Humorous interlude by Mr. Jack Wain and Mr. Heath Burdock. 8.35: Mr. William Clifton, tenor. 8.45: Miss Mildred Hill, pianiste. 8.55: Instrumental music. 9.0: Weather report. 9.3: Address. 9.15: Mr. Victor Earle, baritone. 9.25: Mr. Gregory Valentine, violinist. 9.35: Miss Hilda Boyle, soprano. 9.45: Miss Mildred Hill, pianiste. 9.55: Mr. William Clifton, tenor. 10.5: Dance music. 10.30: Close down.

## 2UW

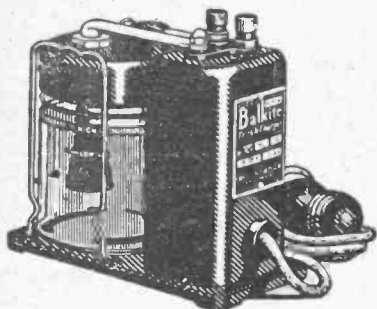
### MIDDAY SESSION.

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

### EVENING SESSION.

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

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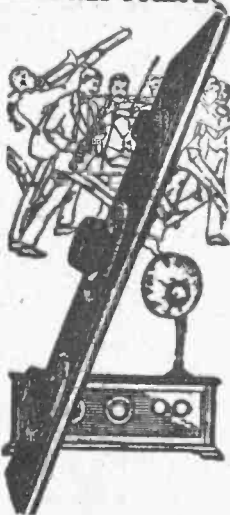
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# Interstate Programmes, Tuesday, May 21

## 3LO

### EARLY MORNING SESSION.

7.15 to 8.15: See Friday.

### MORNING SESSION.

11.0: To-day's Radio Recipe. Pearl Cake. 11.5: Miss Noble will speak on "Gas Cookery." 11.25: Mrs. Dorothy Silk will speak on "Homecrafts." 11.45: Mrs. F. Bessford Jones will speak on "An Afternoon with the Needlework Class at Pentridge."

### MIDDAY NEWS SESSION.

12.0: Melbourne Observatory time signal. Express train information. 12.1: British official wireless news from Rugby. 12.4: Reuters and the Australian Press Association cables. "Argus" news service. 12.15: Newmarket stock sales. Official report of the sheep market by the Associated Stock and Station Agents Bourke Street. 12.20: The Radio Orchestra. 12.30: Rob. Vernon (bass-baritone). 12.37: The Station Orchestra. 12.45: Dawn Asheton (soprano) and Leszlo Schwartz (soprano). 1.25: The Station Orchestra. 1.35: Rob. Vernon (bass-baritone). 1.42: The Station Orchestra. 1.50: Close down.

### AFTERNOON SESSION.

2.15: The Radio Revellers. 2.35: Jack Stocks. 2.42: The Radio Revellers. 3.0: "The Kauls." 3.7: The Radio Revellers. 3.27: Dolly Burdett (contralto). 3.34: The Radio Revellers. 3.54: Jack Stocks. "The Woman Hater." 4.0: Reuters and the Australian Press Association cables. 4.20: "The Kauls." 4.27: The Radio Revellers. 4.43: Dolly Burdett (contralto). 4.50: "Herald" news service. Stock Exchange information. 5.0: Close down.

### CHILDREN'S HOUR.

6.0: Answers to letters and birthday greetings by "Bobby Bluegum." 6.30: "Little Miss Kookabura" has another bit of her serial story to tell you. The Guides give a party to the townspeople. Much fun. 6.50: "Bobby Bluegum" will entertain you with the help of "Ector and Orace."

### EVENING SESSION.

7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the "Paw." 7.46: Under the auspices of the University of Melbourne Extension Board, P. D. Phillips, M.A., LL.B., will speak on "Naval Disarmament." 8.0: A Maker of History.

### NIGHT SESSION.

8.1: Programme announcements. 8.2: Newport Workshops Band—Selection, "Lute Time." March, "Irwell Springs." 8.15: Florrie Gordon (contralto)—"The Wanderer," "Slow, Horses," "Slow" (Schubert) (Mallinson). "Fairly Queen's Song," "Coming Home Alone" (Oliver), (Brabe). 8.22: Newport Workshops Band—Selection, "Gems of Harmony." 8.30: Harold Kyng (basso cantante)—Four English Songs. 8.40: Dawn Asheton and Leszlo Schwartz (soprano and Hungarian violinists)—"A Cameo of Music." Hungarian and Bohemian Folk Songs, sung with spirit and fire by the leading English colouratura soprano, together with violin and piano solos from many musical lands. 9.20: Newport Workshops Band—"Gems of Harmony." 9.30: Instrumental Trio. The Jedal Trio (Alva Hattenbach, violin; Edna Hattenbach, 'cello; John Simons, piano). The Trio, (a) "Ave Maria" (Schubert). (b) "Serenade" (Widor). (c) "By the Brook" (Bolsedre). Alva Hattenbach (violin), "Hymn to the Sun" (Rimsky-Korsakoff, arr. Kreisler). The Trio, (a) "Adagio" (Bizet). (b) "Passepied" (Delibes). (c) "Waltz of the Flowers" (Tchaikowsky).

10.0: "Argus" news service. Wireless news from Rugby. 10.10: Florrie Gordon (contralto)—"Caller Herring" (Gow). "Ships that Pass in the Night" (Stephenson). 10.17: Newport Workshops Band—Waltz, "Julian." 10.25: Jack Hocking, "The Signing Serenader"—"Aint Nature Grand?" (Bibo). "Side By Side" (Woods). 10.32: Newport Workshops Band—March, "Moray Firth." 10.38: Jack Hocking, "The Signing Serenader"—"Stormy Weather" (Pat). Selected. 10.48: Ern. Hall's Radio Revellers, with Hugh Muxman.

"The Tile Trot" (Penco). "Where the Cot-Cot-Ootton Grows" (Klein). "Cinnamon Cake" (Bernard). "My Fleurette" (Kimborough). "Avalon Town" (Brown). "Shake That Thing" (Jackson). "Glad Rag Dog" (Ager). "You Are Wonderful" (Ash). "Honeymoon Waltz" (Renault). 11.0: God Save the King.

## 3AR

10.0 to 10.59: See Friday.

### MORNING MUSICAL SESSION.

11.0: Vocal variations. 11.30: The Jedal Trio. 12.0: Ballads. 12.20: British official wireless news. Announcements. 12.30: Close down.

### AFTERNOON SESSION.

Announcer: John Stuart.

3.0: Ballads. 3.15: The Strad Trio. 3.34: Captain Donald MacLenn. 3.54: Cecil Parkes (violin), Myra Montague (piano). 3.55: Myra Montague (piano). 4.20: The Strad Trio. 4.30: Close down.

### EVENING SESSION.

Announcer: John Stuart.

6.0: Variations Vocal and Violence. 7.10: News service. Announcements. 7.20: Ballads.

### NIGHT SESSION.

8.0: Under the auspices of the Town-planning Association, James Ralton will speak on "Trees and Cities."

8.15: A. W. Jackson will speak on "Golf." 8.30: Programme arranged by "The Twinkler" (Mr. F. J. Mills). Relayed from 5CL, Adelaide. Community singing, led by Senior Member W. Brett. 8.36: Hedley Smith's Twinklerite Peliz Orchestra. The Twinklers, "Humorous Fatter." Twinkler Stan Watson, Song. Twinklerite Cliff Howe and Jimmy Buzzwig, Ventriloquism.

Hedley Smith's Twinklerite Peliz Orchestra. First Kensington Gardens Boy Scouts, with Scoutmaster H. J. Hlea. "Camp Fire Songs." Comedy Sketch, "Pietro and Polonious." Twinklerite Snell, Tucker, and others. Mouth Organ Specialities.

Captain S. A. White, O.M.B.O.U. "Love Story of the Bower Bird." Twinklerites Cameron and Moyle, Violin Duet. The Twinklers, "Humorous Fatter." News service. Announcements.

9.30: The Station Orchestra—Selection, "The Firefly" (Friml). 9.40: Jack Stocks, the Woman Hater—Selected. 9.47: "The Kauls," Hawaiian Entertainers—"Wallana." "Flippid" (Pat). Request item. 9.57: Jack Stocks, the Woman Hater—"On the Rampage."

10.41: The Station Orchestra—Selection, "Blue Paradise" (Romberg). Overture, "The Merry-makers" (Coates). 10.20: News session. News service. Announcements. Eric Welch's selections for Ascendate Park Races on Wednesday. 10.30: God Save the King.

## 4QG

### EARLY MORNING SESSION.

7.43 to 8.30: See Monday.

### MORNING SESSION.

11.0 to 12.0: See Monday.

### MIDDAY SESSION.

1.0 to 2.0: See Monday.

### AFTERNOON SESSION.

3.0 to 4.30: See Monday.

### EARLY EVENING SESSION.

6.0 to 7.45: See Monday.

### NIGHT SESSION.

A special orchestral programme arranged and conducted by Mr. Erich John.

8.0: Group I—Grand Opera: Orchestra—"Overture from Zampa" (Herold). "Intermezzo" (from "Cavalleria Rusticana," Mascagni). Stanley Tamblin (bass-baritone). "Toreador Song" (from "Carmen"—Bizet). W. W. Crisp (tenor)—"Flower Song" (from "Carmen"—Bizet). Orchestra—"Barcarolle" (from "Tales of Hoffman"—Offenbach). "Wedding March" (from "Lohengrin"—Wagner). Mildred Bell (contralto)—"Noble Singer" (Satie). Stanley Tamblin (bass-baritone)—"Toreador Song" (from "Carmen"—Bizet). Orchestra—"Waltz" (from "Faust"—Gounod). A Thought for To-night (Will H. Lister)—"The Power of Thought."

Group II—National Dances: Orchestra—"Spanish Dance No. 1" (Moszkowski). Arthur Miller (bass)—"Loverly" (German) Poik Song. Orchestra—"Mexican Dance" (Robyn). "Hungarian Dance No. 2" (Brahms). Mildred Bell (contralto) and Stanley Tamblin (bass-baritone)—Duet—"The Talsman" (Russian Folk Song). Orchestra—"Egyptian Ballet" (Lajdin).

Group III—Classical: Mildred Bell (contralto)—"Humility" (Schumann). W. W. Crisp (tenor)—"On Wings of Song" (Mendelssohn). Orchestra—"Largo" (Handel). "Military Polonaise" (Chopin). Arthur Miller (bass)—"The Two Grenadiers" (Schumann). Orchestra—"Traumerei" (Schumann).

Group IV—Miscellaneous: Orchestra—

"March Militaire No. 1" (Schubert). Stanley Tamblin (bass-baritone)—"Four Jolly Sailors" (German) Orchestra—"Simple Aveu" (Thome). "Salut d'Amour" (Eggar). Stanley Tamblin (bass-baritone) and Arthur Miller (bass)—"We Are Two Proper Men" (from "Mets England"—Ed. German). Orchestra—"Overture, 'Light Cavalry' (Ssuppe). "Humoresque" (Dvorak). 10.0: The "Daily Mail" news; the "Courier" news; wether news; "Queenslander" news; news service for distant listeners. 10.30: Close down.

## 5CL

### MORNING SESSION.

11.0 to 2.0: See Friday.

### AFTERNOON SESSION.

3.0: Chimes. General information, including Red Hot Peppers Dance Band. 3.10: Rev. G. E. Hae, B.A., will speak on "The Benefits of Fasting; Chas. Gordon, G. soprano; G. Eagle, cornetist; and Sinclair, contralto. 4.5: A comedy, entitled "The Decision" (produced by Beryl Allford). 4.55: Stock Exchange information. 5.0: Close down.

