

Complete Broadcasting Programmes a Week in Advance

Wireless Weekly 3^d

INCORPORATING "RADIO IN AUSTRALIA & NEW ZEALAND"

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

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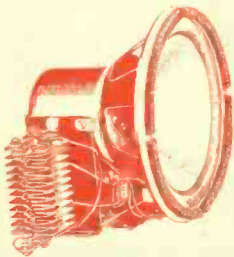
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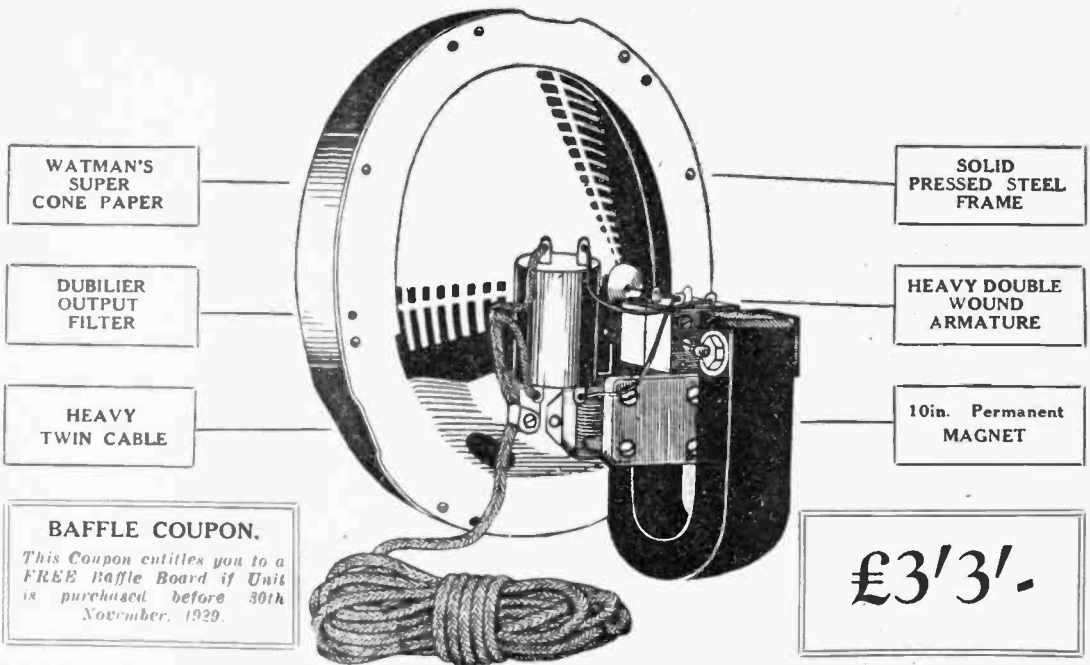
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LEARNING HOW TO BROADCAST

Classes in microphone technique are held every week by the Broadcasting Company. How intending artists are taught to observe the rules of broadcasting is told in this article.

THE Australian Broadcasting Company in New South Wales has received no fewer than 2000 applications for "trials" from people who wish to be heard over the air. They are given an opportunity to show what they can do every Monday, Wednesday, and Friday at "auditions," in the manner described last week. More than 100 of these 2000 applicants are heard every week, and roughly 10 per cent. of the weekly attendances come up to standard. Of this percentage some are drafted to the microphone classes for tuition in the uses of the microphone.

Because it is not so easy as you might think to sing to the microphone. Although an artist may achieve success on the concert platform, that is no assurance that he will make a good broadcasting artist. The conditions are altogether different. In the concert hall an artist sings to the man in the back row; and even the man in the front row, sitting some 15 or 20 feet from the performer, cannot hear small faults of breathing or production, which are minimised by their remoteness or lost in the vast aerial spaces of the hall. In the broadcasting studio, an artist sings to a microphone placed only 2 or 3 feet, or even 6 inches away; every fault of breathing or production is amplified with his voice, which sounds small and weak in the comparatively small

space confined by walls specially treated to prevent all echoes and resonances. So that even the artist whose technique is perfect so far as the concert platform is concerned has something to learn of the courtesies generally extended to the square of listening marble before he may consider himself a perfect broadcaster.

That is what microphone classes are for—not to teach artists how to sing, but how to use the microphone. The classes are in session every Saturday morning from 9.30 till 10.30 in 2FC's No. 2 studio, and Madame Emily Marks presides. Madame Marks has been running her own private classes for some two years now, and so she is well equipped with advice for beginners.

At the extreme end of the studio is the microphone. At the other end is the loud-speaker. The students sit at the loud-speaker end, and one from their number is chosen to sing into the microphone at the other end. The voice of the singer is so amplified through the loud speaker that it is almost impossible for the "school" to hear it before it enters the microphone, although he is singing in the same room; but the students are asked to watch the movements of the singer, how near he stands to the microphone, whether he sings from the side or the front, turns his head away for a high note, or comes very close during pianissimo passages. Thus, by watching the microphone manoeuvres of other singers the uninitiated can form suitable opinions of the value of each action; and Madame Marks is there to demonstrate how certain effects are to be gained.

The result of the work of these classes is a noticeable improvement in the broadcasting singing of many artists, while some artists who, without such experience, might not have been considered fit broadcasters, have now been brought before the programme committee.

Even artists of some years' broadcasting experience drop in regularly on Saturday mornings to rehearse numbers for coming programmes. They say they are able to make experiments there, and gain some idea of their effect from the "students" at the other end of the hall.



Madame Emily Marks.

A VERY instructive address will be delivered on November 8, 1929, from 2BL by Mr. Francis Jackson, "Why We Laugh." Man is a laughing animal; there is none other in creation, the laughing hyena and the laughing jackass are only seeming exceptions. They do not laugh because they do not experience the emotion of laughter. Moreover, the hyena has really nothing to laugh at in his laugh. Man also is the animal LAUGHED AT. He alone is sensitive to ridicule. Ridicule is a deadly weapon; its literary form is satire. The attribute of being a laughing animal we share with the gods of Olympus. The laugh of the savage and the child is generally the laugh of triumph, scorn, superiority, and congratulation at escape from danger. It is also the simple laugh of social amusement and gratification. The savage and the child laugh to express primitive emotions. The laughter of civilised man and woman is more complete a protest. It arises more often from what is called a sense of the ridiculous, a sense of the comic, a sense of humor. In the latter case, sympathy is blended with laughter. Mr. Jackson's contention is that laughter is society's defence against the unwanted and the dangerous. It is the weapon of common sense.



Between You and Me and the Microphone

Late Spring

WE left the road, clambering over a ramshackle fence into the orchard. It did not seem a very old orchard; but it had not been cultivated for some time; the space between the trees was covered with long grasses, inset here and there with wild flowers; the trees themselves, though thickly spread with blossoms, had obviously not been pruned for years. Birds flew and sang among the branches, and a soft wind fluttered the leaves and swayed the grasses. Every now and then a shower of blossoms would shake into the grasses. We sank into the grasses at the foot of an apricot tree, and he put down his hour glass and his sickle, untangled his long white beard from his waistcoat button, and sat down beside us. We had met him on the way. We fell into an interesting argument on the Precise Nature of Human Happiness. He had many facts on which to base his opinions.

While we were talking, three strange fellows came by, dressed in the most fantastic costumes. They walked in file, but out of step, in a grandiose manner, led by a long, lean, loose-mouthed, cross-gartered rogue twirling a short stick. The second was short and fat; he progressed in a waddlesome way, staggering a little under the weight of a musical box strapped to his back. The third carried a sack over his shoulder. "Good-day t'ye, fair sirs," said the first, whom we shall call (A). "What music will ye have us play?"



"We need no music," we replied, "but that of the wind and the singing birds, and the rustling leaves that set the shadows dancing."

"A fig for your fancies," said (B), shaking himself free from his music box, "we're paid by the corporation of the village yonder to play music to all people in this district—the more

people we play to the more we are paid." He began to assemble his music box.

"Come, sirs; what will ye hear?" requested the third, (C), emptying his sack of about ten wooden cylinders, spiked on their circumferences with short nails.

"Play something which will not disturb our conversation," we replied. Nondescript (C) took one of the wooden cylinders, and handed it to (B), who placed it in the music box. (A) raised his stick in the manner of a conductor, and gave three preliminary waves. On the fourth, and downward, stroke, (B) began to turn a handle at one side of the box, carefully watching (A), who gravely beat time. (C) looked on. The music box began to squeal out a waltz—a horrible waltz of set rhythms, with here and there a bellow and a splutter, where there was a note or a tooth missing. Our old companion stirred uneasily. "This is the

most incongruous din I have heard in all my life," he said. Gradually his face sank down into the whiteness of his beard. He snored.

Along came a farmer, tanned face shining, wide-brimmed straw hat pushed back from his forehead.

"Hey! cease that caterwauling!" he cried cheerfully, "and give a tired man from the fields some jolly music to rest his mind from the long day's work."

Nondescript (C) produced another cylinder. "Here is a very excellent country jig," he said.

"Let's hear it," said the farmer, sitting down. (A), (B), and (C) went through the same movements as before; but the resultant music seemed no different.



"This is no pleasure to me, said the farmer; "but thank you for your trouble," and he got up and went on his way.

Just then we heard sounds of scuffling from behind an apple tree some paces away, and suddenly a girl was running before us in the long grass, rose-cheeked and laughing, followed eagerly by a slender young man. He caught her, and as they both turned laughing in our direction they saw our company, and were dismayed. But the young man resolved to put a bold front on the circumstances, and strode up to the musicians. "Have you some music to pleasure my lady?"

"We have here a delightful short piece entitled 'Dreams of Love,'" said (C), leering archly. The girl blushed. "Let's hear it," said the young man.

But it sounded no different from anything which had gone before, although more broken, as though it had been worn out by frequent use.

"My dear," said the young man, "this is no place for us. Our dreams of love should be happier than these." And they went away together, and they had not gone fifty paces before his arm was round her waist.

Next came a troupe of holiday makers, with baskets of food and wines; but as soon as they saw the musicians they stopped. "We heard them when last we came this way," said one. "We don't want to hear them again," said another. "We'd better get away from here," said a third. "As far away as possible," said a fourth. And they went.

"You don't seem to please anyone," we

said to the musicians.

"We give the best service in the universe," shouted (A) angrily.

"We have the most efficient clockwork machine in the world!" cried (B).

"Cylinders for every mood," yelled (C). But as no more people were coming that way, and as the sun had reached his highest point in the heavenly arc, they dozed off, one after another, (A), (B), and (C) in a row.

We turned to watch a willy-wagtail swooping after insects, and when we looked again towards the musicians they were gone.

In their places were three fairies. One fairy was tuning a fiddle, another a cello, and another sat waiting at a grand piano. They were very small—no more than a hand's width high. The fairy at the piano raised its hands, nodded thrice, and they began to play; but we could not hear the music. Across the grasses came the farmer; from the other side the lovers came towards us, and the holiday party came running from over the hill before us, and they all stood round the fairies, listening. We spoke to them,

but they did not hear. They seemed separated from us. Our old companion also, was awake, listening. All at once he rose, picked up his hour glass and his sickle, and spoke to the fairies; but we could not hear a word he said. In a moment the fairies ceased playing, and followed the old man as he walked slowly the path of the setting sun. In their train walked the lovers and the holiday-makers, and the farmer followed behind, carrying the violin and the cello in one hand, and the grand piano in the other. Soon they were lost in the darkening groves to the westward.

We heard the dull thud of a mattock striking the earth, and the thud of earth falling on earth. A laborer was digging a hole behind us.

"What are you digging that hole for, at this time of night?" we asked.

"You," said the laborer.

Now, we write of these happenings from another world.

James

BRITAIN and AMERICA hold Radio Shows

The trend of development overseas is traced in the activities at the Radio Shows recently held in London and New York.



A general view of the British show.

SURGING masses of interested and inquisitive enthusiasts, miles of counters and displays, and hundreds of thousands of radio receivers. Such is the setting for the great radio shows of England and America, where the leading radio manufacturers of the world vie with each other to present the most advanced, the most elaborate, or the most unusual equipment.

In London recently was held the 1929 National Radio Exhibition, while from New York we have the first details of the annual Radio World's Fair—two shows which will deeply influence the trends of development and the design of apparatus all over the world.

Describing the National Radio Exhibition in London a writer in "World Radio" says:—

"With its three miles of counters supporting over a million wireless sets and parts, this year's exhibition has plenty to interest any wireless enthusiast. To a long-distance man it is a very wonderful show, and, though we have not perhaps yet realised the fact, it marks a turning-point in the history of broadcast reception. The coming of the regional scheme is bound to have far-reaching effects upon receiving gear, since we shall shortly be faced for the first time by two problems. The first of these is that of separating two high-powered transmissions, both coming from the same point; the second concerns the reception of Continental stations when the high-powered transmitters at home are working. The directional properties of the frame aerial will be of use in separating two sets of signals from the same point, and to make long-distance work possible a completely screened receiver will probably be necessary with several tuned circuits.

NEW RECEIVING SETS.

"Many of the receiving sets to be seen are designed with these ends in view, and the methods employed are varied and interesting. In some cases complete screening plus a built-in wave-trap is relied upon to accomplish the task with only two other tuned circuits; in others, three or four tuned circuits are employed, but ganging cuts down the number of dials to a minimum. It is rather surprising in one way to find that the number of valves shows a tendency to

decrease. Last year the four-valver appeared to be the standard long-distance set; this year the three-valver is to be seen everywhere. In America, on the other hand, the tendency is towards a greater number of valves, for there the five or six valve receiving set, with three stages of tuned high-frequency amplification, is the most favored model. But it must be realised that the screen-grid valve is not widely used in the United States, whilst the pentode is, I believe, almost unknown. With a screen-grid valve as high-frequency amplifier, a detector valve, and a pentode note-magnifier, a set can be built that will provide about the same ranges and signal strength as a five-valver employing triodes.

THE VALVES OF 1929.

"That this year's receiving sets can reach a wonderfully high degree of selectivity with only one high-frequency amplifying stage is due very largely to recent developments in the design of screen-grid valves. In the form in which we saw it two years ago, and even at last year's exhibition, this valve still had an undesirably high inter-electrode capacity, which helped it to gain the reputation of making a receiving set unselective. It was impossible to tune both its plate and its grid with circuits of real efficiency—anything

like 'low-loss' in both circuits meant oscillation, since the capacity was sufficient to produce feed-back effects. This year screen-grid valves have an internal capacity that is very much smaller, with the result that the sharp tuning of both plate and grid becomes possible, with a consequent increase in the selectivity. The pentode, too, shows a great advance. Good as they were last year's models were not too reliable, for the problem of placing three separate grids, all at widely different potentials, between one reasonably small anode and the filament was a very difficult one for the valve designer. At least four different kinds of short circuits could (and not infrequently did) take place if the valve were subjected to any kind of rough handling. This year the electrodes are much more rigidly held, and exhaustive tests of the 1929 pentodes show that they are little, if any, less robust than triode valves. There is no question that this year's three-electrode valves show an advance; the improvement may be only in small points, but in wireless it is the little things that matter. We may take pride in the fact that there are at the present time no better valves in the world than those manufactured in this country.

MAINS AND BATTERY WORKING.

"One notices that a very large number of the 1929 receiving sets are of the 'all-from-the-mains' type. No country in the world probably handicaps the designer of this kind of wireless set so severely as our own. At the present time there is no standard current or voltage. In some places the supply is A.C., in others D.C. Both the voltage and the periodicity of A.C. varies from place to place, and direct-current voltages may be anything between 100 and 240. In addition to this, considerably less than 40 per cent. of British houses are furnished with electric light. The field being so limited, it is surprising that British designers have been able to overcome so completely the disadvantages under which they labor. Mains units, whether incorporated in receiving sets or sold as separate components, have now reached the stage at which one can apply to them the highly desirable epithet 'fool-proof'—for there is no one who may not do

For Next Week

A Two-valve Receiver for battery operation. A receiver in which musical reproduction has been given first consideration. A receiver that is up to the minute, with a screen-grid valve as a detector and a resistance coupled audio. A receiver that is highly effective to operate but inexpensive to build.

It is to be the subject of a carefully detailed article in the next "Wireless Weekly."



A WIRELESS INNOVATION.

A combined electric clock and radio set in one unit, exhibited at the British Show. By setting a dial to the time required, the set is automatically switched on. The tuning is automatic, and the clock will also switch off the radio set at any time pre-determined by the setting of a second dial.

something idiotic in one of those moments of temporary insanity that come to most of us at times. It is the easiest matter nowadays to convert to mains working almost any existing receiving set. The DX man, however, will probably always retain a certain fondness for both high and low tension batteries."

Another reviewer, writing in "Amateur Wireless," is impressed by the way in which interest in the home building of sets is sustained.

"The two salient points that must strike every visitor to the Radio Exhibition this year," he says, "are, first, the home constructor is by no means as dead as the dodo, manufacturers realising that there is a far bigger market among people who take a pride in making their own sets than among those who are satisfied to buy a receiver 'made to measure.' Second, among the commercial receivers, the all-electric receiver, either combined with a gramophone turntable or at least with provision for the addition of an electric pick-up, is most popular.

The latter is a development which was bound to come. Batteries will undoubtedly always be needed; but those who are fortunate enough to have the public mains supply available are taking a very satisfactory and most economical course if they buy a mains-driven receiver or, alternatively, fit themselves out with a mains eliminator or trickle charger."

The New York Radio World's Fair had not opened when the most recent papers and journals left America, but

advance notices indicate that the trends are in distinct contrast.

Writing in the New York "Sun," K. W. Strong comments on the forthcoming show. "Now that the art has become standardised to a remarkable degree," he says, "there will not be found the inordinate range of technical developments that intrigued patrons of the fair of previous years. But as always there is one phase that sums up the trend of the year; this time it is the screen-grid tube and its application. A glance through the advertising of the manufacturers who have taken space at the Garden shows that much dependence is to be placed on the sales possibilities of the screen-grid tube and the manner in which it has been adapted.

"The importance of using the tube is admitted by all. But whether this use should be limited to a pair, a trio, or a quartet is one of the bones of contention. Visitors will be given a chance next week to decide for themselves which layout is preferred.

"Still another subject for argument that will result from a study of show models is the quality and degree of shielding. There are those who favor complete shielding of the coils, others who insist that stable operation is possible only when all parts of the circuits are housed within a metal canopy. It is such a point as this that the hundreds of displays at the World's Fair will help to settle."

And then in a lengthy description of a few dozen outstanding receivers, the writer goes on to point out that great changes have taken place since last year's show was held. Screen-grid valves have quite suddenly come into general use. Quite the majority of receivers utilise them as radio

frequency amplifiers to the tune of greater amplification, higher selectivity, and improved tonal qualities. The a.c. operation of receivers, it is said, has now become universal—a condition which is made possible by the fact that almost the entire country is supplied with power at standard voltage and frequency.

Musical reproduction is given first consideration in almost all receivers, about 90 per cent. of them being fitted with moving-coil speakers driven from a pair of high-powered output valves in push-full.

Anything but single tuning control would not appear to be tolerated at all, while further refinements such as automatic tuning and automatic volume control are the features of the higher grade sets.

In definite contrast to the English trend of reduced valves we see Americans driving towards the attainment of as much radio frequency amplification and as little audio amplification as possible. This, of course, generally means an increase in the number of valves, but a definite improvement in the musical reproduction. It is this trend which has resulted in the one striking feature of modern American sets—a single stage of audio amplification.

Friend in Need

MR. BAEYERTZ, the well-known raconteur, who entertains listeners of 2FC every Wednesday night with his "Humorous Dialect Stories," tells an admirable story of Wiegand, the witty Belgian, who was for some years City Organist in Sydney. When Antoinette Sterling came to Australia she was virtually a religious maniac. She imagined that the Lord told her to do the most eccentric things, and she never had any knowledge of time in music. Wiegand was playing her accompaniment to "The Lost Chord" at rehearsal. He suffered her vagaries for a time with what patience he could muster. But at last he turned to the lady and said: "Ah, madame, c'est impossible. I cannot accompany you eef you do not obsairve ze measure. You are all out of zee time." "Sir," replied the vocalist, "I sing that song as God has TAUGHT me to sing it." "Ah, pardon, madame," retorted M. Wiegand, "I did not know zat your friend was a musician."



ROY'S CARICATURE OF AUNT WILLA.

Holland Australia on the Short-wave

SINCE September last year the amateur short-wave transmitter PBF5 of the Philips' laboratories in Eindhoven, Holland, has been testing on a wavelength of 41.3 m. This transmitter, taking a total input of 30 watts, is equipped with a Philips' 10-watt transmitter valve TB 04/10, the power in the oscillator circuit being 10 watts. Two rectifying valves, type No. 505, supply the rectified plate voltage at a pressure of 400 v. Communication has already been established with the whole of Europe, where the transmissions were received with great strength.

This transmitter recently scored a great success by reaching Australia, where it was heard with excellent signal strength at 11 p.m. A new transmitter, with the same input and on the same wavelength, may be heard testing now with telephony. Reports from short-wave listeners are requested.

The PLATE FEED SYSTEM

Improved Plate Supply Methods Which Avoid Instability and Improve Reproduction

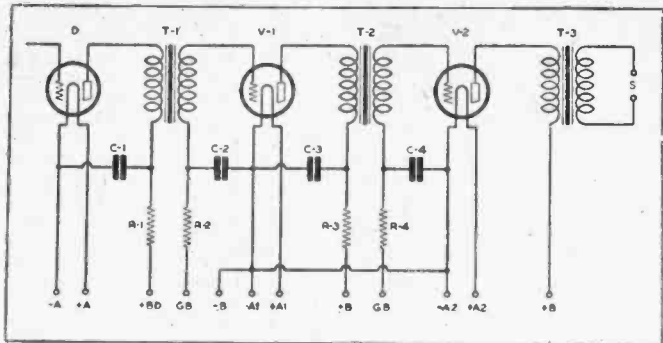


FIG. 1.

ONE of the most important developments within the last twelve months is the Plate Feed System, which is now generally recognised as representing a very important contribution towards the goal of perfect reproduction for which everyone is striving.

This system consists briefly in feeding the H.V. to each valve of a receiver through a resistance of suitable value to drop the voltage to the required value, and of connecting the usual 2 mfd. by-pass condenser from the point at which the H.V. is fed to each component of the receiver to H.V. negative.

The figure shows the circuit of the classical detector and two-valve amplifier, to which the plate feed resistance system has been applied. Normally, the H.V. from the battery would be taken direct to the transformer terminals.

As the total H.V. available is generally required on the output valve V2, no resistance is connected in series with this, although in certain cases it may be found desirable if the voltage is higher than the output valve will stand. The voltage for each of the valves "D" and V1 is dropped by means of the resistances R1 and R3 to a suitable value, and in the general case where 120 volts H.V. is available it will usually be found that R1 will require to be about 20,000 ohms and R3 15,000 ohms.

The calculation of the values of the resistances required is quite a simple matter provided that the characteristics of the valves employed are known. The plate feed resistance required in any particular instance depends on the total H.V. available, the voltage required for the valve, and the plate current which the valve takes under working conditions. These figures can readily be obtained from the valve makers' curves when the resistance required is calculated as follows:—

Resistance Formula

Resistance—Voltage to be dropped divided by plate current (expressed as a fraction of an ampere).

The object and the desirability of incorporating this system in all receivers will be understood from the following explanation:—

All H.V. batteries, accumulators, and other sources of supply have appreciable internal resistance, although in the case of a large capacity battery or accumulator this resistance may be very low; in fact, of the order of 30 ohms, when the battery is new. Unfortunately, however, as batteries run down, their internal resistance increases enormously, owing to the consumption of the active material in the battery and the drying up of its electrolyte or the reduction in the specific gravity of the acid in the case of H.V. accumulators.

Now, an examination of any receiver circuit shows that all the alternating impulses produced by the signal in the receiver have to flow from the plate of each of the valves through the coupling components, and so to the H.V. negative, and this flow, in the absence of by-pass condensers, must occur through the source of H.V. supply, namely, the H.V. battery or accumulator, etc. The output valve of a receiver produces a very large pulsating current which, in flowing through the resistance of the H.V. supply, sets up an alternating voltage, the amount of the voltage depending on the resistance of the H.V. supply, and the strength of the signal delivered by the output valve, or valves, and it will be obvious that as all the valves are connected to the one source of H.V., this alternating voltage must tend to feed back to the other stages and produce distortion. It will also be seen that if a receiver is provided with only one H.V. tapping so that every valve has some voltage applied to it, and that every valve is connected across the whole of the resistance of the battery, the maximum amount of back coupling results, and this is a fault which is found in many receivers, and would not be tolerated at all by a good designer.

Overcoming Fault

The first step towards overcoming this trouble is to provide an alternative path for these impulses, and this is done by making a separate H.V. tapping for each valve or stage, and connecting a 2 mfd. condenser from that tapping (as near as possible to the component to which the H.V. is applied as can be) and the H.V. negative. These condensers, offering an alternative path for the impulses to H.V. negative, will reduce the tendency to back coupling to a large extent. The resistance or impedance of a condenser, however, varies with the frequency of the signal that it has to by-pass. For example, a 2 mfd. condenser has an impedance of about 900 ohms at 100 cycles and 1800 ohms at 50 cycles, so that it will be seen that at these frequencies the condenser becomes relatively ineffective from a by-passing point of view, and to make it effective would mean an increase of capacity beyond a point economically impossible. The plate feed resistance scheme, however, at a comparatively small cost, overcomes almost entirely the whole tendency to back coupling in a receiver, and the diagram previously referred to shows how the resistances are connected for a purpose. The action of these resistances will be understood from the following remarks:—

Return Path of Resistance

As has been pointed out previously, the signal from each valve passes through each coupling component, and returns to H.V. negative by way of these H.V. battery or other source of supply, and if this is shunted by 2 mfd. condensers, to a large extent

through these. By connecting resistances in the manner indicated, the resistance of the return path through the battery for each stage is made very high, usually not less than 20,000 ohms, so that the signal is literally forced to flow through the 2 mfd. by-pass condenser to H.V. negative, thus avoiding the source of H.V. supply, at least at 50 cycles, the amount of the signal that will flow through the battery when a 2 mfd. condenser is used in conjunction with a 20,000 ohm resistance is rather less than a tenth of that which must flow through the condenser, and, of course, can be reduced still further if the H.V. available is great enough to permit of the use of a greater value of plate feed resistance.

The same process is carried out with each stage except the last, which it will be seen is completely isolated from the other stages, and there is, consequently, no object in isolating its signal from the source of H.V.

It is not essential to use resistances; in fact, a well-designed audio frequency choke, having an inductance of the order of 50 henries, under working conditions will be equally, if not more, satisfactory, but will not drop the voltage as is generally required, and is, of course, considerably more expensive. It will be seen, however, that the effectiveness of the plate feed system in preventing back coupling depends on the value of the various resistances being kept high with respect to the by-pass condensers, and, consequently, if the available voltage is, low, say of the order of 100, or less, it may not be permissible to drop much of the voltage in a resistance, and in such cases chokes should be used.

Variable Resistances

Variable resistances can also be employed to give variable voltages, but care should be taken to see that such resistances will stay constant at any particular value, and that they do not fall below about 20,000 ohms at their minimum position. It is for this reason, namely, the fact that with variable resistances the actual resistance being used is difficult to determine, that in general it is not specially desirable to use them unless they have been previously calibrated or special precautions have been taken to ensure that the resistance does not fall below the requisite minimum.

It should be clearly understood that this system is applicable to any receiver, and, as a rule, the better the receiver the more desirable it is to incorporate this arrangement, since, as has been previously pointed out, the tendency to back coupling is greatly increased with increase in amplification of the bass frequencies.

When applying this system, in the case of the screen of a screen-grid valve or a "plate" detector, a slight deviation from the usual procedure should be adopted, namely, that in each case two resistances should be connected in series and used in the form of a

potentiometer. The reasons for this are different in each case. The screen of a screen-grid valve usually consumes about half a millamp, and if a series resistance is used for dropping the voltage to the figure required (usually about 80), the value of the resistance necessarily tends to be inconveniently large, although a series resistance can be used if desired. In the case of the plate detector, however, the position is different. This valve, when using transformer coupling for example, will usually have a normal impedance of not more than 15,000 ohms, and the H.V. and grid bias will have to be adjusted before any signal is received to a current of the order of quarter of a milliamp. If, now, 200 volts are available, and we require to drop 100 volts, the value of the series resistance will have to be 400,000 ohms, which, apart from being somewhat costly, has the very serious disadvantage that it will prevent the detector functioning as it should, as it will be seen that any tendency for the H.V. current to increase with the signal will tend to be counteracted by the increased drop in voltage in the resistance.

Potentiometer System

When the potentiometer plate feed method is used in this case the total value of the resistance need not be more than 100,000 ohms, and only half of this, or rather less than half, is actually in series with the valve. Further, by connecting the necessary 2 mfd. by-pass condenser from the point at which the H.V. is tapped off the valve, the voltage at that point can be made to remain steady by the reservoir action of the condenser.

The method of calculating the requisite resistances in the case of the potentiometer system is somewhat different to that necessary where straight series anode feed resistances are used, but will be simply to understand from the following explanations relating to feeding the screen of a screened grid valve:—

Let us assume that 200 volts are available, and that 80 volts are required for the screen, and for this purpose we are going to use two fixed resistances connected in series across the source of H.V. supply. We can conveniently make the resistance which is connected at one end to the H.V. negative, 50,000 ohms, and as this resistance under working conditions has got to have 80 volts

across it, it will then be carrying 1.6 milliamps. The screen of the screen-grid valve usually takes, as has been previously mentioned, about half a millamp, and, therefore, the resistance connected at the positive end has to carry 1.6 plus .5, namely, 2.1 milliamps.

This resistance has, therefore, to drop the voltage from 200 to 80, that is a drop of 120 volts when carrying 2.1 milliamps. This value is, therefore, 120 divided by .0021, equals 57,000 ohms, and a 60,000 ohm resistance will be sufficiently near. In this case, therefore, the resistances required will be 60,000 ohms and 50,000 ohms respectively.

In powerful amplifiers designed for giving the best reproduction, it is desirable to apply this system also to the grid bias supply, as any slight variations in the voltage produced by the grid bias battery, especially when it is a large one, due to uneven chemical actions taking place inside the battery, and also to its gradual deterioration, can have a bad effect on the general reproduction. In this case, as no current is flowing, the resistances (which should be not less than 20,000 ohms each, and preferably more) do not drop the grid bias voltage at all, but merely prevent disturbances in the grid bias battery from affecting the performance of the amplifier as a whole. The method of applying the decoupling system in this case is to connect a resistance in series with each grid bias tapping that it employed and to connect a 2 mfd. condenser from the grid bias terminal of the coupling component to H.V. negative.

Incidental Advantage

The effect of this refinement on powerful amplifiers is quite noticeable, and it has the further advantage that the 2 mfd. condenser keeps itself charged sufficiently long to enable rapid changes in the grid bias values to be made without the necessity for the switching off of valves, which is otherwise essential.

In conclusion, the plate feed resistance scheme has the incidental advantages of enabling a set to be constructed if desired with only two external H.V. terminals, and also it prevents the accidental destruction of the various valves when there is an internal short circuit, a fault which can be particularly destructive in the case of screen-

grid valves. It is interesting to note that attempts are sometimes made to protect valves from destruction by connecting a fuse in the negative lead, but as this fuse must have appreciable resistance, it merely adds to the battery resistance and tends to increase back coupling to the removal of which all efforts should be directed.

Wireless Pictures

Transmitted from Sydney to London

THE remarkable progress that is being made in the experimental transmission of pictures was recently demonstrated by the transmission of photographs of Mr. Ramsay MacDonald, Prime Minister of England, and Mr. E. T. Fisk, managing director of Amalgamated Wireless (A'sia), Ltd., from Sydney to London by wireless, utilising the Fultograph system of picture transmission. The transmission was effected by short-wave wireless through A.W.A. experimental station 2ME.

The reproduction of these photos in London was considered satisfactory, according to advices received. The transmission was the first of its kind in Australia, and the greatest distance over which pictures have been transmitted by wireless.

The first demonstration of the Fultograph system of transmitting pictures by wireless was given by A.W.A. in Melbourne in June last. At that time the operation of transmitting and receiving the pictures was demonstrated in the one building, though between the transmitting apparatus and the room in which the receiving equipment was installed the electric current passed through an artificial line, so, in effect, although the transmitter was located in Melbourne, the receiver might have been situated in a town 200 miles beyond Sydney.

On that occasion the reproduction of the many pictures transmitted over a distance, in effect, greater than the distance between Sydney and Melbourne, was excellent.

The same type of Fultograph transmitting apparatus was used in the Sydney-London photo transmission.

BUSHMAN OWNED RADIO SET AND DIDN'T KNOW WHAT IT WAS

(By R.W.M.)

MOST people have at one time or another been down the Great Southern Road, it leads eventually to Canberra. But that is nothing against it. At Picton, fifty miles from Sydney, a tiny branch road turns to the right for Thirimerre. Few people ever take this road, though within half a dozen miles of Thirimerre itself rabbits, wallabies, and foxes make good sport.

The writer often spends a week-end camping down there, and last week-end he was rabbiting, and got lost.

After walking for several hours (incidentally accumulating a mighty thirst), I heard a dog barking in the distance, and came upon a fairly large piece of open ground, where an old bushman was enjoying his pipe on an upturned log.

He didn't say a word but "Goodday!" so I explained that I was lost. He immediately put me to rights, and suggested a "cuppatea." I followed him to a house made of kerosene tins, boxes, logs, and other like building material. Here he introduced me to his wife and children, also to an ancient gramophone. It appeared he made his living from collecting wattle bark (worth about £8 per ton he told me) and rabbit and fox skins. (Fox skins are worth 15/6 each, and they are fairly plentiful.)

In my turn told him of my occupation—radio, and though he nodded at times, I soon saw (and he later admitted) that he didn't even know what radio was!

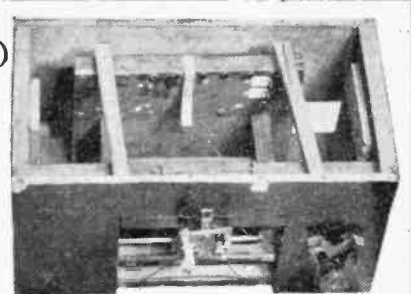
So I endeavoured to explain, mentioning that it was possible to communicate over long distances by means of coils of wire and other apparatus. I mentioned that it was quite a simple matter to hear London or America speaking to us. It seemed difficult at first to convince him, but after a while he said, "Why do you call it 'wireless' sometimes, and then 'Radio'?" I explained that the two terms were synonymous, and that both meant the same thing, though "radio" was the name generally used.

He then asked why it was called "wireless" when coils of wire had to be used. I told him that there was no wire between the transmitter and the receiver.

Presently he said, "I have a coil of wire here on some contraption. It has been here for donkey's years—was here before I came here, and as far as I can remember that was fifteen years ago." He looked at his wife. "About that," she nodded.

He thought I might like the coil of wire, but I tactfully declined, adding that I had plenty, and the wire might prove useful to him. However, he brought out the "contraption" shown in the photograph, and was almost as amazed as I was when I told him it was an ancient radio set. The crystal and catwhisker were missing, but otherwise it was in good condition.

The bushman asked to hear London on it. It seemed he was very disappointed when he found that his set could not receive these stations. As



the set was practically useless to him, the writer offered to make him a one-valve set for his ancient model. He accepted, and the set is to be installed at an early week-end.