### EVENING SESSION.

6.0: Chimes. 6.1: Birthday greetings, correspondence, songs and stories by "The Waste Land." 6.30: Mr. Horace Perkins, Mus. Bac., A.M.D.A., assisted by Luizette Foglia, violinist, will tell us "How Music is Made." 6.50: SCL's sporting service, supplied by "The Art of Dancing." 7.0: Chimes. 7.1: Stock Exchange information. 7.5: General market reports. 7.5: Mrs. Laurie McLeod will speak on "The Art of Dancing." 7.25: Mr. R. O. Bald, Ph.D. (Lecturer in English at the Adelaide University). 7.40: Dr. Herbert Basses.

### NIGHT SESSION.

8.0: Chimes. 8.1: News Symphony Orchestra. Conductor: I. Lionel Baird. Overture, "Poet and Peasant" (Supp). 8.13: Ciella Genoni M'Neil, soprano. 8.19: Reed and Harding, Hawaiian duo. 8.25: Moysty Skinner, baritone—"Fugitive Vision" (Massey). "The Little Irish Girl" (Hermann Lohr). 8.31: News Symphony Orchestra—"The Wreath" (Rae). "An Old Garden" (Temple). 8.47: Seth Smith, banjoist—"Brude Waltz" (Dvorak). "Humoresque" (Dvorak). 8.53: Lewis Dave, tenor—"A Prayer to Our Lady" (Donald Ford). "Vivona" (Allitsen).

9.0: Chimes. 9.1: Meteorological information, including Sea-pore tides.

9.2: Overseas grain report. 9.3: News Symphony Orchestra—"Minuet in G" (Beethoven). "Minuet" (Boccherini).

9.16: Ciella Genoni M'Neil, soprano. 9.22: Reed and Harding, Hawaiian duo. 9.28: Moysty Skinner, baritone—"Harlequin" (Wilfred Sanders). "The Yeoman's Wedding Song" (Prince Paul-towski).

9.35: News Symphony Orchestra—Suite, "The Death of Asht" (Orleg). Patrol, "Good Luck" (Vieh). 9.45: Elsa Wittshirg, contralto—"Wellsand in the Wood" (Gostz). "Hushen" (Needham).

9.52: Seth Smith, banjoist—"William Tell" (Rossini). 9.57: Lewis Dave, tenor—"The Fishermen of England" (Montagu Phillip). "The Great Awakening" (Cramer).

10.3: News Symphony Orchestra—Trumpet solo, "Serenade" (Schubert). Quickstep, "The Four Horsemen" (Pault). 10.15: General news service. 10.30: Modern dance records. 11.0: Close down.

## 6WF

12.30: Tune in. 12.35: Markets, news, etc. and trotting handicaps. 1.8: Time signal. Weather bulletin supplied by the Meteorological Bureau of Western Australia. 1.3: Music relayed from the Prime Minister de Luxe; items by the Misses Chapman and Marshals from the studio. 1.6: Close down. 3.30: Tune in. 3.35: Music programme from the studio, including pianoforte solo by Miss Audrey Dean; violin solos by Mr. Fritz Romane; and vocal items. 6.45: Tune in. 6.8: Bedtime stories by Uncle Duffy. 7.8: Solos and duos by the Perth Piano Trio. 10.0: Commercial and general information. 7.45: Talk by Mr. Barbagate on "Books of the Month." 8.0: Time signal. 8.1: First weather bulletin. 8.3: Concert by W.F.W. Studio Orchestra, conducted by Mr. W. Wilkins; Miss Audrey Dean, pianist. 8.50: Late news items by courtesy of the "Daily News" Newspaper Co., Ltd., station news; announcements; ships within range announcement; weather bulletin. 9.5: Orchestral concert conducted by the studio. 10.30: Close down. 104.5 METRE TRANSMISSION.

Simultaneous broadcast on 104.5 metre of programme given on 1250 metre, commencing at 4 p.m.

7ZL

MIDDAY SESSION.

11.30 to 1.30: See Friday.

AFTERNOON SESSION.

3.0: Chimes. 3.4: Weather Information. 3.15: A popular musical programme. 4.15: An educational talk on "Silk (Artificial)—Canadian Wood Pulp for Artificial Silk." 4.30: Close down.

EARLY EVENING SESSION.

6.15: Broadcasts. 6.30: Miss Batt. 6.45: "The Story Lady." 7.0: Answers to letters and birthday greetings. 7.15: News session.

EVENING SESSION.

7.30: Under the auspices of the Empire Trade Association. W. Jarvis will speak on "Empire Shopping Week." 7.45: W. E. Fuller will speak on "Literary Lapses and Library Lists." 8.0: Chimes. 8.6: Selections. 8.15: A programme of dance music, supplied by Reg. Jones and his orchestra (interspersed with gramophone records). Reg. Jones and his orchestra—"Promise Me" (Van Cooth). "Stormy Weather Pal" (Plantadosi). "Glad Rag Doll" (Ager). Malcolm M'Eachern, bass—"Time to Go" (Weatherley), "Only a Rough Old Diamond" (Trevor). Reg. Jones and his orchestra—"There's a Rainbow Round My Shoulder" (Jolson). "Beloved" (Kahn). "I Loved You Then" (M'Dougall). Alex. Whitson, baritone—"The Adorable Outcast" (Hayes). Reg. Jones and his orchestra—"Sally of My Dreams" (Kennell). "Sonny Boy" (Jolson). "That's Her Now" (Ager). Walter M'Nally, baritone—"The Irishman," "Come to the Fair." Reg. Jones and his orchestra—"One Alone" (Romberg). "The Desert Song" (Romberg). "I'm Sorry, Sally" (Kahn). Goodrich Silverton Quartet, "Under the Clover Moon" (Healy). "Who's Blue Now" (Meyer). Reg. Jones and his orchestra—"Rose of Flanders" (O'Hagan). "Me and the Man in the Moon" (Monaco). "Out of the Dawn" (Donaldson). Flanagan Brothers, "Sweet Rosie O'Grady" (Nugent). Reg. Jones and his orchestra—"High Upon the Hill" (Baer). "Painting Pretty Pictures" (Wedell). "Jeanette" (Skilkeret). Malcolm M'Eachern, bass—"Good Night" (Wood). 9.45: News session. 10.0: Chimes. 10.1: Close down.

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An attractively appointed demonstration room is at the disposal of customers, thus enabling a perfect audition free from interruption.

Twinklers Boys' Club

OF interest to all listeners—especially Boy Scouts and their friends—will be the excellent programme arranged by "The Twinkler Boys' Club," and relayed from 5CL, Adelaide, on May 21. Humor will play a large part in the programme; there will be camp fire songs and mouth organ specialities by the Twinklers. Captain S. A. White will tell the "Love Story of the Bower Bird," and community singing will be led by Senior Member, W. Brett.

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24/6



# Local Programmes, Wednesday, May 22

## 2FC

### EARLY MORNING SESSION

Announcer: A. S. Cochrane.

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

### MORNING SESSION

Announcer: A. S. Cochrane.

10.0: "Big Ben" and announcements. 10.3: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.30: Last-minute sporting information by the 2FC racing commissioner. 10.45: A talk on "Home Cooking and Recipes" by Miss Ruth Furst. 11.0: "Big Ben." A.P.A. and Reuter's cable services. 11.5: Close down.

### MIDDAY SESSION

Announcer: A. S. Cochrane.

Note: Race results from Ascot will be transmitted.

12.0: "Big Ben" and announcements. 12.1: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Summary of news, "Sydney Morning Herald." 12.10: Rugby wireless news. 12.13: A reading. 12.30: Studio music. 1.0: "Big Ben." Weather intelligence. 1.3: "Evening News" midday service. Producers' Distributing Society's report. 1.20: Studio music. 1.28: Stock Exchange, second call. 1.30: Studio music. 2.0: "Big Ben." Close.

### AFTERNOON SESSION

Announcer: Laurence Halbert.

Accompanist: Ewart Chapple.

2.30: Programme announcements. 2.32: A record recital. 2.45: "Big Ben." From Paling's Concert Hall: A vocal recital by the students of William Dallinson.—(a) "A Dream Tryst" (Cadman), (b) "Caro Mio Ben" (Giordani); Jessie Begbie, contralto. (a) "The Organ Grinder" (Schubert), (b) "Courage" (Schubert); Barney Rosenblum, baritone. (a) "Hills of Donegal" (Sanderson), (b) "Angels guard thee" (with violin obbligato) (Godard); Madeline Madsen, soprano. (a) "Hindoo Song" (Bemberg), (b) "My Ships" (Barratt); Florence Johnson, contralto. Violin solos, Marie Donnelly. (a) "I will not grieve" (Schumann), (b) "Invictus" (Hahn); Colin Ferrett, basso. Duet, "Wicked Cupid," Madeline Madsen and Colin Ferrett. 3.45: From the studio: If reception is satisfactory, a relay from Station KGO. 4.0: "Big Ben." A reading. 4.25: Romano's Cafe dance orchestra, conducted by Bennie Abrahams. 4.35: From the studio: Studio items. 4.45: Stock Exchange, third call. 4.47: Romano's Cafe dance orchestra, conducted by Bennie Abrahams. 5.0: "Big Ben." Close.

### EARLY EVENING SESSION

Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man," assisted by Uncle Ted and Sandy Letters and stories; music and entertainment. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.48: Weather and shipping news. 6.50: Rugby wireless news. 6.55: Late sporting news. 7.0: "Big Ben." Late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats: (a) "Echoes of the Vienna Woods" (Strauss), (b) "Dance Revels" (Phillips), (c) "Ecstasy" (Ganne), (d) "Home Isn't Home Without You" (Lohr), (e) "Intermezzo" (Arensky), (f) "Idle Dreams" (Pinck).

### EVENING SESSION

Announcer: Laurence Halbert.

Accompanist: Wilfred Arlom.

7.40: Popular music. 7.45: Programme announcements. 7.48: A record recital. 8.0:

"Big Ben." A classical programme, arranged by Madame Goosens-Viceroy, from the Conservatorium—

Piano Solos—Wilfred Arlom—

(a) "Berceuse" (Chopin),  
(b) "Fantasie Impromptu" (Chopin),  
(c) "Prelude in G" (Rachmaninoff).

Contralto Solos—Mona Deutscher—

(a) "Dreams" (Wagner),  
(b) "Morning" (Rachmaninoff),  
(c) "Lilacs" (Rachmaninoff),  
(d) "Compagnon" (Dvorak).

Violin Solos—Florent Hoogstoel—

"Concerto in D Minor" (Bruch).

Soprano Solos—Madame Goosens-Viceroy—

(a) "Le Nozze di Figaro" (Mozart),  
(b) "L'Enfant Prodigue" (Debussy).

Cello Solos—Muriel Lang—

(a) "The Swan" (St.-Saens),  
(b) "Gavotte" (Lully),  
(c) "Juliet's Hair" (Quilter).

9.0: "Big Ben." Weather report.

9.1: C. Price Conigrave will give an Australian Travelogue.

9.16: Second half of Classical programme, arranged by Madame Goosens-Viceroy—

Trio—Piano, Violin, and Cello—

"Fantasie" (Terland).

Contralto Solos—Mona Deutscher—

(a) "Hindoo Song" (Bemberg), with

cello obbligato.

(b) "Ships of Arcady" (Head)

(c) "Beloved" (Head).

(d) "Five Eyes" (Armstrong Gibbs).

Piano Solos—Wilfred Arlom—

(a) "Le fille aux cheveux de lin" (Debussy).

(b) "Gollwog's Cake Walk" (Debussy).