There are no wood screws in the set. Nails are used throughout. Even the aerial and earth "terminals" are nails bent over. The variable connection for the catwhisker is a piece of kerosene tin. The brackets are of string and kerosene tin. The "cabinet" is made from kerosene boxes. The two-way switch is made from pieces of kerosene tin, top of a bottle, and the centre piece of a cotton reel. The "insulating" panel is cardboard, blacked over. The coil is evidently made to tune in Morse signals from 300 to about 2000 metres. The only real radio components in the set are a crystal cup and a slider. These were probably added long after the set was made, although these parts were of course available when radio first came into being. Morse stations have been "on the air" for something like twenty years, but it is only recently in comparison, that Australia has had broadcasting stations.

"EUGENE ONEGIN"

Russian Opera—Armistice Day Ceremonies—Outdoor Broadcasts—"The Touch of Silk"—Conservatorium Concert—"Peer Gynt" Suite—Ulster's Prime Minister



Raymond Beatty. Part of his Conservatorium concert will be broadcast from 2FC, Monday, November 11.



Jean Maurice, playing in "The Touch of Silk," 2BL, Wednesday, November 13.

TSCHAIKOWSKY'S opera, "Eugene Oegin," will be broadcast in an abridged form from 2FC on November 13. It will be produced by Vladimir Elin, who sings the title part. The main characters are played by:—

Heather Bell as Tatiana (soprano).
 Ethel Friend as Philipiewna (contralto).
 Lance Jeffree as Lenski (tenor).
 Reginald Dickinson as Saretski (bass).
 The production will be supported by the studio quintet and a chorus of 12. Vladimir Elin was for many years the soloist of the Royal Theatre, Petrograd, which was under the special patronage of the Czar. "Eugene Oegin" is the most famous of his parts, and although he has produced many operas this is the one which he likes best.

The opera, which consists of seven scenes, three of which will be broadcast, will be sung in English, and the story explained by Madame Grieg during the intervals. The story of "Eugene Oegin" is adapted from the works of one of Russia's greatest poets, Pushkin. The opening scene is in the garden of a wealthy country family, the Larinas, to whom Eugene Oegin has been introduced by Lenski, his devoted friend, who is of a dreamy, idealistic character, in contrast to the misanthropic Oegin.

Lenski is in love with Olga Larina, a vivacious coquette, to whom the gloomy hero also takes a fancy. Tatiana, the younger sister of Olga, is a simple, unspoilt girl, who falls in love with Eugene Oegin, and naively writes him a letter, in which she offers him her love. He coldly repulses her. Eugene's flirtation with Olga involves him in a duel with his best friend. Lenski is killed, and Eugene leaves the people to whom he had brought so much sorrow in order to travel and forget.

The last scene is at a Court ball in Petrograd, where Eugene again meets Tatiana, who is now married to a general. He finds that he loves her devotedly. She has preserved her affection for him all through the years, and is tempted to yield to his pleadings.

The opera closes in a magnificent scene, wherein Tatiana and Eugene renounce each other for ever. (This is the true Russian manner.) The aria which Lenski sings just before the duel is one of the most powerful in the whole opera. Lenski has a presentiment that he will be killed, and as the duel was forced upon him his dissertation on this polite way of killing people becomes doubly ironic.

★

MR. BRUCE
to
BROADCAST.

On Armistice Day, November 11, Mr. Bruce will speak from 3LO at 8.10 p.m.

★

MANY interesting out-of-door broadcasts have been arranged, and now that summer is here the A.B.C. will have to patent a floating microphone, so that announcers can broadcast the water polo in comfort and a bathing costume. The water polo starts in December, when the cricket descriptions will also be under way, whilst the Speedway Royal broadcasts are already a great success. The summer evenings will be filled by such items as a description of the opening of the shark-proof fence at Coo-gee, and a concert on the pier at night.

Another concert party will broadcast from Cronulla Beach, and on a later occasion from Manly. The artists will have no complaints, for singing in the open air has a distinct charm. Programmes will be broadcast from the new American liner Malola, and also from Newcastle during Newcastle's Civic Week.

ON Sunday night, November 10, his Excellency the Governor-General, Lord Stonehaven, will deliver an Armistice Day message, and this will be relayed through 3LO, Melbourne, to 2BL, Sydney.

On the Monday morning the Armistice Day ceremony at the Cenotaph in Martin Place will be broadcast through 2FC. His Excellency the State Governor, Sir Dudley de Chair, and the State Premier, the Hon. T. R. Bavin, will take a prominent part in the proceedings, and the observance of two minutes' silence at 11 a.m. will be duly recorded.

At night the A.B.C. Orchestra will present a special programme of patriotic airs, and the soloists and speakers in the various sessions throughout the day will make their offerings suitable to the event.

JOE DELANEY, whose tenor voice found much favor in the early days of broadcasting, will be on the air from 3AR on November 9. He will be remembered in the principal tenor roles of studio presentations of many musical productions, such as "The Merry Widow," "The Geisha," and "The Belle of New York."

The programme from 3LO for Armistice Day will include in addition to the talk the previous evening by the Governor-General, Lord Stonehaven: Morning, 11 o'clock, the sounding of "The Last Post" at Anzac House; evening, 8, studio production of "The White Chateau," a play in six scenes, specially written for broadcasting on Armistice Night by Reginald Berkeley.

AN unusual broadcasting feature on November 9 will take place through 2BL, when an address will be heard from the Prime Minister of the North of Ireland, Lord Craigavon, who will be visiting Sydney at that time. The distinguished visitor will be the guest of honor at the 23rd annual banquet of the Ulster Association, and other speeches at the banquet will include an address by the State Governor, Sir Dudley de Chair, K.C.B., M.V.O., the Premier (Mr. Bavin), and the Chief Civic Commissioner (Mr. John Garlick).

FRANK HUTCHENS will give a programme of piano solos from 2FC on Monday, November 11. Mr. Hutchens is a member of the staff of the Conservatorium.



Vladimir Elin and company, producing the opera "Eugene Oegin" at 2FC on November 13. Standing: Heather Bell (soprano), Lance Jeffree (tenor), Ethel Friend (contralto). Sitting: Vladimir Elin.

ON THE SHORT-WAVES

Notes on Reception Which Will Assist New Listeners.

By R. N. SHAW

THE effects of the advancing summer are making themselves felt, and some of the overseas stations have weakened, so far as reception is concerned. There is, however, some consolation for the short-wave fan even in summer-time. The lower band of the high frequencies is generally remarkably free from static of the ordinary type. This is very noticeable on, say, the 20-metre band. I had the experience during the week of listening to the London-Sydney 'phone conversations whilst a heavy thunderstorm was advancing. The reception suffered practically no interference from static until the storm was almost at hand, whilst on the broadcast band reception was utterly impossible some considerable time before.

KGO still maintains the Sunday afternoon schedule, and transmits a carrier that the researcher can scarcely pass over. KGO's strength is, however, not nearly so great as was the case a few weeks ago. On last Sunday (October 20), when opening his session at 2 p.m., he was scarcely readable, but increased in strength until at closing time, 7 p.m., he was good speaker strength. An enthusiast picking up KGO for the first time has not long to wait for identification, as his station announcements are frequent and explicit. KGO now transmits on Friday between 2 and 6 p.m. Sydney time.

KZRM, of Manila, still remains on the higher band. In a letter of acknowledgment the director informs me that the station is now transmitting on 48.8 metres, and desires reports of reception from Australia. His programme is much on the same lines as those from Australian stations, incorporating news, children's stories, music, sporting. Readers tuning in will need to recollect that Manila time is exactly two hours behind Sydney time. The station closes down at 1 a.m. (Sydney time) during the week, whilst an extra hour is added on Saturday, when the boxing at the local Stadium is transmitted, usually between 11 p.m. and 2 a.m. Sunday. Most announcements are by an American announcer.

Suva Radio was on the air again on Sunday (October 20) with a good broadcast of the local native church service, the preacher being apparently an Englishman, whose announcements, sermon, etc., came through clearly. The service concluded at about 10.30 a.m., the concluding hymn being "Lead, Kindly Light." The transmission of this service was sufficiently good for me to listen to it on a telephone 50 miles away at Taree, where it was being received by Mr. E. W. Lukins.

RA97, ex-RFM, is still full of punch, the announcements now being made in English, adding to the

interest in this district station. RA97's address is Khabarok, Eastern Siberia, and he is, apparently, very pleased to receive reports. The station, on a recent occasion, called up the writer, and transmitted a greeting.

The duplex telephony tests between London and Sydney are still being excellently received, and are creating very considerable interest. Listening between 6 and 6.30 p.m. on Friday evening, October 18, I heard a conversation carried on between a lady and gentleman with greater ease than frequently occurs on our own telephone system. It is certainly rather thrilling to hear our London friend calling quite casually, "Hello, Sydney; hello, Sydney," until such time as Sydney responds.

as compared with the 48 band. But transmission on the 31 band was equal to anything I have heard on short-waves. The volume and modulation were really excellent, volume fading at times up to strength of Sydney A stations. This particular transmission on Tuesday night was most interesting, inasmuch as it was a relay of the "talkies," the subject being "The Broadway Melody," transmitted from Park Theatre, Manila.

As some confusion appears to exist re Philippine stations, I might mention that the station generally heard announcing as Radio Manila is KZRM, sounding like K-Zee-R-M. This station uses dual wave-length, that on the broadcast band being 485 metres, and on the higher frequencies from 48.8 to 25. Radio Manila can be picked up at 5 p.m. (Sydney M.T.) on Sunday, when an excellent programme is provided by the Bureau of Prison's Band.

The telephony tests between GBX (London) and 2ME have not been heard with much volume during the week. Some of those engaged in these tests are certainly not lacking in their fund of humor, as evidenced by some of the jokes put up at times. It is interesting also to hear the remarks made at times regarding the opposite weather conditions. One wag on the London end was heard commenting on the dark conditions prevailing, finishing with "the sort of night you could get murder done for sixpence with no mess."

RA97 provided some fine contrasts in music this week, static being fortunately much reduced. Our Russian friends are becoming quite sociable, and frequent announcements in the English tongue are heard. Some excellent opera music was heard.

This station was one night working on about 40 metres.

A foreign station can be heard on Tuesday evenings between 9 and 10, but all announcements appear to be in foreign tongue. This may possibly be the new Austrian station at Vienna, which uses the call sign of UOR2, transmitting on 49.4 metres. His schedule is Tuesday and Thursday, 8 to 10 p.m. S.M.T. and Wednesday, 8-10 a.m.

On a recent Sunday night I found a practical use for short-wave radio. Some minor trouble threw out of gear the Wauchope memorial town clock. As our Sydney stations were not due to transmit time signals for two hours, I tuned-in KGO at 7 p.m., and shortly afterwards heard the closing-down announcement at 1.2 a.m., synchronising with 7.2 p.m. local time. The clock was set accordingly and at 9 p.m., when the Sydney chimes were given, the two clocks chimed together!

LATER NOTES

THE gradual change in climatic conditions appears to have affected reception of some of the overseas stations during the past week, such stations as W2XAF and 2XAD being particularly weak. On Sunday afternoon 2XAF was too weak to be readable on speech.

In the midst of this disappointing reception Radio Manila stood out in deep contrast. This station, previously mentioned as being on 48.8 metres, changes frequently. On Tuesday, Saturday, and Sunday following I heard him evening (22/10/29) he was back to the 31m. band, whilst on Friday, Saturday, and Sunday following I heard him down in the vicinity of 26 metres. On the latter he showed a considerable improvement

SHORT-WAVE BROADCASTERS

Wavelengths, calls and approximate operating schedules of stations audible in Australia.

Wavelength.	Frequency.	Call	Wavelength.	Frequency.	Call
70	4,285	RA97, Russia, exact location unknown. 7.30 p.m. to 11.30 p.m. nightly except Wednesdays.	31.4	9,554	PCJ, Hilversum, Holland. Fridays, 4 a.m. to 6 a.m. and 8 a.m. to 1 p.m. Also Saturdays, 4 a.m. to 6 a.m. and 10 a.m. to 4 p.m.
49.4	6,072	UOR2, Vienna. Testing 8 to 10 p.m. and 8 to 10 a.m.	31	9,677	ILO, Nairobi, South Africa, 3 a.m. to 6 a.m.
37	8,108	HS4JP, Bangkok, Slam. Testing on Tuesdays from 11 p.m. to 1 a.m. Wednesday and on the same morning from 4 to 6 a.m. Also on Fridays from 11 p.m. to 1 a.m.	25.52	11,751	5SW, Chelmsford, 10.30 p.m. to 11.30 p.m. nightly except Saturday and Sunday. Also from 5 a.m. to 10 a.m. except on Sunday and Monday.
49	6,120	KZRM, Manila. Reported at various times between early afternoon and 9 p.m.	25.25	11,880	W8XX, East Pittsburg. Relays KDKA at intervals. No times available.
31.48	9,530	W2XAF, Schenectady, N.Y. 9 a.m. to 3 p.m. Monday, Tuesday, Thursday, Saturday. Reception reported only after 1 p.m. Also transmits on alternate Sunday evenings by Byrd expedition.	24.5	12,240	KIXI, Manila. Week days, 5.30 a.m. to 7 a.m.
31.48	9,530	W2XAD, Schenectady, N.Y. Tuesday, Thursday, Saturday, 3 to 8 a.m. No reports available.	23.35	12,650	W6XN, Oakland Calif. Relays KGO Tuesday, Wednesday, Friday, from 3.30 to 7 a.m. Wednesdays from noon to 6 p.m.
			19.56	15,340	W2XAD, Schenectady, N.Y. Monday, 5.30 a.m. to 2 p.m. Tuesday, Thursday, and Saturday, 9 a.m. to 3 p.m.
			16.9	17,750	HS1PJ, Bangkok, Slam. Sundays, 10 p.m. to 12.30 a.m. Mondays, 4 a.m. to 6 a.m.

RA97, ex-RFM, is still full of punch, the announcements now being made in English, adding to the

Wireless Weekly

Incorporating "Radio in Australia and New Zealand"

FRIDAY, NOVEMBER 8, 1929.

WITHIN A DECADE

STOWKOWSKI, the world-famous conductor, known here chiefly through the magnificent recordings of the Philadelphia Symphony Orchestra, has succumbed to radio.

He is the last of the great virtuosos to hold out against the demands of the listening public. Mainly because he awaited a stage of apparatus perfection in transmission and reception, he says.

"In the last year broadcasting has improved tremendously. I have watched radio for many years. My ambition has always been to do what I do in the best possible way. I have waited until I was acquainted with it. It's been a matter of waiting nine years for the thing we're going to do, but now the time has come.

"Naturally, it is much more satisfactory to broadcast to 3,000,000 people rather than to 3000, the number we get into a single collective audience. Soon it will be 30,000,000, and then Europe, too. The thrill is in the fact that radio widens the circle of the hearers of music."

Coming from an authority whose genius places him beyond reproach, no further evidence is required of the maturity of radio than this statement. Within a decade infancy and adolescence have passed, and it now takes its place in the world as a medium for music and thought unparalleled.

Stowkowski's vision of a world-wide audience is not a false one. Who would have foreseen the vastness of the present radio audience a decade or so ago? To-day short-wave broadcasting brings voice and music from New York, London, Paris, Moscow, Vienna, and Manila, to our drawing-room. In a few years this medium will have been developed to the state of perfection of the higher wave-lengths. Undoubtedly we shall live to listen, in our own homes to Stowkowski and other famous virtuosos conducting the world's greatest orchestras, according to pre-arranged programmes, as we now listen to our stations.

"The broader view of international affairs, the knowledge of other people which this will give us, does not need further emphasis. As Stowkowski himself says: "All of modern life is an extension of education. It's an age of great motion, of progress. We do in a year what used to take two centuries."

REVIEWING THE PROGRAMMES

THE synchronisation of the Aeolian Hall organ (Mr. Vern Barnett) with the National Broadcasting Orchestra (Mr. Horace Keats) on Friday, October 25, was described as an unusual experiment. It was quite successful, and proved, if it was necessary to prove it, that two performers from two separate rooms can unite in the playing of one composition over the air. It is being done regularly in Germany; but possibly this was the first attempt in Australia, which may justify the epithet, "unusual." The only thing which wasn't unusual was the music—very pretty-pretty stuff.

Cec. Morrison's carefully-prepared "Symphonic Syncopations" programme on Saturday, October 26, proved too much of a really good thing. Whenever the A.B.C. puts on a really good programme it takes care to make it so long that it will bore its audience to tears. The special arrangements, including "Oriental Fantasy," "Maritana," and "Bohemian Girl" selections, "Dance of the Flowers," by Tschalkowsky, an impression of "Tannhauser," and another impression of the "Pathetique" sonata by Beethoven, proved excellent caricatures of their originals, and were performed with good sense and plenty of color by the jazz orchestra.

The group of shorter pieces, including Massenet's "Elegie," "Softly Awakes My Heart," Rubenstein's "Melody in F," the "Volga Boatmen," and concluding with "Love's Old, Sweet Song," was not so good, as none of these preserved anything of the

character of its original. The "straight" trio, which played the original pieces of this group in their "straight" form, to show how they should be played, gave a worse performance than the jazz orchestra.

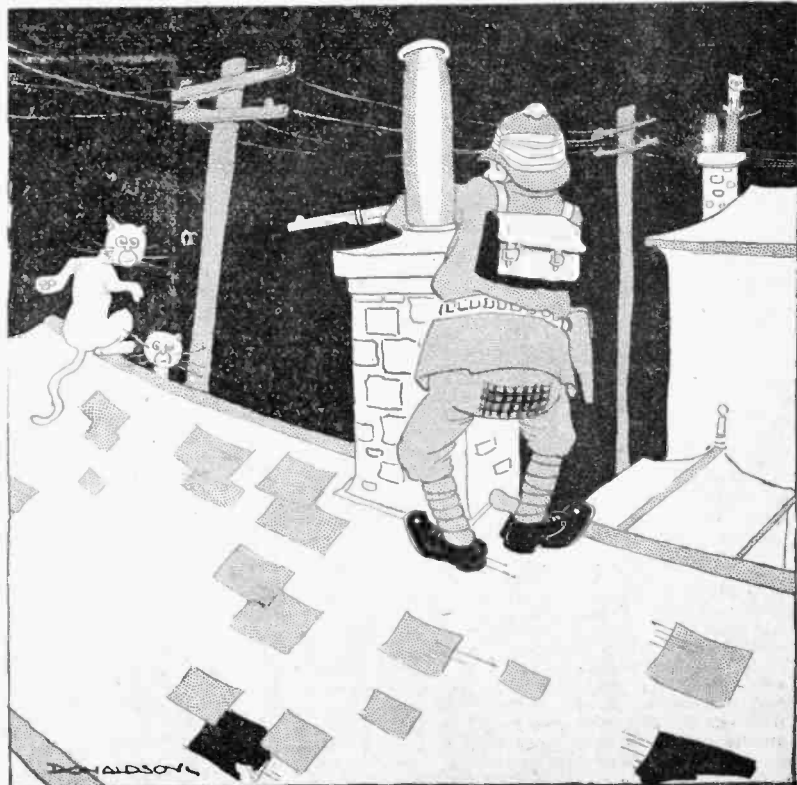
A saxophone quartette played the "London-derry Air" and "Believe Me If All Those Endearing Young Charms," but the saxophone quartette needed more practice.

Miss Louise Homfrey's baritone voice sounded too altogether manly to be a novelty, but Miss Homfrey sang very well.

We congratulate Mr. Morrison on an excellent night's performance, and hope he will make the next programme shorter.

The National Broadcasting Orchestra, conducted by Mr. Horace Keats, gave a programme in conjunction with the Wireless Singers on Sunday night, October 27. Again the programme was too long, was padded, was not particularly distinguished, and did not seem to be very well rehearsed. The evening's feature, the "1812" overture by Tschalkowsky, came last, prefaced by Robert Ingersoll's oration, spoken by Mr. Baeyertz, who had spoken Oscar Wilde's "Happy Prince" earlier in the evening. The overture opened not so badly, but when it had progressed to the quieter middle passages, where careful playing and the combination of sweet sounds is so much to be desired, the orchestra displayed its usual tendency towards breaking unbreakable melodies, and jaggied unjaggied rhythms. However, they sparked up considerably in the conclusion, which was a triumph of noise, second only to the actual burning of Moscow.

SECRETS OF THE RADIO INDUSTRY—3



Huntsman engaged in maintaining the supply of cats whiskers.

The Safety Valve

Why Not More Radio Plays Like "The Jazz Spider"?

Dear Sir,—The "Jazz Spider" play, broadcast on Wednesday evening, was very fine entertainment and a bright spot to the regular routine of musical items, but unfortunately the play was not completed, and is to be continued next week.

The procedure of providing what may be regarded as a "serial" does not appear to be satisfactory, and it is suggested that as far as possible these small plays should not be "carried forward."

As we appear to be over-burdened with musical items, I suggest that a good drama be broadcast twice weekly, and lasting, say, for two hours, from 8 to 10 o'clock, also transfer some of the day talks; for which there is only a scant audience, into the evening session.

I anticipate I will have many appreciative friends, and urge through the medium of your paper that some influence be brought to bear on the broadcasting programmes department of the "A" class stations to carry out the suggestions mentioned.

Yours, etc.,
A.E.L.

Enfield.

2FC Reception in Queensland

Dear Sir,—For some time past I have been reading different letters from various listeners expressing their views about 2FC. Well, personally, I think there is something wrong with either their sets or their locality, or, thirdly, they haven't got the right set—in the right place.

Now, I only have a small three-lung turn-out, and I am over 200 miles west of Brisbane, and my complaint is, I have trouble keeping 2FC quiet. He simply roars in, and when you tune him down the reception is equal to that of any other station in Australia. Now, I think its only fair for anyone getting good reception from 2FC to back them up, as I am positive all the fault is not in the station, and I would strongly advise those people who are getting all these weird noises to experiment a bit, and they will find most of these noises mentioned around about their own business.

Yours, etc.,
W.L.W.

Cooranga North.

2FC in Melbourne

Dear Sir,—Re this much maligned station of ours called 2FC. I extend a cordial invitation to Mr. J. L. Long, of Moss Vale, to pay me a visit when next he comes to Melbourne, and I will convince him in about two minutes that the transmission from 2FC is truly excellent, and if he can detect any difference between our wonderful (?) 3LO and it, I'll go "he." Honestly, I'm tired of these absurd and unjust criticisms of your wonderful station in Sydney—a station which holds me for hours every night (barring occasional nights too full of static for words), even to the exclusion of our locals.

Like the transmission, the programmes are beyond reproach, and very finely varied. Isn't it time these critics of 2FC looked to their sets for defects or else put the blame on the locality in which they reside?

Yours, etc.,
STANLEY HERBERT.

Surrey Hills, Vic.

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 of expression—your safety valve. The editor assumes no responsibility for statements made by readers, and published on this page. Anonymous letters are not considered.

Breezy Criticism

Dear Sir,—Hey, Bushies! How do you like the 2FC programmes from 7 to 8 a.m.?

"What's on to-day" is very interesting. So nice for the man on the land. Just as one chooses his house of entertainment (in imagination) the Mrs. calls out, "Jack, the wood-box is empty." Another dream burst! And why the townies want it I don't know! As they can get it from any old paper umpteen times a day.

Children's birthday calls. All right. But once a day, and not on an empty stomach. I find it makes the children too excited, and upsets them for the rest of the day.

And the programmes—no better or worse than it used to be, but, having published a programme, why not face it out?

One reads:—Mischa Spivakovsky, the eminent Russian pianist, at 9.30 p.m., and hangs off to play in, only to hear Maisie Flipper, entertainer. You know, one of those talk-song artists (Lord save the name!) all about "Luve" and "Berlud."

Stick to your guns, boys; we will do the clashing and cursing. 'And the broadcasting from 2FC.' My machine was doing everything a respectable machine should not do; paid a machine doctor to come 37 miles to give it the once-over. "Machine's all right," he said. "Then, what's that — noise going on?" "Oh, that's 2FC at their end; everybody is getting it." "Consoling—very. Thanks," I said, and handed him a five.

And when the "Screacharders," Tinnors, and Barrowtones get to work—good-night!

JACK SELDOM.

Dungowan.

P.S.: Who wants to buy a Set? Cheap.

Alternative Programmes

Dear Sir,—After reading so many comments re. church services being broadcast all day Sunday, I consider that if sport and races hold the monopoly on a Saturday it is quite understandable that religion should hold it on Sunday. But, for the majority of listeners it would be far preferable if the "A" class stations alternated between sport and music on Saturday and between church and entertainment on Sunday, thereby having programmes interesting to all tastes.

Yours, etc.,

L.H.

Kurri Kurri.

What Station

Dear Sir,—Seeing a number of constructors talking of the merits of their sets, perhaps I can add my record to the Safety Valve. We've heard a lot about good reception of big sets, but little of crystal sets. This is a set of my own design and construction. In addition to the usual "A" and "B" class stations I receive two which I cannot identify. One is on a very high short-wave length and his call-sign HARP. The other is very low and that is HEL. Perhaps some kind reader can tell me who these stations are.

Yours, etc.,

K.H.

Newport.

The "B" Stations

Dear Sir,—Re. "B" class stations and distribution of license fees. Is it fair that the two "A" class stations should receive all the revenue and the "B" class nothing? I consider that between the four "B" stations in Sydney they put over a better programme than do the "A" class. I, for one, never tune-in to 2BL or 2FC. Yet my licence fee goes to them, and the stations which do please me receive nothing from me. Perhaps if they did receive a small portion of the fees they, too, would put over some good singers, etc. "B" class have to rely on what they get from ads.; while the A.B.C. have the monopoly.

Yours, etc.,

J. TOOVEY.

Mosman.

Crystal Reception

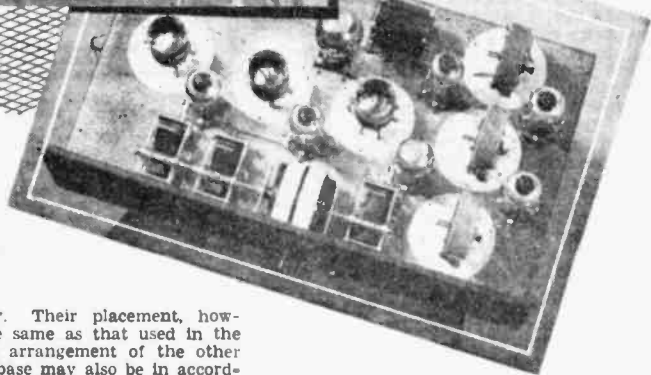
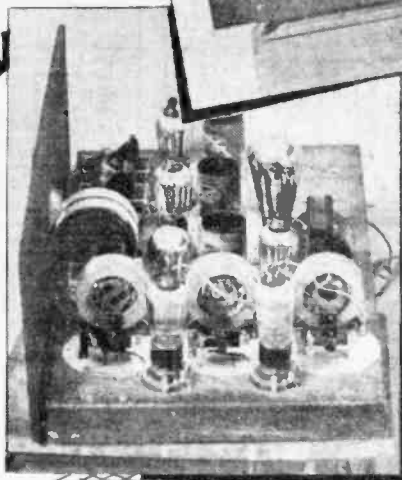
Dear Sir,—It is interesting to see crystal set owners having a word to say in the "Safety Valve" columns. The results which can be had with such a set is indeed surprising. Success has attended my efforts so far in the following results:—4QG, 2FC, 2BL, 3LO, 3AR, including the amateurs, 4CN, 4MP, 4RM, 4WN, living near 4QG I have to wait until they close to receive southern stations. The crystal I use is "The Mighty Atom," aerial 75ft. long, and 30ft. high.—Yours, etc.,
Burunda.
JACK C. FILES.

Something New

Two-valve receivers have just been two-valve receivers for years past. There has been no real change in them for five or six years at least. "Wireless Weekly's" new two-valve set, to be described next week, is still a two-valve set—but it is a modern one. Watch for it all you simple-set hounds.

The 1930 Super-heterodyne for BATTERY OPERATION

By
ROSS
A.
HULL



SINCE the description of the 1930 A.C. superheterodyne there has been a continuous stream of requests for details of the circuit and constants which would permit the receiver to be operated from batteries. In response to this demand we are to describe the battery operated receiver, but it must be understood at the start that the description is not to be self-contained. That is, it is to be in the form of a sequel to the two articles on the A.C. receiver which appeared in the issues of September 27 and October 4. Enthusiasts who are to build the battery operated receiver will find it essential to make a close study of the previous two articles if they hope to make use of this one.

The 1930 Superheterodyne, fitted with d.c. valves and rearranged for operation from batteries, will not be capable of the same enormous radio frequency amplification which was the feature of the a.c. job. Nor will it ordinarily be capable of the same high quality musical reproduction. The d.c. screen-grid valves have not the same characteristics as those of the a.c. type, and the same amplification cannot be expected of them. Whereas a relatively high-powered output valve permits excellent reproduction in the a.c. super, the necessity for using a small power valve (in order to conserve the plate battery) will certainly cause the reproduction to suffer. As in any battery operated set, the greater the plate battery drain which can be tolerated, the better will the musical reproduction be. It should be explained at the same time that the battery super will not necessarily be a poor receiver because of these factors. When correctly built and tuned it should have a very much greater overall gain than any super using the three electrode valves, it should have the same splendid freedom from harmonic interference and double spot tuning as the a.c. set, and it should have better tonal qualities than the majority of d.c. sets employing the same type of power valve. Indeed, it is certain that the battery operated receiver will be a quieter set than the a.c. version on account of the reduction of pick-up from the lighting mains of the power leak type of interference. Quite probably, in any given location, it would bring in distant stations with less "background" than that obtained in the original model.

The major change is in the provision for the d.c. type valves. The A442 is used in place of the E442 and the A409 replaces the E415, which was used as oscillator. Then, a smaller power valve, such as the B403, is fitted in place of the higher powered valves used in the original set in order that the plate battery drain will not be altogether excessive. Allowing 15 milliamps for this power valve, the total drain will be something slightly above 25 m.a. If operated from 180 volts of "B" battery in the manner to be suggested, the drain will be higher than this, and unless a still smaller power valve is used it may be as high as 30 m.a. Heavy duty batteries will be essential.

In the d.c. receiver UX sockets are, of

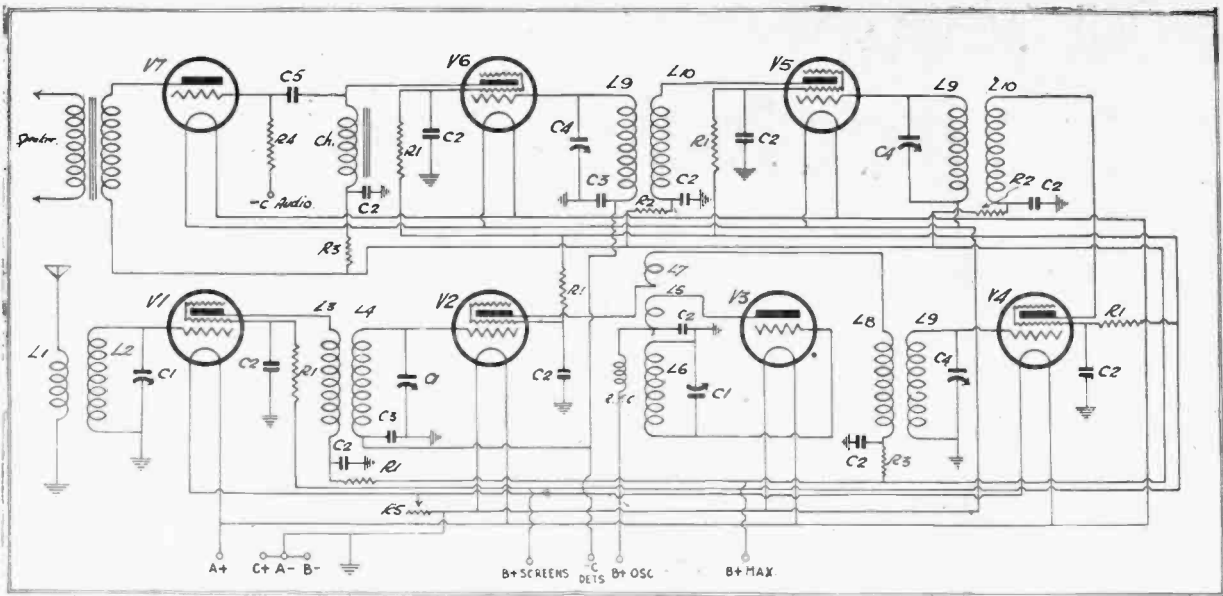
course, necessary. Their placement, however, may be the same as that used in the a.c. model. The arrangement of the other parts above the base may also be in accordance with the diagrams previously published, the grid terminal being placed in such a manner that the connection from it is as short as possible.

At this stage it will be well to make a close examination of the circuit diagram, comparing it with that of the a.c. receiver. It will be seen that one side of the secondary coils which feed r.f. amplifiers runs to ground—that is, to the metal base. The negative "A" terminal is also connected with the base. In the case of the first r.f. valve and the first intermediate amplifier, the negative filament terminal of the valves is isolated from the base by a rheostat. This rheostat constitutes the volume control and serves to reduce the amplification of both tubes. In this way the overloading of the first detector when receiving local stations is avoided. In the case of the secondaries feeding the two detectors, the filament end of the coils is isolated from the rotor plates of the condensers and ground by a fixed condenser. This permits the grids of the detectors to be biased in order that they may operate as "plate" detectors. The audio valve is biased in the usual manner through the grid resistor.

The screens of both the r.f. amplifiers and detectors are fed through 10,000 ohms resistors as in the a.c. set. These resistors are not provided to drop the voltage, but to serve

as a radio frequency filter in the screen-grid leads. The plate resistors, on the other hand, serve both to drop the voltage to the required value and to isolate the plate leads as far as radio frequency currents are concerned. The plate resistors for the r.f. valves are of 10,000 ohms. Those in the plate leads of the detectors are of 40,000 ohms—not because a greater drop is required, but because the plate current is so much lower. The oscillator valve is not fitted with a plate resistor. A radio frequency choke serves to isolate its plate circuit, and the required voltage is obtained from a tap on the plate battery.

It will be noticed in the circuit that the arrangement of the plate circuit of the first detector is quite different from that of the a.c. receiver. In the a.c. set the oscillator coupling was obtained by means of a coil in series with the cathode of the detector. In this set the coil is in series with the detector plate. In order to avoid excessive coupling from the oscillator, it probably will be necessary to reduce the number of turns in the coupling coil L7. In some cases it may be possible to arrive at the required oscillator input by reducing the oscillator plate voltage. It will be preferable, however,



to use 15 turns instead of the 30 specified for the a.c. set. This is made possible in the new Radiokes Kit by a tapping on L7.

With the exception of L7, the windings of the coils L1 to L7 are exactly as specified in the previous articles. One possible alteration would be a decrease in the number of turns on L3 on account of the lower plate resistance of V1. This, however, should not be essential since the primary is already much smaller than the value required for maximum gain. It has been kept small, of course, in order to preserve selectivity in the input circuits of the receiver.

The first intermediate transformer, since it is fed from one of the detectors (with an enormous plate resistance) is exactly similar to those specified previously. The second and third transformers, being fed from lower resistance valves, are provided with 200 turn primaries instead of 280 turns. In all other respects the transformers are unchanged.

The coupling unit between the second detector and the audio valve is quite similar to that of the a.c. set, but the arrangement of the filament of the audio valve and its bias differs somewhat. Bias is applied to the grid of this valve through the resistor R4—a 2 megohm gridleak. A leak of greater resistance than this would be equally effective, since no grid current flows during normal operation.

In the circuit diagram an output transformer is shown. This is not necessarily a part of the receiver proper. If the set is used in conjunction with a moving-coil speaker, the necessary transformer will be in the speaker itself. When used with a magnetic speaker, a transformer or output filter is not essential, though it is quite desirable. Any good output filter or transformer designed to operate with a magnetic speaker will be effective.

In the construction of the receiver the same procedure may be followed as that described in the preceding articles. The location of the various by-pass condensers is the first work after the location of all apparatus above the base has been determined. These by-pass condensers are mounted as near to the screen-grid or coil connection as possible. One side of each condenser is then connected to the metal base by the shortest practical route. The various resistors are then mounted near their own by-pass condenser and the battery leads are continued in any old scramble that happens to be convenient. The battery leads may terminate in a multi point battery plug or they may

List of Parts Required

V1, V2, V4, V5, V6—Five Philips A442 screen-grid valves.
 V3—One Philips A409.
 V7—B403 or any similar power valve.
 Pilot double drum dial.
 C1—Three Pilot .0005 mfd. variable condensers.
 Radiokes coil kit—See text.
 R.F.C.—One Radiokes radio frequency choke.
 Metal Base—Prima Donna Cabinet Co., 2 1/2 in. x 1 1/2 in.
 Six metal shields of same make, 3 1/2 in. dia., 3 1/2 in. high. Three-ply panel, 5-16 in. thick, 2 1/2 in. x 8 in.
 Seven Pilot UX type valve sockets.
 R1—Two Ferranti 40,000 ohm resistors.
 R2, R3—Eight Pilot 10,000 ohm resistors (type No. 953).
 R4—One 2 megohm gridleak.
 C2—Three .0003 mfd. Formodensers.
 One Ferranti AF3 transformer (secondary used only).
 R5—One 30 ohm rheostat.
 C3—Eleven Hydra .5mfd. fixed condensers.
 C4—One Hydra 2mfd. condenser.
 C5—Two .01 fixed condensers.

be run to terminals. If the set is to be mounted permanently in a cabinet they could be continued from their connection inside the set in the form of long unbroken leads. These leads could be bunched together, as they run from the set itself to the battery group.

The set, with the constants specified, is arranged to run from a four-volt storage battery and four 45-volt heavy duty "B" batteries in series. The full 180 volts is applied to the power valve, which is biased accordingly. In the case of the B403 the bias would be of the order of 40 volts. In the case of other types of power valves it would be in accordance with the instructions which are supplied with the valve. The plate resistors of the r.f. valves will drop the plate voltage to approximately 150 volts. For these valves and for the screen-grid detectors the screen-grid voltage should be set at 67 1/2. A value between this and 90 volts will be satisfactory. The lead to the plate of the oscillator should be run to the positive terminal of the first "B" battery, so giving a plate voltage of 45. During the adjustment, however, it would be well to experiment with other values, such as 22 1/2 and 67 1/2.

The bias for the two detectors is an important point. Usually the best value will be somewhere between 1 1/2 and 4 1/2 volts. On paper it is easy to see that since the first detector is working with much lower inputs than the second, it should require a different

value of bias. In actual practice, however, a variation of the bias voltage on one detector at a time did not appear to make an appreciable difference. It was not considered worth while to provide a separate bias terminal for each detector.

In the preliminary adjustment of the receiver the very same procedure should be followed as that detailed for the original super. The same care will be necessary with the ganging of the first two variable condensers and with the tuning of the intermediate amplifier. On account of the fact that the grid to plate capacity of the A442 is ten times that of the E442, it is quite probable that some trouble may be experienced with oscillation in the intermediate amplifier. Providing the shielding has been arranged in the manner specified and that all by-pass condensers and resistors are correctly in position, the trouble should be overcome by careful adjustment of the screen-grid voltage.

In place of the "B" batteries an eliminator could be used in locations where a.c. is available. In such cases, of course it would be far preferable to use the original a.c. super, but, according to correspondence, there are still many enthusiasts who amuse us by stating their lack of faith in the a.c. valves.

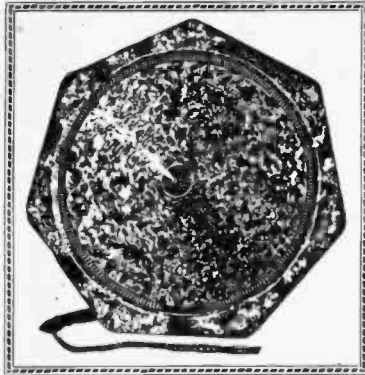
The set also could be operated from an eliminator operating from d.c. mains, though we do not recommend the practice. When so operated it is certain that noises picked up from the mains would make it difficult to accomplish much in the way of DX reception.

If the original a.c. set is not to be used we strongly recommend complete battery operation. We would be disappointed if the owner of a good battery operated 1930 super did not consider it the quietest and yet the liveliest receiver he had ever handled.

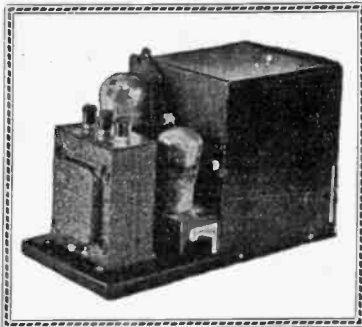
CHRISTMAS MAIL

THE Post Office has asked us to remind readers to post their Christmas greetings and gifts in good time for delivery before Christmas in order to avoid the possibility of late delivery, with its consequent disappointment. Shop early, pack securely, address plainly, and post early. You may mark your packets, "Don't open until Christmas."

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WTIC—A Modern Broadcasting Station

RELATIVELY enormous strides have been made overseas during the last year or two in the technique of broadcasting. Most extensive research has been conducted on the problems involved in creating a truly high-powered transmitter, the output of which would be a true replica of the studio performance. Some of the major technical developments are comparatively recent, and have not yet been applied to our own broadcasting stations, a fact which must be continually evident to any technical-minded listener.

An excellent picture of a modern broadcast transmitter of high power is provided by James J. Lamb in an article in the October "QST," descriptive of the new 50-kw. station WTIC, at Hartford, Connecticut. This station, recently installed, is modern in the true sense of the word, and many technical features have been incorporated in it for the first time. The station, though rated at 50-kw. output, is really capable of an output of 200-kw.—an output actually realised during modulation. For almost two years the station has been under consideration, much time being spent on investigation of possible locations for it. Speaking of the process of deciding upon a site for the station, Mr. Lamb says:—"These surveys were made by the station's engineers, and involved not only field strength measurements on a truck-mounted 500-watt portable transmitter, but also actual measurements of the fall-of-potential through the ground on the sites considered. After hundreds of measurements had been made on a score of properties, the data were compiled and several locations were found suitable. Of these, the one atop Talcott Mountain, a few miles north-westward of Hartford, was not only found suitable but also available, and there the new station was built."

In describing the station itself, Mr. Lamb goes on to say: "This 50,000-watt transmitter is truly the 'last word' in modern design. It is the first high-power commercial transmitter to use 100-kw. tubes; the first to use mercury-vapor-type rectifiers throughout; the first capable of 100 per cent., undistorted modulation of its full rated 50-kw. carrier output. It employs screen-grid transmitting tubes where they are applicable. It holds to its assigned frequency to within better than 50 parts in a million, and has an audio-frequency characteristic 'flat' from 30 to 10,000 cycles. The design and construction are, withal, simple and straightforward. There are no trick circuits involved."

Constant Output Frequency

The frequency-control unit consists of not only the crystal oscillator with its associated "oven" and temperature-control equipment, but also a two-stage screen-grid amplifier. The crystal, mounted in the oven, is not of itself calibrated as of such a frequency at a given temperature but the calibration is for the unit as a whole, amplifier included. In an actual test extending over a considerable period, the frequency of the transmitter did not vary in excess of 20 cycles from the assigned frequency. The 20-cycle shift occurred during the first hour, after which zero beat was maintained for the remaining hours of the test."

Modulation is effected in a low-powered stage isolated from the crystal oscillator by a "buffer" amplifier—an extremely desirable practice, not followed in the typical Australian stations. The article, describing this section of the station, continues:—

Curves Ahead

The
Experimenters
Department
of Technical
Progress..
Conducted by
ROSS A. HULL
M. I. R. E.

The output of the second screen-grid amplifier is capacitively coupled to the control grid of the UX-860, 75-watt screen-grid buffer-amplifier, which is mounted in the compartment above the crystal oscillator amplifier units. Excitation is sufficient to cause this tube to draw 250 watts from the plate supply at a plate voltage of 3000. It is nearly biased to cut-off, bias voltage being obtained from the station grid-bias generator. Screen-grid voltage of 750 volts is obtained from the plate supply through a suitable resistor. The plate supply for the buffer-amplifier, as well as for the UV-849 modulators and modulated amplifier, is obtained from the three-phase series rectifier using six UX-866 tubes mounted on the left end panel.

The Intermediate Amplifiers

The buffer-amplifier must furnish a healthy kick to the grid circuit of the modulated Class C amplifier to supply the grid losses, and insure grid saturation. The UX-860, capacitively coupled to the grid circuit of the Class C, UV-849 modulated amplifier, does this without difficulty. Plate input to the UV-849 is 300 watts at 2000 volts with the grid biased well beyond cut-off. Plate current is supplied to the modulated amplifier and two UV-849 modulator tubes through a common modulation choke; plate voltage on the modulator tubes is 3000, and this is dropped to 2000 for the modulated amplifier through a suitable resistor which is by-passed by a large fixed condenser. This arrangement is essential to the realisation of 100 per cent. modulation. The Class C amplifier is neutralised to prevent self-excited oscillation.

Two UV-849 tubes in parallel are used in the modulator. At first consideration the use of two tubes may seem unnecessary, but their desirability becomes apparent when the ratings and characteristics of the UV-849 are consulted. The load resistance of the modulator is the plate resistance of the modulated amplifier and the conditions for maximum output are satisfied when the load resistance is twice the plate resistance. The plate resistance of the two modulator tubes in parallel is practically half the plate resistance of the single amplifier. Maximum modulator output, therefore, should be obtainable. Moreover, the use of two tubes in the modulator makes possible complete modulation of the class-C amplifier output without overloading the modulator tubes. The plate input to each modulator tube is 100 milliamperes at 3000 volts, a total input of 600 watts. Their grids are biased so that they operate on the linear portion of their characteristic. Sufficient grid-swing is possible to vary the modulated amplifier plate potential between zero and twice the operating voltage without noticeable distortion. Non-inductive resistors are connected in the modulator grid leads to prevent oscillation at ultra-high radio frequencies. Negative grid-bias voltage is obtained from the bias generator.

Grid input to the modulator is from a two-stage speech amplifier, consisting of two resistance-coupled UV-203-A tubes.

Speaking of the 50 k.w. output stage, Mr. Lamb states:—

"A 50-000 watt radio frequency linear power amplifier is most decidedly an innovation in the art of radio telephony and has been made a practical actuality as a result of the perfection of the 100-k.w. tube. The designation of the rating of the amplifier might well be 200 k.w., for its power output on the modulation peaks has this value. Two UV-862, 100-k.w. water-cooled tubes in a push-pull circuit do the work.

Of all the interesting features of this amplifier, the UV-862 is undoubtedly the most interesting. To one accustomed to lesser tubes its ratings are almost staggering. Filament current is 207 amperes at a filament voltage of 33. Almost 14 k.w. of power is required for heating the filaments of the two tubes. The plate voltage is 18,000, and seems quite reasonable. But the plate current is around 5 amperes per tube; 10,000 milliamperes plate current for a single push-pull amplifier almost numbs the amateur imagination. Grid bias for Class B operation is 320 volts, a comparatively low since the tubes have a high amplification factor. Two kilowatts of actual grid excitation are required for the full 50-k.w. power output of the amplifier.

The heat generated by the filament and plate power consumed is considerable to say the least, and it is obvious that an effective means for rapid cooling of the tube elements must be provided. The heat dissipated by the filament alone would be sufficient to wreck a tube in short order if no means, other than air, were available for cooling. Such catastrophe is made remote by the effective water-cooling system incorporated as an auxiliary to the transmitter.

Single Button Control

When the transmitter is put into operation, the water pumps automatically start circulation some time before the filament and plate power comes on, and the water is kept circulating for some 15 minutes after the rest of the plant is shut down to ensure proper gradual cooling of the tubes.

Power to the transmitter is controlled by an elaborate system of automatic switches, which operate in proper sequence and with proper timing. The whole transmitter is controlled by a single push-button start-and-stop switch. Pilot lamps indicate current flow in all important circuits and assist greatly in locating the source of trouble in event of a forced shut-down. The transmitter can be easily controlled by a single operator, although the technical staff of WTIC is made up of three engineers and eight operators at the present time.

It is quite refreshing and not a little entertaining to read a description such as this of a station with a peak output of 200 k.w. and a frequency characteristic which is actually flat from 30 to 10,000 cycles, and to compare it with the representative transmitters in our own country.



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Transmitter Circuits and Operation Described

Radio Proficiency

Continuing the series of articles for the A.O.P.C. course

IT is a fairly simple matter to build a transmitter for operation on short waves, providing strict adherence is made to the rules laid down in last week's lesson. The operation of such a transmitter, however, is slightly more difficult, since there are many little points which will decide whether the apparatus will function efficiently or otherwise. However, providing great care is taken in adjusting, one should be able to get quite good results, even with a very low-powered transmitter.

TYPES OF TRANSMITTERS.

As with a receiver, the first thing we must do is to plan our transmitter. There are several circuits which we may use. These are of various types, such as Hartley, Colpitts, Ultra-audio, tuned-plate, tuned-grid (usually written T.P.T.G.), etc. These circuits are known as "self-controlled" oscillators in contrast to the "crystal-controlled" circuits, in which a quartz crystal determines the frequency.

Sometimes the A.O.P.C. aspirant is asked to draw a circuit of a Meissner transmitter, or some other transmitter. The "Meissner" is another name given to the tuned-grid tuned-plate circuit, so we here strike again the trouble one is likely to experience with the various names given circuits. However, it is necessary for us to know, and to memorise, the fundamental circuits which come under the names mentioned. These circuits are quite simple. Every other circuit, large or small, is but a variation of one of the main circuits.

First of all, one should learn to couple the names "Meissner" and "T.P.T.G." He should also remember that the "Armstrong" circuit is the same as the "T.P.T.G."

The range of the transmitter in miles will not differ greatly with the power used. The more powerful the set built, the more consistent will be the results, with less effort

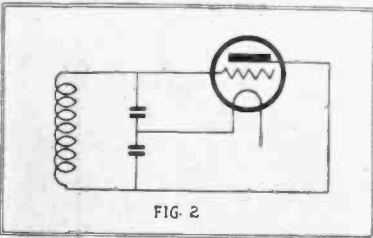


FIG 2

and care. Low-powered transmitters using receiving valves such as the Osram P625A, or even the Radiotrons 201A, or UX199, or the Philips' B406, have given almost as good results in DX (distance), as more powerful sets. The atmospheric conditions, the wavelength used, and the time of day, all have greater effects on DX than the power input. Naturally a higher powered transmitter will be more effective, however, since the greater power we use the louder will the signal be at a distance. Nevertheless, the reader should learn that quite satisfactory results can be obtained from even a very low powered job.

HOW A TRANSMITTER OPERATES.

Before talking about the different circuits that may be used, the fundamental principle

on which all oscillating circuits are constructed should be recalled. In the diagrams of receivers, a tickler (otherwise known as a reaction, regeneration, plate, or feedback) coil was shown.

Every oscillating receiver is a miniature transmitter—the principle of operation in such a receiver, and in a transmitter being the same.

Every small change in grid voltage of the valve causes an amplified change to take place in the plate circuit. The change in the plate circuit takes power from the "B" batteries of the receiver, or from the plate supply source in a transmitter. Part of this amplified energy can be coupled back to the grid, and made to go through the valve again and again, the process being referred to as "regenerative amplification."

When the energy fed back to the grid circuit is above a certain amount, oscillation takes place continuously. There is an abundance of power in the plate source, and while some of it must be used to keep the grid sufficiently excited, the surplus is used to set up radio waves.

THE VARIOUS CIRCUITS DESCRIBED.

Transmitter circuits really could be classified under two heads—the self-controlled and self-excited circuits, such as those mentioned and the oscillator-amplifier circuits, in which an oscillator is used to excite amplifiers, which, in turn, feed the aerial. We are considering for the moment only the self-excited, self-controlled circuits, in which the frequency output of the transmitter is determined by the constants in the circuits of the oscillator valve, which feeds the aerial. Of these circuits the Hartley is one of the simplest and most effective, and is, therefore, one of the best for the beginner to use for a start.

After studying out the operating of the Hartley circuit, and becoming familiar with the adjustments, it will be easy to understand how other arrangements work

The self-controlled transmitters fundamentally come under two main headings, i.e., those employing capacitive coupling (condensers), and those using inductive coupling (coils), for feed-back.

In the Hartley circuit, the filament of the valve is connected to the middle of the coil, and the plate and grid connections are made

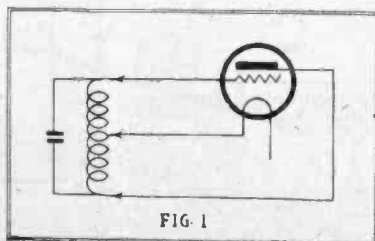


FIG 1

to the extreme ends of the coil. See Fig. 1.

In the Colpitts circuit the filament of the valve is connected between two condensers, and the plate and grid connections are made to the two ends of the coil. Thus the Hartley uses inductive coupling, and the Colpitts capacitive coupling. In one arrangement the feed-back is arranged inductively, and in the other capacitive voltage drops take care of the feed-back.

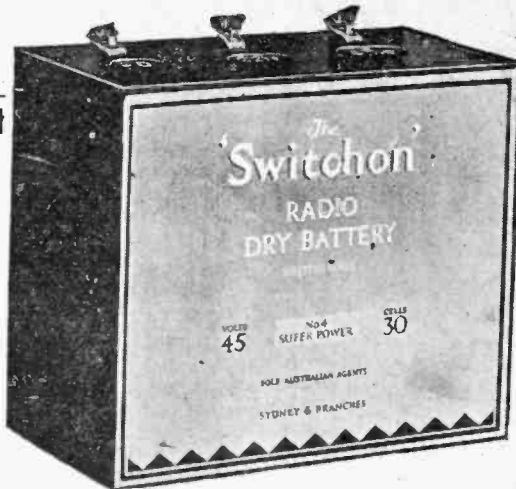
The Hartley circuit has the tuning condenser across some, or all, of the turns, both in the grid and in the plate part of the coil. Note that the arrows (Fig. 1) show that the leads can be varied over the coil by means of clips. Movement of the filament clip results in increasing or diminishing the number of turns between grid and filament, or plate and filament.

When the condenser is entirely across the plate turns, i.e., the turns between the filament and the plate connection, the circuit is a tuned plate (T.P.). When it is across the other part of the coil, i.e., between filament and grid end of the coil, we have T.G., (tuned grid).

The Armstrong, or T.P.T.G., depends on the feed-back capacity in the valve itself. (See Amateur Proficiency, with heading, "How Valves Detect, Amplify, and Oscillate," where you will see a drawing explaining this inter-electrode capacity). The plate and grid circuits are tuned fairly closely to the same wave-length. Sufficient energy is fed back from plate to grid, through the inter-electrode capacity of the valve itself, to cause the oscillating action to continue. The tuned grid and plate circuits are not usually inductively coupled in the short-wave transmitter.

In every transmitter provision is made to tune the condenser-coil circuits to the required wavelength. Provision is also made to tune the aerial circuit to resonance with the tank or plate circuit (as discussed last week), and to vary the amount of energy fed into the grid circuit from the plate circuit (grid excitation). Other means are provided to adjust the grid bias, to match the impedance of the plate circuit with the output impedance of the valve, and to adjust the aerial load to that value which will allow the most efficient transfer of energy from the plate circuit. Some method of making all these adjustments is to be found in every satisfactory circuit. It may be said that a transmitter is nothing more than a combination of the necessities for making these adjustments.

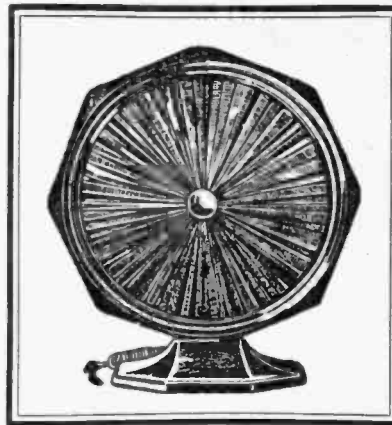
We have treated three of the most popular circuits, i.e., the Hartley, Colpitts, and T.P.T.G. All of these are usually magnetically coupled to the aerial circuit. The term "magnetically" is synonymous with "inductively." In both cases the magnetic lines of force from one coil inter-link with the turns of another coil, and induce a current.



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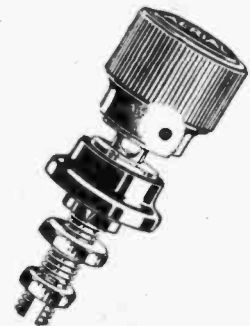
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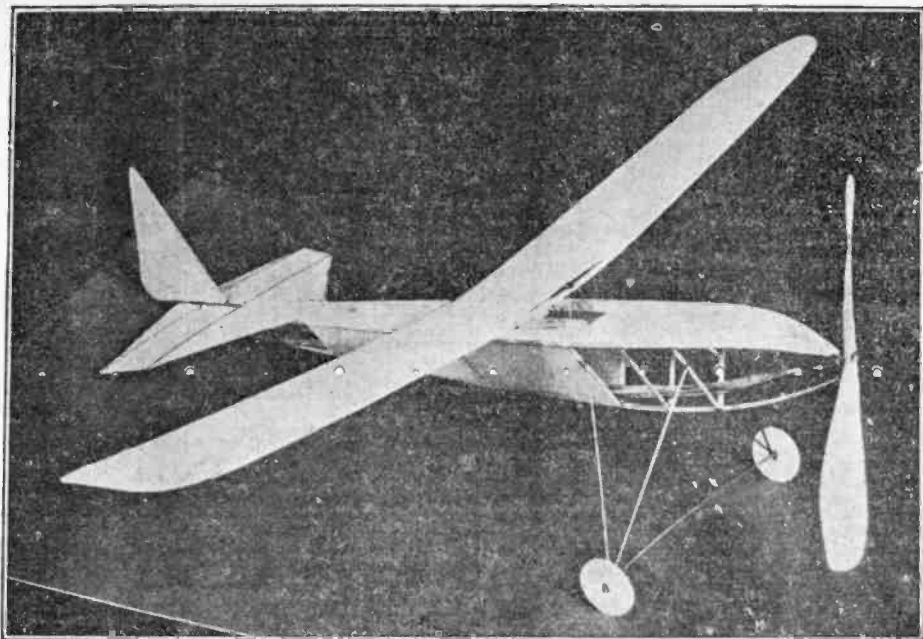
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WHEN the indoor commercial model is in flight, it looks for all the world like a big transport plane carrying a load of freight. It flies steadily, and rides over minor air disturbances like a comfortable sedan over small bumps.

The commercial model doesn't pretend to compete with "flying sticks" for duration. Its best record is a little less than a minute, and your flying sticks will do from two to five minutes.

You may obtain a kit, containing all the necessary wood, bamboo, paper, glue, and finished metal parts, by sending to The Boy Scouts Association Shop, 258 George Street, Sydney.

If you prefer to get your own materials, here's what you'll need. These also may be obtained at the Scouts Shop:—

One balsa strip, 3/16 by 1/4 by 20 inches, for motor stick.

Six balsa strips, 1/16 by 1/8 by 24 inches, for fuselage.

One piece of flat balsa, 1/8 by 1 1/2 by 6 inches, for wheels.

One balsa block, 7/8 by 1 1/2 by 10 inches, for propellers.

One balsa spar, 1/16 by 3/8 by 26 inches, for wing.

Three bamboo strips, 1/16 by 1/4 by 15 inches, for ribs, wing tips, etc.

One ounce bottle of Double A dope.

One ounce bottle of A.C. adhesive (cement).

Two sheets of "Cellaclo" tissue.

Ten feet of 1/8 by 1/32 rubber thread for motor.

Six inches of .015 music wire.

Twelve inches of .020 music wire.

Twelve inches of .035 music wire.

Before beginning your construction, study

the drawings carefully. Be sure you understand exactly where each part belongs and how it is constructed. You'll save both time and material.

Start with the fuselage. This is triangular in shape—the strongest cross section that could be used—and is perfectly streamlined the entire length. The construction isn't at all difficult. Study the details in Fig. 1, top view at the left and side view at the right, and the four cross section drawings at the extreme right.

First, select two of the 3/32 by 1/8 by 24 inch balsa beams. Cement them together at one end to form the rear point of the fuselage. Six inches from this end, glue a 1/16 by 1/8 by 1 3/16 inch crosspiece (see section F. Sections C, D, E, and F, are at the extreme right margin of the drawing, section A is in the middle, and section B at the left of the top view.)

The section drawings, in each case, show the distance across the fuselage including the thickness of the fuselage beams. Section F is 1 3/8 inch across the top so that the crosspiece will equal 1 1/2 inch minus twice the thickness of the beam—or 3/16 inch. Therefore, the crosspiece of section F equals 1 3/8 minus 3/16 or 1 3/16 inches.

Six inches farther forward, glue a 2 1/16 inch crosspiece, which—with the width of the two beams—gives you the 2 1/2 inch width of section E. Just 4 3/8 inches farther forward, glue the crosspiece of D. All this isn't half as hard to figure out as it sounds upon first reading.

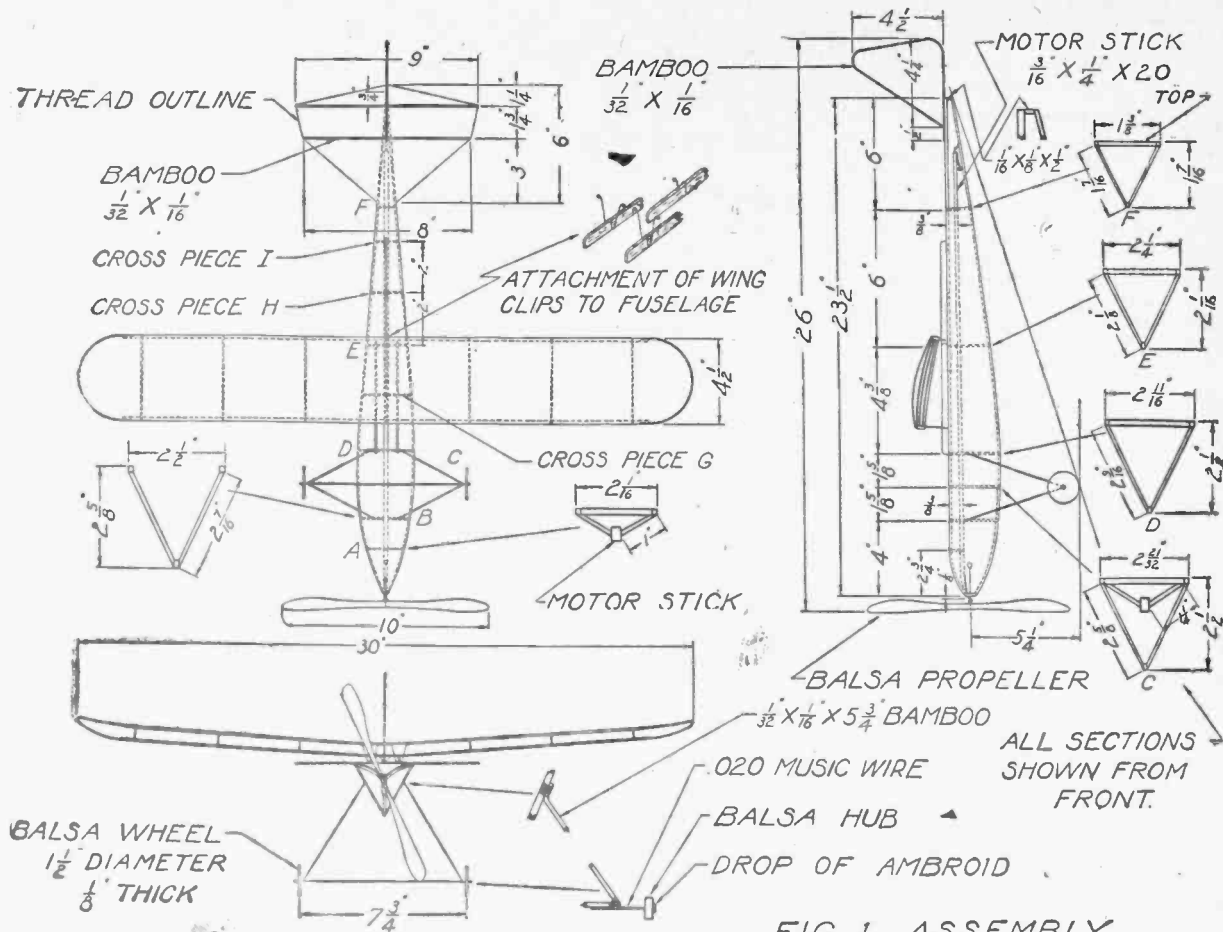
When the glue is thoroughly dry, steam and bend the two spread beams so that they come together at the front. Be sure to steam them evenly. Then bind them together with silk thread.

Now turn the frame upside down, lay it flat on the table, and place a heavy weight on top of it. Then bend up the nose, which is soaked in steam and therefore pliable, and place a 5/8 inch block under it. Leave it until the wood is thoroughly dry.

While the nose is drying, place in position the two other crosspieces, the first 1 7/8 inches long and the other 2 15/32 inches long. The 1 7/8 inch piece is 2 1/2 inches from the nose, and the other four inches from the same point. These pieces should not be cemented in place until the beams are dry—they are merely placed in position to give them the proper curve to the frame while it's drying. Later cement all joints and remove the thread.

The crosspiece G is placed halfway between sections D and E, and is approximately 1 3/8 inches long. If your crosspieces vary in dimension from the drawing, don't worry. Just cut them to fit the shape of your fuselage. Two more crosspieces, H and I, are cemented 2 inches apart, between E and F. This completes the top frame of the fuselage.

Your motor stick comes next. Select a piece of firm, straight-grained balsa, and sand it to 3/16 by 1/4 by 20 inches. Fig. 3 shows you how to point the front end. The front bearing is made from a small 1/16 inch nail or part of a large cotter pin, hammered and bent to the shape of Fig. 3. The hole for the propeller shaft is .035 inch in diameter, and is slotted on one side by careful filing. Notice, in Fig. 2, that the hole should be 1/4 inch below the bottom of the motor stick when it's glued in place. Be sure you don't file this slot as wide as the hole or the propeller shaft will keep slipping out of place, and the propeller won't turn. The purpose of this slot is to allow you to remove



Here are three views of the assembled ship together with cross sections of the tapering triangular fuselage.

the propeller at will in order to change the rubber. If you didn't have the slot, you wouldn't be able to change rubber without breaking open the tissue cover of the fuselage!

Your propeller shaft is shown in Fig. 4. Notice that it's flattened in the middle so that it can slip into and out of the slot with ease.

After the front bearing is cemented in place as shown in Fig. 3, bend your rear hook according to Fig. 5, and cement it to the opposite end of the motor stick.

To understand the method of attaching the motor stick to the fuselage, study sections A and C. (A is shown in detail in the middle of Fig. 1, and C is at the right margin.) Notice the two small braces on both A and C. Each is just 1 inch long, and each should hold the motor stick 1/8 in. below the top of the fuselage. Mitre them—cut them off at a slant—so that they'll join smoothly with both the frame and the motor stick.

The next step is to assemble the lower beam that forms the bottom edge of the triangular fuselage. Steam the front end of this for about 7 inches from the end, so that it may be bent upward. In order to get just the right bend, draw the outline of the curve on a board and drive small brads in on both sides of the drawing. Then you can place your beam between the brads so that in drying it will hold the exact curve.

Another method is to cement the rear end of the lower beam, by means of the small 1-16 by 1/8 by 1/8 inch balsa upright, to the top part of the fuselage, and then complete the triangular sections, D, E, and F, allowing them to dry thoroughly before steaming the front end. When these sections are fin-

ished and the cement is set, the front end may be steamed and the piece bent and held in place by thread while drying. When this piece is dry, you may complete sections B and C, and cement in place the two small 1-32 by 1-16 by 1/8 inch bamboo braces on the nose (Fig. 2). Notice the balsa wedges or spacers (drawing between Figs. 2 and 4), cemented in place under these pieces to keep them parallel and to allow enough room for the rubber motor to be taken out.

Now for one of the most interesting and useful innovations in commercial model construction. Very often builders find that in winding up the motors of their models their fuselages become twisted all out of shape. As a result they build their fuselages much stronger. But this added weight cuts down the flying time of their models.

In this type, however, the twisting of the fuselage is prevented by a very simple invention. In Fig. 5 you'll notice that the motor stick is joined to the rear end of the fuselage by means of a twisted music wire spring. Thus, when you wind up your motor, the motor stick and this spring take up nearly all the twisting force, while the triangular fuselage remains unaffected. Your next step is to cement the spring between the motor stick and the bottom beam.

The tail group, shown in Fig. 1, comes next. Cement two bamboo crosspieces, 1-32 by 1-16 inch, across the top of the fuselage, as shown in the drawing. Notice that the rear piece is 9 and the other 8 inches long, and that the 9-inch piece is 1/8 inch from the end of the fuselage and the other 2 1/4 inches from the end.

The shape of the bamboo fin, or the rudder, is shown in the side view, Fig. 1. To

construct it, split—do not attempt to whittle—a piece of bamboo 1-16 inch square from your 15-inch strip. When it's carefully trued up and sanded down bend it as shown. Bamboo, as you know, is very pliable when hot, and can be bent to any desired shape over a candle or alcohol lamp. You can also bend bamboo over a hot iron rod.

When you've bent the frame to shape, split it in two, so that you have two frames, each 1-32 inch thick. You can save one for your next ship.

You attach the fin to the tail group by cementing the base to the two crosspieces. Notice how the base extends 1/8 inch beyond the front edge of the fin frame in order to rest on the 8-inch crosspiece. The fin should sit up erect, but it may be pivoted around at a small angle to the motor stick, to steer the ship in a smaller circle than it would normally fly in.

When the cement on the fin is dry, stretch your thread around the frame of the stabiliser, as shown in the drawing. You've made kites, and know how to use string to complete the outline around the frame for holding paper. The thread outline here is used for the same purpose. Just tie the end of the thread to the fuselage beams, 3 inches in front of the 8-inch crosspiece, and stretch it around the ends of both crosspieces and back to the base of the fin, 1/8 inch beyond the end of the fuselage frame. You'll have no trouble with this part of the construction.

The landing gear, too, is a comparatively easy job. The four struts, shown in Fig. 1, front and side views, are 1-32 by 1-16 inch bamboo, 5 1/2 inches long. Bend one end to fit the side braces of the fuselage. There

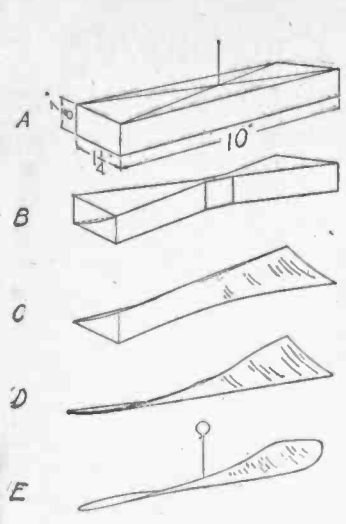


FIG. 9.

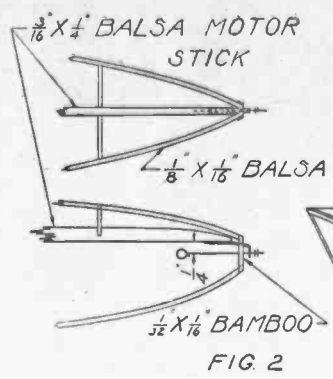


FIG. 2.

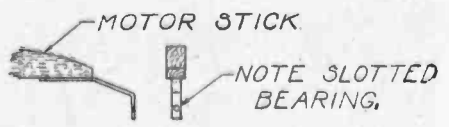


FIG. 3.