(c) "Berceuse" (Tcherepine).

(d) "Seguidillas" (Albeniz).

Duet—Tenor and soprano—Mr. Stephen

and Madame Goosens-Viceroy.

Cello solos—Muriel Lang—

"Rol Nidrel" (Bruch).

Soprano solos—Madame Goosens-Viceroy—

(a) "Le Nil" (Xavier Seroux), with

violin obbligato.

(b) "Yota" (Falla).

10.16: Celebrity records.

10.28: Late weather, and to-morrow's programme.

10.30: National Anthem. Close.

## 2BL

### MORNING SESSION.

Announcer: A. C. C. Stevens.

8.0: G.P.O. chimes. Weather report, metropolitan and State. 8.3: Studio music. 8.30: G.P.O. chimes. News and information service in the "Daily Telegraph Pictorial." 9.0: G.P.O. chimes. Studio music. 9.30: G.P.O. chimes. Half an hour with silent friends. 10.0: G.P.O. chimes. Close down.

### MIDDAY SESSION.

Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. 2BL Women's Sports Association Session, conducted by Miss Gwen Varley. 11.30: Advertising hints. 11.40: Women's Session, conducted by Mrs. Cranfield. 12.0: G.P.O. chimes. Special ocean forecast and weather report. 12.3: The Melody Trio. 12.30: Shipping and mails. 12.35: Market reports. 12.45: "Sun" midday news service. 1.0: The Melody Trio. 1.30: Talk to children and special entertainment for children in hospital. 2.0: G.P.O. chimes. Close. Note: Race results from Ascot will be broadcast by arrangement with "Sun" Newspapers.

### AFTERNOON SESSION.

Announcer: A. C. C. Stevens.

Accompanist: Kathleen Roe.

3.45: G.P.O. chimes. The Melody Trio. 4.0: G.P.O. chimes. Hilda Nelson, soprano. 4.7: Basil Kirke will continue his talk on Hawaii. 4.23: Hilda Nelson, soprano. 4.30: The Melody Trio. 4.40: A talk on "Empire Shopping Week." 4.50: The Melody Trio. 5.5: "Sun" news service. 5.15: The Melody Trio. 5.25: Racing resume. 5.13: Studio items. 5.37: Features of the evening programme.

### EARLY EVENING SESSION.

Announcer: Basil Kirke.

5.40: Children's Session, conducted by Uncle Bas. Music and entertainment. Letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette—(a)

"Gruziella" (Laurendeau), (b) "The Waltz Dream" (Strauss), (c) "The Gumnuts Dance" (Ballton), (d) "A Gaelic Dream Song" (Foulds), (e) "Kisses in the Dark" (Michell). 7.7: Australian Mercantile, Land, and Finance Co.'s report. Weather report and forecast, by courtesy of Government Meteorologist. Producers' Distributing Society's fruit and vegetable market report. Grain and fodder report ("Sun"). Dairy produce report ("Sun"). 7.25: Mr. Pam and Miss Pam in advertising talks, handy hints and nonsense. 7.53: An ad. special. 7.58: Programme and other announcements.

### EVENING SESSION.

Announcer: Basil Kirke.

Accompanist: G. Vern Barnett.

8.0: G.P.O. chimes.  
From the Capitol Theatre: The Capitol Unit Entertainment.

8.7: From the Studio—The H. W. Varna Company will produce "A Message From Mars."

Cast—  
Horace Parker ..... William Hume,  
Minnie Templar ..... Jean Morice,  
Aunt Marth ..... Mrs. Pat Barton,  
Arthur Dicey ..... Arthur Dods,  
A Tramp ..... J. J. Saher,  
The Messenger from Mars ..... H. W. Varna,  
Mrs. Clarence ..... Miss West,  
Bella (a Maid) ..... Miss Cory.  
Act I.—Horace Parker's House, London, W.  
Act II.—The Snowbound Streets of London.  
Outside Mrs. Clarence's House.  
Act III.—Same as Act I.—Horace Parker's House.

9.7: Weather report.  
9.8: Maurice Helsen, tenor—  
(a) "A Bowl of Roses" (Clarke),  
(b) "I Pitch My Lonely Caravan" (Coates).

(c) "Had You But Known" (Denza).  
9.15: Foreword to the next item.  
9.17: From the Capitol Theatre—The Stage Presentation.

9.29: From the Studio—Mary Hosking, mezzo—

(a) "The Sea" (MacDowell),  
(b) "The Swan" (Grieg),  
(c) "The Asra" (Rubinstein).

9.36: Claude Corbett will speak on General Sporting.

9.51: Maurice Helsen, tenor—  
(a) "A Song Remembered" (Coates),  
(b) "Mavis" (Craxton).

9.58: From the Capitol Theatre: Fred Scholl at the Wurliizer Organ.

10.12: Mary Hosking, mezzo—  
(a) "A Slumber Song of the Madonna" (Head).

(b) "The Early Morning" (Peel).  
(c) "The Star" (Rogers).

10.22: Late "Sun" news service. Late weather report.

10.32: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.  
10.57: From the Studio: To-morrow's programme.

10.59: Romano's Cafe Dance Orchestra, conducted by Bennie Abrahams.  
11.30: National Anthem. Close.

## 2GB

10.0: Music. 10.10: Happiness talk, by A. E. Bennett. 10.20: Mus. c. 10.30: Women's Session, by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's Radio Service, by Mrs. Dorothy Jordan. 2.50: Music. 3.0: Labor-saving Demonstration, from Nock and Kirby, Ltd. 4.0: Close down. 5.20: Children's Session, by Uncle George. 7.0: Music. 7.30: Short talk by Miss Beegling. 8.0: Miss Ruth Pearce Jones, pianiste. 8.35: Miss Kathleen Cracknell, contralto. 8.15: Instrumental music. 8.23: Mr. William Green, tenor. 8.30: Humorous interlude by Mr. Jack Win and Mr. Heath Burdock. 8.35: Miss Gladys Verona, soprano. 8.45: Address. 9.0: Weather report. 9.3: Instrumental music. 9.10: Miss Kathleen Cracknell, contralto. 9.20: Miss Ruth Pearce Jones, pianiste. 9.30: Humorous interlude. 9.35: Miss Kathleen Cracknell and Mr. Wm. Green, vocal duet. 9.40: Instrumental music. 9.45: Miss Gladys Verona, soprano. 9.55: Mr. William Green, tenor. 10.5: Dance music. 10.30: Close down.

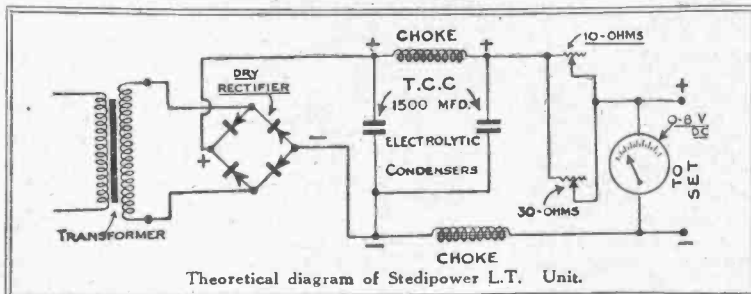


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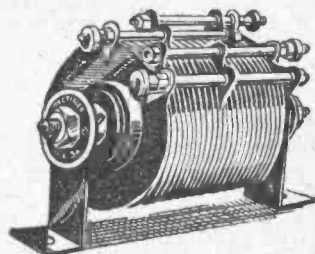
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# Interstate Programmes, Wednesday, May 22

## 3LO

**EARLY MORNING SESSION.**  
7.15 to 8.15: See Friday.

### MORNING SESSION.

10.50: Eric Welch will speak on to-day's races at Ascot Park. 11.0: To-day's Radio Recipe. Seed Cake. 11.5: Miss I. D. Beavan will speak on "Home-made Confectionery." 11.25: Mrs. M. Callaway Manhood will speak on "The Art of Decoration." 11.45: Mrs. Clarence Howe will speak on "Physical Culture for Women. How to Prevent influenza."

### MIDDAY SESSION.

12.0: Melbourne Observatory time signal. 12.1: British official wireless news from Rugby. Reuter's and the Australian Press Association cables. "Argus" news service. 12.15: Newmarket Stock sales. Cattle sales report. Bullocks and calves, by the Associated Stock and Station Agents, Bourke Street, Melbourne. 12.20: The Radio Revelers. 12.30: Jack Stocks. "The Woman Hater." 12.37: Stock Exchange information. Prices received by the Australian Mines and Metals Association from the London Stock Exchange this day. 12.43: The Radio Revelers. 12.53: "The Kauls," Hawaiian Instrumentalists. 1.2: The Radio Revelers. 11.0: Meteorological information. Weather forecast for Victoria, New South Wales, South Australia, and Tasmania. Ocean forecasts. River reports. Rainfall. 1.15: Jack Stocks. "The Woman Hater." 1.22: The Radio Revelers. 1.30: Transmission of speeches from the Rotary Club luncheon at the Freemasons' Hall, Collins Street, Melbourne. 2.0: Close down.

### AFTERNOON SESSION.

2.13: Description of Hurdle Race, 2 miles, Ascot Park Races, by Eric Welch. Dawn Assheton and Laszlo Schwartz (coloratura soprano and Hungarian violinist). 2.43: Description of Novice Handicap, 5 furlongs, Ascot Park Races. 2.50: Dawn Assheton and Laszlo Schwartz will resume their concert. 3.7: The Station Orchestra. 3.13: Description of Ascot Park Plate, 6 furlongs, Ascot Park Races. 3.20: Ernest Wilson (bass-baritone). 3.27: Captain Donald MacLean. 3.43: Description of Ascot Park Handicap, 1 mile, Ascot Park Races. 3.50: The Station Orchestra. 4.0: Joseph Holm (tenor). 4.7: The Station Orchestra. 4.13: Description of Ascot Park Purse, 7 1/2 furlongs, Ascot Park Races. 4.20: Ernest Wilson (bass-baritone). 4.27: The Station Orchestra. 4.37: Joseph Holm (tenor). 4.43: Description of Jumpers' Flat Race, 1 1/4 miles, Ascot Park Races. 4.50: "Herald" news service. Stock Exchange information.

### CHILDREN'S HOUR.

6.0: Birthday greetings and answers to letters. John, the Piper's Son. 6.25: Musical Interlude. 6.30: Under the auspices of the National Society Council of Australia, H. J. Cook will tell the children about "Roller Bears and the Sawney Tribe." 6.45: "John, the Piper's Son." Some More of his Famous Impersonations.

### EVENING SESSION.

7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the Past. 7.46: Under the auspices of the Department of Agriculture, Mr. F. de Castella, viticulturist, "Vine Planting."

### NIGHT SESSION.

8.0: Programme announcements. Tasmanian letter to 3LO from "The Mercury" and "Illustrated Mat," Hobart.

8.5: The Station Orchestra—  
Overture, "Pluque Dame" (Suppe).  
"Romanze, op. 5" (Tschakowsky).

8.15: Some Really English Music. Programme arranged by Mary Campbell, Albert Street, Conservatorium.  
Songs, "Come Away" (John Dowland).  
"Down-a-Downe" (Pilkington).

8.20: Dawn Harding.  
Violin and Piano, "Sonata in A Major" (John Collett).

8.25: Allegro Largo.  
Allegro Spiritoso.

Muriel Campbell and Ida Scott.  
Songs, "O Mistress Mine" (Morley).  
"Where the Bee Sucks" (A. S. Sullivan).

8.25: Millicent Osmond.  
Songs, "A Soft Day" (Stanford).  
"Silent Noon" (Vaughan Williams).

8.30: Dawn Harding.  
Piano, "Sea Idyll" (Frank Bridge).  
"The Jolly Roger" (Colin Taylor).

8.35: Ida Scott.  
Songs, "O Mistress Mine" (Quilter).  
"Where the Bee Sucks" (Sullivan)  
(Modern Settings).

8.40: Millicent Osmond.  
Songs, "Epitaph" (Wauchope Besly).  
"The Fields are Full" (Armstrong Gibbs).  
"Five Eyes" (Armstrong Gibbs).

8.45: Dawn Harding.  
Piano, "Baccarolle" (York Bowen).  
Ida Scott.

8.50: Songs, "Derbyshire Song" (Alec Rowley).  
"Love and the Lark" (Fritz Hart).  
"Freedom" (Fritz Hart).

8.55: Millicent Osmond.  
Violin, "Adagio 2nd Sonata" (Mrs. Ray Marshall).  
"A Pastorale" (Burlstone).  
"The Holy Boy" (Carroll) (John Ireland).

8.55: Muriel Campbell.  
Accompanist: Ida Scott.

9.30: The Station Orchestra—  
"Mossique" (Beethoven).  
9.45: Herold Kyng, (basso cantante)—  
"Drinking Song from 'Hamlet'" (Thomas).  
"I Love Thee" (Orleg).

9.52: The Station Orchestra—

Fantasia, "Callirhoe" (Chamnade).  
10.2: Joseph Barrille (flute).  
10.7: Herold Kyng (basso cantante)—  
"Glorious Devon" (German).  
"Gathering Dafoedils" (Polk Song), (Somervell).  
10.14: "Argus" news service. British official wireless news from Rugby. Meteorological information.  
10.24: The Station Orchestra—  
Selection, "Katinka" (Friml).  
10.34: Jack Stocks, "The Woman Hater"—  
"Ten Minutes' Trouble."  
10.45: Ern. Hall's Radio Revelers, with Hugh Huxham—  
"Stars are the Windows of Heaven" (Malle).  
"Only a Rose" (Friml).  
"That's Her Now" (Ager).  
"Song of the Vagabonds" (Friml).  
"Japansy" (Klennen).  
"Constantinople" (Carleton).  
"In the Wooded She Said She Would" (Johnson).  
"Minnetonka" (Wallace).  
"Fireworks" (Williams).  
11.30: God Save the King.

## 3AR

10.0: to 10.59: See Friday. 11.0: Ancient Airs Along the Airways. 12.20: British official wireless news. Announcements. 12.30: Close down.

3.0: Terpsichorean Session. Piano Recital. 3.30: Ina Morgenroet. 4.0: Ballads. 4.30: Close down.

### EVENING SESSION.

6.0: Orchestra. 6.30: The Kauls, Hawaiian Entertainers. In South Sea selections. 6.50: The Kauls, Hawaiian Entertainers. In Southern Sunlight. 7.0: News service. Announcements. 7.20: Orchestral.

### NIGHT SESSION.

8.0: Captain C. H. Peters, "Book, Wise and Otherwise." 8.15: A talk will be given under the auspices of the Boy Scouts Association.

8.30: Piano Recital—  
"Freude und Fuge in F Minor" (Bach).  
"Sonata in F Major" (Mozart).  
"Fasceppid" (Delibes).  
"Scherzo" (Scriabine).  
"Scherzo in B Minor" (Chopin).

9.0: Continental and Oriental Operatic Gems by Dawn Assheton (coloratura soprano) and Laszlo Schwartz (Hungarian violinist).  
Pirate Tales from Peru.

9.40: Captain Donald MacLean—  
"Feats of the Rightly."  
9.55: The Jodal Trio (Alva Hattenbach, violin; Edna Hattenbach, cello; and John Simons, piano).  
Trio in B Flat Major (Beethoven).

10.0: Adagio—Tune on Violin.  
Piano solo, "Allegro di Concert" (Granados).  
Trio, "Moorish Nightsong" (Rasch).  
"Serenade" (Gounod).

10.20: News service. Announcements.  
10.30: God Save the King.

## 4QG

### EARLY MORNING SESSION.

7.43 to 8.30: See Monday.

### MORNING SESSION.

11.0 to 12.0: See Monday.

### MIDDAY SESSION.

1.0 to 2.0: See Monday.

### AFTERNOON SESSION.

3.0 to 4.30: See Monday.

### EARLY EVENING SESSION.

6.0 to 7.45: See Monday.

### NIGHT SESSION.

Congregational Union's Conference will be relayed from the City Congregational Hall. The chair will be taken by the Hon Sir George Fowles, of New Zealand. The speakers will include—  
The Rev. Principal E. S. Keik, M.A., B.D.  
"The Christ and Modern Democracy."  
The Rev. Penry Evans (London)—  
"Congregationism and Modern Life."  
The public meeting held in connection with the 8.0: From the Congregational Hall—  
Public meeting.

### DANCE PROGRAMME.

9.31: From the Studio—  
Metropolitan weather forecast  
Movements of shipping and steamers.  
Aif. Featherstone and his Orchestra—  
Orchestral fox-trots—  
"Moonlight on the Ganges" (Myers).  
"When Lights are Low in Cairo" (Myers).

9.40: Mabel Malouf (soprano)—  
"O, My Garden Full of Roses" (Clarke).  
"The Cuckoo" (Lohmann).

9.40: Aif. Featherstone and his Orchestra—  
Fox-trots—  
"I Just Roll Along" (Trent).  
"I Can't Give You Anything But Love" (Fields).

9.58: The "Daily Mail" news; and the "Courier" news; weather news.

10.10: Henry Collins and the orchestra—  
Ten minutes' melody.

10.20: Aif. Featherstone and his Orchestra—  
Jazz-walk—"Revenge" (Lewis).

10.25: Mrs. Stoddart and Miss M'Dowell—  
Vocal duets—  
"In the Dusk of Twilight" (Parker).  
"In Spring" (Newton).

10.35: Aif. Featherstone and his Orchestra—  
Dance music.

11.0: Close down.

## 5CL

### MORNING SESSION.

11.0 to 2.0: See Friday.

### AFTERNOON SESSION.

3.0: Chimes. 3.1: Resume of Ascot Park race results. 3.2: Jack Fawcett and his Radio entertainer. 3.11: Leslie Mitchell, saxophonist. 3.15: Result, Ascot Park Handicap. 3.21: The Radio Entertainers in "Blue" Harmony. 3.30: Colin King, trumpeter. 3.38: Jack Fawcett, composer. 3.41: In Al Nelson song successes. 3.50: Result, Ascot Park. 3.51: The Radio Entertainers in two different numbers. 4.0: Chimes. 4.1: Resume of Ascot Park race results. 4.2: Dick Frost, baritone. 4.10: The Melody Boys, instrumental duettists. 4.20: 20 Jumpers' Flat Race. 4.21: A talk on American music by Dr. J. S. Zelenka, ca's foremost melody writer. Dr. J. S. Zelenka. 4.26: The Radio Entertainers. 4.40: Jack Fawcett and his band. 4.48: Finale. 4.55: Stock Exchange information and resume of race results. 5.0: Close down.

### EVENING SESSION.

6.0: Chimes. 6.1: Birthday greetings, correspondence, songs, and stories by "Miss Wireless" & M. An interlude of dinner music. 6.50: 5CL's sporting service supplied. 7.0: Chimes. 7.1: Stock Exchange information. 7.6: General news reports. 7.10: Rev. Winifred Kiek, B.A., B.D., will speak on "Australia and the Problem of Decentralisation." 7.25: An address to Boy Scouts. 7.40: 5CL Bluebird Girls' Club.

### NIGHT SESSION.

8.0: Chimes. 8.1: Community singing led by Senior Member W. Brett.

8.10: Hedley Smith's Twinklerite Felix Orchestra.

8.15: Twinklerite Stan Watson—  
"Focal Points."

8.20: Twinklerite Cliff Howe and "Jimmy Banwig"—  
"Ventriloquism."

8.25: Hedley Smith's Twinklerite Felix Orchestra.

8.30: 1st Kensington Gardens Boy Scouts, with Scoutmaster H. J. Biles—  
Camp fire songs.

8.37: Comedy sketch—  
"Pietro and Polonius"  
(Written by "The Twinkler").

8.40: Twinklerites Snell, Tucker, and others—  
"Mouth Organ Specialities."

8.45: Captain S. White, C.M.B.O.U.—  
"Love Story of the Bower Bird."

8.52: Twinklerites Cameron and Moyle—  
"Violin and Polonius"

8.57: "The Twinklers."

9.0: Chimes.

9.1: Meteorological information, including sea-breeze tides.

9.2: Overseas grain report.

9.3: War cries by South Australian Boy Scout contingent to International Jamboree.

9.8: Hedley Smith's Twinklerite Felix Orchestra.

9.13: A few bright minutes with "The Twinkler."

9.23: Twinklerites Eric and Ron Gaylor—  
Piano-forte Duet.

9.28: Twinklerite Cliff Howe and "Jimmy Banwig"—  
"Ventriloquism."

9.33: Twinklerites Snell, Tucker, and others—  
"Mouth Organ Specialities."

9.38: A few words about the 5CL Twinkler Boy Club.

9.43: Saxophonist.

9.48: Comedy sketch. "Mr. Pookins and M. Sniggles" (written by "The Twinkler").

9.53: Twinklerite Stan Watson.

10.0: Chimes.

10.1: Hedley Smith's Twinklerite Felix Orchestra.

10.16: 1st Kensington Gardens Boy Scouts—  
Camp fire songs.

10.18: The Twinklerites.

10.18: General news service.

10.20: 5CL's sporting service supplied by "Silwus"

10.30: Modern dance records.

11.0: Close down.

## 6WF

12.30: Tune in. 12.35: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin supplied by the Meteorological Bureau of Western Australia. 1.3: Talk, "Care of the Sick," by Dr. Winifred Holloway, of London. 1.30: Music. 1.35: Close down. 1.36: Tune in. 3.35: Musical programme relayed from the Primrose Cafe de Luxe; vocal items from the studio. 4.30: Close down. 6.45: Tune in. 6.48: Bedtime stories by Uncle Duffy. 7.5: Light music by the Perth Piano Trio. 7.30: Commercial and general information. 7.45: Popular science talk by Mr. Hal McKail. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Relay from Theatre Royal of the programme of the Humphrey Bishop Musical Comedy Co. 8.50: Late news items by courtesy of the "Daily News" Newspaper Co., Ltd.; station announcements; ships within range announcement; late weather bulletin. 9.5: Programme continued from the studio. 10.30: Close down.

104.5 METRE TRANSMISSION.

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

7ZL

MIDDAY SESSION.

11.30 to 1.30: See Friday.

2.45: Description of Novice Handicap, 5 furlongs, Ascendale, Melbourne. 2.50: Result of Hurdle Race, 2 miles, Ascendale, Melbourne.

AFTERNOON SESSION.

3.0: Chimes. 3.4: Weather Information. 3.15: Description of Ascendale Plate, 6 furlongs. 3.45: Description of Ascendale Park Handicap. 4.15: Description of Ascendale Purse. 4.20: Readings from the "Illustrated Tasmanian Mail." 4.45: Description of Jumpers' Flat, 1 1/4 mile, Ascendale, Melbourne. 4.50: Close down.

EARLY EVENING SESSION.

6.10: Results of Ascendale Park races. 6.15: W. E. Masters will speak on "Humorous Pets." 6.45: Bertha Southey Brammall will tell a Tasmanian fairy tale to the wee folk. "Haunted Ballet" (part 2). 7.0: Answers to letters and birthday greetings, by Bertha Southey Brammall. 7.5: The Rt. Rev. Snowden-Hay, D.D., Bishop of Tasmania, will have a chat to the wee folk. 7.15: News session.