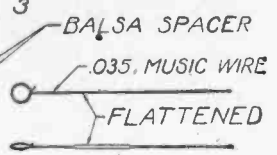


FIG. 4.



FIG. 5.

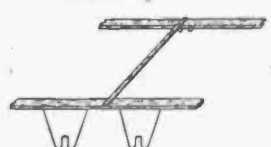


FIG. 10.

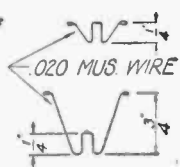
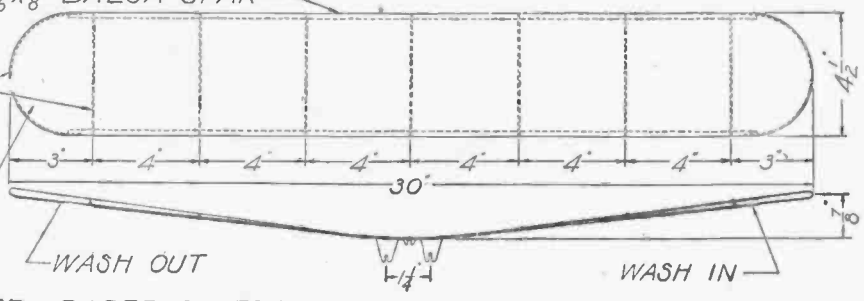


FIG. 7.

3/16 x 1/8 Balsa Spar

BAMBOO RIBS AND TIPS
3/32 x 1/16



NOTE - PAPER ON TOP OF FRAME

FIG. 6. - CONSTRUCTION OF WING.

The details of this ship show remarkable improvement over the design of other commercial models. Notice particularly in Fig. 5, how the motor stick is attached to the rear of the fuselage. This arrangement absorbs all the twist of the rubber.

are two braces on each side, and each pair is joined at the axle, which is a strip of bamboo 1-32 by 1-16 by 7/8 inches. The wheels, 1 1/2 inch in diameter, are cut from 1/4 inch flat balsa. These wheels turn on small axle bearings cut from .020 music wire, held in place by A.C. adhesive to the under side of the axle. Cement the axle to the bottom of the braces.

After you slip the wheels on the axle bearings, place a drop of A.C. adhesive on the end of each bearing. When this hardens it will act as a hub to prevent the wheel from slipping off.

The wing used on this model is the flat or angle-surface type. Study the drawing, Fig. 6.

Notice that the span is 30 inches and that the tips of the wing are 1/8 inch higher than the centre. This angle-dihedral angle gives stability to the ship. To get the angle, bend your two spars in one piece of balsa 1/4 by 3-16 by 26 inches long, by holding the centre over steam. When the piece is dry, split it lengthwise to form two spars, each identical in size and angle. In order not to spoil your spars in splitting, guide your knife with a metal-edged ruler. Sand each down to 1/4 inch wide and cut grooves in their top surfaces for the ribs (Fig. 6).

Your wing tips are bent from one piece of bamboo 1-16 inch square and 10 inches long. This is longer than necessary, but you can trim off the spare length. Some builders bend their tips over a hot tin of oil to get the right diameter. When you have bent the right bend, split the piece down the middle to form your two tips, 1-32 by 1-16 inch. Fit them into small grooves cut out of the ends of the spars, and cement them in place.

Your 7 bamboo ribs, finished to 1-32 by 1-16 by 4 1/2 inches, are cemented into the slots or grooves in the tops of the spars.

Cover the wing, on the top side only, with cellophane tissue. If the paper is wrinkled, first iron it out and then let it stand a few hours to regain room temperature and moisture. Cut out a piece slightly larger than the frame of the wing, paint the centre rib with A.C. adhesive, and lay the paper in position upon it. Then work from the centre outward, painting and covering a section at a time, and stretching the paper from front to rear to remove wrinkles.

Finally, trim the paper and smooth down the edges with another coat of A.C. adhesive.

The three wing clips are clearly shown in Fig. 7. The large or front ones are 1/2 inch higher than the single one in the rear. This gives the wing the necessary angle of incidence—front-to-rear slant. Glue the two high clips on the front spar at equal distances from the centre of the spar, so that the wing will not be longer on one side than the other. Glue the low clip to the centre of the rear spar.

When the wing clips are set the three balsa pieces on the fuselage to which they clip may be glued in place on top of the fuselage. The first two are 3-32 by 1/2 by 5 1/2 inches, and the rear, or centre, one is 3-32 by 1/2 by 6 1/2 inches long. Remember that these must be parallel, and fit the clips tightly along their entire length, or the wing will come off in flight. (The photographs and Fig. 1 show the position of the pieces.) Should they become worn with use, a long rubber band passed under the fuselage and

over the wing and back under the fuselage will help to hold the wing in place.

Covering the fuselage with tissue is a long job, but it isn't hard. Just take care, in cutting the paper to fit the various parts, to make neat joints. The tail surface is covered on the bottom side only, and the fin or rudder can be covered on either side. The section of the fuselage between F and the rear end is not covered—this allows you to get at the rear hook for winding.

Carve the propeller from a balsa block 3/4 by 1 1/2 by 10 inches. Before you begin, study the five stages shown in Fig. 9. Notice how the diagonals are drawn on both 1 1/2 inch faces and on the ends. The centre hole is pierced with a pin, or can be drilled with a small drill at the intersection of these top and bottom diagonals. B shows the surplus wood cut away from the diagonals, with 1/4 inch left at the centre section or hub.

In C, notice how the front side of each blade is carved. This side isn't flat, but is hollowed out slightly—cambered—with sandpaper. D shows the blade finished except for rounding the tips. The hub has been cut and sanded until it is barely 3-32 inch thick, while the blades are less than 1-16 inch in the middle and barely 1-32 inch at the tips and edges. Notice that the widest part of the blade is about two-thirds of the distance from the hub—this is the most efficient part of the propeller. A part of the trailing edge near the centre has been cut away to save weight, since the centre part is inefficient.

Insert the propeller shaft through the hub, as in E, Fig. 9. Bend the end into a square U, and push the U into the hub. A drop of glue on the top and bottom will prevent the

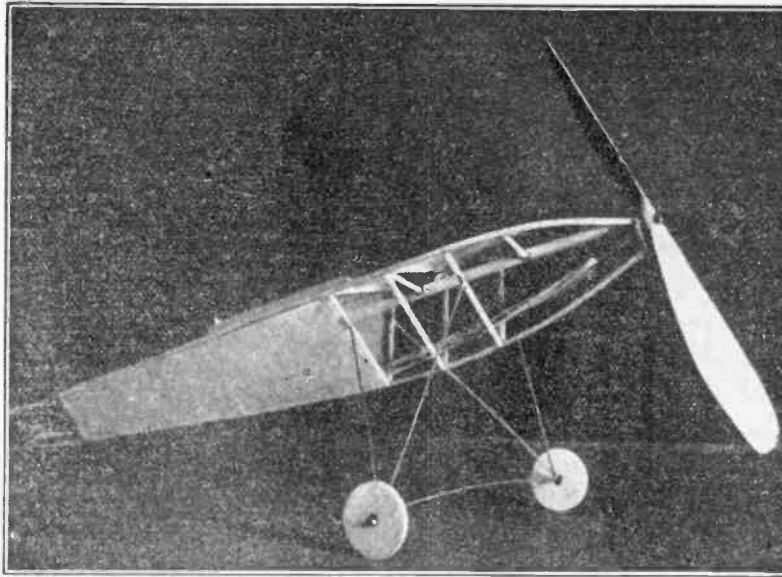
Bougainvillea

(By G. W. COOPER, who broadcasts from 2BL every Saturday morning at 10.40.)

BOUGAINVILLEA is the name of a family of gay-colored creepers which thrive only in sunny positions, such as a brick or stone wall facing north, where the annual growth can ripen the wood sufficiently in autumn so that in the following spring and summer months they make a blaze of color with their bracts (colored leaves) which act as flowers in the case of bougainvilleas. Being a native of tropical America, bougainvillea will only flourish in hot situations in New South Wales.

The best variety of this family is Rosea, a bright strawberry pink, which is now at its best. It is a spring bloomer, and at this time of the year its gorgeous show of color makes it the most outstanding plant in the open garden. I know of no more beautiful creeper than Bougainvillea Rosea; the thorns of this variety are very small compared with those of some of the other varieties of this family; also, it sheds its leaves or practically all its foliage, and then flowers, as it were, in great profusion.

To train this plant as a creeper on a brick wall, do not let it grow in its own sweet way; as the young plant grows and sends out side growths train the strongest of these sideways, as far as you wish to grow the creeper. The side shoots from these growths, made in summer time, will carry the bloom next spring. You need not worry about not getting sufficient growths upwards; it is the natural tendency at all times for bougainvilleas to grow straight up, that is, the strongest growths, and it is these growths that must be bent sideways to balance the sap and prevent them from robbing the weaker growths, which flower more freely than the rank growths do. I have found, in training this beautiful variety, Rosea, a good plan is to bend over and down all growths more than one foot long. This method of checking all the strongest growths during the whole of summer and autumn causes the whole length of growths to be thoroughly ripened, and therefore to be covered from head to foot with a wealth of bloom.



The fuselage of the model plane with wings detached.

shaft from pulling loose, or the bearings from wearing away the centre of the hub. Two small, hard, brass washers are slipped over the hook to cut down the friction between propeller and bearing when the propeller is turning.

Your motor is a strip of rubber thread, 10 feet long, with the ends tied together in a square knot to form a long band. Fold this to make six strands. Drop one end into the hole in the nose of the fuselage and fasten it to the rear hook by means of the S hook. Hook the other end to the propeller shaft, and then slip it into the slot in the bearing. That operation finished, your ship is ready for flight.

And now the fun starts. Before you wind up the motor, glide the ship to the floor, and if it descends too sharply, set the wing forward a trifle. If it slants down, then tries to climb, and stalls, set the wing back. When you've finally adjusted your wing so that the ship glides to an easy landing, wind up the propeller.

You can wind the motor by hand, but an eggbeater winder, such as the one described in "Wireless Weekly" on July 5, makes the job easy. For your first flight, give the motor only 150 turns. Later, you can give it as high as 300 turns.

Launch the ship from your hand with a gentle forward push. If you've done your work carefully you're sure to get a flight. Remember that for a commercial model a 20-second flight is excellent, and anything longer is noteworthy. The thrill in this ship is not in duration, but in its steadiness and its resemblance to large transport planes.

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Exhibition

AMONG the many exhibits showing a great advance in Australian manufacture at the All-Australian Exhibition, Melbourne, is a broadcasting station entirely designed and built in Australia by Amalgamated Wireless.

In the north-west gallery upstairs there is

a complete studio, and next door to it the transmitting apparatus. Every evening the station is being used to transmit special programmes of entertainment, the object being to give as wide publicity as possible to the exhibition, and thus ensure a large attendance. The studio and transmitting rooms have clear glass panels right along, so that visitors can actually see the transmitting apparatus in operation, and next door can see the artists rendering their numbers.

The A.W.A. transmitting station at the exhibition uses the call letters 3EX, and as the wavelength is 240 metres, listeners-in should be able to enjoy the splendid programmes by tuning-in just below the adjustment for the "B" class stations.

A large section of the north-west gallery has been set aside by the exhibition authorities and provided with seats, so that visitors may rest for a while and listen to the programmes being transmitted from the studio. In order to carry the entertainment to that section of the gallery, Amalgamated Wireless has installed a special public address system.



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Local Programmes, Friday, November 8

2FC

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 451 Metres).

EARLY SESSION—7 to 8.15 a.m.

7.0: "Big Ben." and meteorological information for the man on the land.

7.3: This morning's news, from the "Daily Guardian."

7.8: Austradio musical reproduction.

7.45: Mails and shipping.

7.43: What's on to-day?

7.50: Children's birthday calls.

8.0: Music from the Studio.

8.15: Close.

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

10.30: Announcements.

10.32: To-morrow's sporting events, by Oscar Lind.

10.45: Horace Weber at the Grand Organ.

10: Household Helps—Cooking, by Miss Ruth Furst.

11.10: Cables—(copyright). "Sun"—"Herald" and A.P.A. news service.

11.15: Morning Devotion.

11.30: Austradio musical reproduction.

11.53: British Official Wireless press.

12.0: "Big Ben." Stock Exchange and metal quotations.

12.5: Captain L. Roberts will speak on "The Federated Malay States."

12.20: Midday weather forecast and weather synopsis. Special produce market session for the man on the land, supplied by the State Marketing Board.

12.30: Close.

THE LUNCH HOUR—1 to 2.30 p.m.

1.0: Lunch hour music.

2.0: Stock Exchange, second call.

2.2: A glance at the afternoon "News."

2.7: Popular Education—Michael Sawtell, "How the Police Capture Wild Natives in the Kimberley Country."

2.27: Announcements.

THE RADIO MATINEE—2.30 to 4.30 p.m.

Note: Results of the cricket match Queensland Colts v. N.S.W., played at Brisbane, will be transmitted during the afternoon.

2.30: The 2FC Instrumental Trio.

2.42: May Sharpe, songs at the piano—

(a) "When My Dreams Come True" (Berlin).

(b) "War You Making a Fool of Me" (Mallie Rose, and Verges).

(c) (Piano novelty, with vocal interludes.)

2.49: The 2FC Instrumental Trio.

3.0: Elved Jenkins, comedian—

(a) "The Employment Bureau."

(b) "She's Mine, All Mine" (Kolman and Ruby).

3.7: The 2FC Instrumental Trio.

3.17: Frank Botham, baritone—

(a) "To a Nightingale" (Brahms).

(b) "Charming Chloe" (German).

3.24: The 2FC Instrumental Trio.

3.31: Elved Jenkins, comedian—

(a) "The Ideal Home" (LoIn).

(b) "What is a —?"

3.38: May Sharpe, songs at the piano—

(a) "The Song is Ended" (Berlin).

(b) (Piano novelty, with vocal interlude.)

(c) "I Can't Give You Anything But Love" (Fields and McHugh).

3.45: The 2FC Instrumental Trio.

3.53: Frank Botham, baritone—

(a) "The Gay Cavalier" (Breville-Smith).

(b) "Down Among the Dead Men" (Anon).

4.0: "Redgum" will speak on "Gardening."

4.15: The 2FC Instrumental Trio.

4.28: Stock Exchange, third call.

4.30: Close.

EARLY EVENING SESSION—5.45 to 7.55.

5.45: Children's "Good-night" Stories, told by the "Hello Man," assisted by the Farm-yard Five.

6.45: Dinner Hour music.

7.30: A.B.C. Sporting Service.

7.37: Special Country Session. Stock Exchange resume. Markets. Weather forecast. Late news service from the "News." Truck bookings.

7.58: To-night's programme.

THE EVENING PRESENTATION—8.0 to 11.30.

2FC offers listeners to-night an Organ Recital, which is proving a popular Friday night feature. Vocal numbers by the Peerless Four, saxophone solos, and W. A. Oldfield will continue his series of talks, "My Impressions of English Cricket While Abroad." The relay from 3LO will commence at 9.15. Through 2BL Goodie Reeve is featuring a new sketch, and Ernest Frank, well-known pianist, who has recently arrived in Sydney, is giving a recital. In addition, there are song groups by Clifford Lathlean and Myra O'Neill, Francis Jackson's talk on "Why We Laugh," at 9.27. will prove of wide interest.

8.0: The Peerless Four—

(a) "Indian Dawn" (Zamecnik).

(b) "Hello! How are You?"

(c) "In Our Little Canoe."

8.10: From Christ Church, St. Laurence—Organ Recital arranged by Christian Hellemann—

(a) "Marche Militaire" (Gounod).

(b) "Romance" (Friml).

(c) "Minuet" (Handel).

(d) "Ave Maria" (Schubert).

(e) "Morris Dance" (German).

(f) "Shepherd's Dance" (German).

(g) "Torch Dance" (German).

8.40: From the Studio: Al Hammett, saxophone solos—

(a) "Saxene" (Hunter).

(b) "A Serenade" (Drigo).

8.47: The Peerless Four—

(a) "De Ole Banjo" (Gatty).

(b) "Mighty Like a Rose" (Neven).

(c) "I Love You More" (Lee).

8.54: Al Hammett, saxophone solos—

(a) "Dans Orient" (Weidort).

(b) "Valse Erica" (Weidort).

9.1: The Country Man's Weather Session—

(a) New South Wales Forecasts.

(b) Interstate Weather Synopsis.

(c) Yachtsman's and Fisherman's Forecast.

9.2: W. A. Oldfield will continue his series, "My Impressions on English Cricket While Abroad."

9.15: Relay from 3LO Melbourne.

10.0: From the ballroom of the Oriental—Sydney Simpson's Syncopaters in dance music.

10.15: From the Studio—Announcements.

Late official weather forecast.

10.20: From the ballroom of the Oriental—Sydney Simpson's Syncopaters in dance music.

11.30: Close. National Anthem.

2BL

Australian Broadcasting Company, Ltd., Market St. Sydney (Wavelength 353 Metres.)

OPENING SESSION—8.15 a.m. to 11 a.m.

8.15: G.P.O. chimes and announcements

8.16: Music for every mood.

8.40: Meteorological data for the country.

8.45: Mails and shipping information.

8.50: Memory melodies.

9.0: This morning's story.

9.30: A musical interlude.

9.40: British Official Wireless Press.

9.45: New music.

10.5: News from the "Daily Guardian."

10.10: Australia musical reproduction.

10.40: The Australian Broadcasting Company's Women's Association, conducted by Miss Gwen Varley.

11.0: G.P.O. chimes. Close down.

MIDDAY SESSION—12 noon to 2.30 p.m.

12.0: G.P.O. chimes. Announcements.

12.2: Lunch hour music.

1.0: Afternoon news from the "Evening News."

1.5: Studio music.

1.15: Women's interest talk; Mrs. Meredith Atkinson will speak on "Budapest."

1.30: Austradio musical reproduction.

2.0: J. Knight Barnett at the Wurlitzer

2.12: Studio music.

AFTERNOON ENTERTAINMENT—2.30 to 5.45 p.m.

2.30: Major Sanford-Morgan will speak on "Anuradhapura."

2.45: The "Storyteller," "There She Blows—"

3.0: From the ballroom of the Oriental.

Sydney Simpson's Syncopaters, in dance music.

3.12: From the studio. Anne Melhuish soprano.

(a) "Nymphs and Shepherds" (Purcell)

(b) "We Wandered" (Brahms)

3.19: From the ballroom of the Oriental. Sydney Simpson's Syncopaters, in dance music.

3.29: From the studio. Hilda Grace, novelty pianist.

(a) "Canzone Amorosa" (Nevin).

(b) "Plano Flame" (Roy Bary).

3.36: Songs of to-day.

3.42: From the ballroom of the Oriental. Sydney Simpson's Syncopaters, in dance music.

3.53: From the studio. Les Harris, saxophone solos.

(a) "A Japanese Sunset" (Deppys).

(b) "Marionette" (Arnt).

4.0: From the ballroom of the Oriental. Sydney Simpson's Syncopaters, in dance music.

4.12: From the studio. Anne Melhuish, soprano.

(a) "Sapphic Ode" (Brahms).

(b) "Queen Mary's Song" (Elgar).

4.19: Hilda Grace, novelty pianist.

(a) "Country Gardens" (Grainger).

(b) "Kiddie Capers" (Shilkret).

4.26: From the ballroom of the Oriental. Sydney Simpson's Syncopaters, in dance music.

4.38: From the studio. Les Harris, saxophone solos.

(a) "Minuet" (Beethoven).

(b) "Morning Glory" (Johnston).

4.45: The trade hour. Demonstration music.

5.45: Weather information. Close down

THE DINNER HOUR—6.15 to 7.55 p.m.

6.15: The dinner hour music.

6.45: The younger set session. Boy Scouts, conducted by Mr. Norman Lyons.

7.5: A talk on "General Sporting," by Claude Corbett.

7.20: The Country Man's market session—wool, wheat, stock, farm produce, fruit and vegetable markets.

7.30: Austradio musical reproduction.

7.55: What's on the air to-night?

TO-NIGHT'S PRESENTATION—8 p.m. to 10.30 p.m.

Through 2BL service to-night we are introducing a new idea in the sketches written for broadcasting by Goodie Reeve, in addition well-known selections by the National Broadcasting Orchestra, a recital by Ernest Frank, who has recently arrived in Sydney, and songs with orchestral accompaniment by Clifford Lathlean and Myra O'Neill. Francis Jackson, speaking on "Why We Laugh," will explain the technicality of the smile.

8.0: The National Broadcasting Orchestra, conducted by Horace Keats.

(a) "Pilgrims' Chorus" (Wagner).

(b) Overture, "Mirilla" (Gounod).

8.10: Myra O'Neill, popular ballads.

(a) "The Spring is in My Garden" (Tennent).

(b) "A Blackbird's Song" (Sanderson).

(c) "Daffodils at Kew" (Popple). With Orchestral accompaniment.

8.17: Ernest Frank, pianist.

8.29: Clifford Lathlean, basso.

(a) "Palm Sunday" (Sheldon).

(b) "Cradle Song" (Sheldon).

(c) "Mortonhoe" (Loughborough).

8.36: The National Broadcasting Orchestra.

"The Belle of New York" (Kirkner).

8.51: Goodie Reeve in a play specially written for broadcasting.

9.6: Myra O'Neill, popular ballads.

(a) "Land of the Lullaby" (Browne).

(b) "I Looked for God, and I Found Him" (Spross).

(c) "The Conquest" (Spross).

(d) "Mister Squirrel" (Davis). With Orchestral accompaniment.

9.13: Ernest Frank, pianist.

9.25: Weather information for the man on the land.

9.27: Francis Jackson will speak on "Why We Laugh."

9.42: The National Broadcasting Orchestra.
 "Lucia di Lammermoor" (Donizetti).
 9.53: Clifford Lathlean, basso.
 (a) "In Lacerato Spirito" (Verdi).
 (b) "The Linden Tree" (Schubert).
 (c) "When Childer Plays" (Davies).
 10.1: The National Broadcasting Orchestra.
 (a) "Snacks in Bars" (Egerer).
 (b) Phantasy, "The Three Bears" (Coates).
 10.25: Late weather forecast. Late news from the "Evening News."
 10.30: National Anthem. Close.

2GB

Theosophical Broadcasting Station, 29 Bligh St., Sydney (Wavelength, 316 Metres).

10.0: Music. 10.10: Happiness talk by A. E. Bennett. 10.20: Music. 10.30: Women's session by Mrs. W. J. Stolzer. 11.15: Talk by Mrs. Jordan. 11.30: Music. 11.45: Close down. 1.30: Speeches from the Musical Club. 2.0: Music. 2.5: Women's Radio Service by Mrs. Dorothy Jordan. 2.50: Movie Know All. 3.0: Address by Miss Mary Rivett. 3.15: Music. 3.30: Close down. 5.15: Children's session by Uncle George. 6.50: Radio Movie Club session. 7.0: Music. 7.45: Feature story. 8.0: Miss Iris Pearce, contralto. 8.7: Symphony Orchestra. 8.15: Madame Betts-Vincent in an illustrated talk of music. 8.30: Mr. Norman Williams, baritone. 8.40: Mr. Jack Win and Mr. Heath Burdock, humor. 8.43: Instrumental trio. 8.50: Miss Gwen Selva, soprano. 9.0: Weather report. 9.3: Address. 9.15: Miss Iris Pearce, contralto. 9.25: Symphony Orchestra. 9.30: Mr. Jack Win and Mr. Heath Burdock, humor. 9.35: Mr. Norman Williams, baritone. 9.45: Instrumental trio. 9.50: Miss Gwen Selva, soprano. 10.0: Instrumental music. 10.30: Close down.

2UW

Radio Broadcasting, Ltd., Palling's Building, Ash St., Sydney (Wavelength, 267 Metres).

MIDDAY SESSION

12.30: Request numbers. 1.0: Music. 1.15: Talk on Homecraft, by Pandora. 1.40: Music and Request Numbers. 2.30: Close. 4.30: Musical Programme.

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EVENING SESSION

5.30: Children's Hour, conducted by Uncle Jack. 6.30: Close. 7.0: Request numbers. 8.0: Popular music. 9.0: Comments on Foreign Affairs, by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close.

2KY

Trades and Labor Council, Gunburn St., Sydney (Wavelength, 280 Metres).

MORNING SESSION

10.0: Tune-in to the ticking of the clock. 10.3: Popular fox trots. 10.15: Calls and announcements.

10.30: Women Session. Home Hints and Information, Mrs. Gray. 11.0: A few laughs. 11.5: Pianoforte selections. 11.15: Calls and announcements. 11.20: Musical interlude. 11.30: Request numbers. 11.40: Music and vocal items. 11.55: Where to go to-night. 12.0 noon: Closing announcements.

CHILDREN'S SESSION

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

EVENING SESSION

7.0: Musical interlude. 7.5: Birthday calls. 7.15: Sporting feature. Turf topics. Review of candidates and their prospects for tomorrow. Mr. Geo. A. Davis. 7.40: Request numbers. 8.0: Hawaiian steel guitar selections. 8.15: Women's Information Service, Mrs. Gray. 8.30: Music and vocal items from the studio. 9.10: Sporting feature. From ringside of McHugh's Leichhardt Stadium, full description of main 15-round event. 10.0: Closing announcements.

2UE

Broadcasting Station 2UE, Everett Street, Maroubra, Sydney (Wavelength, 293 Metres).

EARLY MORNING SESSION.

7.15: Breakfast-time hour orchestral music. 8.0: Clock and chimes. 8.30: Weather forecast. Close down.

MIDDAY SESSION.

10 a.m.: Women's session, conducted by Miss D. Vautier, with musical selections. 11.30: Orchestral and vocal selections. 12.0 noon. Close down.

AFTERNOON SESSION.

1.0: Orchestral and vocal music. 1.45: Organ recital. 2.0: Vocal music. 2.30: Conclusion of afternoon session.

EVENING SESSION.

6.30: Wendy's hour with the children and birthday greetings. 7.15: Dinner music. 7.58: Programme announcements. 8.0: Clock and chimes. 8.1: Overture, "Bohemian Girl" selections. 8.11: Vocal and instrumental selections. 10.15: National Anthem.

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Interstate Programmes, Friday, November 8

3LO

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 371 Metres).

EARLY MORNING SESSION.

7.0: Melbourne Observatory time signal. 7.1: Shipping news. 7.3: Physical exercises set to music. 7.20: Reproduced music. 7.40: Mail notices. 7.42: What's on to-day? 7.45: Market reports. 7.53: Weather forecast. 7.55: News service, cable news service. 8.0: Melbourne Observatory time signal. 8.1: Arrival times of express trains. 8.2: Musical interlude. 8.15: Close down.

MORNING SESSION.

10.30: Current happenings in sport, by Mel Morris. 10.45: Musical reproduction. 11.30: Morning sales, Melbourne Stock Exchange, metal prices. 12.0: Melbourne Observatory time signal. 12.1: Musical reproduction. 12.15: News service. 12.30: Close down.

MIDDAY SESSION.

1.0: Melbourne Observatory time signal, Stock Exchange information, meteorological data, weather forecast for Victoria, New South Wales, South Australia, and Tasmania; ocean forecast, river reports, rainfall. 1.15: Comments on the day's news. 1.30: Melody broadcast.

EDUCATIONAL SESSION.

2.0: The Races and Peoples of the World, Mr. H. J. O. Esmonde. 2.15: Musical interlude. 2.20: Gems of English literature, "David Copperfield," by Dickens—Prof. O. H. Cowling, M.A. 2.35: Musical interlude. 2.40: A talk in German, Mr. G. E. Green, M.A., Dip.Ed. 2.55: Musical interlude.

THE RADIO MATINEE.

3.0: The studio light orchestra, selection of Wilfred Sanderson's songs. 3.10: Tom Temple, (tenor)—"The Winds Are Calling" (Landon Ronald). "Love, I Have Won You" (Landon Ronald). 3.15: Tasma Tiernan, cello—"Serenade Espagnole" (Glazounow). 3.21: Etta Bernard, contralto—"Dreaming of Home" (Besley). "Keep on Hopin'" (Maxwell). 3.28: Studio Light Orchestra—Two songs, "Beauty's Eyes" (Tosti). "I Heard You Go By" (Wood). 3.36: Charles O'Mara, entertainer—"In O'H to Philadelphia" (Haynes). "Phil the Fluter's Ball." 3.43: A. Anderson, clarinet—selected. 3.46: Tom Temple, (tenor)—"Night Song" (Williams). "Yellow Slippers" (Conningsby-Clarke). 3.53: Studio Light Orchestra—Selection, "The Student Prince" (Romberg). 4.0: Etta Bernard, contralto—"Deep River" (Burleigh). "The Message of My Garden" (McBurney). 4.10: Bertha

Jorgensen, violin—"Minuet" (Paderewski-Kreisler). 4.15: Chas. O'Mara, entertainer—"The Donovans" (Traditional air); monologue, "Takin' Tay at Reilly's"; "Molly Brannigan" (Traditional air). 4.22: Studio Light Orchestra—Selection from "The Cinema Star" (Gilbert). 4.30: Close down.

THE CHILDREN'S HOUR

5.45: "Plain Peter" and "Rollicking Rita" are here to make you grin. Conundrums and catches and snatches of song, and then the birthday greetings.

EVENING SESSION.

6.35: Musical interlude. 6.45: Cricketing hints, Mr. H. L. Hendry. 6.55: Musical interlude. 7.0: Melbourne Observatory time signal. 7.1: Country-men's Session—Stock Exchange information; corn exchange report; Associated Stock and Station Agents' official report; wool exchange report; mines and metals; fish and rabbit prices; farm and dairy produce report, supplied by the Inter-State Dairy Produce Committee; wholesale fruit prices, supplied by the Wholesale Fruit Merchants' Association; retail fruit prices, supplied by the Victorian Fruit-growers' Association; citrus fruit prices, supplied by the Victorian Central Citrus Association; weather synopsis; river reports; rainfall data. 7.25: Gardening hints: Vegetables—Seasonal Hints—Mr. E. F. Cook. 7.40: News service. 7.45: Romance of Ruins, Dr. E. Sweetman, M.A., Litt.D.

NIGHT SESSION.

8.0: Collingwood Citizens' Band; March, "Tiberius" overture, "The Crimson Star."
8.8: The Sundowners' Male Quartette: "Songs My Mother Taught Me" (Dvorak).
8.12: J. Harcourt Bailey, entertained: "The Waxwork" (Kreiser).
8.16: The Sundowners' Male Quartette: "Kitty McGee" (Parker).
8.19: Pietro Sarcoll, violin: "Traumerel" (Schumann). "Widnung" (Schumann-Auer). "On the Wings of a Song" (Mendelssohn-Achrohn). "Polchinnelle-Serenade" (Kreiser).
8.30: Madame Elsie Davies, soprano: "Face Mio Dio," from "La Forza del Destino" (Verdi). "The Answer" (Terry).
8.37: Collingwood Citizens' Band: Trombone solo, "In Celis Cool." Soloist, A. Thorne. March, "Viscount Nelson."
8.45: The Story of Hiawatha, by Longfellow. Retold by Rev. Wm. Bottomley, with incidental music by the National Broadcasting Orchestra: "The Wooing." "The Marriage Feast." "The Bird Scene." "The Conjurer's Dance." "The Departure." "The Reunion." Music by Coleridge-Taylor.
9.15: Collingwood Citizens' Band: Selection, "The Magic Flute."
9.26: The A.B.C. Christy Minstrels, in a complete change of programme of Jucose Pokes, Mellifluous Melodies, Catchy Conundrums, and Jubilant Jazz.
9.40: The Station Octette in a special arrangement of "The Wedding of the Painted Doll."
9.45: Collingwood Citizens' Band: Selection from Gilbert and Sullivan.
9.50: Madame Elsie Davies, soprano: "Charming Chloe" (German). "Melodie" (Tosti). "The Star" (Rogers).
9.57: Collingwood Citizens' Band: Intermezzo, "Sanctuary of the Heart"; voice obligato by R. Gundry; fox-trot, "The Girl of My Dreams."
10.4: Sporting. Eric Welch will speak on: "The Last Day of the V.R.C. Spring Meeting at Flemington."
10.15: National Broadcasting Orchestra: "La Cinquantine" (Marie). "Dance of the Tumblers" (Korsakov).
10.21: News Session. British official wireless news, meteorological information, items of information.
10.30: Dance music. Paul Jacle and his band.
11.30: God Save the King.

3AR

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 484 Metres).

MORNING SESSION.

8.15: Musical reproduction. 8.45: Weather. 9.0: G.P.O. chimes. 9.1: News service. 9.5: "Australdr" musical reproduction. 10.0: Chimes. 10.1: British official wireless news. 10.10: Announcements. 10.30: Arnold Coleman, at the Wurliizer. 10.50: The Daily Broadcast Service. 11.0: Close down.

MIDDAY SESSION.

12.0: Chimes. 12.1: Famous Women: Ellen Terry, Miss Agnes St. Clair. 12.15: Fifteen minutes' symposium. 12.30: Luncheon music supplied by Paul Jacle and his Band. 2.0: Chimes.

AFTERNOON SESSION.

2.1: New York String Quartette. 2.8: Edith Mason, soprano. 2.16: Max Rosen, violin. 2.20: New York String Quartette. 2.28: Elizabeth Rathberg. 2.36: The Six Jumping Jacks. 2.42: Marion Harris, comedy. 2.48: New York Police Band. 2.51: John Charles Thomas. 2.54: Harry Shipman. 3.0: Request numbers. 3.20: Molly for Women. A chat by a prominent woman. 3.35: Musical interlude. 3.40: Topical chatter. The Flapper and Auntie. 3.55: Musical interlude. 4.0: A Woman's Wanderings Through the Empire—Memsahib. 4.15: Traders' Demonstration Session. "Australdr" musical reproduction. 5.0: G.P.O. chimes. 5.1: "Australdr" musical reproduction. 5.30: Weather data. 5.45: Close down.

EVENING SESSION.

6.15: Dinner music supplied by Paul Jacle and his band. 7.30: What's on the Air To-night? 7.32: Sporting results. 7.35: Latest musical releases. 8.0: G.P.O. chimes.

NIGHT SESSION.

8.1: A.I.F. Recollections. Digger Noahs—Mr. C. Ellis. 8.15: Community Singing, transmitted from Geelong. Conductor: W. Sampson. 10.20: Weather information. 10.30: God Save the King.

4QQ

Queensland Government Radio Service, Brisbane (Wavelength, 365 Metres).

EARLY MORNING SESSION.

7.30: News. 7.55: Time. 8.0: Records. 8.15: News. 8.30: Close.

MORNING SESSION.

11.0: Music. 11.5: Social news. 11.15: Lecture—Cookery Talk by "The Etiquette Girl." 12.0 noon: A description of the Sheffield Shield match, Queensland v. N.S.W.

MIDDAY SESSION.

1.0: Market; weather. 1.20: Lunch hour music. 2.0: Close down.

AFTERNOON SESSION.

3.0: Sheffield Shield Match. 3.30: Mail train running times. 3.31: A recital by Mr. George Sampson, F.R.C.O. (City Organist). 4.30: Sheffield Shield match. 5.30: Close down.

EARLY EVENING SESSION.

6.0: Mail train running times; mail information; shipping. 6.5: Records. 6.25: Announcements. 6.30: Bedtime stories, conducted by "The Sandman." 7.0: News in brief. 7.5: Stock Exchange. 7.6: Metal quotations. 7.7: Market reports. 7.28: Fenwick's stock report. 7.30: Weather. 7.40: Announcements. 7.43: Time. 7.45: To-morrow's sporting fixtures review.

NIGHT SESSION.