EVENING SESSION.

7.30: Geo. Nation will speak on "Planting and Sowings."

7.45: Transmission from the Memorial Hall, Brisbane Street, Holmart. Sir John Evans, K.O.M.G., will introduce the Rev. H. A. Arnold to listeners. Rev. H. A. Arnold, of London Missionary Society, will give a talk on "Gilbert Islands' State."

8.15: Recital of instrumental and vocal items by leading international artists, specially arranged by Paton's Music Warehouse.

9.45: News session.

10.0: Chimes.

10.1: Close down.

Vine Planting

A SEASONABLE talk to many listeners will be given from 3LO on May 22, when Mr. F. de Castelle, viticulturist, will discuss "Vine Planting," and dairy farmers will glean much valuable information on May 24 when Mr. F. M. Kerr, Chief Dairy Supervisor of the Department of Agriculture, will speak on "Fodder for Milk Production."

"An Improved Method of, and Apparatus for, Ascertaining Geographical Position."

UNDER the above title, a provisional patent has been granted to Mr. A. H. Cloke, 118 Macquarie Street, Parramatta. Mr. Cloke is a navigation officer, and has several patents in connection with electrical inventions. The object of the invention is to facilitate the ascertainment of the geographical position of marine vessels and the like, and, owing to its construction, it will be especially useful when atmospheric conditions, solar and stellar observations cannot be taken, and when light from lighthouses and the like is obscured.

In this invention advantage is taken of the fact that electrical waves or impulses, such as are used in wireless telegraphy, have a higher velocity than sound waves; therefore, if an electrical wave and a sound wave be simultaneously transmitted from the same station, the observed or indicated difference in time between the arrival of the two waves at a receiving station will enable the distance between the transmitting and receiving stations to be calculated.

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# Local Programmes, Thursday, May 23

## 2FC

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

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

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

10.0: "Big Ben" and announcements. 10.2: Pianoforte reproduction. 10.10: "Sydney Morning Herald" news service. 10.25: Studio music. 10.30: Last-minute sporting information, by the 2FC Racing Commissioner. 10.40: Studio music. 11.0: "Big Ben." A.P.A. and Reuter's cable services. 11.5: Close down.

**MIDDAY SESSION**  
Announcer: A. S. Cochrane.

12.0: "Big Ben" and announcements. 12.2: Stock Exchange, first call. 12.3: Official weather forecast; rainfall. 12.5: Musical item. 12.10: Summary of news, "Sydney Morning Herald." 12.15: Rugby wireless news. 12.18: A Dickens reading, by A. S. Cochrane. 12.30: The Popular Trio. 1.0: "Big Ben." Weather intelligence. 1.3: "Evening news" midday news service; Producers' Distributing Society's report. 1.20: The Popular Trio. 1.28: Stock Exchange, second call. 1.30: The Popular Trio. 1.50: Last-minute sporting information, by the 2FC Racing Commissioner. 2.0: "Big Ben." Close down.

**AFTERNOON SESSION**  
Announcer: Laurence Halbert.  
Accompanist: Ewart Chapple.

2.30: Programme announcements. 2.32: The Book Lover's Corner. 3.0: "Big Ben." The Popular Trio. 3.15: A talk on Empire Shopping Week. 3.25: William Cotterill, tenor. 3.32: The Popular Trio. 3.45: A reading. 4.10: William Cotterill, tenor. 4.17: The Popular Trio. 4.30: Dorothy A. Nail will speak on "European Life in India." 4.45: Stock Exchange, third call. 4.47: The Popular Trio. 5.0: "Big Ben." Close.

**EARLY EVENING SESSION**  
Announcer: A. S. Cochrane.

5.40: The chimes of 2FC. 5.45: The children's session, conducted by the "Hello Man." Letters and stories, music and entertainment. 6.30: Dalgety's market reports (wool, wheat, and stock). 6.40: Fruit and vegetable markets. 6.43: Stock Exchange information. 6.48: Weather and shipping news. 6.50: Rugby wireless news. 6.55: Late sporting news. 7.0: "Big Ben." Late news service. 7.10: The 2FC Dinner Quartette, conducted by Horace Keats—(a) "March Trigrane" (Lacombe), (b) "Nocture" (Widor), (c) "La Traviata" (Verdi) (d) "Momens Musicales" (Schubert), (e) "A Lovely Little Dream" (Coleridge-Taylor), (f) "La Gitana" (Kreislner).

**EVENING SESSION**  
Announcer: Laurence Halbert.  
Accompanist: Ewart Chapple.

7.40: Popular music.  
7.45: Programme announcements.  
7.48: A record recital.  
8.0: "Big Ben." From the Victory Theatre, Kogarah: The Victory Theatre Orchestra.  
8.20: From the Studio: John Mitchell.  
tenor—  
(a) "I Hear a Thrush at Eve,"  
(b) "Good-bye, Sweetheart, Goodbye" (Hatton).  
8.27: Lawrence Godfrey Smith, pianist—  
(a) "Doctor Gradus" (Debussy).  
(b) "Arabesque" (Debussy).  
(c) "Heather" (Debussy).  
8.52: Weather report.  
8.53: Eleanor Ross will render "The Nightingale and the Rose" (Wilde) (A story).  
9.11: Vincent Aspy, violinist—  
(a) "Rondo" (Mozart).

(b) "On Wings of Song" (Mendelssohn).  
9.16: Berenice Patterson, popular vocalist.  
9.23: Vincent Aspy, violinist.  
(a) "Finale" (Mendelssohn Concerto).  
(b) "Negro Melody" (Droraln-Kreislner).  
9.30: From the Victory Theatre, Kogarah—The Victory Theatre Orchestra.  
9.50: From the Studio: Berenice Patterson, popular vocalist.  
9.57: From the Hotel Australia—Cec. Morrison's Dance Band.  
10.12: Late "Evening News" service.  
10.16: From the Hotel Australia—Cec. Morrison's Dance Band.  
10.28: Late weather report.  
10.30: From the Hotel Australia: Cec. Morrison's Dance Band.  
10.57: To-morrow's programme.  
10.59: From the Hotel Australia—Cec. Morrison's Dance Band.  
11.30: National Anthem. Close down.

## 2BL

**MORNING SESSION**  
Announcer: A. C. C. Stevens.

8.0: G.P.O. chimes. Weather report. State and metropolitan. 8.3: Studio music. 8.30: G.P.O. chimes. News and information service from the "Daily Telegraph Pictorial." 9.0: G.P.O. chimes. Studio music. 9.30: Half an hour with silent friends. 10.0: G.P.O. chimes. Close.

**MIDDAY SESSION**  
Announcer: A. C. C. Stevens.

11.0: G.P.O. chimes. 2BL Women's Sports Association session, conducted by Miss Gwen Varley. 11.30: Advertising hints. 11.40: Women's session, conducted by Mrs. Cranfield. 12.0: G.P.O. chimes. Special ocean forecast and weather report. 12.3: Studio music. 12.30: Shipping and mails. 12.35: Market reports. 12.45: "Sun" midday news service. 1.0: Studio music. 1.30: Talk to children and special entertainment for children in hospital. 2.0: G.P.O. chimes. Close.

**AFTERNOON SESSION**  
Announcer: A. C. C. Stevens.  
Accompanist: Kathleen Roe.

3.45: G.P.O. chimes. Popular music. 4.0: G.P.O. chimes. B. A. M'Michan continues his series of talks on "Dogs." This afternoon's subject is "Distemper." 4.15: Popular music. 4.20: Romano's Cafe dance orchestra conducted by Bennie Abrahams. 4.30: From the studio: Irene Duncan, soprano: (a) "Homeward to You" (Coates), (b) "I Did Not Know" (Trotter). 4.37: "Sun" news service. 4.40: Romano's Cafe dance orchestra, conducted by Bennie Abrahams. 4.50: Irene Duncan, soprano: (a) "Early in the Morning" (Phillips), (b) "Vilvia" (Lehar). 4.57: "Sun" news service. 5.0: G.P.O. chimes; popular music. 5.15: Pianoforte reproduction. 5.37: Features of the evening's programme.

**EARLY EVENING SESSION**  
Announcer: Basil Kirke.

5.40: Children's session, conducted by Uncle Bas. Music and entertainment; letters and stories. 6.30: "Sun" news and late sporting. 6.40: 2BL Dinner Quartette—(a) "Mamselle Mannequin" (Fletcher), (b) "Wood Pixies" (Hadley), (c) "Nymphs of the Nde" (Herson), (d) "Lilac Time" (Schubert), (e) "Minuet" (Paderewski). 7.7: Australian Mercantile Land and Finance Co's report. Weather report and forecast by courtesy of Government Meteorologist. Producers' Distributing Society's fruit and vegetable market report. Grain and fodder report ("Sun"). Dairy produce report ("Sun"). Weekly traffic bulletin. 7.25: Mr. Pim and Miss Pam in advertising talks, handy hints, and nonsense. 7.53: An ad. special. 7.55: Programme and other amusements.

**EVENING SESSION.**  
Announcer: Basil Kirke.  
Accompanist: G. Vern Barnett.  
8.0: G.P.O. chimes.  
Kogarah Municipal Band.

8.20: Songs that Stir the Heart of a Nation, arranged by Captain A. C. C. Stevens and Carlton Fay.  
The Kogarah Municipal Band will also play well-known National Songs.  
9.20: Kogarah Municipal Band.  
9.40: Alicia Haywood (contralto)—  
(a) "On Wings my Fancy Ranges" (Mendelssohn).  
(b) "Sapphic Ode" (Brahms).  
9.47: Kogarah Municipal Band.  
10.7: Alicia Haywood (contralto)—  
(a) "The Myrtles of Damascus" (Woodforde-Finden).  
(b) "At Nightfall" (Woodforde-Finden).  
(c) "I Did Not Know" (Woodforde-Finden).  
10.16: Kogarah Municipal Band.  
10.28: To-morrow's programme and late weather.  
10.30: National Anthem.  
Close

## 2GB

10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20: Music. 10.30: Women's Session, by Miss Helen J. Beegling. 11.45: Close down. 2.0: Music. 2.5: Women's Radio Service, by Mrs. Dorothy Jordan. 2.50: Music. 3.30: Close down. 5.30: Children's Session, by Uncle George. 7.0: Music. 7.30: Short talk by Mrs. Jordan. 8.0: Miss Gwladys Edwards soprano. 8.7: Mr. Leonard Brewer, violinist. 8.15: Mr. Clement Q. Williams, baritone. 8.22: Instrumental music. 8.30: Humorous interlude by Mr. Jack Wia and Mr. Heath Burdock. 8.35: Madame Bennett North, contralto. 8.45: Miss Belle Young, pianiste. 8.55: Instrumental music. 9.0: Weather report. 9.3: Address. 9.15: Miss Gwladys Edwards soprano. 9.25: Instrumental music. 9.35: Humorous interlude. 9.40: Mr. Clement Q. Williams, baritone. 9.50: Miss Belle Young, pianiste. 10.0: Madame Bennett North, contralto. 10.10: Dance music. 10.30: Close down.

## 2UW

**MIDDAY SESSION.**

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

**EVENING SESSION.**

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

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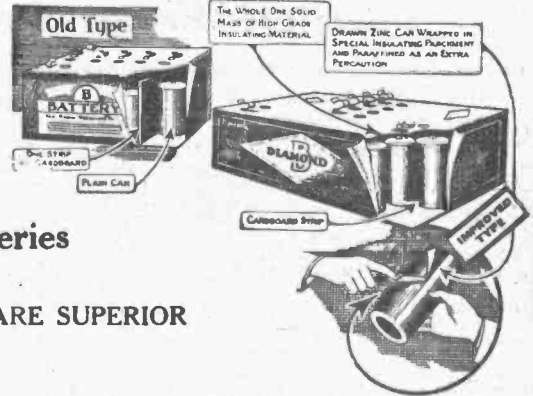
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# Interstate Programmes, Thursday, May 23

## 3LO

### EARLY MORNING SESSION.

7.15 to 8.15: See Friday.

### MORNING SESSION.

11.0: To-day's Radio Recipe. Marmalade Pudding. 11.5: Miss B. Macaulay will speak on "Temperament and Type." 1. 11.35: Captain Donald MacLean will speak on "Famous Women of History." 11.45: Sister Purcell will speak on "Infant Welfare."

### MIDDAY SESSION.

12.0: Melbourne Observatory time signal. Express brain information. 12.1: British official wireless news from Rugby. Reuter's and the Australian Press Association cable. "Argus" news service. 12.15: Newmarket stock sales. Cattle sales report, bullocks and calves, by the Associated Stock and Station Agents, Bourke Street, Melbourne. 12.20: Community singing, transmitted from the King's Theatre, Russell Street, Melbourne. Old-time choruses, conducted by Frank Hatherley. Ern Hall's Radio Revelers, with Hugh Huxham. The Kauls. Jack Stocks. "The Woman Hater." 12.40: Stock Exchange information. Prices received this day by the Australian Mines and Metals Association from the London Stock Exchange. 12.45: Community singing resumed. 1.45: Meteorological information. Weather forecast for Victoria, New South Wales, South Australia, and Tasmania. 1.55: Close down.

### AFTERNOON SESSION.

2.15: The Station Orchestra. 2.35: Russel Callow (tenor). 2.52: Dawn Asheton (soprano) and Laszlo Schwartz (violin). 3.1: Dr. Loftus Hills will speak on "Topics of the Week." 3.27: Fritz Hart will speak to students of music. 3.42: The Station Quartette. 3.52: Rev. William Bottomley will continue his series of talks on "Sigurd the Viking, Book II." by William Morris. "Sigurd Getteth to him the horse that is called Grefell." 4.10: The Station Orchestra. 4.25: Russel Callow (tenor). 4.32: "Herald" news service. Stock Exchange information. 4.45: Evenson, transmitted from St. Paul's Cathedral, Melbourne. 5.30: Acceptances and barrier positions for Moonee Valley Races, to be held on Saturday, May 25. 5.33: Close down.

### EARLY EVENING SESSION.

6.0: Birthday greetings and answers to letters by "Bobby Bluegun." Then a few songs, and then—who knows—perhaps there will be more more about "Ector and Orsac."

### EVENING SESSION.

Announcer: Frank Hatherley.

7.5: Stock Exchange information. 7.15: Market reports. 7.30: News session. 7.43: Birthday greetings. 7.45: Out of the Past. 7.46: A Dressing-room Talk. 8.0: A Maker of History.

### NIGHT SESSION.

Announcer: Frank Hatherley. Accompanist: Agnes Fortune. 8.1: Programme arranged by the announcer. 8.2: Rod McGregor will speak on "Football." 8.15: The Radio Revelers—"My Blackbirds are Bluebirds Now" (Friend) "Casablanca" (Schuster). "Oh, Isabella" (Schuster). 8.24: Eileen Pascoe Webb (soprano)—"Fads, Evenson" (Anderson). 8.27: The Radio Revelers—"Sweet Forget-me-not" (Lorenzo). "Fancies" (Nichols). "You Ought to Hear Olad Laft" (Baer). 8.36: The Kauls (Hawaiian Instrumentalists)—"Ma like no a like" (Kaulie Kanon). 8.39: The Radio Revelers—"Mexican Serenade" (Tersee). "Down by the Old Prout Gate" (Kassal). "I Don't Know Why I Do It" (Val). 8.46: Jack Stocks, "The Woman Hater"—"Ow I Ates Wimmen" 8.51: The Radio Revelers—"Hum and Tum" (Meyers). "Maybe I'm Wrong" (Harris). "Constantinople" (Carlton).

10.0: News service. Meteorological information. British official wireless news from Rugby. Announcements.

10.15: The Radio Revelers—"My Angelina" (Wayne). "There's a Rainbow Round My Shoulder" (Johnson). "Oh, Is She Mad at Me?" (Friend). 10.24: Eileen Pascoe Webb (soprano)—"If I Might Come to You" (Squire). 10.27: The Radio Revelers—"High Upon a Hilltop" (Baer). "When Love Comes Stealing" (Rapee). "Roll Up the Carpets" (Hixon). 10.36: The Kauls (Hawaiian Entertainers)—"The Desert Song" (Romberg). 10.39: The Radio Revelers—"To-day, To-morrow, Forever" (Nichols). "Who Knows?" (Dixon). "Lady of the Morning" (Burton). 10.48: Jack Stocks, "The Woman Hater"—"Dismal Ditties." 10.51: The Radio Revelers—"I'm Crazy Over You" (Lewis). "Old Man Sunshine" (Dixon). "Wipin' the Fan" (Baer). 11.1: The Radio Revelers—"My Dream Sweetheart" (Hall). "Guess Who's in Town?" (Razall). "That Stolen Melody" (Fisher). "T-mora" (Gilbert). "Japanese Mamma" (Donaldson). "There's a Ricketty, Racketty Shack" (Turk). "That's What You Mean to Me" (Davis). "All By Yourself in the Moonlight" (Wallis). "She's Got a Great Big Army of Friends" (Nelson). 11.30: God Save the King.

## 3AR

10.0 to 10.50: See Friday. 11.0: Ballads. 11.30: The Jedal Trio. 12.20: British official wireless news. Announcements. 12.30: Close down.

### AFTERNOON SESSION.

Announcer: D. Woolley.

3.0: Ballads. 3.15: The Strad Trio. 3.33: Ballads. 3.42: Captain Donald MacLean. 3.57: Cecil Parkes (violin). 4.12: The Strad Trio. 4.21: Miss P. F. Yerbury, "The Forward March." 4.37: Close down.

### EVENING SESSION.

Announcer: John Stuart.

6.0: Ballads. 6.10: The Station Orchestra. 6.20: Ballads. 6.30: The Station Orchestra. 6.40: Ballads. 6.50: The Station Orchestra. 7.0: Beautiful Ballads. 7.10: News service. Announcements. Acceptances and barrier positions for Moonee Valley Races on Saturday. 7.25: The Station Orchestra. 7.35: Ballads.

### NIGHT SESSION.

8.0: Dr. Loftus Hills—"Life's Facts and Fancies." 8.15: W. R. Warner, under the auspices of the Nurserymen and Seedsmen's Association of Victoria, will speak on "Winter-flowering Shrubs." 8.30: The Jedal Trio (Alva Hattenbach, violin; Edna Hattenbach, cello; and John Simons, piano)—"Finale" (Beethoven). Piano Solo, "Romance" (Sibelius). "Dream Visions" (Schumann). Trio, "Serenade" (Herbert). "Dance Espagnole" (Moskowsk). 8.50: Studio presentation of "Romeo and Juliet" by "The Melstersingers," under the direction of J. Sutton Crow.

### Part I.

Romeo ..... John Sullivan Juliet ..... Mdm. Elsie Davies Stephano ..... Stella Dredge Capulet ..... Charles Evans Mercutio ..... Charles Evans Friar Lawrence ..... Alan Eddy Paris ..... Alan Eddy Gertrude ..... Sybil Shaw Tybalt ..... R. Grimshaw 9.30: Dawn Asheton (soprano) and Laszlo Schwartz (Hungarian violinist) in Japanese, Chinese, and Burmese Selections. 10.30: News session. News service. Announcements. God Save the King.

## 4QG

### MORNING SESSION.

11.0 to 12.0: See Monday.

### MIDDAY SESSION.

1.0 to 2.0: See Monday.

### AFTERNOON SESSION.

3.0 to 4.30: See Monday.

### EARLY EVENING SESSION.

6.0 to 7.45: See Monday.

### NIGHT SESSION.

8.0: The Congregational Union is at present holding in Brisbane the first Australian and New Zealand Congregationalists from all parts of the Zealand Conference for Queensland since 1916. Commonwealth and New Zealand will be present.

The first portion of to-night's programme will comprise the relaying of the public rally from the City Congregational Hall. The chair will be taken by A. J. Johnson, Esq., and the speakers will include—

The Rev. T. E. Ruth (N.S.W.). The Rev. L. B. Fletcher (N.Z.).

### PART II.

9.30: Metropolitan weather forecast. Movements of Travelling Dental Clinic.

9.33: The Kao Maoli Duo—

Hawaiian music.

9.38: Shirley Radford (soubrette)—Latest popular numbers.

9.48: Tom Muller (elocutionist)—Selected.

9.55: The Kao Maoli Duo—Hawaiian music.

10.1: The "Daily Mail" news; the "Courier" news; weather news. Close down.

## 5CL

### MORNING SESSION.

11.0 to 2.0: See Friday.

### AFTERNOON SESSION.

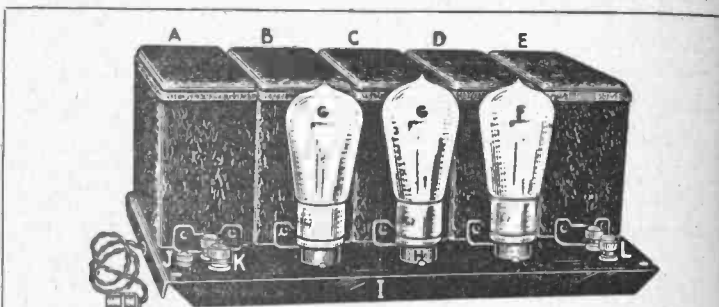
3.0: Chimes. General programme, including Station Quartette, Rev. C. H. Neild, Clella Genoni M'Neill (soprano), Lizette Foglia (violinist), Syd Morell (baritone). 4.12: Fifteen minutes in "Melody Land" with Tom Kins and Jack Fester. 4.34: Vern Rogers (trumpeter). 4.55: Stock Exchange information. 5.0: Close down.

### EVENING SESSION.

6.0: Chimes. 6.1: Birthday greetings, correspondence, songs, and stories by "The Wattle Lady." 6.38: Miss Bessie Francis. 6.45: An interlude of dance music. 7.0: Chimes. 7.1: Stock Exchange information. 7.6: General market reports. 7.10: Mr. P. W. E. Boscombe will give the second of his talks on "New Zealand's Thermal Regions." 7.25: Mlle. Marcelle Berard, "French for All." 7.40: Mr. A. M. Whittenbury, a talk on "Poultry."

### NIGHT SESSION.

8.0: Chimes. 8.1: Studio Orchestra, conducted by Lizette Foglia. Overture, "La Buleuse" (Suppe). "Neapolitan Nights" (Zamencnik). 8.11: Clella Genoni M'Neill (soprano). 8.13: Smith and Williams (banjoists) in new numbers. 8.24: Eric Wickens (bass)—"Davy Jones' Locker" (Petrie). "The Stocker" (Arundale). 8.30: A violin and pianoforte recital by Mrs. T. A. Wyles (violinist) and Miss Dorothy Oldham, A.M.U.A. pianist). Piano and violin. "Sonata in E Minor" (Brahms).