8.0: Mixed Octette (conductor, Sydney May)—"Tis Thy Wedding Morn" (Cowen).
8.4: Jill Manners (soprano)—"Love Will Find a Way" (Simson).
8.9: The Harmony Troubadours—Musical divertissement (guitars, ukeles, bells, and zitherphone)—"Jeanette I Dream of Lilac Time" (Shikret). "Ramona" (Wayne).
8.15: Jack Land (tenor)—"Questa o Quella" (Verdi).
8.20: Nance Hicks (soprano) and Jack Atkinson (baritone)—Vocal duet, "In a Garden of Roses" (Sanderson).
8.25: W. L. Burch (bass)—"The Floral Dance" (Moss).
8.30: Mixed Octette—"Marching Song" (Clarke).
8.34: The Harmony Troubadours—"Girl of My Dreams" (Sunny Clapp).
8.38: Vera Parker (contralto)—"Perhaps" (Forster).
8.43: Mary Spanjer (contralto) and John Steele (tenor)—Vocal duet, "O That We Two Were Maying" (Smith).
8.47: Jack Atkinson (baritone)—"The Fishermen of England" (Phillips).
8.51: The Harmony Troubadours—"Waikiki March" (Kallimal). "Aloha Oe" (Lilloolukalau).
8.0: Metropolitan weather forecast; week-end road information for motorists officially supplied by the R.A.C.Q.
9.15: Mixed Octette—"On the Banks of Allen Water" (Newtown).
9.20: Jill Manners (soprano)—"The Second Minuet" (Besly).
9.24: The Harmony Troubadours—"Wailana" (Alua).
9.30: W. L. Burch (bass)—"Shipmates o' Mine" (Sanderson).
9.34: Mixed Octette—"Weep No More" (Rachmaninoff).
9.38: John Steele (tenor)—"For You Alone" (Ghel).
9.42: Mixed Octette—"Miserere" (Verdi).
9.47: The Harmony Troubadours—"Saxophone Waltz" (Sisk).
9.51: Nance Hicks (soprano)—"The Dawn" (D'Hardelot).
9.55: The Harmony Troubadours—"Carolina."
10.0: Weather.
10.15: The Rhythm Rascals—Three-quarters of an hour's entertainment.
11.0: Close.

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5CL

Central Broadcasters, Ltd., 114 Hindmarsh Square, Adelaide (Wavelength, 409 Metres).

MORNING SESSION.

11.15: Chimes. 11.16: Records. 11.45: Kitchen craft and menu talk. 12.1: Records. 12.15: News. 12.40: Recordings. 12.52: Railway, Stock Exchange, and meteorological information. 1.1: Player piano session. 1.59: Meteorological information. Progress report of Hubert Opperman's attempt on cycling record, Sydney to Melbourne. 2.0: Chimes. Close.

AFTERNOON SESSION.

During the afternoon a description of the international cricket match, England v. South Australia, will be given. 3.0: Chimes. 3.1: Programme review and announcements. Progress report of Hubert Opperman's attempt on cycling record, Sydney to Melbourne. 3.4: Records. 4.1: Player piano session. 4.15: An Educational Talk. 4.25: Stock Exchange, weather; progress report of Hubert Opperman's attempt on cycling record, Sydney to Melbourne. 4.30: Close.

EVENING SESSION.

6.0: Chimes. 6.1: Birthday greetings. 6.15: Children's request numbers. 6.30: Dinner session. 7.0: Chimes. 7.1: Birthday League greetings, sporting service. Stock Exchange. General market reports. 7.20: Rev. E. S. Kiek, M.A., B.D., will speak to you. 7.35: From the Theatre Royal: Dressing-room talk by the producer of "The Desert Song" (Mr. Victor Tatnall). 7.45: Dr. Jethro Brown will speak on "The Workers' Objective."

NIGHT SESSION

8.0: Chimes. 8.1: Programme review. 8.10: "The Steiner Trio"—Suite, "Songs of Italy" (Lohr). 8.20: Dr. P. Ray Newling, baritone—selected. 8.27: Angelo Demodena, mandolinist—selected. 8.34: Dr. P. Ray Newling, baritone—selected. 8.41: "The Steiner Trio"—Selection, "Cavalleria Rusticana" (Mascagni). 8.51: Hilda Hammond, soprano—"Down in the Forest" (Landon Ronald). 8.55: "The Steiner Trio"—"Spanish Danca" (Moszkowski). 9.0: Chimes. 9.1: Meteorological, including Semaphore tides. 9.2: Overseas grain report. 9.3: Announcements. Progress report of Hubert Opperman's attempt on cycling record, Sydney to Melbourne. 9.5: Angelo Demodena, mandolinist. 9.9: Norman Morphet and Gordon Hele, vocal duettists—"Poet and Peasant" (Bonheur), "Two Beggars" (H. Lane Wilson). 9.16: "The Steiner Trio"—"Narcissus" (Nevin), "Prelude in G Minor" (Pachulski). 9.26: Hilda Hammond, soprano—"A Summer Night" (Goring Thomas), "Eyes that Used to Gaze in Mine" (Lohr). 9.35: Guido Giacchino, cellist. 9.37: Norman Morphet and Gordon Hele, vocal duettists—"Soldiers of Fortune" (Valentine Hamery), "Under the Desert Star" (Gordon). 9.47: The Steiner Trio—"Scarfe Dance" (Chaminade). 10.1: Hilda Hammond, soprano—"Over the Mountains" (Quillier). 10.5: "The Steiner Trio"—"African Suite" (Ring). 10.15: News; weather; sporting. 10.30: Dance recordings. 11.0: Close.

6WF

Australian Broadcasting Company, Ltd., Wellington Street, Perth (Wavelength, 435 Metres).

EARLY MORNING SESSION. 7.30: Chimes. 7.31: Meteorological report. 7.35: Music. 7.55: Mails and shipping intelligence. 8.0: What's on to-day. 8.7: World-wide cables. 8.10: Musical reproduction. 8.77: Musical reproduction. 8.30: Close.

MORNING SESSION—TRADE'S DEMONSTRATION. 10.0: Chimes. 10.1: Music. 10.10: Women's interest talk by Dorothy Graham. 10.30: Organ recital from the Ambassadors Theatre. 11.0: Close.

MIDDAY SESSION.—12.30: Chimes. 12.31: Music. 12.35: Market reports. 1.45: Midday news service. 12.55: Item of interest. 1.0: Chimes. 1.1: Weather. 1.2: Luncheon music. 2.30: Close.

THE RADIO MATINEE.—3.30: Chimes. 3.31: Musical reproduction. 3.45: A message from the Labor Women's Organisation. 4.0: Chimes. 4.1: Concert broadcast from Nicholson's studio. 4.55: Features of this evening's presentation. 5.0: Close down.

EARLY EVENING SESSION.—5.45: Chimes. 5.46: Children's good-night stories by Uncle Bas and Auntie Maxine. 6.15: A.B.C. Younger Set session. 6.30: Dinner music. 7.30: Weather. 7.31: News service. 7.35: Market reports. 7.40: Stock Exchange. 7.42: Review of to-morrow's sporting fixtures. 7.57: Features of to-night's programme.

EVENING SESSION.—8.0: Chimes. 8.1: Weather. 8.2: Instrumental Trio. 8.15: To-morrow's racing anticipations. 8.30: Instrumental Trio. 8.45: James Conarty, "Helpful Hints to Garden Lovers." 9.0: Chimes. 9.1: Weather. 9.2: Instrumental Trio. 9.15: Ringside description of wrestling contest. 10.20: Temple Court Dance Band. 10.59: Weather report. 11.0: Chimes.

7ZL

Tasmanian Broadcasters Pty., Bursary Bldg., Elizabeth Street, Hobart (Wavelength, 516 Metres).

11.30: Musical selections. 11.34: Midlands weather forecast. 11.35: Musical selections. 11.55: Tasmanian station's 9 a.m. weather report. 12.0: Chimes. 12.1: Shipping information, mail notices, housewives' guide. 12.8: Musical selections. 12.30: Announcements. 12.40: Record recital. 1.5: Railway auction sales. 1.10: Musical selections. 1.30: Close down. 3.0: Chimes. 3.1: Musical selections. 3.4: Weather. 3.5: Musical selections. 4.15: Readings. 4.30: Close down. 8.15: Children's corner with "Uncle David." 7.10: Recorded music. 7.20: News session. 7.40: An hour with Peter Dawson, baritone, and Sophie Braslau, contralto (interspersed with instrumental numbers). 8.45: James Counsel. "The History and Development of Music." 9.45: News session. 10.0: G.P.O. stock chimes the hour. 10.1: Close down.

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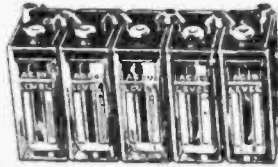
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Local Programmes, Saturday, November 9

2FC

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 431 Metres).

EARLY SESSION—7.0 to 8.15 a.m.

- 7.0: "Big Ben," and meteorological information for the man on the land.
 7.3: This morning's news, from the "Daily Guardian."
 7.8: Austradio musical reproduction.
 7.45: Mails and shipping.
 7.48: What's on to-day?
 7.50: Children's birthday calls.
 8.0: Music from the Studio.
 8.10: Condition of the Roads, supplied by the Main Roads Board.
 8.15: Close.

MORNING SESSION AND AFTERNOON SESSION.

- 10.30: Announcements.
 10.32: A.B.C. Racing Observer.
 10.45: Studio music.
 11.0: Household Helps—Week-end suggestions, by Miss Ruth Furst.
 11.10: Cables—(copyright), "Sun"—"Herald" and A.P.A. news service.
 11.15: Austradio musical reproduction.
 11.53: British Official Wireless press.
 12.0: "Big Ben." Stock Exchange and metal quotations.
 12.5: Studio music.
 12.20: Midday weather forecast and weather synopsis.
 12.25: Studio music.
 Note: At 2 o'clock, a glance at the afternoon "News."
 12.50: From Moorefield—Description of the races in the running.
 Note: From Flemington, Victoria—Description of the Batman Stakes, C. B. Fisher Stakes, and V.R.C. Handicap.
 Note: Results of the cricket match, Queensland Colts v. N.S.W., played at Brisbane, will be transmitted during the afternoon.
 4.35: From the Studio—Late Sporting results.
 4.45: Close.

EARLY EVENING SESSION—5.45 to 7.55.

- 5.45: Children's "Good-night" Stories, told by the "Hello Man," assisted by Aunt Willa and Cousin Gwen.
 6.45: Dinner hour music.
 7.0: A.B.C. sporting service.
 7.37: Special Country Session. Stock Exchange resume. Markets. Weather forecast. Late news service from the "News." Truck bookings.
 7.53: To-night's programme.

THE EVENING PRESENTATION—8.0 to 11.30.

In Radio more than in any other form of entertainment is the desire for something new. To-night our programme is a feature which has never yet been attempted—the broadcast of a National Eisteddfod. On previous occasions the final concert of the Eisteddfod has been transmitted, but listeners to-night will hear finalists in the Eisteddfod conducted by the Railway and Tramway Institute, and the adjudicator's remarks. It will be interesting for them to compare their opinion of the competitors' work with the final decision of the adjudicator. Through 2BL the address by the Prime Minister of the North of Ireland, Lord Craigavon, which is timed for approximately 8.45, will attract many listeners. Lord Craigavon will give his address from the 23rd annual banquet of the Ulster Association.

8.0: From the Railway and Tramway Institute Hall—The final session of the Railway and Tramway Institute Association's Fifth Annual Eisteddfod, with adjudicator's remarks—

- Metropolitan Railway and Tramway Institute Choral Society (Conductor, Mr. G. W. Sherring)—
 (a) "Spring is Come" (Dudley Buck).
 (b) "The Long Day Closes" (Sullivan).
 Final of Champion Piano Solo—
 "Capriccio No. 2, in B Minor" (Brahms).
 Final of Champion Gent.'s Solo—
 Own choice—Operatic or oratorio.
 Lyric Male Quartette—
 (a) "In Absence" (Dudley Buck).
 (b) "Rolling Down to Rio" (Jarman).

- (c) "In the Garden of To-morrow."
 Final of Champion Gent.'s Elocution—
 "The Revenge" (Lord Tennyson).
 Final of Champion Lady's Solo—
 Own choice—Operatic or oratorio.
 Metropolitan Railway and Tramway Institute Choral Society (Conductor, Mr. G. W. Sherring)—
 (a) "Comrades in Arms" (Adams).
 (b) "On the Sea" (Dudley Buck).
 Final of Champion Violin Solo—
 "Air on G String" (Bach).
 Final of Irish Song—
 Own choice.
 Final of Champion Cornet Solo—
 "Neath Austral Skies" (Code).
 10.15: From the Studio—
 Announcements.
 Late official weather forecast.
 10.20: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.
 11.30: Close. National Anthem.

2BL

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 333 Metres).

OPENING SESSION—8.15 a.m. to 11 a.m.

- 8.15: G.P.O. chimes and announcements.
 8.16: Music for every mood.
 8.40: Meteorological data for the country.
 8.45: Mails and shipping information.
 8.50: Memory melodies.
 9.0: This morning's story.
 9.30: A musical interlude.
 9.40: British Official Wireless Press.
 9.45: New music.
 10.5: News from the "Daily Guardian."
 10.10: Austradio musical reproduction.
 10.40: Mr. G. Cooper, park superintendent of city parks, will speak on "Gardening."
 11.0: G.P.O. chimes. Close down.

MIDDAY SESSION—12 noon to 2.30 p.m.

- 12.0: G.P.O. chimes. Announcements.
 12.2: Lunch-hour music.
 1.0: Afternoon news from the "Evening News."
 1.5: Austradio musical reproduction.
 2.0: J. Knight Barnett at the Wuriltzer.
 2.12: Studio music.

AFTERNOON ENTERTAINMENT—2.30 to 5.15 p.m.

- 2.30: 2BL Instrumental Trio.
 2.42: Frank Leonard, entertainer.
 Patter and song. "The Labor Bureau" (Rcse).
 2.49: 2BL Instrumental Trio.
 3.0: Florence Page, songs at the piano.
 (a) "Where's the Face You Had on Monday" (McGhee and Walsh).
 (b) "Don't I Wish I Were a Man" (Rome).
 3.7: 2BL Instrumental Trio.
 3.17: Basil Rye, baritone.
 (a) "The Border Ballad" (Cowan).
 (b) "King Charles" (White).
 3.24: 2BL Instrumental Trio.
 3.34: Frank Leonard, entertainer.
 (a) Dialect song, "I B'aint Goin' Back to Devon" (Valentine).
 (b) "Yum-Yum" (Weston-Lee).
 3.41: 2BL Instrumental Trio.
 3.52: Florence Page, songs at the piano.
 (a) "Naughty Words" (Jefferson Sullivan).
 (b) "Saturday" (Wesly).
 4.0: 2BL Instrumental Trio.
 4.12: Basil Rye, baritone.
 (a) "On the Road to Mandalay" (Hedgecock).
 (b) "The Trumpeter" (Dix).
 4.19: 2BL Instrumental Trio.
 4.30: Austradio musical reproduction.
 5.0: Complete sporting and racing resume.
 5.15: Close down.

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

- 6.15: Dinner music.
 6.45: The captain to his comrades.
 7.5: The A.B.C. Sporting Service.
 7.15: Austradio musical reproduction.
 7.55: What's on the air to-night?

TO-NIGHT'S PRESENTATION—8 p.m. to 12 p.m.

2BL offers listeners to-night an unusual feature, in the address by the Prime Mini-

ster of the North of Ireland (Lord Craigavon), who will be broadcasting on the occasion of the 23rd annual banquet of the Ulster Association. The evening entertainment on popular lines will be contributed by Charles Lawrence, Rae Foster, and Jack Lumsdaine, and symphony music by the Australian Broadcasting Dance Band, conducted by Cec. Morrison.

Through 2FC service listeners will have a unique opportunity of hearing for the first time the final of an eisteddfod. On previous occasions it has usually been the final concert which has been broadcast. To-night the finalists in the eisteddfod conducted by the Railway and Tramway Institute will compete for pride of place, and it will be interesting for listeners to hear the adjudicator's remarks, as the two finalists in each section come before him.

8.0: The Australian Broadcasting Dance Orchestra.

- 8.12: Charles Lawrence, entertainer.
 (a) "Soliloquy of a Safety Pin" (White).
 (b) "Our New Hat" (Shepherd).

8.22: Australian Broadcasting Dance Orchestra.

8.34: Jack Lumsdaine, popular vocalist.
 8.44: From the 23rd annual banquet of the Ulster Association, address by the Chief Civic Commissioner, Sir Dudley de Chair, the Prime Minister of the North of Ireland (Lord Craigavon).

9.30: From the studio. Weather information for the man on the land.

9.32: Rae Foster, popular vocalist.
 9.39: Australian Broadcasting Dance Orchestra.

9.51: Jack Lumsdaine, popular vocalist.
 10.1: Charles Lawrence, entertainer.
 (a) "Editing a Ladies' Paper" (Newman).
 (b) "Long, Long Ago" (Koehler).
 10.11: Australian Broadcasting Dance Orchestra.

10.25: Late weather forecast. Late news from the "Evening News."

10.30: Australian Broadcasting Dance Orchestra.

12.0: National Anthem. Close.

2GB

Theological Broadcasting Station, 29 Bligh St., Sydney (Wavelength, 316 Metres).

3.0: Musical session. 5.15: Children's session by Uncle George. 6.50: M-G-M Radio Movie Club session. 7.0: Request hour. 8.0: Musical session. 10.30: Close down.

2UW

Radio Broadcasting, Ltd., Palms Building, Ash St., Sydney (Wavelength, 267 Metres).

5.30 p.m.: Children's Hour, conducted by Uncle Jack. 6.30: Close. 7.0: Musical programme and request numbers. 10.30: Close.

2KY

Trades and Labor Council, Goulburn St., Sydney (Wavelength, 286 Metres).

CHILDREN'S SESSION
 6.0: Birthday calls, request numbers, and kiddies' entertainment. Aunt Jemima and Uncle Bert.

EVENING SESSION

7.0: Musical interlude. 7.5: Birthday calls. 7.15: Sporting feature. Turf topics. How they ran to-day. 7.50: Request numbers. 10.0: Closing announcements.

2UE

Broadcasting Station 2UE, Everett Street, Maroubra, Sydney (Wavelength, 293 Metres).

EARLY MORNING SESSION.

7.15 to 8.30: See Friday.

EVENING SESSION.

6.30 to 10.30: See Friday.

ANNA BURKE, singer of Irish songs, will be on the air from 3LO on November 9, in some songs of the Emerald Isle. Miss Burke has been many years on the musical comedy stage, and appeared in many notable productions at the famous Gaiety Theatre, London.

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A435	R.F.	0.06	—	—	—	—	13/6
A442	R. F. Screen Grid	0.06	—	—	—	—	25/-

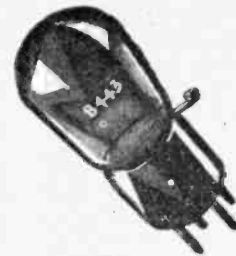
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A615	Det. 1st Audio08	1.5	3.0	3.0	4.5	13/6
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B405	Power	0.15	9.0	12.0	15.0	18.0	15/-
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B409	High Gain Power	0.15	4.5	6.0	7.5	9.0	15/-
B443	Penthode	0.15	—	9.0	12.0	15.0	25/-
B605	Audio12	6.0	9.0	15.0	18.0	13/6
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Interstate Programmes, Saturday, November 9

3LO

Australian Broadcasting Co., 129A Russell St., Melbourne (Wavelength, 371 Metres).

EARLY MORNING SESSION.

7.0 to 8.15: See Friday.

MORNING SESSION.

10.30: to 12.30: See Friday.

MIDDAY SESSION.

12.55: Description of Batman Stakes, one mile, V.R.C. races at Flemington, by Eric Welch. 1.10: Stock Exchange information; meteorological data; weather forecast for Victoria, New South Wales, South Australia, and Tasmania; ocean forecast; river reports; rainfall data. 1.15: Comments on the day's news. 1.30: Melody broadcast. 1.35: Description of Flemington Stakes, six furlongs, V.R.C. races, at Flemington, by Eric Welch. 1.50: Melody broadcast.

AFTERNOON SESSION.

2.0: Time. 2.1: Musical reproduction. 2.35: Description of C. B. Fisher Plate, 1 1/2 miles, V.R.C. races, at Flemington, by Eric Welch. 3.0: Time signal; sporting results to hand. 3.25: Description of V.R.C. Handicap, 1 1/4 miles, V.R.C. races, at Flemington, by Eric Welch. 4.0: Time signal; sporting results to hand. 4.15: Description of Victoria Steeple Chase, 3 miles 1 fur., V.R.C. races, at Flemington, by Eric Welch. 4.30: Close down.

EARLY EVENING SESSION.

4.55: Description of Final Handicap, 1 1/4 miles, V.R.C. races, at Flemington, by Eric Welch. 5.10: Sporting results. 5.35: Close down.

THE CHILDREN'S CORNER.

5.45: "Little Miss Kookaburra" with the help of "Genevieve" will entertain the "Tiny Kookaburrites" and then some more about "The Guides at Calamity Hills"; birthday greetings by "Little Miss Kookaburra."

EVENING SESSION.

6.40: Sporting results. 6.55: Musical interlude. 7.0: Melbourne Observatory time signal. 7.1 Countryman's Session. 7.25: Stories of our mining fields; Edie Creek Goldfields, Mr. E. A. Mustard. 7.40: News. 7.45: Wandering round the world; Nigeria, Mr. H. J. G. Esmonde. 8.0: Melbourne Observatory time signal.

NIGHT SESSION.

8.0: Brunswick City Band (conductor, Hugh Niven): "The Humors of Donnybrook."
8.10: Anna Burke, mezzo-soprano, (old song, "I Know Where I'm Going" (Traditional); Irish ballad, "Hills of Donegal" (Saunders).
8.17: Brunswick City Band: Cornet solo, "Eileen Aghannach."
8.22: Rita Hilton, entertainer: "Bridget O'Flynn," "See I to Mysiv."
8.30: Brunswick City Band: "Memories of Ireland."
8.40: Something different. A Nautical Radio Picture, produced by F. Clarke Cottrell.
9.0: A special programme has been arranged.
9.30: Brunswick City Band: "In a Persian Market" (Ketyby).
9.40: "Anson," the Fiddling Jester, in mirth, melody, and music.
9.50: Anna Burke, soprano: Folk song, "The Next Market Day" (Traditional); Irish ballad, "She's a Real Irish Mother" (Walsh).
9.57: Brunswick City Band: "Parade of the Tin Soldiers" (Jessel).
10.7: Rita Hilton, entertainer: Monologues at the Piano.
10.15: British official wireless news; sporting results; meteorological information; items of interest.
10.25: Plaza Dance Band.
11.30: God Save the King.

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3AR

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 484 Metres).

MORNING SESSION.

8.15 to 11.0: See Friday.

MIDDAY SESSION.

12.0 to 2.0: See Friday.

AFTERNOON SESSION.

2.1: The Idyls of the King, The Holy Grail—Rev. W. Bottomley. 2.15: Musical interlude. 2.20: Life in the Tropics—Mr. A. A. Doves. 2.35: Musical Interlude. 2.40: Old Coaching Days—Mr. Frank Smiley. 2.55: Musical interlude. 3.0: G.P.O. chimes.

THE RADIO MATINEE.

3.1: Paul Jeacle and his Band—"M. Sugar and Me" (Palmer), "Love Thrills" (Meyer). 3.6: Joe Delaney, tenor—"Just a Cottage Small" (Hanley), "Your Eyes Have Told Me" (O'Hara). 3.13: J. and G. The Confidential Two—"My Bouquet of Memories." "Piano Novelty: "The Man I Love." 3.20: Paul Jeacle, saxophone solo—"Pauline" (arr. Paul Jeacle). 3.24: Violet Colahan, soprano—"Love and Sleep" (Hart), "The Blackbird" (Hart). 3.31: Paul Jeacle and his Band—"It Don't Mean a Thing Without You" (Dixon). 3.37: Comedy sketch: "The Courting of Widow Malone" (Constance Anderson) (produced by Catherine Nell). Characters: The Widow, Catherine Nell; O'Brien, Thomas Leslie; Pat Clancy, Sydney Carew. 3.52: Claude Jeacle, tenor—selected. 3.56: Thomas George, bass—"Riding Through the Night" (Smith), "Uncle Bongo" (Homer). 4.3: Paul Jeacle and his Band—"It Don't Mean a Thing Without You" (Davis), "He Hadn't Put Till Yesterday" (Tucker). 4.9: Joe Delaney, tenor—"For You Alone" (Geehl), "My Dreams" (Tosti). 4.16: Bob Adams, trumpet solo—selected. 4.20: Violet Colahan, soprano—"Where the Bee Sucks" (Arne), "Should He Up-braid?" (Bishop), 4.27: Paul Jeacle and his Band—"I'm Coming, Virginia" (Heywood), "Freeze Out" (Waller). 4.33: J. and G. The Confidential Two—More of the latest hits. 4.41: Thomas George, bass—"Nita Gitana" (Newton), "I Heard You Go By" (Wood). 4.48: Paul Jeacle and his Band—"Steamboat" (Robinson), "Walking With Susie" (Conrad), "Breakaway," request number. 5.0: Chimes. 5.1: Musical reproduction. 5.30: Weather. 5.45: Close down.

EVENING SESSION.

6.15: Dinner music, supplied by the Studio Light Orchestra. 7.30: What's on the Air To-night? 7.32: Sporting results. 7.40: Latest musical releases. 8.0: Chimes.

NIGHT SESSION.

8.1: National Broadcasting Orchestra—Overture, "Lurline" (Wallace).
8.10: Elsie Stewart, soubrette—"Sweet Forget-me-not" (Whiting), "Bread and Jam" (Green).
8.17: Oreste Manzoni, mandolin—Medley (arr. Manzoni).
8.21: Austin Anderson, entertainer at the piano—"The Story of Rachmaninoff's Prelude."
8.30: The Everbright Revue Company—Half an hour of versatile snapshots, introducing the Poetical Announcer.
9.0: National Broadcasting Orchestra—Selection, "You're in Love" (Fry).
9.10: Ernest Wilson, baritone—"Long Ago in Alcala" (Messenger), "Trees" (Rasbach).
9.17: J. Geary, trumpet—"Love's Garden of Roses" (Friml).
9.22: A Plantation Story—"Swing Low, Sweet Chariot," Doreen Beery, with mandolin accompaniment by Oreste Manzoni.
9.34: National Broadcasting Orchestra—Selection, "Faust" (Gounod).
9.44: Elsie Stewart, soubrette—"A Little Bit of Cuddle." "Oh, Is He Mad at Me?"
9.52: Tasma Tiernan, cello—request numbers.
9.57: Austin Anderson, entertainer—comedy-ette, "Mr. and Mrs. Flannigan."
10: Weather news.
10.15: A.B.C. Quintette, String Quartette (Mozart), 10.25: Ernest Wilson, baritone—"The Sun God" (W. James), "Sea Fever" (Ireland).
10.32: National Broadcasting Orchestra—Selection, "The Bell of New York" (Kerker).
10.54: Dance Band.
12.0: God Save the King.

4QQ

Queensland Government Radio Service, Brisbane (Wavelength, 385 Metres).

EARLY MORNING SESSION

As usual.

MIDDAY SESSION

12.0 noon: A description of the Sheffield Shield Match, Queensland v. N.S.W.

AFTERNOON SESSION.

3.0: Sheffield Shield match. 4.30: Close.

EARLY EVENING SESSION.

6.0: Bi-weekly news service for distant listeners 6.30: Bedtime news, conducted by "Uncle Ben." 7.0: Race results in detail. 7.20: General sporting. 7.30: Balling notes, by Mr. Fred Smith.

NIGHT SESSION.

8.0: Radio Comedy, "Buying a House" (by Neville Raymond). Cast: The Lady, Dulcie Dunlop; the Agent, Neville Raymond; Mrs. P. North (pianiste); "Miguel" (Palmgren); Monument and Harrow—Another Argument, Ernest Harper (baritone); "The Trumpeter" (Dix). Claude Walker—Ten minutes with Henry Lawson, Foster and Dawson, entertainers. Note: The two semi-finals and the final of the main trophy race at the Speedway will be relayed at

suitable times. J. Brett—songs and patter. Mrs. F. North (pianiste)—Selected, Ernest Harper (baritone)—"Shipmates o' Mine" (Sanderson). Foster and Dawson—entertainers. 10.0: News; weather. Close.

5CL

Central Broadcasters, Ltd., 111 Hindmarsh Square, Adelaide (Wavelength, 409 Metres).

AFTERNOON SESSION.

During the afternoon a description of the international cricket, England v. South Australia, will be given. 12.0: Chimes. 12.1: Special late selections for Flemington races. 12.3: Probable starters and selections for races at Victoria Park. 12.15: News; weather. 12.45: Recordings. 1.15: Victoria Park—Riders and positions for the Club Handicap, two miles. 1.30: Running description of the Club Handicap. 1.55: Riders and positions for Juvenile Handicap, five furlongs. 2.10: Running description of Juvenile Handicap. 2.35: Riders and positions for Summer Handicap, one mile and a quarter. 2.50: Running description of Summer Handicap. 3.0: News; weather. 3.15: Victoria Park—Riders and positions for Maiden Handicap, one mile. 3.30: Running description of Maiden Handicap. 4.0: Resume of Flemington race results. 4.10: Victoria Park—Running description of the Grenfell Handicap. 4.35: Riders and positions for Final Handicap, six furlongs and a half. 4.50: Running description of the Final Handicap. 4.55: Resume of Victoria Park and Flemington race results. 5.0: Close.

EVENING SESSION.

6.0 to 7.0: See Friday. 7.10: Rev. G. E. Hale, B.A., will speak to you. 7.25: Mr. C. G. Riley will speak on "Items of Interest." 7.40: Sporting service.

NIGHT SESSION.

8.0: Programme review.
8.10: Thebarton Municipal Band (conducted by Mr. D. Hopkins)—"March, "Appreciation" (Powell); incidental music, "The Merchant of Venice" (Rossi).
8.20: The Windarra Male Quartette.
8.27: Thebarton Municipal Band—Cornet solo, "Valse," soloist, Kennedy Russell. Waltz, "Thoughts" (Alford).
8.37: Jack Burgess and Netta Rodney—"Old Time Melodies."
8.50: D. Hopkins, trombonist.
8.57: Alys Watson, soprano—"A Spirit Flower" (Tipton), "The Low" (May Brahe).
9.4: Thebarton Municipal Band—Selection, "Souvenir of the Opera" (Rimmer).
9.14: A one-act play, entitled "The Constant Lover" (John Hankin). Characters: Evelyn, Miss Roberta Reid; Cecil, Lee Bernstein.
9.29: Thebarton Municipal Band.
9.39: Windarra Male Quartette.
9.46: D. Hopkins, trombonist—"My Task" (Ashford).
9.51: Alys Watson, soprano—"Il Dolce Suono" (Donizetti).
9.58: Thebarton Municipal Band—"Annie Laurie" (Rimmer), "Unity" (Foxhall).
10.8: Netta Rodney and Jack Burgess—"Old Time Melodies."
10.20: Sporting service.
10.30: Dance music.
11.0: Close.

6WF

Australian Broadcasting Company, Ltd., Wellington Street, Perth (Wavelength, 435 Metres).

EARLY MORNING SESSION: 7.30 to 8.30. MORNING SESSION: 10.0 to 11.0. MIDDAY SESSION: 12.30 to 2.30. THE RADIO MATINEE: 3.0 to 5.0. EARLY EVENING SESSION: 5.45 to 7.57, see Friday.

EVENING SESSION.—(Results of trotting meeting will be broadcast immediately received.) 8.0: Weather report. 8.2: Everson Banjo Troupe. 8.12: Description of motor-cycle contest from Speedway. 8.22: Everson Banjo Troupe. 8.32: Description of motor-cycle contest from Speedway. 8.42: Everson Banjo Troupe. 8.52: Description of motor-cycle contest from Speedway. 9.0: Town Hall chimes. 9.1: Weather report. 9.2: Everson Banjo Troupe. 9.12: Description of motor-cycle contest from Speedway. 9.22: Everson Banjo Troupe. 9.32: Description of motor-cycle contest from Speedway. 9.42: Everson Banjo Troupe. 9.52: Motor-cycle contest from Speedway. 10.0: Chimes. 10.1: Weather. 10.7: Temple Court Dance Band. 10.59: Weather report. 11.0: Close.

7ZL

Tasmanian Broadcasters Pty., Bursary Bldg., Elizabeth Street, Hobart (Wavelength, 516 Metres).

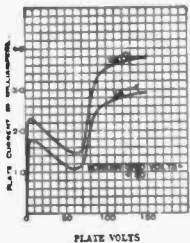
11.30 a.m.: Sonora recital. 11.34: Midlands weather forecast. 11.35: Sonora recital. 11.55: Tasmanian station's 9 a.m. weather report. 12.0: G.P.O. clock chimes the hour. 12.1: Shipping information, mail notices, housewives' guide. 12.8: Sonora recital. 12.30: All sporting results to hand. 5.0: Close down. EARLY EVENING SESSION. 8.25: Children's corner "Uncle David." 7.10: Recorded music. 7.40: Belle St. Lawrence will continue her travel talks. 7.50: J. M. Counsel will speak on "European Affairs." 8.0: G.P.O. clock chimes the hour. 8.1: Sonora recital. 8.15: A program of popular music, specially arranged by Paton's Music Warehouse. 10.20: Close down.



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Local Programmes, Sun., Nov. 10

2FC

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 451 Metres).

THE CHURCH HOUR—10 a.m. to 12.30 p.m.

10.0: Announcements.
10.5: Studio music.
10.30: This morning's news, from the "Sunday Sun," "Sunday Times," and "Truth."
British Official Wireless press.
10.45: Musical items.
11.0: From St. Mark's Church of England, Darling Point—Morning Service, conducted by Rev. Canon E. Howard Lea.
12.15: Studio music.
12.30: Close.

AFTERNOON CONCERT—3 p.m. to 4.30 p.m. ARMISTICE SUNDAY.

3.0: From the Lyceum Hall—Programme arranged by the Central Methodist Mission—Rev. H. C. Foreman, M.A. (Chaplain, A.I.F.), presiding. Accompanist, Miss Constance Bardsley, L.T.C.L.

Doxology.

Prayer.

Baritone solo—

(a) "The Toast is Anzac" (McCarthy).

(b) "The Harvester's Night Song" (Baynton-Power).

"Congo" (Vachael Lindsay)—

Montgomery Stewart.

"A Tribute of Remembrance"—

Dr. Harvey Sutton, O.B.E. (President, Returned Soldiers' League).

Two minutes' silence (all standing).

"Last Post"—Cenotaph Trumpeter L. P. Josephs.

Selection, "Give Thanks and Sing" (Harris)—

The Dulwich Hill Salvation Silver Band, conducted by Harold Boas.

Solo, Amy Firth—

"A Benediction" (Hambleton).

Address, "World Peace." Sir Henry Bradon, K.B.E.

Acknowledgments.

National Anthem.

Benediction.

Retiring Selections by the Dulwich Hill Salvation Silver Band.

4.30: Close.

EVENING PROGRAMME—6 to 10.30 p.m.

6.0: From Pitt Street Congregational Church, Organ Recital arranged by Lillian Frost—

(a) "Pitt St. Church Chimes, with "Land of Hope and Glory."

(b) "The Flowers of the Forest" (Bridge).

6.10: From the Studio—Gwladys Fimister, soprano—

(a) "O Fair and Sweet and Holy" (Rubinsteln).

(b) "Die Letoshleume" (Schumann).

6.17: From Pitt Street Congregational Church—Organ Recital arranged by Lillian Frost—

(a) "Trumpet Voluntary" (Purcell).

(b) "Largo" (Handel).

(c) "I Know That My Redeemer Liveth" (Handel).

6.30: Rev. E. J. Davidson, Federal Padre of Toc H will give an address on "Men, Women, and War."

6.50: Gwladys Fimister, soprano—

(a) "My Mother Bids He Bind My Hair" (Haydn).

(b) "Lullaby" (Scott).

(c) "June" (Quilter).

7.0: From Pitt Street Congregational Church—Evening Service, conducted by Rev. T. E. Ruth.

8.30: From the Studio—Will Prior's Concert Ensemble.

10.30: Close. National Anthem.

2BL

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 353 Metres).

MIDDAY SESSION—10.55 a.m. to 3 p.m.

10.55: Announcements.

11.0: From Petersham Baptist Church: Morning Service.

12.15: From the Studio: Musical items.

12.30: News from the "Sunday Sun," "Sunday Times," and "Truth."

12.38: A specially arranged programme of instrumental music.

2.15: "Cheer-up" Session, conducted by Uncle Frank.

2.30: Austradio musical reproduction.

3.0: Close down.

LATE AFTERNOON—4.30 to 6 p.m.

4.30: A celebrity recital arranged by Madam Evelyn Grieg—

"The Tschalkowsky Symphony."

5.10: C. N. Baeyertz will continue his series "Philosophic Thought from Bacon to Bergson," and his subject this afternoon will be a continuation of "Voltaire."

5.30: Musical programme arranged by Madam Evelyn Grieg.

EVENING SESSION—6 p.m. to 10 p.m.

6.0: For Children in Hospital—Session conducted by Uncle Steve, assisted by Aunt Goodie and Cousin Marjorie.

6.50: From Newtown Methodist Mission: Evening Service, conducted by Rev. A. E. Walker—

Hymn 2 (Methodist Church Book).

Psalm 103.

Prayer.

Hymn 189.

Scripture: St. John, Chapter 6, Verses 32-69.

Anthem: "I Waited Patiently" (Dr. Jarman).

Hymn 28 (New Edition of Sankey).

Announcement and Offering—Organ selection.

Prayer Requests.

Solo: Mr. Bassett Evans, "Seeking for Thee" (Sweney).

Hymn 272.

Sermon: Rev. A. E. Walker.

Text: John 6—Chapter, Verses 66-67.

Hymn 633.

Benediction.

8.30: Weather information for the man on the land.

8.32: Relay from 3AR Melbourne.

10.0: National Anthem. Close.

2GB

Theosophical Broadcasting Station, 29 Bligh St., Sydney (Wavelength, 316 Metres).

9.0: Address by Miss Mary Rivett, "On Creativeness." 9.30: Address by Mr. Victor E. Cromer, "World Healing." 10.0: Music.

10.15: Organ music from St. Alban's Church, Regent St., Sydney. 10.30: Morning service from St. Alban's Church, 12 (noon): Music from Studio. 12.30: Close down. 3.0: Musical session. 5.30: Children's session by Uncle George. 7.0: Lecture from St. Alban's Church. 7.35: Lecture from Adyar House. 8.15: Sacred Concert by courtesy of Suttons Ltd.; Miss Ada Brook, pianiste. 8.23: Mr. Austin Punch, baritone. 8.30: Mr. Gregory Valentine, Violinist. 8.38: Miss Mary Neal, contralto. 8.45: Mr. John Muirhead, tenor. 8.52: Miss Ada Brook, pianist. 9.0: Weather report. 9.1: Mr. Austin Punch, baritone. 9.8: Mr. Gregory Valentine, violinist. 9.16: Miss Mary Neal, contralto. 9.23: Mr. John Muirhead, tenor. 9.30: Address by Mr. Victor E. Cromer, "Spiritualised Democracy." 9.45: Close down.

2UW

Radio Broadcasting, Ltd., Palling's Building, Ash St., Sydney (Wavelength, 267 Metres).

10.30: Music and request numbers. 1.0: Close. 3 to 4: From the Kinema Theatre, Mosman, Christian Science Lecture by the Hon. W. E. Brown. 5.30: Children's Hour, conducted by Uncle Jack. 6.30: Close. 7.0: Musical programme. 10.30: Close.

2UE

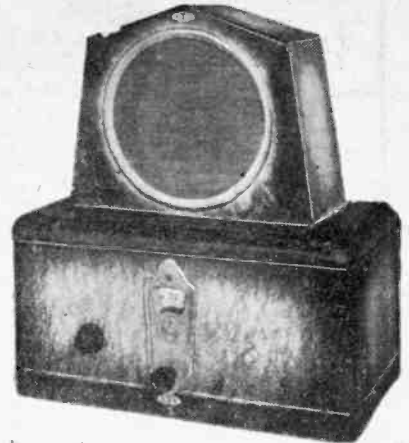
Broadcasting Station 2UE, Everett Street, Maroubra, Sydney (Wavelength, 293 Metres).

MORNING SESSION.

11.0: Mass from St. Mary's Cathedral. 12.25: Studio announcements. 12.27: Orchestral selections. 1.0: Close down.

EVENING SESSION.

6.0: Music. 6.5: Instruction and entertainment conducted by Rev. Father T. Walsh, S.J. 6.30: Music. 6.35: "Question Box" talks by Dr. L. Rumble, M.S.C. 7.30: Evening devotions from St. Mary's Cathedral. 8.15: Orchestral music. 8.20: Overture, "La Traviata" fantasia. 8.30: Vocal and orchestral concert. 10.15: Close down.



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Interstate Programmes, Sun., Nov. 10

3LO

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 371 Metres).

MORNING SESSION.

10.0: Time signal. 10.1: Musical reproduction. 10.20: Express train information, British official wireless news, items of interest. 10.30: Bells of St. Paul's Cathedral. 10.45: Morning Service from St. Paul's Cathedral, Melbourne. Preacher, Canon Crotty. 12.30: Close down.

AFTERNOON SESSION.

3.0: Pleasant Sunday afternoon, from Wesley Church Central Mission. Conducted by Rev. J. H. Cain. Speaker, Rev. Alfred Nadsen. Subject, "Men and Religion." Solist, J. Alexander Brown. 4.30: Close down.

THE CHILDREN'S HOUR

6.0: "Brother Bill," "Plain Peter," and "The Mouth Organ Man"

EVENING SESSION.

7.0: The Cremona Trio: "Trio in C Minor" (Beethoven). Allegro Vivace, Andante Variations. 7.10: May Broderick, piano: "Organ Toccata and Fugue," in D Minor (Bach). 7.18: Frank Johnstone, cello: Selected. 7.23: Kingsley Parkes, violin: "Ave Maria" (Schubert). "Valse Bluettes" (Drigo). 7.30: Beauty spots of Australasia. 7.45: The Cremona Trio: "Trio in C minor" (Beethoven), Minuetto, Finsale.

NIGHT SESSION.

8.0: Frank Lanterman, organ: Phantasia on Russian Themes.

8.10: Norman Christensen, tenor: "The Lord is My Light" (Allison), "How Many Hired Servants" (Sullivan).

8.17: Tomaso Cerbasi, harp: "Scherzo" (Cerbasi), "La Donna e Mobile" (Verdi).

8.23: Frank Lanterman, organ: Melodies of the Day.

8.30: Norman Christensen, tenor: "The Bitterness of Love" (Dunn), "Jenny's Way" (Willeby).

8.37: Tomaso Cerbasi, harp: "Blue Bells of Scotland" (Ryder), "La Falena" (Trader).

8.45: His Excellency, the Governor-General, Lord Stonehaven, will speak on "Armistice Day." A classical programme arranged by Professor Bernard Heinze.

8.5: The "Tarczyński" Quartette: Quartette by Rosyski.

8.35: Lillian George, soprano. Tarczyński, violin: "Romance" (Karłowicz). Lillian George, soprano: "Thou Art Like a Lovely Flower" (Schumann), "The Green Hat" (Schumann), Tarczyński, violin: "Oberstass" (Wienlawski). A short piano recital. Vassili Ister, piano: A recital from the works of Russian composers.

10.30: British official wireless news; meteorological information; items of interest.

3AR

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 484 Metres).

MORNING SESSION.

11.0: Divine Service, from the First Church of Christ Scientist.

MIDDAY SESSION.

12.30: A studio programme. 2.0: Frank Lanterman at the Wuritzer, with assistant artists. 3.0: Close down.

AFTERNOON SESSION.

4.30: A Recital for the Music Lover. "Freischütz" Overture (Weber), "Lover's Symphony" Orchestra. 4.38: "Coin Home," "Liebestraum," Mario Chamies, tenor. 4.46: "Ave Maria" (Schubert), Albert Spalding, violin. 4.53: "The Crucifix" (Faure), "The Lost Chord," John Charles Thomas, baritone. 5.0: Piano solo. Bachaus. 5.8: "Swing Low," Negro Spiritual. "Little David, Play on Your Harp," Criterion Male Quartette. 5.14: "Minuet" (Boccherini), "Spanish Dance" (Albaniz), New York String Quartette. 5.20: "The Earl King" (Schubert), "Rinaldo" (Handel), Sigrid Oneglia, contralto. 5.28: "The Week's Good Cause. The Problem of the Unaccepted T.B. Digger, Captain Jacka, V.C. 5.40: "William Tell Overture" (Rossini), Brunswick Military Band. 5.52: "O' Salutaris" (Gounod), "Ave Maria" (Victorina), Notre Dame Glee Club. 5.58: "Midsummer Night's Dream" (Mendelssohn), New York Philharmonic Orchestra. 6.8: "Song of the Volga Boatmen," "When the King Went Forth to War," Gusepne Danise, baritone. 6.12: Piano recital. Friedman. 6.20: A recital of request numbers. 6.45: What's on the Air To-night? 6.47: St. Paul's Cathedral bells.

EVENING SESSION.

7.0: Divine Service, from Scots Church, Collins Street, Melbourne. Sermon, Rev. W. Borland. Subject: "Contemporary Hypocrisy." Anthem: "Light in Darkness" (Cyril Jenkins). Organist, Mr. W. H. G. Steele.

NIGHT SESSION.

8.30: Victory Brass Band—March, "The Scandian," overture, "La Fete," "Swing Low." 8.40: Etta Bernard, contralto—"The Hindoo Song" (Remberg), "The Tomb of Ajax" (Stewart). 8.47: Arved Norit, violin. 9.0: Regal Male Quartette—"Those Songs My Mother Used to Sing" (Wakefield), "In a Gondola" (Senders). 9.8: Victory Brass Band—Selection, "The Twelfth Man" (Mozart). 9.18: Thomas George, bass baritone—"Star of Eve" (Wagner), "Invictus" (Huhn).

9.22: Mabel Nelson, piano recital—"Andante" (Mendelssohn), "Rondo Capriccioso" (Mendelssohn). 9.32: Etta Bernard, contralto—"The Lord is My Light" (Allison), "An Epitaph" (Besley). 9.39: Victory Brass Band—Cornet solo, excerpts. H. Berry, winner of the Championship of Australia, West Australian Centenary Contest—Hymn. "It Is Well." 9.49: Regal Male Quartette—"In Absence" (Butt), "Love's Old Sweet Song" (Molloy). 9.54: Victory Brass Band—Grand March from "Faunhauser." 9.58: Weather. 10.0: God Save the King.

4QG

Queensland Government Radio Service, Brisbane (Wavelength, 385 Metres).

MORNING SESSION.

11.0: The complete morning service will be relayed from the Baptist City Tabernacle. 12.15: Close down.

AFTERNOON SESSION.

3.15: The Band Concert will be relayed from the Brisbane Botanic Gardens. 4.30: Close.

EARLY EVENING SESSION.

6.0: An hour for little listeners.

NIGHT SESSION.

7.0: The complete evening service will be relayed from St. Andrew's Presbyterian Church. 7.30: Evening Service.

At the conclusion of the church service the concert by the Brisbane Municipal Concert Band will be relayed from Wickham Park. 9.30: Close.

5CL

Central Broadcasters, Ltd., 114 Hindmarsh Square, Adelaide (Wavelength, 409 Metres).

MORNING SESSION.

10.45: Carillon of bells from the Adelaide Town Hall. 11.0: Service from St. Bartholomew's Church, Norwood. Minister, Archdeacon Moyes. Organist, Mr. Frank Bowen. 12.10: News. 12.15: Close.

AFTERNOON SESSION.

3.0: Chimes. 3.1: A Pleasant Sunday Afternoon Service from Maughan Methodist Church. 4.0: Close.

EVENING SESSION.

6.0: Chimes. 6.1: Birthday greetings. 6.15: "The Bird Lady" and "The Sunshiny Songsters." 6.45: Church Choir numbers. 7.0: Chimes. 7.1: Birthday League greetings. 7.2: Service from Rose Park Congregational Church. Minister, Rev. Watts Grimmett. Organist, Mr. Stanley Brand.

NIGHT SESSION.

8.20: Announcements. 8.30: From the Regent Theatre—Special Concert. Frank Roberts, Wuritzer organist—"Hungarian Dance No. 4" (Brahms). 8.39: Gentleman Vocalist (winner of 5CL Radio Vocal Championship). 8.46: Lady Vocalist (winner of 5CL Radio Vocal Championship). 8.53: W. May, cornetist—"Somewhere a Voice is Calling," "Rose of My Heart." 8.0: Gentleman Vocalist (winner of Popular Vote in 5CL Radio Vocal Championship). 9.7: Lady Vocalist (winner of Popular Vote in 5CL Radio Vocal Championship). 9.14: Frank Roberts, Wuritzer organist—"Lay My Head Beneath a Rose," "Marcheta." 9.21: Gentleman Vocalist (winner of 5CL Radio Vocal Championship). 9.28: Lady Vocalist (winner of 5CL Radio Vocal Championship). 9.35: W. May, cornetist—"Killarney" (Balfé); "Pale Moon" (Logan). 9.42: Gentleman Vocalist (winner of Popular Vote in 5CL Radio Vocal Championship). 9.49: Lady Vocalist (winner of Popular Vote in 5CL Radio Vocal Championship). 9.55: From 5CL Studio—News. 10.0: Mr. P. H. Nicholls will speak on Armistice—"Poppy Day." 10.10: Close.

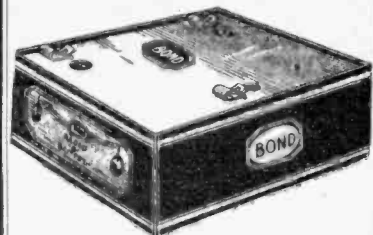
"THE problem of the unaccepted Digger" will be stated by Captain Jacka, V.C., who will speak from 3AR on November 10. The majority of people are not aware that in Victoria alone there are hundreds of incapacitated men, unable to follow any regular employment, whose injuries are directly due to war service, but, owing to the fact that their cases are not accepted by the Government, they are not in receipt of any pension. Many appeals have been made on their behalf, but there is still much that can be done, and Captain Jacka, who is in close touch with the movement, will speak from inside information.

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Local Programmes, Monday, November 11

2FC

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 451 Metres).

EARLY SESSION—7 to 8.15 a.m.

- 7.0: "Big Ben" and meteorological information for the man on the land.
 7.3: This morning's news from the "Sydney Morning Herald."
 7.8: Austradio musical reproduction
 7.45: Mails and shipping.
 7.48: What's on to-day?
 7.50: Children's birthday calls.
 8.0: Music from the studio.
 8.15: Close.

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

- 10.30: Announcements.
 10.32: A.B.C. Racing Observer.
 10.45: Studio music.
 10.50: From Martin Place, the Armistice Day Ceremony—
 Arrival of His Excellency the Governor, Sir Dudley de Chair.
 11.0: Two minutes' silence will be observed.
 11.10: From the studio, cables (copyright), A.P.A., and Sun-Herald news service.
 11.15: Morning devotion.
 11.30: Austradio musical reproduction.
 11.53: British official wireless press.
 12.0: "Big Ben"; Stock Exchange, and metal quotations.
 12.5: V. C. Bell will speak from the "Public Forum."
 12.20: Midday weather forecast and weather synopsis; special produce market session for the man on the land, supplied by the State Marketing Board.
 12.30: Close.

THE LUNCH HOUR—1 to 2.30 p.m.

- 1.0: Lunch-hour music, from the Aeolian Hall—the Sverjensky Instrumental Ensemble.
 2.0: Stock Exchange, second call.
 2.5: A glance at the afternoon "Sun" and "News."

- 2.7: A midday story.
 2.27: Announcements.
THE RADIO MATINEE—2.30 to 4.30 p.m.
 Note: Results of the cricket match, Q'land Colts v. New South Wales, played at Brisbane, will be transmitted during the afternoon.
 Note: Description from Williamstown, Victoria, of the Williamstown Cup will be relayed through 3L.O., Melbourne.
 2.30: The 2FC Instrumental Trio.
 2.45: Ethel Muller, contralto—
 (a) "Thanks Be to God" (Dickson).
 (b) "He Is Tender with the Beasts" (Ford).
 2.52: Cliff Hanney, violinist—
 (a) "Chanson-Meditation" (Cottenet).
 (b) "Indian Lament" (Dvorak-Kreisler).
 3.0: Educational session, under the auspices of the Department of Public Instruction—
 Mr. E. Breakwell, Professor of Agriculture—"Wonders of Plant Life."
 3.15: Mr. H. F. Trearne, supervisor of music—"Sad and Gay Music."
 3.30: The 2FC Instrumental Trio—
 3.45: Ethel Muller, contralto—
 (a) "The Crown" (Rae).
 (b) "Mammy's Lullaby" (Thompson).
 3.52: Cliff Hanney, violinist—
 (a) "Midnight Bells" (Heuberger-Kreisler).
 (b) "Pierrot Serenade" (Randegger).
 4.0: Rose Antill de Warren—"Lest We Forget—Women and the Armistice."
 4.15: The 2FC Instrumental Trio.
 4.28: Stock Exchange, third call.
 4.30: Close.

EARLY EVENING SESSION—5.45 to 7.55 p.m.

- 5.45: Children's "Good-night" stories, told by the "Hello Man," assisted by Aunt Elly.
 6.45: Dinner-hour music.
 7.30: A.B.C. sporting service.
 7.37: Special country session—Stock Exchange resume; markets; weather forecast; late news service from the "Sun" and "News"; truck bookings.
 7.58: To-night's programme.

THE EVENING PRESENTATION—8 to 11.30 p.m.

Our classic programme to-night will offer music-lovers the recital by Raymond Beatty, from the Conservatorium of Music, assisted by Heather Kinnaird and Lloyd Davies. From the studio, Frank Hutchens will give a pianoforte recital. There are song groups by Clement Q. Williams, baritone; flute solos by Bere Connolly, and a talk by Steele Rudd prove an added attraction. Through 2BL service the offering is on popular lines, a programme by the Metropolitan Band, unusual songs and stories by the Four Old Salts, violin solos, and a spice of talkie short will prove a pleasing interlude.

- 8.0: Frank Hutchens, pianoforte solos—
 (a) "Rondo in C Major" (Beethoven).
 (b) "Intermezzo" (Brahms).
 (c) "Etude in E" (Chopin).
 8.12: From the Conservatorium of Music—
 Recital arranged by Raymond Beatty, assisting artists Heather Kinnaird and Lloyd Davies—
 Raymond Beatty, basso—
 (a) "Isis and Ostris" from "The Magic Flute" (Mozart).
 (b) "Proud and Peerless" from "Griselda" (Buononcini).
 (c) "Honour and Arms" from "Samson" (Handel).
 Heather Kinnaird, contralto—
 (a) Recitation, "Rejoice, My Countrymen."
 Arioso, "Thus Saith the Lord to Cyrus His Anointed," from "Belshazzar" (Handel).
 (b) "How Changed the Vision" from "Admeto" (Handel).
 Lloyd Davies, violinist.
 "Romance in G" (Beethoven).
 8.52: From the Studio—Clement Q. Williams, baritone—
 (a) "The May Night" (Brahms).
 (b) "Devotion" (Schumann).
 9.0: The country man's weather session—
 (a) "New South Wales Forecasts."
 (b) "Interstate Weather Synopses."
 9.2: Bede Connolly, flautist—"Concertino" (Chaminade).
 9.9: Steele Rudd will speak on "School at Emu Creek."
 9.24: Frank Hutchens, pianoforte solos—

- (a) "Evening Whispers" (Palmgren).
 (b) "Finale" from "Sonata" (Chopin).
 9.36: Clement Q. Williams, baritone—
 (a) "The Lotus Flower" (Schumann).
 (b) "The Forge" (Brahms).
 9.43: Muriel Lang, 'cello solos—
 (a) "First Movement of Grieg Sonata."
 (b) "Kol Nidrei" (Bruch).
 9.50: Bede Connolly, flautist—
 (a) "Italian Serenade" (Kohler).
 (b) "Scherzo from Suite Op. 61" (Widor).
 9.57: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.
 10.15: From the studio—
 Announcements.
 Late official weather forecast.
 10.20: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.
 11.30: Close. National Anthem.

2BL

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 353 Metres).

OPENING SESSION—8.15 to 11 a.m.

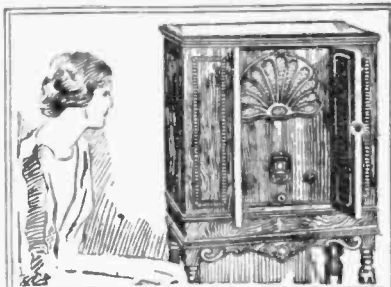
- 8.15: G.P.O. chimes and announcements.
 8.16: Music for every mood.
 8.40: Meteorological data for the country.
 8.45: Mails and shipping information.
 9.0: Memory melodies.
 9.30: This morning's story.
 9.30: A musical interlude.
 9.40: British Official Wireless press.
 9.45: New music.
 10.5: News from the "Sydney Morning Herald."
 10.10: Austradio musical reproduction.
 10.40: The Australian Broadcasting Company's Women's Association, conducted by Miss Gwen Varley.
 11.0: G.P.O. chimes. Close down.

MIDDAY SESSION—12 Noon to 2.30 p.m.

- 12.0: G.P.O. chimes. Announcements.
 12.2: Lunch Hour music.
 1.0: Afternoon news from "The Sun" and "News."
 1.5: Studio music.
 1.15: Women's Interest Talk—Miss Proctor: "Colour in Relation to Health," second series.
 1.30: Austradio musical reproduction.
 2.0: J. Knight Barnett at the Wurlitzer.
 2.12: Studio music.

AFTERNOON ENTERTAINMENT—2.30 to 7.55 p.m.

- 2.30: Business Efficiency Talk—E. C. Klindworth: "The Call of the Water and Provision of Swimming and Sporting Costume."
 2.45: The Magic Carpet Series—"Bringa" will speak on "The Aborigines."
 3.0: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.
 3.12: From the Studio: Betty Armstrong, soprano—
 (a) "To a Miniature" (Brahe).
 (b) "With Courty Grace" (Phillips).
 3.19: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.
 3.29: From the Studio—Will Clarke, basso—
 (a) "My Dream of the Big Parade" (McHugh).
 (b) "Song and Story" (Dubin).
 3.36: Modern music.
 3.42: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.
 3.53: From the Studio: Hilda Grace, novelty pianist—
 (a) "Shepherd's Hey" (Grainger).
 (b) "Sandman Frolics" (Hollinshead).
 4.0: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.
 4.12: From the Studio: Will Clarke, basso—"The Curfew" (Gould).
 4.19: Hilda Grace, novelty pianist—
 (a) "Shoutin' Glory" (Sims).
 (b) "Waters of the Perkiomen" (Klickmann).
 4.26: Betty Armstrong, soprano—
 (a) "Pleading" (Elgar).
 (b) "Sylvia" (Speaks).
 4.33: From the ballroom of the Oriental—
 Sydney Simpson's Syncopaters in dance music.



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4.45: From the Studio: Thee Trade Hour—
Demonstration music.

5.45: Weather information. Close down.

THE DINNER HOUR—6.15 to 7.55 p.m.

6.15: Dinner music.

6.45: Boys' Aero Club, conducted by Mr.
Norman Lyons.

7.5: Studio music.

7.15: Country Man's Market Session—Wool,
wheat, stock, farm produce, fruit, and vege-
table markets.

7.30: Austradio musical reproduction.

**TO-NIGHT'S PRESENTATION—8 to 10.30
p.m.**

Our programme to-night is, as usual, on
popular lines, songs and band music. In ad-
dition, there will be a "talkie" short, and un-
usual numbers by the "Four Old Salts."

8.0: The Metropolitan Band—
Grand Fantasia, "Memories of Britain"
(Rimmer).

8.15: The Four Old Salts, in song and story.

8.25: A "Talkie" Short.

8.37: The Metropolitan Band—
(a) Military Quick March, "O.H.M.S."
(Ord Hume).

(b) March, "Royal Australian Navy"
(Lithgow).

8.49: Rene Rich, violinist—

(a) "Serenade" (Toselli).

(b) "There's a Rainbow Round My
Shoulder" (Jolson).

8.58: Wally Baynes, comedian.

9.3: The Metropolitan Band—
Selection, "Old Memories" (Rimmer).

9.18: A Digger Concert Party will endeavor
to recreate impressions of the original Armis-
tice Day.

9.28: Weather information for the man on
the land.

9.30: Rene Rich, violinist—

(a) "Annie Laurie Fantasia" (Harris).

(b) "That's You, Baby" (Conrad).

9.37: Wally Baynes, comedian.

9.45: The Metropolitan Band—
Descriptive Fantasia, "Trooping the Col-
ors" (Holloway).

10.0: The Four Old Salts in song and story.

10.10: The Metropolitan Band—
Selection, "Robert the Devil" (Meyer-
beer).

10.25: Late news from "The Sun" and
"News."

Late weather forecast.

10.30: National Anthem. Close.

2GB

Theosophical Broadcasting Station, 29 Bligh St.,
Sydney (Wavelength, 316 Metres).

10.0 to 11.45, 2.0 to 3.30, and 5.15 to 7.30 as
usual. 8.0: Miss Heather Kinnaird, contralto.

8.7: Symphony Orchestra. 8.15: Mr. Leslie
Herford, baritone. 8.25: Instrumental trio.

8.30: Mr. Heath Burdock, Shakespearean Rec-
ital. 8.40: The Two Melodious Maids. 8.50:

Symphony Orchestra. 9.0: Weather. 9.1:

Address. 9.15: Miss Heather Kinnaird, con-
tralto. 9.25: Symphony Orchestra. 9.30: Mr.

Leslie Herford, baritone. 9.40: Mr. Jack Win
and Mr. Heath Burdock, humor. 9.45: Instru-

mental trio. 9.50: The Two Melodious Maids.

10.0: Instrumental music. 10.30: Close down.

2UW

Radio Broadcasting, Ltd., Paling's Building, Ash St.,
Sydney (Wavelength, 267 Metres).

12.30 to 4.30, 5.30 to 7.0: As usual.

7.45: Radio talk by Mr. E. Homfray. 8.0:

Wagnerian recital. 9.0: Comments on For-

7.45: Radio talk by Mr. E. Homfray. 8 to

9 p.m.: From the Town Hall, Mosman.

Christian Science Lecture by the Hon W.

E. Brown. 9.0: Comments on Foreign Af-

fairs by Mr. J. M. Prentice. 9.10: Music

and request numbers. 10.30: Close.

2KY

Trades and Labor Council, Goulburn St., Sydney
(Wavelength, 280 Metres).

10.0 to 12.0, and 6.0: As usual.

EVENING SESSION

7.0: Musical interlude. 7.5: Birthday calls.

7.15: Dance music. 7.45: Militant Women's

Group. 8.0: Overture. 8.8: Tenor solos. 8.15:

Dance music. 8.30: Request numbers. 8.45:

Soprano solos, Miss Wright. 9.0: Novelty

interludes. 9.10: Selection of latest Parlor-

phone, Columbia, Regal, Brunswick, and

Golden Tongue Records. 10.0: Closing an-
nouncements.

2UE

Broadcasting Station 2UE, Everett Street, Maroubra,
Sydney (Wavelength, 293 Metres).

EARLY MORNING SESSION ONLY.

7.15 to 8.30: See Friday.



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Interstate Programmes, Mon., Nov. 11

3LO

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 371 Metres).

EARLY MORNING SESSION.

7.0 to 8.15: See Friday.
MORNING SESSION.
10.30: Current happenings in sport, by Mel Morris and Eric Welch. 10.45: Armistice Day Service from St. Paul's Cathedral, Melbourne. 11.15: Musical reproduction. 12.0: Time signal. 12.1: Musical reproduction. 12.15: News service. 12.30: Close down.

MIDDAY SESSION.

1.0: Time signal; weather forecast for Victoria, New South Wales, South Australia, and Tasmania; ocean forecast; river reports; rainfall. 1.15: Comments on the day's news. 1.30: Transmission from Constitutional Club's luncheon. Speaker: Brigadiers-General J. G. Stewart. 1.57: Description of Cup Hurdle, Williamstown Cup meeting, by Eric Welch. 2.5: The earth we live on, Mr. W. C. Groves, B.A., Dip.Ed. 2.15: Musical interlude. 2.20: Science in everyday life, Dr. Lotfus Hills, D.Sc. 2.32: Description of Two-year-old Handicap, 5½ furlongs, Williamstown Cup meeting, by Eric Welch. 2.40: Our Australian writers: Tom Collins, Mr. F. Wilmott. 2.55: Musical interlude.

THE RADIO MATINEE.

3.0: The Studio Light Orchestra: Overture, "Light Cavalry" (Suppe). 3.7: Description of Williamstown Cup, 1¼ miles, Williamstown, by Eric Welch. 3.15: J. Alexander Browne, baritone: Two Freebooter songs, "The Rebel," "Son of Mine" (William Wallace). 3.22: Agnes Higgins, soprano: "Be (Handel)." "Sleep on, Dear Souls" (Hollingsdrake). 3.29: The Studio Light Orchestra: Military March, "Pomp and Circumstance" (Wiggar). 3.36: Syd. Exton, tenor: "Lorraine" (Sanderson), "When Shadows Gather" (Marshall). 3.42: Description of Steeplechase, two miles, Williamstown Cup meeting, by Eric Welch. 3.50: One-act play: "Marching Soldiers," by Harry Paul. Produced by Winifred Moverley. Maggie, Ivy Bradley; Rosalind, Lola Martin; The Stranger, T. Bernard Lambie; William Shields, Harvey Fane. Scene: A room overlooking the outskirts of Mildura. Time: The present. 4.5: Syd. Exton, tenor, and J. Alexander Browne, baritone: Duets, "The Fisherman," "The Battle Eve." 4.12: The Studio Light Orchestra: "The Deathless Army" (Trotere), "The Sacred Hour" (Keteibey). 4.17: Description of the Altona Trial Handicap, 1¼ miles, Williamstown races, by Eric Welch. 4.25: Agnes Higgins, soprano: "Home, Sweet Home" (Bishop), Selected. 4.32: J. Geary, trumpet: "The Trumpeter" (Dix), with orchestral accompaniment. 4.36: The Studio Light Orchestra: "Memories of 1914." 4.47: Description of Ozone Welter, 6 furlongs, Williamstown Cup meeting, by Eric Welch. 4.55: Close down.

THE CHILDREN'S HOUR.

5.45: "Humpty and Dumpty."
EVENING SESSION.
6.35: Musical interlude. 6.45: Public school life and sport, Mr. E. C. H. Taylor. 6.55: Musical interlude. 7.0: Time signal. 7.1: Countryman's session. 7.25: The latest in patents, Mr. C. A. Deane. 7.40: News service. 7.45: The world's kaleidoscope, Prof. K. H. Bailey, M.A., B.Sc.

NIGHT SESSION.

8.0: National Broadcasting Orchestra: "God Save the King." A Military Overture, "Private Ortharis" (Ansell).
8.10: The Repertory Theatre Company presents "The White Chateau." A play in six scenes—specially written for broadcast on Armistice Night. By Reginald Berkeley (author of "The Lady with the Lamp," etc.). The cast will include: Frank D. Clewlow, Helton Daniel, Terence Crisp, John L. Guyatt, H. R. Home, Frederick Drew, George Fawcett, Robert Guthrie, Frank Lonie, Ruby May, Winifred Collins, Margaret Wilson. The play produced and broadcast under the direction of Frank D. Clewlow. Incidental music by the National Broadcasting Orchestra.
10.30: Close down.

3AR

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 484 Metres).

MORNING SESSION.

8.15 to 11.0: See Friday.
MIDDAY SESSION.
12.0 to 2.0: See Friday.

AFTERNOON SESSION.

2.1: Brunswick Military Band. 2.3: Nick Lupas, The Crooning Troubadour. 2.8: Frederick Fradkin, violin. 2.9: Al. Jolson, comedian. 2.12: Abe Lyman's California Orchestra. 2.15: Nick Lucas, The Crooning Troubadour. 2.18: Brunswick Military Band. 2.21: Al. Jolson, comedian. 2.24: Frederick Fradkin, violin. 2.27: Edith Mason, soprano. 2.31: Capitol Grand Orchestra. 2.35: G. G. Gusepse, baritone. 2.39: Michel Piastro, violin. 2.43: The Music Art Singers Quartette. 2.47: Capitol Grand Orchestra. 2.51: Edith Mason, soprano. 2.55: Michel Piastro, violin. 2.59: The Music Art Singers Quartette. 3.3: Recited numbers. 3.20: Mainly for Men. Your Clothes: Choice of Design and Color, Miss M. Nicholson. 3.35: Musical interlude. 3.40: Your Garden: Why not a small greenhouse? Mr. A. Antonio. 3.55: Musical interlude. 4.0: Wandering Through Southern India. Miss Stella Parker. 4.15: Musical reproduction. 5.0: G.P.O. chimes. 5.1: "Australio" musical reproduction. 5.30: Weather data. 5.45: Close down.

EVENING SESSION.

6.15: Dinner music. 7.32: Sporting results. 7.35: Latest musical releases. 8.0: Chimes.

NIGHT SESSION.

8.1: Prahran City Band—"Comrade in Arms."
8.8: Dawn
(Strauss), "In the Willows" (Brahms).

8.15: Dorian Trio—"Andante" (Sessa), "Golden Light" (Bizet).

8.25: John Hobbs, bass-baritone—"The Trumpet Shall Sound" (Handel), "The Ginchy Road" (E. Laury).

9.32: Prahran City Band—"Sunday Morning Church Parade."

8.42: Madame Florrie Gordon, contralto—"Laud of Hope and Glory" (Elgar), "Vonder."

8.49: Victor Stephenson, piano—"Rhapsody in G Minor" (Brahms), "Prelude in G Minor" (Tschalkowsky), "March Militaire" (Schubert-Kreisler).

9.0: Transmission from Athenaeum Hall, The Royal Victorian Liedertafel. Conductor: J. Sutton Crow. March Song, "Zut Zut" (Elgar). Unaccompanied part songs—(a) "O Sanctissima" (traditional), (b) "Soldiers Farewell" (Kinkel). Part song—"The Revellie" (Elgar). Unaccompanied part songs—(a) "The King's Messenger" (Bantock), (b) "The Long Day Goes" (Sullivan). Part song—"The Soldiers' Chorus" (Gounod).

9.30: Prahran City Band—March, "The Veterans Return." Intermezzo, "Sweet and Low."

9.38: John Ross, baritone—"The Two Grenadiers" (Schumann), "The Messenger" (Schubert).

9.45: Helen Hamerton, violin—"An Air" (Goldmark).
9.50: Dawn Harding, mezzo-soprano—"Early in the Morning" (Phillips Montague), "The Cuckoo" (Lehmann).

9.57: The Dorian Trio—"A Doubt" (Glinka), "Allegretto" (Mozart).

10.5: Weather information and Herald news. Cable News Service (copying the Sun-Herald News Service, Ltd. and Australian Press Association).

10.15: Madame Florrie Gordon, contralto—"The Heroes of the Dardanelles," "There is a Land."
10.22: Prahran City Band—Overture, "Raymond."
10.30: God Save the King.