WE reproduce above the Emeco Super-power Concert Amplifier, which was misprinted in a recent issue. For the benefit of our readers this Amplifier contains—A, power transformer; B, power choke; C, condenser pack; D, voltage divider, and extra bi-pass condensers; E, Golden Voice audio transformer; F, rectifying valve; G, amplifying valve; H, balanced socket; J, chassis; K, earth terminal; L, input terminals; L, output terminals. Cord and socket are furnished as shown. Emeco are now making two distinct types of amplifying units. The Concert or Power Type, for use in Concert Halls, Theatres, Sales, Carnivals, etc. Price, £30/10. The Concert type is, however, too large for the home use, so Emeco are manufacturing a smaller unit which can be attached to any existing receiver or phonograph using a good pickup. The best results are, however, obtained with the Baldwin Pickup. When the Home Unit is used with a dynamic speaker, and for perfect reproduction with an M. P. beyond all expectations, and ensures the maximum volume without any semblance of distortion. The shrill soprano notes, with remarkable clarity, which cannot fail to please the most critical music-lover. The unit is contained in an attractive metal case, crystalline finish. Full instructions are supplied with each unit. Price, Home type Amplifying Unit, without Valves or Speaker, £18/10.

movement) (Mozart).  
 Piano solos, (a) "The Raindrop Prelude". (b) "Waltz in C Sharp Minor" (Chopin).  
 Violin solos, "Ahenlled" (R. Schum:zin). "Cradle Song" (A. Jarnefelt). "Dance of the Elves" (E. Jenkinson).  
 Piano and violin, Sonata for Violin and piano (in G Minor) (Tartini). "Largo and Allegro Comodo."  
 9.0: Chimes.  
 9.1: Meteorological information, including semi-tides.  
 9.2: Overseas grain report.  
 9.3: Talking about Talks.  
 9.13: Studio Orchestra—  
 "Selection, "The Girl Friend" (Rodgers).  
 9.20: Ciella Genoni McNeil, soprano—  
 Selections from her repertoire.  
 9.27: Smith and Williams, banjoleists, will entertain you.  
 9.33: Eric Wickens, bass—  
 "Joggin' Along the Highway" (Samuel).  
 "Roll on Thou Deep and Dark Blue Ocean" (Jude).  
 9.40: Studio Orchestra—  
 "1st Movement Concerto in A" (Greig).  
 Piano and Orchestra.  
 9.52: Mr. P. H. Nicholls and Miss Bessie Francis—  
 In a Shakespearean interlude, "King Lear."  
 10.10: Studio Orchestra—  
 "Prelude and Introduction," Act 1. "Juanita" (King-Pewster).  
 10.15: General news service; British official wireless news; meteorological information; announcements.  
 10.30: Modern dance records.

**6WF**

12.30: Tune in. 12.35: Markets, news, etc. 1.0: Time signal. 1.1: Weather bulletin supplied by the Meteorological Bureau of Western Australia. 1.3: Padastrope concert relayed from Messrs. Musgrove's, Ltd., Lyric House, Perth. 2.0: Close down. 3.30: Tune in. 3.35: Music and song relayed from the Carlton Cafe. 4.30: Close down. 6.45: Tune in. 6.48: bedtime stories by Uncle Duffy. 7.5: Solos and trios by the Perth Piano Trio. 7.30: Commercial and general information. 7.45: Talk. 8.0: Time signal. 8.1: First weather bulletin. 8.3: Relay of concert by the Fremantle Orchestral Society from the Fremantle Town Hall. 8.50: Late news items by courtesy of the "Daily News" Newspaper Co., Ltd.; station announcements; late weather bulletin. 9.5: Programme continued from the Fremantle Town Hall 10.30: Close down.  
 104.5 METRE TRANSMISSION.  
 Simultaneous broadcast on 104.5 metres of programme given on 1250 metres, commencing at 5.45 p.m.

**7ZL**

**EVENING SESSION.**

7.30: Under the auspices of the "Come to Tasmania" organisation, J. B. Reid will speak on, "Tasmania for Tourists."  
 7.45: Sporting gossip from near and far.  
 8.0: G.P.O. clock chimes the hour.  
 8.6: Musical selections.  
 8.15: A studio concert by 7ZL artists and Monsieur Sonora.  
 Duet, Jean Hibbard (soprano), Katie Rothwell (contralto)—  
 "Within the Garden of My Heart."  
 8.18: International Concert Orchestra—  
 "The Skaters" (Waldteufel).  
 "Studentina" (Waldteufel).  
 8.25: Val Ulbrick (baritone)—  
 "Thinking."  
 "Get Out and Get Under the Moon."  
 8.32: Toscha Seidel (violin solo)—  
 "Humoresque" (Dvorak).  
 "Meditation" (Massenet).  
 8.35: Alfred Sargison (tenor)—  
 "Gaily Horner."  
 "Drink to Me Only."  
 8.46: Columbia Opera Co.—  
 "The Desert Song" (Romberg).  
 "Oh! Kay."  
 8.53: Jean Hibbard (soprano)—  
 "The Kerry Dance" (Molloy).  
 8.58: Light Opera Co.—  
 "Lilac Time" (Schubert).  
 9.3: Katie Rothwell (contralto)—  
 "Selected."  
 9.6: Fritz Kreisler (violin solo)—  
 "Liebesfreud," parts 1 and 2 (Kreisler).  
 9.14: Duet, Jean Hibbard (soprano), Katie Rothwell (contralto)—  
 "Down in the Forest."  
 9.17: Philharmonic Symphony Orchestra—  
 "Invitation to the Waltz," parts 1 and 2.  
 9.24: Val Ulbrick (baritone)—  
 "Dearest One."  
 "Two Lips."  
 9.31: W. H. Squire (cello solo)—  
 "Reverie" (Dunkler).  
 9.35: Duet, Katie Rothwell (contralto), Jean Hibbard (soprano).  
 "When Song is Sweet."  
 9.38: Corne solo, with grand organ—  
 "The Lost Chord" (Sullivan).  
 "The Holy City" (Stephens).  
 9.45: News session.  
 10.0: Chimes.  
 10.1: Close down.

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*Build your Stedipower Unit with only the best Components, and you will obtain perfect results Use inferior Material, and trouble will result.*

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Price on Application			
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Two Wallace Variable Condensers .....	11/10	Grid Leak .....	1/
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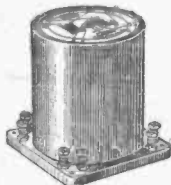
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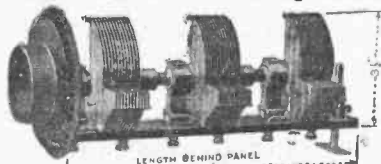
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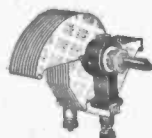
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The WIRELESS WEEKLY

# RADIO INFORMATION

Under the direction of

Ray Allsop

and

Don B. Knock,

Associate Technical Editors

Correspondence Answered

only through

these

Columns

(See Coupon Below)

# Service

**E.C.B. (North Sydney).—**Your circuit incorrect. Correct circuit appeared in queries columns March 8.

**W.J.H. (Farramatta).—**Wrong grid bias or open B circuit or faulty transformer. See below.

**Mr. W. J. HOOKER, 8 Macquarie Street, Parramatta,** asks if any reader living in the vicinity of Parramatta has built the Renown Three. If so, Mr. Hooker would like to get in touch with him.

**GENERAL:** Queries coupons have now been appearing in these columns since December 28, 1928. Henceforward all readers sending queries without coupons will be advised to that effect.

**W.J.C.B. (Via Casino).—**Carbon rods taken from old dry "A" batteries are not suitable for making your own "A" batteries as in "Proving Radio," be-

some wire and a few old valve bases, which latter can be obtained almost anywhere. Be your final proposal, in connection with a party of vigilantes to interview the broadcasting companies regarding advertised programmes: This matter has been the subject of controversy for some time, but it will eventually be settled satisfactorily, as is evinced by the particulars of tenders just out.

**E.N.A. (Petersham).—**Morse code on 20, 40, 80 metre bands. "Phone is generally used to 200-metre band, though quite often other bands are used. 20 metres seems to carry better both during daylight and night. Ships work on 600 band. The latter is used also for ship SOS-calls, and all ships working on that band must stop transmitting immediately

**P.L.O. (Ashfield).—**Your inductance is apparently not large enough for the capacity you are using for tuning. Increase the number of turns on the coil by about 10, and you will find that the tuning range will extend up to 2FC, with a little to spare.

**E.A. (Coledale).—**The stations you heard were experimental stations VK3BY (Mr. H. Holst, 27 Bambera Road, Caulfield, Vic.) and VK2TW (Mr. T. R. W. Busby, Main Road, Bulli, N.S.W.)

**A.S. (Newcastle).—**The ordinary valve base is not really large enough to insert a coil for the broadcast band without bank winding a fine gauge of wire, such as 40 DSC. The grid coil will want 150 turns. Cover this when wound with a layer of Empire tape, and wind on the reaction coil at the filament end with 50 turns of the same wire.

**HERO (Longueville).—**You could replace the loop aerial for your Super-Het, by a coil of standard dimensions for the BC band of wave-lengths. Say, 76 turns of 26 DSC wire on a two-inch former. The outside aerial would then have to be coupled to this in the usual manner. The easiest way is through a .001 mfd. fixed condenser.

**J.G. (South Kensington).—**Yes, the capacities you mention in micro-microfarads and microfarads are quite correct.

**R.E.D. (Epping).—**You may get considerably better results with your crystal receiver by arranging the aerial in the position you sketch relative to the telephone and power lines. It is not uncommon to be able to work a loud speaker direct from a crystal set, but the crystal must be very sensitive and the aerial as high and as well insulated as possible.

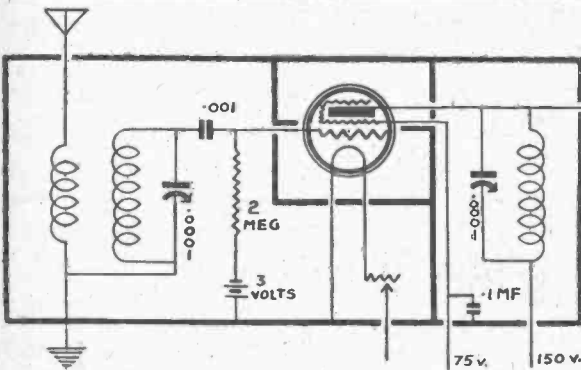
**SCREENED CRYSTAL (Wagga).—**The capacity of the Advance condenser you have on hand is .0014 mfd., and this will be right in capacity for tuning your short-wave receiver. For the 30-metre band and tuned by this capacity use a grid coil 2 inches in diameter, with three turns of 18-gauge wire. The reaction coil may be the same size, and spaced about 1 inch from the grid coil.

**G.M. (Waverley).—**The Mullard PM4D is an excellent detector valve for short-wave work. No distortion will be noticeable in head-phone reception using the 10 to 1 ratio transformer in the audio stage. Binocular coils are not necessary for short-wave work, and no advantage would be gained by their use. You are altogether wrong in your sketch of a series resistance control for the detector for the reason that you have placed a series condenser in with the resistance. In this way no voltage could reach the plate of the valve. The fixed condenser should be connected right across the variable resistance to help the prevention of any noise in the circuit in the resistance. The ARRL handbook is quite right in stating that there is very little detuning effect when controlling oscillation by a variable resistance in this way, but we prefer a capacity control of reaction for the reason that by this method signals are boosted up a little more on the edge of oscillation. A properly balanced short-wave circuit, free from hand capacity, and controlled by a variable capacity, should show extremely little detuning effect.

## QUERY COUPON

If you are in difficulties about reception or set-construction, let us know, and we will endeavor to set you right. Make your questions brief to the point, and, where possible, show lay-out and wiring design. Under no circumstances will answers to queries be made by letter or by telephone. All answers will appear in the columns of this department in the order in which they are received.

The Radio Information Service  
WIRELESS WEEKLY  
Please answer the accompanying queries in the order in which they are received. This coupon in order to indicate that I am a bona-fide reader.



It is to be hoped that this circuit will eliminate the number of queries arriving from those who wish to add a stage of Screen Grid amplification in their receiver. The component parts are marked. Coil values will be equal to those already existent in the receiver, though it might be necessary to make some slight adjustments on the secondary in order to get both dials, (R.F. and detector) to read alike.

cause the rods used must be porous. Those that have been previously used are not porous. The black material cannot be used either, as this is nothing more than "dead" electrolyte. A condenser's capacity can usually be judged by the number of plates. The formula for calculating the capacity is AK times (N minus 1) over 4 times pi times 9 times D times 10 to the fifth power, where A equals the area of one side of one plate in square centimetres (2.54 cm. to an inch), K equals the specific inductive capacity of the dielectric (air is 1, mica etc.); these can be obtained from almost any text-book. N equals the number of plates, pi equals pi and one-seventh, D is the distance between the plates in centimetres. 10 to the fifth power is another way of expressing 100,000. No, your set cannot be used on short waves, except by using a short-wave adaptor. Several circuits have appeared in these columns from time to time. Instructions on the aerial mentioned have appeared in a recent article on "Aerials."

**R.W. (Kogarah).—**You will have to look up "Popular Wireless" for this circuit (English publications).

**GENERAL.—ALUMINIUM SOLDER:** Several queries ask for instructions for making aluminium solder. Through the courtesy of one of our readers, of South Brisbane, we are able to present the following—

**Aluminium 1 part, zinc 4 parts.** Melt the aluminium and add the zinc, together with a small quantity of fat. The mixture will be well stirred, then poured into moulds. Turpentine is used as a soldering fluid. A thin shaving of the solder is placed around the joint and melted with a blow torch. The solder will adhere firmly to the aluminium. (Thanks, W.L.D.)

**C.M. (Westville).—**You say, "Will this kit do?" but you don't mention what set you're going to build. Voltmeter in parallel with filament supply. Ammeter in series with circuit to be tested.

**W.A. (Westville).—**Yes, two sets may be operated in the one house on one license. Wasp All-wave two. Coils mentioned cannot be bought, so you will have to wind them yourself. All you require is

an SOS is heard. Ships also use short waves. A license is necessary to operate a transmitter on board boat, whether it is a liner or a motor-boat.

**E.R.W.L. (Victoria).—**Yes, if it is the first audio transformer connect a 1 meg. leak across the damaged secondary. If it is the second stage, use a 1/2-meg. leak. You ask how much in connection with the wave meter, which, if built to cover your requirements, would not be efficient on any band. Even if two variable condensers (one for short and one for long waves) were included, this would not be very efficient.

**J.B. (Kyuna).—**Try connecting speaker the other way round, i.e., reverse connections to plug. Note re back number has been passed on to Back Number Department, who advise that another copy has been forwarded.

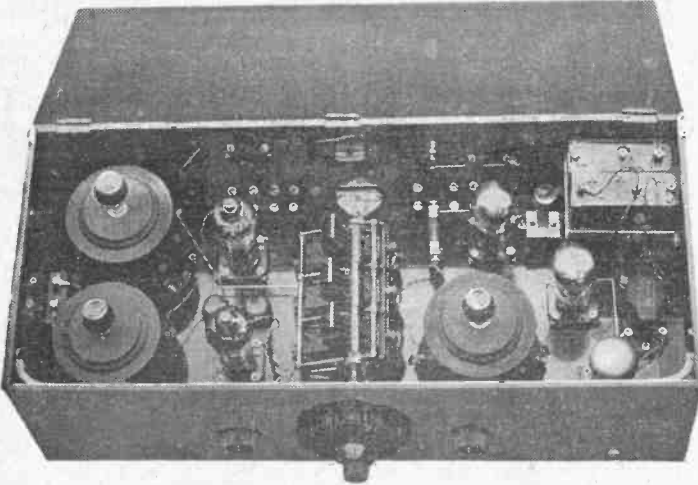
**A.F. (Auburn).—**Try change of grid leak.

**T.T. (Umeo).—**You do not give sufficient details for me to judge whether your idea is O.K. As far as I can make out from your letter, the idea is already patented.

**E.K. (St. Peters).—**Too high charging rate or faulty rectifier. Set makers. Power valve N.G. without grid bias.

**G.B. (Leadville).—**Will not keep you waiting too long for the Marco SG Four. There are so many other matters to attend to at present. All in due course. The coils will be the standard Marco Four coils. The symbols you have mistaken as being marked H are merely 1 mfd. by-pass condensers. Yes, Philips' transformers will be excellent for the purpose. Use the 26-gauge wire if you wish to make your own coils. The back-of-panel diagram will be given with the constructional article.

**BROGO (Taree).—**Motor-boating can be simply and effectively cured. You will find how to do this in the article on dials in connection with B eliminators, probably appearing this week. You may synchronize your dial readings by removing a turn or two from the grid coil in the detector circuit and noting the readings until the two circuits match up.



The Super R.F. Peridyne built by one of our readers.

**J.B.K. (Bondi Beach).**—Glad you found the Flour Duster Wave-trap effective. The primary should be mounted in the filament end of the secondary, not the grid end. Yes, you can use the primary in the usual way with the SG valve by by-passing, as in the SG Peridyne, although this is not the best way to couple the SG valve. Your coils specifications are O.K.

**G.R. (Redfern).**—Have absolutely no room to publish such a circuit in these columns, or would be pleased to oblige. Four-volt valves would hardly be suitable for the purpose, and dry cell B batteries most certainly would not. A power amplifier operating from the AC supply would have to be constructed, using a full-valve rectifier from 500 volts, rectified by two UX 281's, and well filtered. Power valves of the Osram P 625 type would be ideal for such work.

**J.E. (Lilyfield).**—Excellent idea, and many thanks for your kindness. I will be pleased to try it out at the first opportunity and give readers the benefit. (D.B.K.)

**BOWMIT (Bowral).**—The Philips' PPP power pack will operate the Marnock 5 very well. If you are contemplating making an all-electric job of it I advise you to keep the DC valves and use the Stedipower A battery eliminator, which may be described with this issue.

**A.W.A. (Bexley).**—The detector circuit of the Go-Getter is quite O.K. as a S.W. adaptor for use with the audio amplifier of an existing B.C. receiver.

**R.O. (Greenwich).**—The diagrams for the K.U.G. crystal set are appearing in these columns. The reason why distant lights appear to twinkle at night is due to varying intensity of the atmosphere.

**J.C. (Croydon).**—Heaven only knows what your first circuit is—looks as if it had been designed on another planet—but the second one is the old PI with a stage of transformer coupled audio amplification.

**G.G.A. (City).**—Surely you don't want me to publish a diagram showing you how to cut out one stage of audio on the Renown 3? The output to the phones or speaker will simply be taken from the plate circuit of the second valve, with no second transformer.

**E.G. (Stockingbinal).**—If you read Mr. Knock's short article on hints in connection with B eliminators you will see how you can easily overcome your motor-boating trouble.

**H.G.H. (Rosebery).**—Yes, the parts advertised by those two radio dealers will be quite reliable to make up a very successful little B eliminator cheaply.

**A.B. (Hurstville).**—Make the "Wasp" short wave receiver suggested by Mr. Allison. Price of parts complete about £12.

**K.C. (Muswellbrook).**—Write to Angus and Robertson, Pitt Street, Sydney.

**BACK NUMBERS AVAILABLE.**—Mr. D. Hutton, 13 Smith Street, Bexley, advises he has back numbers of "WIRELESS WEEKLY" available from Volume A. Thanks, Mr. Hutton.

**Mrs. DIXON, 1 Uddean Place, Bayview Street, Bronte,** also advises back numbers are available for those interested. Readers desiring back numbers from any persons whose names appear herein are requested to forward cost of paper and postage.

**Mr. E. A. ESCHBACK, 26 Chuter Street, North Sydney,** has back numbers dating from the end of December, 1928, which he is willing to loan any reader anxious to obtain any special copy. These are not for sale.

**P. MATTHEWS, 28 Young Street, Croydon,** asks if any reader can supply him with "RADIO" dated October 15, 1927.

**H.A.W. (Five Dock).**—For the 2½-inch former increase number of turns on each coil by 20 per cent. most probably primary. Connect a 100,000 ohm resistance across primary. Re battery, hydrometer only shows state of acid, which may read O.K. when battery is flat. Voltmeter is best test for state of charge, but reading should be taken when valves are drawing current.

**E. ZENTHON, Esq., 8 Orchard Street, Balmain,** asks if any reader can supply him with an old copy of "WIRELESS WEEKLY" containing an article and circuit on the Old Reliable. (Note, Mr. Zenthon's circuit of this receiver appeared in last week's "WIRELESS WEEKLY" in Queries column.)

**MISS PETERSON, 19 Walker Street, North Sydney,** offers to supply any readers desiring back numbers of "WIRELESS WEEKLY." Thanks, Miss Peterson.

**Mr. L. WYKES, 162 Albion Street, Annandale,** advises he has back numbers of "WIRELESS WEEKLY" and "RADIO" available. Thanks, Mr. Wykes.

**X.T. (Wodonga).**—Yes, you may join the "Proving Radio Club." Consider yourself a country member. Your letter has been forwarded to the hon. organizing secretary, and your name entered on the roll. Glad you like "P.R." Must be of age or parent must sign a declaration to be responsible. See below.

**L. J. TESE, Police Station, Wodonga, Victoria,** asks if any reader can supply him with copies of "WIRELESS WEEKLY" containing "Proving Radio," as follows:—Vol. 13, Nos. 4, 5, 10, and 11.

**H.D.B. (Tullamore).**—Primary 15 turns, secondary 47 turns, reaction 26 turns, all of 24-gauge D.C.C. wire, on a 3½-inch former, primary spaced ¼ inch from secondary, and latter coil 3-8 inch from reaction. Main tuning condenser (across secondary), .0005 mfd., reaction condenser .00025 mfd.; transformer ratio, 5-1; B406 valves; Reinartz O.K.

**P.K. (Wauchope).**—Marnock Five, or 1929 Neudyne. Circuit is an old one.

**C.W.G. (Hurstville).**—Trouble is probably in the aluminium. A wet rectifier will not form unless pure aluminium is used. If aluminium becomes greasy from handling, it would be wise to clean it in a solution of lye. Borax is best. The lye is known as "Mule Team Borax" is good. Did not see your previous letter.

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The home of Ben Nathan, Ripponlea, Victoria, presents the ideal landscape in which lakelets play an important part. Mr. G. W. Cooper will talk about the use of water in landscape gardening, mentioning in particular the above garden, from 2BL, on Saturday, May 18.

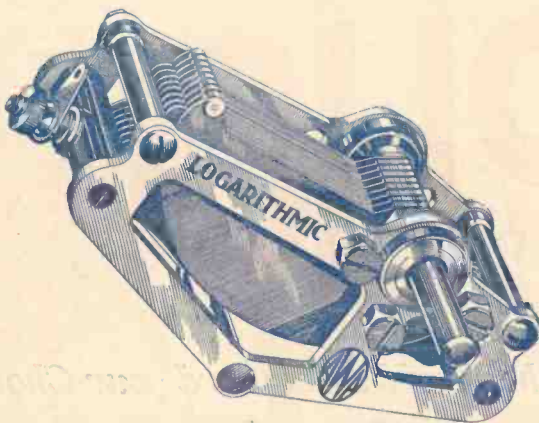
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