4QG

Queensland Government Radio Service, Brisbane (Wavelength, 385 Metres).

MORNING SESSION.

10.45: A relay of the Armistice Day celebrations. 11.15: Social news; meter a Beauty Talk by Dorothea Webster. 12.0 (noon): Close down.

EVENING SESSION.

7.45: Lecturette, The Children's Music Corner, conducted by "The Music Man."

NIGHT SESSION.

PART I.—POLISH MUSIC.
The first portion of to-night's programme (Polish National Day) will comprise the broadcasting of Polish music.

8.0: Stefan de Polotynski (Polish pianist): "Polonaise Heroique" (Polotynski), Madame de Polotynski (soprano): "The Heart's Call" (Polish idyll). "The Maiden's Complaint" (Polish Love Song).

8.20: A short recital of electrically reproduced Polish records, including Polish Military Band: "The Polish Parade," March (Onelczuk), Stanislas Gruszczynski (tenor), Warsaw Opera House: "Remembrances" (Rutkowski), Polish Military Band: "Mazourka" (Wronski), M. Mossakowski (baritone), "Polish Soldier's Song" (Wronski), Polish Military Band: Polka, "Polish Dance" (Osmaniski).

8.45: Stefan de Polotynski (pianist): "Polish Reverie (de Valse)" (Mazurka-Mazourka) (Wronski), Madame Polotynski (soprano): "The Dream Prelude No. 7" (Chopin), "The Maiden's Wish" (Chopin).

9.0: Metropolitan weather forecast.
9.1: "Tocanna" will give the fifth talk in connection with 4QG's Home Garden Scheme: "Transplanting Hints."

9.11: Jeanette Smales (soprano): "The Piper of Love" (Molly Carew).
9.15: The Rhythm Rascals: Popular numbers.

9.25: Mrs. Charles Willey (contralto): "Spring Once More" (Levi).
9.30: The Rhythm Rascals: More melody.

9.40: Jeanette Smales (soprano): "A Japanese Love Song" (Brahe).
9.45: The Rhythm Rascals: Syncopation.

9.55: Mrs. Charles Willey (contralto): Selected.
10.0: News, weather; close.

5CL

Central Broadcasters, Ltd., 114 Hindmarsh Square, Adelaide (Wavelength, 409 Metres).

ARMISTICE DAY.

MORNING SESSION.

11.15 to 2.0: See Friday. During the day descriptions of the International Cricket, South Australia v. England, will be given.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EVENING SESSION.

6.0 to 7.0: See Friday. 7.10: Under the auspices of the South Australian Agricultural Department, Mr. C. F. Anderson (manager, Parafield Poultry Station), will speak. 7.30: 5CL Twinkler Boys' Club.

NIGHT SESSION.

7.50: From the Adelaide Town Hall—Armistice Night Service.
8.0: Arrival of His Excellency the Governor, Sir Alexander Hore-Ruthven, to be met by representatives of the State Board, His Excellency the Governor will preside. Two hymns. Community singing. St. Peter's Collegiate Choir to lead singing in Town Hall, Governor's Address. At the chiming of the Town Hall clock buglers to sound "Cease Fire" (one bugler on balcony). Audience stands in silence for two minutes. Lighting League. Mature Cross. Two minutes' silence, to be followed by hymn "Lead, Kindly Light," "Song of Australia," and War Time Songs. Community singing.

(Continued on Page 49.)

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Local Programmes, Tuesday, November 12

2FC

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 461 Metres).

EARLY SESSION—7 to 8.15 a.m.

Note: Between 5 and 7 a.m., if reception is satisfactory, 2FC will be relayed on the occasion of the special Armistice Day service.

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

7.8: Austradio musical reproduction

7.45: Mails and shipping

7.48: What's on to-day?

7.50: Children's birthday calls

8.0: Music from the studio.

8.15: Close.

MORNING SESSION—10.30 a.m. to 12.30

10.30: Announcements.

10.32: A.B.C. Racing Observer

10.45: Horace Weber at the grand organ

11.0: Household Hints—Hints to Housewives by Miss Ruth Furst

11.10: Cables—(copyright), A.P.A. and Sun-Herald news service

11.15: Morning devotion.

11.30: Austradio musical reproduction.

11.53: British official wireless press.

12.0: "Big Ben": Stock Exchange and metal quotations.

12.5: Illustrated music lecturette by Roy Arnew.

12.20: Midday weather forecast and weather synopsis; special produce market session for the man on the land, supplied by the State Marketing Board.

12.30: Close.

THE LUNCH HOUR—1 to 2.30 p.m.

1.0: Lunch-hour music.

2.0: Stock Exchange, second call.

2.3: A glance at the afternoon "Sun" and "News."

2.7: Popular education—Nature's Wonders—G. P. Whitley will speak on "Stingarees and Other Fish."

2.27: Announcements.

THE RADIO MATINEE—2.30 to 4.30 p.m.

Note: Results of the cricket match, Queensland Colts v. New South Wales, played at Brisbane, will be transmitted during the afternoon.

Note: Race results from Gosford will be transmitted as received.

2.30: The 2FC Instrumental Trio.

2.45: Ethel Lang, monologue—

(a) "Proposals" (Squires).

(b) "Limerick" (arr. Brunton Gibb).

2.52: Harry Croot, baritone—

(a) "Under the Hammer" and (b) "Old Furniture," from song cycle, "Old Furniture" (Arundale).

3.0: Horace Keats, pianist—

(a) "Bell Ringing" (Grieg).

(b) "Minuetto" (Grieg).

3.7: The 2FC Instrumental Trio.

3.17: Harry Croot, baritone—

(a) "The Toby Jug" and (b) "The Spinning Wheel," from song cycle, "Old Furniture" (Arundale).

3.24: The 2FC Instrumental Trio

3.34: Ethel Lang, monologue—

"Red Riding Hood" (Wynne).

3.41: The 2FC Instrumental Trio

3.51: Horace Keats, pianist—

(a) "Melodie" (Rachmaninoff).

(b) "Romance" (Tschalkowsky).

4.0: Gertrude Mack will speak on "Sandakan."

4.7: The 2FC Instrumental Trio.

4.28: Stock Exchange, third call.

4.30: Close.

EARLY EVENING SESSION—5.45 to 7.55

5.45: Children's "Good-night" stories, told by Aunt Willa, assisted by Cousins Gwen and Clarice.

5.45: Dinner-hour music.

7.30: A.B.C. sporting service.

7.37: Special country session—Stock exchange resume; markets; weather forecast; late news service from the "Sun" and "News"; truck bookings.

7.58: To-night's programme.

THE EVENING PRESENTATION—8 to 11.30

State-wide radio dance night through 2FC on Tuesday night provides a very pleasant opportunity for home dancers. Music-lovers who like a more serious form of entertainment turn to 2BL for the classic programme, which to-night features the "Peer Gynt" Suite, featuring Constance Burt, soprano, and the National Broadcasting Orchestra, con-

ducted by Horace Keats. The story will be told by Madame Evelyn Grieg.

8.0: The Australian Broadcasting Dance Orchestra.

8.12: Charles Lawrence, entertainer—

"Sally" (Winter).

"Whose Is the Voice" (Harris).

8.20: The Australian Broadcasting Dance Orchestra.

8.32: A talkie short.

8.40: The Australian Broadcasting Dance Orchestra.

8.52: Maggie Foster, violinist—

(a) "Melody in F" Rubinstein).

(b) "I've Never Seen a Smile Like Yours."

9.0: The Country Man's Weather Session—

(a) "The New South Wales Forecasts."

(b) "Interstate Weather Synopsis."

9.2: The Australian Broadcasting Dance Orchestra.

9.14: Lulla Fanning, entertainer.

9.21: The Australian Broadcasting Dance Orchestra.

9.33: Gwladys Rowling, popular vocalist—

(a) "Big City Blues" (Conrad, Mitchell and Gottler).

(b) "Mean to Me" (Turk and Ahlert)

9.40: The Australian Broadcasting Dance Orchestra.

9.52: Dora Lindsay, Scottish comedienne—

(a) "All Alone in Sydney" (Hyde).

(b) "My Heather Belle" (Lindsay).

10.0: The Australian Broadcasting Dance Orchestra.

10.15: Announcements.

10.25: Late official weather forecast.

10.20: The Australian Broadcasting Dance Orchestra.

11.30: Close. National Anthem.

2BL

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 353 Metres).

OPENING SESSION—8.15 to 11 a.m.

8.15: G.P.O. chimes and announcements.

8.16: Music for every mood.

8.40: Meteorological data for the country.

8.45: Mails and shipping information.

8.50: Memory melodies.

9.0: This morning's story.

9.30: A musical interlude.

9.40: British Official Wireless press.

9.45: New music.

10.0: News from the "Labor Daily."

10.5: News from the "Sydney Morning Herald."

10.10: Austradio musical reproduction.

10.40: The Australian Broadcasting Company's Women's Association, conducted by Miss Gwen Varley.

11.0: G.P.O. chimes. Close down.

MIDDAY SESSION—12 Noon to 2.30 p.m.

12.0: G.P.O. chimes. Announcements.

12.2: Lunch music.

1.0: Afternoon news from "The Sun" and "News."

1.5: Studio music.

1.15: Women's Interest Talk—Sister Parry: "Home Nursing Hints."

1.30: Austradio musical reproduction.

2.0: J. Knight Barnett at the Wurlitzer.

2.12: Studio music.

AFTERNOON ENTERTAINMENT—2.30 to 5.45 p.m.

2.30: Fred Arlington-Burke will speak on "Nature's Laws of Compensation."

2.45: The Magic Carpet Series—Tom Gurr: "Round and About an Indian Bungalow."

3.0: Radio rhythm.

3.12: Edith Cowley, entertainer—

"The Guild of Fine Souls" (Constanduros).

3.19: Songs of to-day.

3.30: Edward Trenton, violinist—

(a) "Berceuse" (Cul).

(b) "Minuet" (Mozart).

3.37: Memory melodies.

3.47: Hilda Nelson, soprano—

(a) "Province" (Carne).

(b) "The Silver King" (Chaminade).

3.54: Dance music.

4.4: Edith Cowley, entertainer—

"Her Night Thoughts" (Fisk).

4.11: Edward Trenton, violinist—

(a) "Melodie" (Gluck-Kreisler).

(b) "Paradise" (Krakauer-Kreisler)

4.18: Hilda Nelson, soprano—

(a) "Youth and Spring" (Steinel).

(b) "My World" (Geehl).

4.25: Austradio musical reproduction.

4.45: The Trade Hour—Demonstration music.

5.45: Weather information. Close down.

THE DINNER HOUR—6.15 to 7.55 p.m.

6.15: Dinner music.

6.45: The Girl Guides, conducted by Miss Gwen Varley.

7.5: Studio music.

7.15: The Country Man's Market Session—Wool, wheat, stock, farm produce, fruit, vegetable, and pig markets.

7.30: Austradio musical reproduction.

7.55: What's on the air to-night?

TO-NIGHT'S PRESENTATION—8 to 10.30

The classic programme to-night, which has been arranged by Madame Evelyn Grieg, in association with Horace Keats, conducting the National Broadcasting Orchestra, features the "Peer Gynt Suite." At 9.30 V. C. Bell will give a talk of interest, entitled "Follow My Leader."

Through 2FC Service the State-wide radio dance night will attract listeners who delight to trip in light fantastic to radio rhythm.

8.0: Madame Evelyn Grieg tells the story of "Peer Gynt" by Ibsen. Incidental music by Edward Grieg, played by the Australian Broadcasting Orchestra (conducted by Mr. Horace Keats).

Songs from "Peer Gynt," featured by Miss Constance Burt—

(a) "Norwegian Dance."

(b) "Ingrid's Lament."

(c) "In the Hall of the Mountain King."

(d) "The Death of Ase."

(e) "Arabian Dance."

(f) "Anitras' Dance."

"Solvieg's Song" (with orchestral accompaniment). Constance Burt.

(a) "Storm and the Homecoming."

(b) "Morning."

National Broadcasting Orchestra.

"Solvieg's Cradle Song" (with orchestral accompaniment). Constance Burt.

Songs—

(a) "Spring" (Grieg).

(b) "In the Boat" (Grieg).

(c) "The Swan" (Grieg).

Constance Burt.

Pianoforte—

(a) "Norwegian Dance" (Grieg).

(b) "Wedding Day at Troldhaugen" (Grieg).

Madame Evelyn Grieg.

9.30: V. C. Bell will give a talk of interest entitled "Follow My Leader."

9.35: And now for song and story in lighter vein.

10.25: Late news from "The Sun" and "News." Late weather forecast.

10.30: National Anthem. Close

2GB

Theosophical Broadcasting Station, 29 Bligh St., Sydney (Wavelength, 316 Metres).

10.0 to 11.45, 2.0 to 3.30, and 5.15 to 7.45, see Friday.

8.0: Miss Florence Gordon, contralto.

8.7: Violin solos.

8.15: Miss Charles Smythe, basso.

8.22: Symphony Orchestra.

8.30: Mr. Jack Win and Mr. Heath Burdock, humor.

8.35: Miss Elsie Brown, soprano.

8.43: Instrumental Quartette.

8.50: Miss Florence Gordon, contralto.

9.0: Weather Report.

9.3: Address.

9.15: Symphony Orchestra.

9.25: Mr. Charles Smythe, basso.

9.35: Mr. Jack Win and Mr. Heath Burdock, humor.

9.40: Band selections.

9.50: Miss Elsie Brown, soprano.

10.0: Instrumental music.

10.30: Close down.

2KY

Trades and Labor Council, Goulburn St., Sydney (Wavelength, 280 Metres).

10.0 to 12.0 as usual.

CHILDREN'S SESSION

7.0: Musical interlude.

7.15: Sporting feature. Turf topics. How they should run to-morrow. Mr. Geo. A. Davis.

7.45: Request numbers.

8.0: Orchestral selections.

8.10: Women's information service, Mrs. Gray.

8.25: Baritone solos, Mr. Higgins.

8.33: Pianoforte solos, Mr. Hancock.

8.40: Music and request numbers from the studio.

Sporting feature. From the ringside of McHugh's Leichhardt Stadium. Results of early events and full description of main 15-round event.

8.40: Dance music from the studio.

10.0: Closing announcements.

2UW and 2UE, same as Friday.)

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Interstate Programmes, Tues., Nov. 12

3LO

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 371 Metres).

EARLY MORNING SESSION.

7.0 to 8.15: See Friday.
 10.30 to 12.30: See Friday.

MIDDAY SESSION.

1.0: Time signal. 1.1: Stock Exchange information; meteorological data; weather forecast for Victoria, New South Wales, South Australia, and Tasmania; ocean forecast; river reports; rainfall data. 1.15: Comments on the day's news.

EDUCATIONAL SESSION.

2.0: Stories from the operas, with musical illustrations, Miss Lucy Ahon, B.A. 2.15: Musical interlude. 2.20: Romance of the Slave and Gold Coasts, Mr. A. A. Downs. 2.35: Musical interlude. 2.40: A talk in French, Mons. Th. Rouel, B.A. 2.55: Musical interlude.

THE RADIO MATINEE.

3.0: Paul Jeacle and his band: "Carmen Capers" (Black), "Walking With Susie" (Conrad), "Jericho" (Myers). 3.9: Geo. S. Cockerill, baritone: "O, That I Were So" (Bridges), "The Fortune Hunter" (Wilby). 3.16: O. Jeacle: Saxophone solo. 3.20: Jessie Smith, contralto: Two Maori Love songs, "Maori Lullaby" (James). 3.27: Paul Jeacle and his band: "Egyptian Echoes" (Black), "When My Dreams Come True" (Berlin), "Raymyn King" (Hoover). 3.50: Bob Adams, trumpet: Selected. 3.36: A comedy sketch: "Business by Telephone." Produced by Leslie Williams. The Agent, Leslie Williams; the Girl, Catherine Nell. 3.55: Geo. S. Cockerill, baritone: "The Call of Life" (Ayward), "Duna" (McGill). 4.2: Paul Jeacle and his band: "It's a Wonderful World After All" (Davis), "Lila" (Gottler), "Oh, Lizzie" (Blbo). 4.11: Jessie Smith, contralto: "I Love You More" (Dorothy Lee), "To a Miniature" (May Brahe). 4.18: Bruce Wite, piano: Piano gymnastics. 4.22: Paul Jeacle and his band: "Underneath the Russian Moon" (Gusman), "Polly" (Zamecnik), "My Sugar and Me" (Palmer). 4.30: Close down.

THE CHILDREN'S CORNER.

5.45: "Bobbie Bluegum" and "Clever Clarice." 6.35: Boy Scout doings, Miss P. Sanders.

EVENING SESSION.

6.45: How to attain and retain good health: A Commonsense Diet, Dr. J. Dale (under the auspices of the Health Association). 7.0: Melbourne Observatory time signal. 7.1: Countryman's session. 7.25: For the man on the land: Migratory Bee-keeping, Mr. J. S. England. 7.40: News service; cable news service (copyright, "Sun"; "Herald" News Service, Ltd., and Australian Press Association). 7.45: Public Finance in Australia, Politics and Financial Control, Prof. D. B. Copland, M.A., D.Sc. (under the auspices of the University Extension Board) 8.0: Melbourne Observatory time signal.

NIGHT SESSION.

A CELLO RECITAL.

8.28: Louis Hattenbach, cello: "Aria" (Pergolesi), "Wiegand" (Schubert), "Gavotte" (Martini), "Village Song" (Popper). 8.45: Agnes Higgins, soprano: "June's Golden Song" (Dale), "The Call of the Maytime" (Brahe). 8.50: National Broadcasting Orchestra: "Marche Militaire" (Schubert), "Russian Dance" (Friml). 8.56: Iza Crossley, entertainer. 9.3: "Requiem," the closing chapter in the life of Mozart. Dramatised especially for broadcasting by Gordon Ireland. 9.33: "The Sundowners" Male Quartette: "Were You There" (Burligh), "Chloe" (Moret). 9.40: J. Harcourt Bailey, entertainer: "The Tale of a Nose". 9.45: National Broadcasting Orchestra: Selection from Sullivan's Operas. 9.57: Agnes Higgins, soprano, "Yung Yang" (Bantock), "The New Umbrella" (Besley). 10.4: Edouard Lambert, violinist: "La Tolla" (Corelli). 10.11: Iza Crossley, violinist. 10.19: National Broadcasting Orchestra: Selection, "The Red Mill" (Herbert). 10.30: British official wireless news; meteorological information; items of interest. 4.0: Tendencies in summer fashions, Madame La Mode. 4.15: Musical reproduction. 5.0: Chimes. 5.1: Musical reproduction. 5.30: Weather data. 5.45: Close down. 11.30: God Save the King.

3AR

Australian Broadcasting Co., 120A Russell St., Melbourne (Wavelength, 481 Metres).

MORNING SESSION.

8.15 to 11.0: See Friday.

MIDDAY SESSION.

12.0 to 2.0: See Friday.

AFTERNOON SESSION.

2.1: L'opera Comique Orchestra. 2.8: William Flassbender. 2.12: Corinne de Bert, piano. 2.18: Karin Brungell, contralto. 2.22: L'opera Comique Orchestra. 2.30: Kallama Male Quartette. 2.33: Queenie and David Kall, Hawaiian Duo. 2.36: Kato and Wauertini, Maori songs. 2.39: Massed military bands. 2.42: Sophie Tucker, comedienne. 2.45: Boyd Senter, clarinet. 2.48: Kato and Wauertini, Maori songs. 2.51: Queenie and David Kall, Hawaiian Duo. 2.54: Kallama Quartette. 2.57: Massed military bands. 3.0: Request numbers. 3.20: The Baby: Pre-natal Care, Sister Anne Purcell. 3.35: Musical interlude. 3.40: Useful Crafts at Home: Home-made Christmas Presents, Mrs. Henrietta Walker. 3.55: Musical interlude. 4.0: Tendencies in summer fashions, Madame La Mode. 4.15: Musical reproduction. 5.0: Chimes. 5.1: Musical reproduction. 5.30: Weather data. 5.45: Close down.

EVENING SESSION.

6.15: Dinner music. 7.30: What's on the Air To-

night? 7.32: Sporting results. 7.35: Latest musical releases. 8.0: G.P.O. chimes.

NIGHT SESSION.

8.1: Wild Life Afloat, Captain Donald MacLean. 8.15: Paul Jeacle and his Band—"Come West, Little Girl" (Kahn), "Pretty Face." 8.22: Courtney Ford and Ivy Davis, musical comedy sketch—"Trade Tricks." 8.30: Horrie Sheehan, trumpet—"La Paloma" (Yradler). 8.34: Robert Gillard, baritone—"Within These Sacred Bowers" (Mozart), "From Oberon" (Slater). 8.41: J. and G., The Confidential Two—"Junior" (Donaldson), piano novelty, "When Summer is Gone." 8.51: Paul Jeacle and his Band—"Speech" (Clare), "Big City Blues" (Conrad), "The Gold Diggers of Broadway" (Dubin). 9.0: Bert Ray, comedian, will entertain. 9.8: Robert Gillard, baritone—"Far and High" (Korby), "The Curfew" (Gould). 9.15: Guy Stavordale, banjo solo—selected. 9.19: Courtney Ford and Ivy Davis, musical comedy sketch—"My Birthday." 9.27: Paul Jeacle and his Band—"Pagan Love Song" (Brown), "My Dear" (Kahn), "Trail of Dreams" (Swan). 9.37: Claude Jeacle, tenor—selected. 9.41: J. and G., The Confidential Two—"A Little of This and That." 9.51: Paul Jeacle and his Band—"The Pump Song" (Lerner), "The Hobo's Prayer" (Senter), "Lonely Little Bluebird" (Woods). 10.0: Weather data. (Foster). 10.20: Bert Ray, comedian, will again entertain. 10.20: Paul Jeacle and his Band—"Somebody Sweet is Sweet on Me" (Kahn), "Pa's Old Hat" (Guy), "Think of Me Thinking of You" (Abbott). 10.30: God Save the King.

4QG

Queensland Government Radio Service, Brisbane (Wavelength, 385 Metres).

For day sessions, see Friday.

NIGHT SESSION.

8.0: The Studio Orchestra and Double Quartette: "Home, Sweet Home" (Bishop). Soloist: Francis Lane. 8.5: George Williamson (tenor): "Coming Home" (Wilbey). 8.9: Double Male Quartette (conductor, Tom Muller): "My Blue-ridged Mountain Home." 8.14: Ernest Harper (baritone): "When You Come Home." 8.20: Double Male Quartette: "Old Kentucky Home" (Foster), "Cold Fols at Home" (Foster). 8.27: James Martin (tenor): "Little Grey Home in the West." 8.31: The Studio Orchestra: "He's Coming Home" (chorus by Double Male Quartette). 8.36: Francis Lane (contralto): "The Dear Homeland" (Slaughter). 8.41: J. P. Cornwell (bass): "The Miner's Dream of Home." 8.45: Double Male Quartette: "When the Great Red Dawn is Shining" ("Back to Home, Back to Love, and You"), Soloist: Fred Crane. 8.49: Francis Lane and C. Rice (tenor): Vocal duet, "Home to Our Mountains." 8.54: Double Male Quartette: "When There's Love at Home" (Old Fols). 9.0: The Studio Orchestra and Double Male Quartette: "There a Light a Burning in the Window of the Home Upon the Hill." Soloist: George Williamson.

9.0: Metropolitan weather forecast.

PART II—SONGS OF CHILDHOOD.

9.2: The Studio Orchestra and Double Male Quartette: A group of Nursery Rhymes. 9.7: James Martin (tenor): "Memories." 9.11: Jill Manners (soprano): "The Lilac Tree" (Clarke). 9.15: Ruby Massey (elocutionist): Musical monologue, "Mister Bear." 9.20: Double Quartette: "Stay in Your Own Back Yard." (Soloist: J. P. Cornwell). 9.25: The Studio Orchestra: "Jingle Bells." Chorus by Double Male Quartette.

PART III—ROSE SONGS.

9.30: Robert Tate (pianist): "Red Rosebud" (Murray Gibbs). 9.34: J. P. Cornwell (baritone): "There's a Rose That Grows on No-man's Land" (accompanied by Double Male Quartette). 9.40: Tom Muller (elocutionist): Monologue, "Rosa." 9.45: Jill Manners (soprano): "A Bowl of Roses" (Clarke). 9.48: James Martin: "I Send You Red Roses." 9.52: Double Male Quartette: "Roses of Picardy." Soloist: Ernest Harper. 9.56: The Studio Orchestra: Fox trot, "Vamping Rose." 10.0: News, weather; close.

5CL

Central Broadcasters, Ltd., 111 Hindmarsh Square, Adelaide. (Wavelength, 409 Metres.)

MORNING SESSION.

11.15 to 2.0: See Friday. During the day a description of the International Cricket will be given, South Australia v. England.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EVENING SESSION.

6.0 to 7.0: See Friday. 7.20: Under the auspices of the Workers' Educational Association, Mr. H. G. Olliphant will speak. 7.35: Mr. R. C. Bald (Assistant Lecturer in English at the Adelaide University) will speak. 7.45: Dr. Herbert Buseckow.

(Continued on Page 48.)

IS YOUR RECEPTION ALL YOU DESIRE?

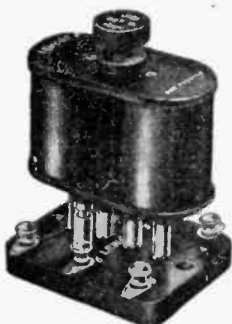
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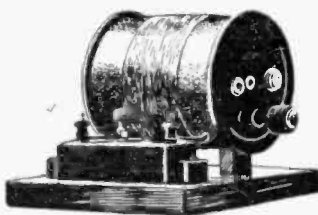
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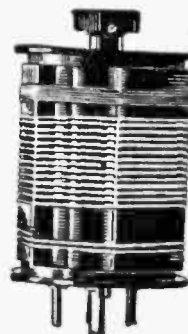
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Local Programmes, Wednesday, November 13

2FC

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 461 Metres).

EARLY SESSION—7 to 8.15 a.m.

- 7.0: "Big Ben," and meteorological information for the man on the land.
- 7.3: This morning's news, from the "Sydney Morning Herald."
- 7.8: Australia musical reproduction.
- 7.45: Mails and shipping.
- 7.48: What's on to-day?
- 7.50: Children's birthday calls.
- 8.0: Music from the Studio. 8.15: Close.

MORNING SESSION—10.30 a.m. to 12.30

- 10.30: Announcements.
- 10.32: General sporting talk by Oscar Lind.
- 10.45: Horace Weber at the Grand Organ.
- 11.0: Household Helps: Cooking, by M. S. Ruth Furst.

- 11.10: Cables—(copyright). A.P.A. and "Sun"—"Herald" news service.
- 11.15: Morning Devotion.
- 11.30: Austradio musical reproduction.
- 11.53: British Official Wireless Press.
- 12.0: "Big Ben." Stock Exchange and metal quotations.

- 12.5: C. W. Mann will continue his series, "Do You Know Your Child?—Childhood Dreams."
- 12.20: Midday weather forecast and weather synopsis. Special produce market session for the man on the land, supplied by the State Marketing Board. 12.30: Close.

THE LUNCH HOUR—1 to 2.30 p.m.

Note: During the afternoon results of the Kensington Pony Races will be transmitted as received.

- 1.0: Lunch Hour music.
- 2.0: Stock Exchange, second call.
- 2.2: A glance at the afternoon "Sun" and "News."
- 2.7: Studio music.
- 2.27: Announcements.

THE RADIO MATINEE—2.30 to 4.30 p.m.

- 2.30: Ruby Dent, songs at the piano—(a) "The Bitterness of Love" (Dunn), (b) "Oh, John," (c) "Rolling Stones."
- 2.37: Radio Rhythm.
- 2.53: Hal Stead, novelty pianist—(a) "I'll Get By" (Ahlerl), (b) "If You've Not Heard It" (Taylor)
- 3.0: Roger Jones, baritone—(a) "Brown Eyes I Love" (Coates), (b) "I Think of You, My Sweet" (Wood).
- 3.7: Modern music.
- 3.17: Ruby Dent, songs at the piano—(a) "Old-fashioned Gingham" (Lawrance), (b) "Medley of Coon Songs and Old Songs."

- 3.24: Newest dance numbers.
- 3.34: Roger Jones, baritone—(a) "If Only the World Were Mine" (Squire), (b) "Just a Little House of Love" (Wood), (c) Memory melodies.
- 3.53: Hal Stead.
- 4.0: Austradio musical reproduction.
- 4.28: Stock Exchange, third call.
- 4.30: Popular music 4.45: Close.

EARLY EVENING SESSION—5.45 to 7.55

- 5.45: Children's "Good-night" Stories, told by the "Hello Man," assisted by Uncle Ted and "Sandy."
- 6.45: Dinner hour music.
- 7.30: A.B.C. Sporting Service.
- 7.37: Special Country Session. Stock Exchange resume. Markets. Weather forecast. Late news from the "Sun" and "News." Truck bookings.
- 7.58: To-night's programme.

- 7.58: To-night's programme.
- THE EVENING PRESENTATION—8 to 11.30

2FC offers listeners to-night a programme which has not yet been attempted in Radio A Studio production of the opera by the famous Russian composer Pushkin, "Eugene Onegin," arranged by Vladimir Elin. In the concert programme which precedes the opera Vladimir Elin will give a recital.

- 8.0: Song Recital by Vladimir Elin, with String Quartet accompaniment—(a) "No One My Grief Can Feel" (Tschaiakowsky), (b) "Chanson" (Glazounow), (c) "Sounded Birch" (Gretchaninoff), (d) Aria "Madamina" (Pretty Lady), from "Don Giovanni" (Mozart).

C. N. Baeyertz will continue his series of "Humorous Stories in Dialect."

- 9.0: The Country Man's Weather Session—(a) New South Wales forecasts, (b) Interstate weather synopsis.
- 9.2: Studio production of "Eugene Onegin" (Pushkin), arranged by Vladimir Elin. Story told by Madame Evelyn Grieg.
- 10.2: From the ballroom of the Oriental—Sydney Simpson's Syncopaters in dance music.
- 10.15: From the Studio—Announcements. Late official weather forecast.
- 10.20: From the ballroom of the Oriental—Sydney Simpson's Syncopaters in dance music. 11.30: Close. National Anthem.

2BL

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 363 Metres).

OPENING SESSION—8.15 to 11 a.m.

- 8.15: G.P.O. chimes and announcements.
- 8.16: Music for every mood.
- 8.40: Meteorological data for the country.
- 8.45: Mails and shipping information.
- 8.50: Memory melodies.
- 9.0: This morning's story.
- 9.30: A musical interlude.
- 9.40: British Official Wireless Press.
- 9.45: New music.
- 10.5: News from the "Sydney Morning Herald."
- 10.10: Austradio musical reproduction.
- 10.40: The Australian Broadcasting Company's Women's Association, conducted by Miss Gwen Varley.

- 11.0: G.P.O. chimes: close down.
- MIDDAY SESSION—12 Noon to 2.30 p.m.
- 12.0: G.P.O. Chimes: announcements.
- 12.2: Lunch-hour music.
- 1.0: Afternoon news from the "Sun" and "News."
- 1.5: Studio music.
- 1.15: Women's interest talk—Goodie Reeve—"Aids to Personality."
- 1.30: Austradio musical reproduction.
- 2.0: J. Knight Barnett at the "Wurlitzer."
- 2.12: Studio music.

AFTERNOON SESSION—2.30 to 5.45 p.m.

- 2.30: The Doctor will speak on "Outstanding Personalities in Australian History," the subject this afternoon is "John Oxley."
- 2.45: The Magic Carpet Series: C. Price Conigrave, "Dr. Leichhardt—Brisbane to Port Essington."
- 3.0: 2BL Instrumental Trio.
- 3.12: Nellie Kemp, Soprano—(a) "Little Brown Cottage" (Dickson), (b) "Bve and Bye, Sweetheart" (Yellen)
- 3.19: 2BL Instrumental Trio.
- 3.30: Margaret Ferguson, Monologues—(a) "Hullo, Tu Tu" (Scott-Gatty), (b) "I Walked Back from the Buggy Ride" (Blbo).

- 3.37: Mav Willis, Pianist—(a) "First Movement Sonata" (Beethoven) Waldstein
- 3.45: 2BL Instrumental Trio.
- 4.0: Nellie Kemp, Soprano—(a) "Provence" (Carne), (b) "My Loved One" (Franco).
- 4.7: Mav Willis, Pianist—(a) "Berceuse" (Chopin), (b) "Gardens Under Rain" (Debussy)
- 4.15: Margaret Ferguson, Monologues—(a) "I Don't Seem to Want you when You're with Me" (Rubens), (b) "The Day that He took Me to Wembley" (Godfrey and Smith)

- 4.22: 2BL Instrumental Trio.
- 4.30: The latest dance music.
- 4.45: The Trade Hour—Demonstration music.
- 5.45: Weather Information: close down.

- THE DINNER HOUR—6.15 to 7.55 p.m.
- 6.15: Dinner music.
- 6.45: The Boys' Radio Club, conducted by Mr. Norman Lyons.
- 7.5: A talk on "Bridge," by Graham Kent.
- 7.20: The Country man's Market Session—Wool, wheat, stock, farm produce, fruit, and vegetable markets.
- 7.30: Austradio musical reproduction.
- 7.55: What's on the air to-night?

- TO-NIGHT'S PRESENTATION—8 to 10.30
- Wednesday night is now play night for 2BL listeners, and "Touch of Silk" by the players under the direction of Scott Alex-

ander will attract a large "air" audience to-night. Through 2FC service tablet version of Puskin's famous opera, "Eugene Onegin" is being arranged by Vladimir Elin in association with Horace Keats. Prior to the opera there will be a concert programme featuring Vladimir Elin in Tschaiakowsky music.

- 8.0: From the State Theatre—Overture by Will Prior's Orchestra, with Price Dunlavy at the grand organ.
- 8.8: From the Studio—

- Iris de Cairos-Rego, pianist—(a) "Fantasie in C Minor" (Bach), (b) "Romance" (Rubinstein), (c) "Rhapsodie in G Minor" (Brahms).
- 8.32: The Turret Players in "A Touch of Silk" (Betty M. Davies). Characters:—Jim Davidson, Arthur Reardon, Mrs. Davidson (mother-in-law), Mrs. Lance Thompson, Mr. Ritchie (keeper of store), Mr. Grant Cooper, Mr. Ordorn (commercial traveller), Mr. Ivan Mitchell, Jim's sister (Nelle), Miss Jean Maurice, The Doctor, Mr. R. G. Bartlett. Scene: In a country store. Scene 2: Jim's farm.
- 9.22: From the State Theatre—Stage presentation.
- 9.37: From the Studio—Weather information for the man on the land.
- 9.38: Eileen Shettle, Contralto—(a) "When all was Young" (Gounod), (b) "A Heap of Rose Leaves" (Willeby), (c) "Rhapsodie in G Minor" (Brahms)
- 9.45: Mischa Dobrinski, Violinist—(a) "Charmeuse" (Clarke), (b) "The Rosary" (Nevin), (c) "Serenade" (Arensky)
- 9.52: Iris de Cairos-Rego, Pianist—(a) "Impromptu" (Chopin), (b) "Firelight" (de Cairos-Rego), (c) "Prelude in a Minor" (Debussy)
- 10.2: Eileen Shettle, Contralto—(a) "Into the Dawn" (Smith), (b) "Fallen Leaf" (Logan).
- 10.9: Mischa Dobrinski, violinist—"First Movement from Sonata in C Minor for Violin and Piano" (Grieg).
- 10.16: Austradio musical reproduction.
- 10.25: Late weather forecast.
- Late news from "The Sun" and "News."
- 10.30: National Anthem: close.

2GB

Theosophical Broadcasting Station, 29 Bligh St., Sydney (Wavelength, 316 Metres).

- 10.0 to 11.45, 2.0 to 3.30, and 5.15 to 7.30, as usual. 8.0: Miss Florence Day, contralto. 8.7: Symphony Orchestra. 8.15: Mr. Arthur Leslie, tenor. 8.22: Cello solos. 8.30: Mr. Jack Win and Mr. Heath Burdock, humor. 8.35: Miss Gladys Verona, soprano. 8.43: Symphony Orchestra. 8.52: Miss Florence Day, contralto. 9.0: Weather report. 9.3: Address. 9.15: "Cello solos. 9.25: Mr. Arthur Leslie, tenor. 9.35: Mr. Jack Win and Mr. Heath Burdock, humor. 9.40: Symphony Orchestra. 9.50: Miss Gladys Verona, soprano. 10.0: Instrumental music. 10.30: Close down.

2UW

Radio Broadcasting, Ltd., Palling's Building, Ash St., Sydney (Wavelength, 267 Metres).

- 12.30 to 4.30, 5.30 to 7.0: As usual.
- 8.0: Violin and Cello recital. 9.0: G.P.O. clock and chimes. Comments on Foreign Affairs by Mr. J. M. Prentice. 9.10: Music and request numbers. 10.30: Close down.

2KY

Trades and Labor Council, Goulburn St., Sydney (Wavelength, 280 Metres).

- 10.0 to noon, 6 p.m. as usual.
- EVENING SESSION
- 7.0: Musical interlude. 7.15: Sporting feature. Complete review of to-day's racing. Mr. Geo. A. Davis. 7.40: Health feature, Northey Du Maurier. 8.0: Hawaiian steel guitar selections. 8.15: Al. Rosenberg, novelty pianist. 8.30: Banjo solos, Master Harry Weir. 8.36: Al. Rosenberg at the piano. 9.10: Sporting feature. From Sydney Stadium, full description of main 15-round event. 9.50: Music from the studio. 10.0: Closing announcements.

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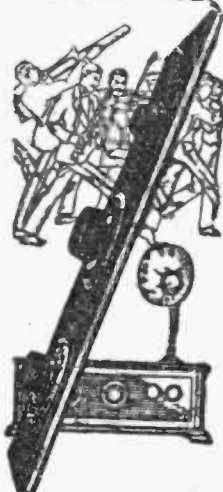
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NIGHT SESSION.

8.5: Programme review.
 8.10: "Down for the Show," in which the following artists will take part: Jack Burgess, Luigi Patrucco, Angelo Demodena, Madrigal Singers, Phyllis Tier, Frank Perrin, Don Wildsmith.
 9.1: Meteorological information, including Semaphore tides.
 9.2: Overseas grain report.
 9.3: Announcements.
 9.5: Concert, entitled "Down for the Show" (continued).
 10.15: News, weather, sporting, Cheltenham acceptances.
 10.30: Dance music.
 11.0: Close.

(Continued from Page 40.)

5CL

Central Broadcasters, Ltd., 114 Hindmarsh Square, Adelaide (Wavelength, 409 Metres).

Monday, November 11

9.0: Meteorological information.
 9.2: Overseas grain report.
 9.3: Announcements.
 9.5: Luigi Patrucco.
 9.12: Mrs. Keith Steward, soprano—"Whatever is— is Best" (Lohr), "The Promise of Life" (Frederick Cowan).
 9.17: A pianoforte recital by Jean Finlay, L.A.B.
 9.34: Mostyn Skinner, baritone—"Mandalay" (Charles Wilbey), "The Night Rider."
 9.42: Luigi Patrucco, soprano—"She Wandered Down the Mountain Side" (Frederick Clay), "If Any Little Song of Mine" (Teresa del Reigo).
 9.53: Luigi Patrucco.
 10.0: Mostyn Skinner, baritone—"Why Shouldn't I?" (Kennedy Russell), "To-morrow" (Frederick Keel).
 10.7: Orchestral numbers.
 10.15: News, weather.
 10.30: Sacred recordings.
 11.0: Close.

(Continued from Page 44.)

5CL

Central Broadcasters, Ltd., 114 Hindmarsh Square, Adelaide (Wavelength, 409 Metres).

Tuesday, November 12

NIGHT SESSION.

8.0: Programme review.
 8.10: A request presentation of the opera "Lucia di Lammermoor" (Donizetti), Characters: Lucia, Marcelle Berardi, Edgardo, Dino Pelardi; Enrico, Bert Woolley; Raymond, Fred Guster; Alisa, Gwen Collett; Arturo, Vincent McMurray; Norman, Ann Young; and chorus. Explanatory remarks by Bessie Francis; music by the Operatic Orchestra.
 9.1: Meteorological information, including Semaphore tides.
 9.2: Overseas grain report.
 9.5: Continuation of opera, "Lucia di Lammermoor."
 10.0: A one-act Play, entitled "Wine Drives a Car." Husband, Frank Perrin; wife, Laurie McLeod.
 10.15: News, weather, sporting; international cricket scores.
 10.30: Dance music.
 11.0: Close down.

(Continued from Page 50.)

2GB

Theosophical Broadcasting Station, 29 Bligh St., Sydney (Wavelength, 316 Metres).

Thursday, November 14

10.0 to 11.45 as usual. 1.30: Speeches from the League Club. 2.0 to 3.30 and 5.15 to 7.30, as usual. 8.0: Miss Bunty Stuart, contralto. 8.7: Band selections. 8.15: Mr. Cecil Houghton, tenor. 8.22: Mr. Jack Win and Miss Nora Windle in a humorous sketch. 8.32: Band selections. 8.40: Miss Gwen Selva, soprano. 8.50: Symphony Orchestra. 9.0: Weather report. 9.3: Address. 9.15: Miss Bunty Stuart, contralto. 9.25: Band selections. 9.30: Mr. Cecil Houghton, tenor. 9.40: Mr. Jack Win and Miss Nora Windle in a humorous sketch. 9.50: Miss Gladys Verona, soprano. 10.0: Instrumental music. 10.30: Close down.

2UW

Radio Broadcasting, Ltd., Paling's Building, Ash St., Sydney (Wavelength, 267 Metres).

Thursday, November 14

12.30 to 4.30, 5.30 to 7.0: As usual.
 7.45: Garden Talk, by Mr. S. H. Hunt. 8.0: Soprano and Contralto song Recital. 9.0: Comments on Foreign Affairs, by Mr. J. M. Prentice. 9.10: Music. 10.30: Close.

2UE

Broadcasting Station 2UE, Everett Street, Maroubra, Sydney (Wavelength, 293 Metres).

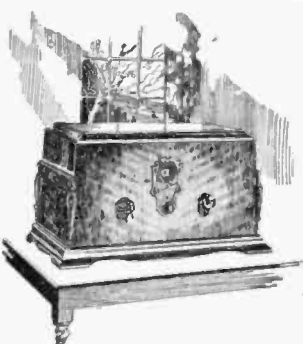
Thursday, November 14

EARLY MORNING SESSION.
 10.0 to 12.0: See Friday.
AFTERNOON SESSION.
 1.0 to 2.30: See Friday.
EVENING SESSION.
 6.30 to 10.15: See Friday.

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1 Philips B403 Valve	0	15	0	3 .0003 Formoidensers	0	10	6
1 Pilot Double Drum Dial	1	17	6	1 30 Ohm Rheostat, Pilot	0	4	0
3 Pilot .0005 Variable Condensers	2	0	6	11 Hydra .5 mfd. Fixed Condensers	1	7	6
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Local Programmes, Thursday, November 14

2FC

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength 431 Metres).

EARLY SESSION—7 to 8.15 a.m.

- 7.0: "Big Ben," and meteorological information for the man on the land.
 7.3: This morning's news, from the "Sydney Morning Herald."
 7.8: Austradio musical reproduction.
 7.45: Mails and shipping.
 7.48: What's on to-day?
 7.50: Children's birthday calls.
 8.0: Music from the Studio.
 8.15: Close.

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

- 10.30: Announcements.
 10.32: A.B.C. Racing Observer.
 10.45: Horace Weber at the Grand Organ.
 11.0: Household Helps—Domestic Notes, by Miss Ruth Furst.
 11.10: Cables—(copyright). A.P.A. and "Sun"—"Herald" News Service.
 11.15: Morning Devotion.
 11.30: Austradio musical reproduction.
 11.53: British Official Wireless press.
 12.0: "Big Ben." Stock Exchange and metal quotations.
 12.5: A morning story.
 12.20: Midday weather forecast and weather synopsis. Special produce market session for the man on the land, supplied by the State Marketing Board.
 12.30: Close.

THE LUNCH HOUR—1 to 2.30 p.m.

- 1.0: Lunch hour music.
 2.0: Stock Exchange, second call.
 2.2: A glance at the afternoon "Sun" and "News."
 2.7: To-day's acceptances, by the A.B.C. Racing Observer.
 2.17: Popular Education—C. N. Baeyertz, "Spoken English."

THE RADIO MATINEE—2.30 to 4.30 p.m.

- 2.30: The 2FC Instrumental Trio.
 2.42: Winifred Batchelor, soprano—
 (a) "Lovers in the Lane" (Lehmann).
 (b) "Goin' Home" (Dvorak).
 (c) "Stay with Me, Summer" (Morris).
 2.49: The 2FC Instrumental Trio.
 3.0: Mab Bowyer, contralto—
 (a) "Lilacs" (Rachmaninoff).
 (b) "Sapphic Ode" (Brahms).
 3.7: Raimund Pechotsch, violinist—
 (a) "Souvenir De Haydn" (Austrian Hymn) (Leonard).
 (b) "Melody" (Papini).
 3.14: Mab Bowyer, contralto—
 (a) "Dreary Steppe" (Gretchaninoff).
 (b) "A Black Bird Singing" (Head).
 3.21: The 2FC Instrumental Trio.
 3.26: Winifred Batchelor, soprano—
 (a) "Irish Folk Song" (Foot).
 (b) "The Last Rose of Summer" (Moore).
 (c) "Comin' Thro' the Rye" (Anon).
 3.43: Raimund Pechotsch, violinist—
 (a) "Reverie" (Pechotsch).
 (b) "Legende" (Wienlawski).
 3.50: The 2FC Instrumental Trio.
 4.0: Francis Jackson will speak on "Afoot in Medieval England."
 4.22: The 2FC Instrumental Trio.
 4.28: Stock Exchange, third call.
 4.30: Close.

EARLY EVENING SESSION—5.45 to 7.55 p.m.

- 5.45: Children's "Good-night" stories, told by Aunt Goodie.
 6.45: Dinner hour music.
 7.30: A.B.C. Sporting Service.
 7.37: Special Country Session. Stock Exchange Resumé. Markets. Weather forecast. Late news service from the "Sun" and "News." Truck bookings.
 7.55: To-night's programme.

THE EVENING PRESENTATION—8 to 11.30 p.m.

The feature of 2FC's programme on Thursday is, as listeners are aware, the Radio Play, and to-night the A.B.C. Players are concentrating on an unusual offering. There will be a pianoforte recital by Carl Budden Morris, and a new and interesting item—Jack Dempsey in "Something Different."

Through 2BL Service the entertainment is a popular one—new sketches by Lou James and Lynwood Roberts, song groups by the Wireless Singers, novelty piano items, comedy numbers, and a talkie short.
 8.0: From the Capitol Theatre: Horace Sheldon's Capitoliens; Fred Scholl at the Wurlitzer Organ.

8.10: From the Studio: Wilfrid Thomas, basso—

- (a) "In Summer Time on Bredon" (Peel).
 (b) "My Little Banjo" (Dichmont).
 8.17: Jack Dempsey in "Something Different."

8.24: From the Capitol Theatre: Fred Scholl at the Wurlitzer Organ.

8.34: From the Studio—Carl Budden Morris, pianoforte recital—

- Chopin Recital—
 (a) "Etude in E Major."
 (b) "Etude in C Major."
 (c) "Etude in F Minor."
 (d) "Etude in F Major."
 (e) "Etude in A Flat Major."
 (f) "Etude in C Minor."

8.46: From the Capitol Theatre: The Stage Presentation—

Horace Sheldon's Capitoliens, with Fred Scholl at the Wurlitzer Organ.

9.0: From the Studio: The Country Man's Weather Session—

- (a) New South Wales forecasts.
 (b) Interstate weather synopsis.

9.2: The A.B.C. Players in a new Radio Play.

9.42: Carl Budden Morris, pianoforte solo—"Polonaise in E Flat Major" (Chopin).

9.54: Wilfrid Thomas, basso—

- (a) "Old Clothes and Fine Clothes" (Shaw).
 (b) "Sea Fever" (Ireland).

10.1: From the Hotel Australia—Cec. Morrison's Dance Band.

10.5: From the Studio—announcements.

Late official weather forecast.

10.20: From the Hotel Australia—Cec. Morrison's Dance Band.

11.30: Close. National Anthem.

2BL

Australian Broadcasting Company, Ltd., Market St., Sydney (Wavelength, 338 Metres).

OPENING SESSION—8.15 to 11 a.m.

- 8.15: G.P.O. chimes and announcements.
 8.16: Music for every mood.
 8.40: Meteorological data for the country.
 8.45: Mails and shipping information.
 8.50: Memory melodies.
 9.0: This morning's story.
 9.30: A musical interlude.
 9.40: British Official Wireless Press.
 9.45: New music.
 10.2: News from the "Labor Daily."
 10.5: News from the "Sydney Morning Herald."
 10.10: Austradio musical reproduction.
 10.40: The Australian Broadcasting Company's Women's Association, conducted by Miss Gwen Varley.
 11.0: G.P.O. chimes. Close down.

MIDDAY SESSION—12 Noon to 2.30 p.m.

- 12.0: G.P.O. Chimes; announcements.
 12.2: Lunch-hour music.
 1.0: Afternoon news from the "Sun" and "News."

1.5: Studio music.

1.15: Women's interest talk—

Miss Mildred Muscio—"Traveller's Aid."

1.30: Austradio musical reproduction.

2.0: J. Knight Barnett at the "Wurlitzer."

2.12: Studio music.

AFTERNOON SESSION—2.30 to 5.45 p.m.

2.30: A talk by Jean Armstrong—

"Trimming the Dragon with Red."

2.45: The Magic Carpet Series—F. H. Raward: "Loch Lomond and its Glories."

3.0: Songs of to-day.

3.12: Gwen Robson, Pianist—

(a) "Berceuse" (Chopin).
 (b) "Nocturne, F Sharp Major" (Chopin).

3.19: Madame Dobrinski, Monologues—

(a) "Come to Town, Miss Brown" (Ben-
 nett).
 (b) "He Kissed Me Once" (Aylward).
 (c) "The Bird on Nellie's Hat" (Sol-
 man).

3.26: The newest dance numbers.

3.38: Olga Le Grey, Popular Vocalist—

(a) "In My Bouquet of Memories" (Akst).
 (b) "Weary River" (Silvers).

3.45: Memory melodies.

4.0: Gwen Robson, Pianist—

"Pastorale and Capriccio" (Scarlatti).
 4.7: Dance music.

4.17: Madame Dobrinski, Monologues—

(a) "My Grandfather's Girl" (Dillon).
 (b) "A Fat Little Feller with his Mammy's
 Eyes" (Gordon).
 (c) "Agatha Green" (Margaret Cooper).

4.24: Olga Le Grey, Popular Vocalist—

(a) "Love is Just a Little Bit of
 Heaven" (Baer).
 (b) "You Were Meant for Me" (Brown).
 (c) "Where is the Song of Songs for
 Me" (Berlin).

4.31: Music of the moment.

4.45: The Trade Hour—Demonstration
 music.

5.45: Weather information; close down.

THE DINNER HOUR—6.15 to 7.55 p.m.

6.15: Dinner music.

6.45: The Girls' Radio Club, conducted by
 Miss Gwen Varley.

7.5: Studio music.

7.15: The Country Man's Market Session

—Wool, wheat, stock, farm produce, fruit
 and vegetable markets.

7.30: Austradio musical reproduction.

7.55: What's on the air to-night?

TO-NIGHT'S PRESENTATION—8 to 10.30 p.m.

We offer to-night through 2BL a radio
 miscellany to appeal to move both grave
 and gay. Through 2FC service our feature
 is the night's play by the A.B.C. Players—
 Jack Dempsey—just different—will include
 2FC service with an unusual offering.

8.0: The Wireless Singers—

(a) "Stars of the Summer Night" (Hat-
 ton).
 (b) "The Shepherds" (Percival).
 (c) "From Oberon in Fairyland" (Stevens).

8.10: John Stuart, Comedian—

(a) "If Life were a Play" (Townsend).
 (b) "Dirty Days hath September" (WIL-
 COCK).

8.20: Maisie Ottey, Novelty Pianist—

(a) "Tinkle Toes" (Wenrich).
 (b) "Danube Dreams" (Maranz).
 (c) "Rhythmic Ripples" (Velazco).

8.27: A "talkie" short.

8.39: Muriel Lang, Cellist—

(a) "Romance" (Treibel).
 (b) "Rustique Danse" (Squire).
 8.46: Norman Hestelov, Basso—

(a) "King of the Mist" (Jude).
 (b) "In Cellar Cool" (D'Alquen).

8.53: Lew James and Lynwood Roberts,
 in a radio sketch—

"Potash Goes Fishing" (James).

9.3: The Wireless Singers—

(a) "The Night has a Thousand Eyes" (Caber).
 (b) "O, Hush Thee, My Baby" (Sullivan).
 (c) "Love is Meant to Make us Glad" (German).

9.13: Muriel Lang, Cellist—

(a) "Prelude" (Bach).
 (b) "Serenade" (Sitt).
 9.20: A "talkie" short.

9.32: Weather information for the man
 on the land.

9.34: Maisie Ottey, Novelty Pianist—

(a) "Good Little Bad Little You" (Green).
 (b) "Sunbeams" (Wignes).
 (c) "Here we are" (Warren).

9.41: John Stuart, Comedian—

(a) Comedy sketch: "The Lifesaver" (original material).
 (b) Song: "All Day Long" (Weston).

9.51: Norman Hestelov, Basso—

(a) "The Curfew" (Gould).
 (b) "The Lute Player" (Allitsen).

9.58: Lew James and Lynwood Roberts,
 in a radio sketch—

"Potash on the Ocean" (James).
 10.8: Vocal duet.

10.15: Announcements.

10.25: Late news from "The Sun" and
 "News." Late weather forecast.

10.30: National Anthem; close.

(For B Stations, see page 49).



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Interstate Programmes, Thurs., Nov. 14

3LO

Australian Broadcasting Co., 129A Russell St.,
Melbourne (Wavelength. 371 Metres).

EARLY MORNING SESSION.

7.0 to 8.15: See Friday.

MORNING SESSION.

10.30 to 12.30: See Friday.

MIDDAY SESSION.

1.0 to 1.15: See Friday.

EDUCATIONAL SESSION.

2.0: Great Australians: Sir Samuel Griffith, Mr. J. Howlett Ross. 2.15: Musical interlude. 2.20: Music explained and illustrated. Mr. A. E. Nickson, F.R.C.O. 2.35: Musical interlude. 2.40: Australian Adventurers: Captain Donald MacLean. 2.55: Musical interlude. 3.0: Melbourne Observatory time signal.

THE RADIO MATINEE.

3.0: Paul Jeacle and his band: "Egyptian Echoes" (Black). 3.8: Rosa Pollock, soprano: "The Blackbird's Song" (Cyril Scott). "Mighty Lak a Rose" (Nevin). 3.15: "Anson," the Fiddling Jester: Music, mirth, and melody. 3.23: Paul Jeacle and his band: "Slow Gee Gee" (Bee) Selected. 3.30: Iza Crossley, entertainer. 3.35: Bruce White: Piano novelties. 3.41: G. Fehring, tenor: "We'll Know We'll Understand" (James Henry). "God Touched the Rose" (Brown). 3.48: Paul Jeacle and his band: "Just Across the Street from Heaven" (Newman). Selected. 3.55: "The Chorus." Twenty minutes of fun and frolic. 4.18: "Anson," the Fiddling Jester: Music, mirth, and melody. 4.23: Paul Jeacle and his band: Request numbers. 4.30: Acceptances and barrier positions for the V.A.T.C. races at Caulfield on Saturday, November 16. 4.35: Close down.

THE CHILDREN'S HOUR

5.45: "Bobby Bluegum."

EVENING SESSION.

6.30: Musical interlude. 6.40: Let's talk about our animals: The Origin of the Dog. Lt.-Col. J. M. Carroll. 6.55: Musical interlude. 7.0: Time signal. 7.1: Countryman's session. 7.25: For the man on the land: Marketing Dairy Products, Mr. R. Crowe. 7.40: News service. 7.45: The latest in books, Mr. A. A. Phillips, B.A. 8.0: Time signal.

NIGHT SESSION.

8.0: National Broadcasting Orchestra: Overture, "Il Guarany" (Gomez). 8.8: The Versatile Four: "When Evening's Twilight." Selected.

8.15: You will hear the outstanding subject or personality of the evening.

OUR DANCE NIGHT.

8.30: Paul Jeacle and his band: Dance numbers. 8.40: Hazel Foletta, soprano: "A Heart That's Free" (Robyn). 8.45: Paul Jeacle and his band: Dance numbers. 8.53: The Versatile Four: "Doan You Cry, Ma Honey." 8.56: Paul Jeacle and his band: Dance numbers. 8.56: Jack Houston, ventriloquist: "Trouble." 9.9: Paul Jeacle and his band: Dance numbers. 9.15: The Versatile Four: "Dixie Kid." 9.22: Paul Jeacle and his band: Dance numbers. 9.32: Hazel Foletta, soprano: "Spring's a Lovely Lady" (Elliott). 9.35: Paul Jeacle and his band: Dance numbers. 9.45: Jack Houston, ventriloquist: "The Jockey." 9.48: Paul Jeacle and his band: Dance numbers. 9.58: Hazel Foletta, soprano: "As I Went a-Roaming" (Brahe). 10.1: Paul Jeacle and his band: Dance numbers. 10.10: Jack Houston, ventriloquist: "The Hunter." 10.13: Paul Jeacle and his band: Dance numbers. 10.23: Hazel Foletta, soprano: Selected. 10.26: Paul Jeacle and his band: Dance numbers. 10.36: British official wireless news: meteorological information: Items of interest. 10.45: Paul Jeacle and his band: Dance numbers. 10.53: Jack Houston, ventriloquist: "The Soldier." 10.58: Paul Jeacle and his band: Latest dance numbers. 11.30: God Save the King.

3AR

Australian Broadcasting Co., 129A Russell St.,
Melbourne (Wavelength. 481 Metres).

MORNING SESSION.

8.15 to 11.0: See Friday.

MIDDAY SESSION.

12.0 to 2.0: See Friday.

AFTERNOON SESSION.

2.1: Ray Miller and his Orchestra. 2.3: Dick Robertson, comedian. 2.6: Epe, comedian. 2.9: Belle Baker, soubrette. 2.12: Ray Miller and his Orchestra. 2.15: Wendell Hall, The Red-headed Music Maker. 2.18: Belle Baker, soubrette. 2.24: Ben Bernie and his Orchestra. 2.27: Dick Robertson, comedian. 2.30: Walter S. Rogers Band. 2.33: Richard Bonelli, baritone. 2.36: Herbert Clarke, cornet. 2.39: Claire Dux, soprano. 2.42: Walter B. Rogers Band. 2.45: Jones and Hare, duet. 2.48: Herbert Clarke, cornet. 2.51: Richard Bonelli, baritone. 2.54: Walter B. Rogers Band. 2.57: Claire Dux, soprano. 3.0: Request numbers. 3.20: An afternoon Bridge Party. Miss Hattie Knight. 3.35: Musical interlude. 3.40: Food and Cookery, Electric Cooking, Miss B. Osborne. 3.55: Musical interlude. 4.0: Your Health and Appearance, Miss Evelyn N. Ellis. 4.15: Musical reproduction. 4.45: Evensong, transmitted from St. Paul's Cathedral. 5.30: Weather. 5.45: Close down.

EVENING SESSION.

6.15: Dinner music. 7.32: Sporting results. A.C. acceptances and barrier positions for the V.A.T.C.

races at Caulfield, on Thursday, November 16. 7.35: Latest musical releases. 8.0: G.P.O. chimes.

NIGHT SESSION.

8.0: The Odd Men Out will talk about the Ancient and Horrible Game of Golf.

8.15: A special reproduction of "The Twilight of the Gods" (Götterdämmerung) (Wagner). The principal characters are: Siegfried, tenor; Gunther, baritone; Hagen, bass; Alberich, baritone; Brunnhilde, soprano; Gutrune, soprano; Waltraute, mezzo-soprano; Woglinde, soprano; Wellgunde, mezzo-soprano; and Flosshilde, contralto, three Rhine Maidens; The Three Norns, soprano, mezzo-soprano, and contralto.

9.5: Mabel Nelson, piano recital—"Aufschwung" (Schumann), "Warum" (Schumann).

9.15: A special reproduction of "Siegfried" (Wagner). The principal characters in this opera are: Siegfried, tenor; Mime, tenor; The Wanderers (Wotan), baritone; Alberich, baritone; Fafner, bass; Erda, contralto; Brunnhilde, soprano.

10.20: Weather and news.

10.30: God Save the King.

4QG

Queensland Government Radio Service, Brisbane
(Wavelength, 385 Metres).

For day sessions see Friday.

NIGHT SESSION.

7.45: Lecture, "A Talk on Books by Mr. J. Oyle (McLeods).

8.0: Group I—Grand Opera. 4QG Concert Orchestra (conducted by Erich John): "Overture" (from "Semiramide," Rossini). 4QG Choir and Concert Orchestra (conducted by Erich John): "Anvil Chorus" (from "Il Trovatore," Verdi). Stanley Tamblin (bass-baritone), with Concert Orchestra: "Star of Eve" (from "Tannhauser," Wagner). 4QG Concert Orchestra: "Gavotte" (from "Iphigénie in Tauris," Gluck).

8.30: Group II—"Songs from the Cinnamon Gardens." W. W. Crisp (tenor): "The Pearl Divers" (Travers). 4QG Choir: "The Cinnamon Garden" (Travers). Mildred Bell (contralto) and James Hunter (bass-baritone), with Concert Orchestra: "Up from Somerset" (Sanderson). 4QG Concert Orchestra (Travers): "A Cornwell (baritone): "A Cingalese-Long Song" (Travers). 4QG: Concert Orchestra: "Cingalese Intermezzo" (Grey).

8.45: Group III—Vesper Hour. Audrey Bell (contralto), with 4QG Choir and Concert Orchestra: "The Rosary" (Nevin). 4QG Choir: "Ave Verum" (Mozart). 4QG Concert Orchestra: "Andante Religioso" (Tilgner).

9.0: Metropolitan weather forecast. Movements of Dental Clinic.

9.2: Group IV—Miscellaneous. George Williamson (tenor), with Concert Orchestra: "Love Could I Only Tell Thee" (Cape). Mildred Bell (contralto) with Concert Orchestra: "Still as the Night" (Bohm). James Hunter (baritone), with Concert Orchestra: "Up from Somerset" (Sanderson). 4QG Concert Orchestra: Waltz, "Roses from the South" (Strauss).

9.20: Group V—Classical. Mrs. Robert Bell (soprano): "True Love" (Brahms). George Williamson (tenor) and J. P. Cornwell (baritone), with Concert Orchestra: "Maidens in the Meadow" (Rubinstein). 4QG Choir: "The Victor's Return" (Mendelssohn). 4QG Concert Orchestra: "Military Polonaise" (Opus 48, No. 1, Chopin).

9.40: Group VI—Light Opera. May Jordan (soprano): "A Geisha's Life" (from "The Geisha," Jones). Mrs. Robert Bell (soprano), Mildred Bell (contralto), and Audrey Bell (contralto), with Concert Orchestra: "Just a Little Ring" (from "Lilac Time," Schubert). 4QG Choir and Concert Orchestra: Opening Chorus of Act II. (from "Florodora," Stuart). 4QG Concert Orchestra: "Morning, Noon, and Night in Vienna" (Suppe).

10.0: News, weather; close.

5CL

Central Broadcasters, Ltd., 111 Hindmarsh Square,
Adelaide (Wavelength, 469 Metres).

MORNING SESSION.

11.15 to 2.0: See Friday.

AFTERNOON SESSION.

3.0 to 4.30: See Friday.

EVENING SESSION.

6.0 to 7.0: See Friday. 7.20: Dr. G. H. Wright, M.A., will continue his Literature Talks. 7.35: Under the auspices of the Junior Red Cross League, the Lady Mayoress, Mrs. J. Lavington Bonnyton, will speak. 7.45: Mr. A. M. Whittenbury—Hints to Poultry Breeders.

NIGHT SESSION.

8.0: Programme review. 8.10: The Steiner Trio—"Norma" (Bolini), "Serenade" (Haydn). 8.20: Mary Edson, soprano—"Big Lady Moon" (Coleridge-Taylor). 8.24: Guido Giacchino, cellist—selected 'cello solos. 8.31: The Steiner Trio—"The Wood Nymph" (Lind), "Andante from Symphony" (Tschakowsky). 8.41: Mary Edson, soprano—"Break of Day" (Sanderson), "You and I" (Liza Lehmann). 8.48: The Steiner Trio—"Spring Song" (Gustave Lind), "In My Dream Garden" (Rayners). 8.56: Mary Edson, soprano—"Down Here" (May Erbe).

9.1: Meteorological information, including Semaphore tides. 9.2: Overseas grain report. 9.3: Announcements. 9.5: A special programme has been arranged. 10.30: News, weather, sporting. 10.45: Dance music. 11.0: Close.

Established 40 Years

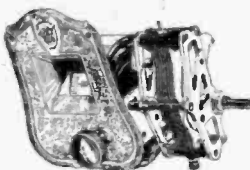
Harringtons PRESENT these PILOT parts

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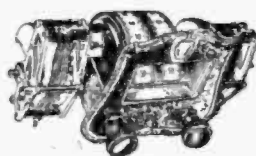


All Pilot products are generally recognised to be the finest radio parts on the market, and it is significant that the majority of Australian manufacturers choose Pilot for their sets.

The enormous turnover of the Pilot factory makes it possible to sell these parts at such low cost. Study the prices listed below, and you will realise that Pilot costs no more than ordinary radio parts.



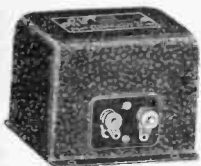
No. 1284L.



No. 1283L.

Nos. 1283L and 1284L illuminated drum dials are smooth running and free of backlash. The panel plates are of rich bronze and look well against either black or walnut panels. The scales are indirectly illuminated by small bulbs that work off the power transformers of the set. The bearings are substantial, and will support the heaviest condensers. The dials will take practically all types and makes of condensers, in single, double, or triple gang units.

Single drum, with bulb, No. 1284L 21/-
Double illuminated drum, with bulb, No. 1283L 37/6



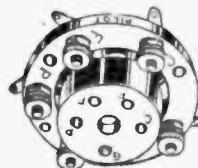
Appearance of No. 413 series Transformers and Chokes

These small audio transformers and chokes can be mounted on the underside of the sub-panels, the one piece steel cases being only 2 7/8 in. square and 2 1/8 in. high. Neatly finished in black lacquer with mounting feet, their tone quality is of the highest order.

Price 15/-



No. 216.



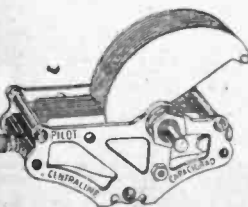
No. 212

Pilot sockets are made of genuine moulded bakelite and hold the tubes firmly, but not too tightly. Contact springs and soldering lugs are actually one piece, thus eliminating losses in the sockets themselves.
Set Builders Socket, UX and UV Tubes, 4 prongs, No. 205 ... 1/3
Shock-proof Socket, UX and UV Tubes, No. 206 3/

Set Builders Socket, UY Tubes. No. 211 1/6
Base type Socket, UY Tubes. No. 212 3/-
Set Builders Socket, screw contact, for UX and UV Tubes, No. 214 1/3
Universal Socket, UX and UV Tubes, No. 216 2/-
Universal Socket, UY Tubes, No. 217 2/6

These variable condensers are made of non-corroding brass parts, gold finished with highly polished aluminium end plates. Modified straight line frequency type—moulded bakelite insulation, and many other distinctive features. These condensers are the handiest made. Suitable for use in any receiver, either short or long wave.

- .00016 mf. and maximum. No. 1611 10 6
- .00025 mf. and maximum. No. 1613 12/-
- .00035 mf. and maximum. No. 1617 12 6
- .00050 mf. and maximum. No. 1623 13 6
- Insulated flexible coupling. No. 12A 2/-



The 1600 Series Condensers.

Harringtons LTD

RADIO, PHOTO AND CINE MERCHANTS.
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BRANCHES ALL STATES AND NEW ZEALAND.

DON'T BUY MORE B BATTERIES!

Reduce Your Upkeep Cost to a Fraction of The Present Amount

The Genuine IMPROVED ECONOMIC ELIMINATOR KIT brings Eliminators within reach of everyone. Perfect in results and simple to build. This Kit offers the very best value for money obtainable in Radio to-day. It will replace your B Batteries for all time and give pure powerful current to your set direct from the light socket or power point. Wherever electricity is available an IMPROVED ECONOMIC KIT should be used.

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**RESULTS
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Price, £3/3/-
MADE UP IN HANDSOME CASE
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**With Clear Picture
Diagram
and Instructions.**

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1930 D.C. SUPERHETERODYNE USES RADIOKES COMPONENTS

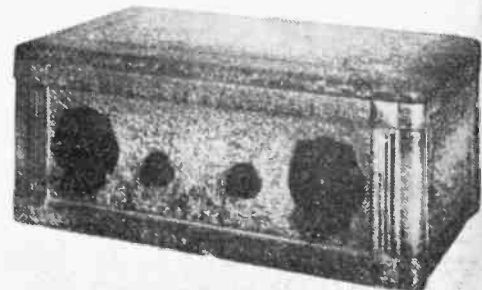


This Super Receiver proved popular in the A.C. model and here is presented in the D.C. form. This promises to prove equally popular. As per usual Radiokes have produced a special kit for this superlative receiver. This kit is in two parts. The R.F. kit shown on right and the tuned intermediate frequency kit, which consists of three units, similar to that illustrated on left. The R.F. kit sells at 75/- per kit, and the I.F. kit sells also for 75/-.



Sub-panel Brackets, beautifully finished in Bronze Crystalline, 3/3 per pair.

Use Radiokes Sub Panel Brackets and Beautiful Metal Cabinets in all your receivers; these products are the finest you can buy and are equal to any produced anywhere in the World.



Radiokes Beautiful Metal Cabinet, in variety of finishes, complete, £2/7/6 each.

At Your Dealers or Direct
Metropolitan Electric Co.
Radiokes House,
126 Sussex St., Sydney

The Radio Information Service

An Explanation of Radio-Active Matter

Under the Direction OF ROSS-A-HULL M.I.R.E

T.E.D. (Waterloo): "Recently saw reference in a technical magazine to Uranium. Is this a radio-active matter? If not, what is it? I thought radium was the only radio-active matter known."

Answer: Uranium was the first element discovered to possess radio-activity, the power of continuously emitting penetrating rays. Since radium was extracted from uranium minerals, it was at first imagined that the activity of this substance was due to radium impurity. R. K. Duncan, in his book on "The New Knowledge," says, "It was a mistake to place this as the cause of the activity of uranium. The radio-active power of uranium is 1,500,000 times less than pure radium. It possesses, however, a special interest in the fact of its simplicity. Like thorium, but unlike radium, it continually gives rise to a solid disintegration product, uranium X, though this differs from thorium X in emitting beta instead of alpha rays. The uranium from which the uranium X has been extracted emits only alpha rays. Just as in all radio-active processes, the decay of the activity of the uranium X and the revival of the activity of the pure uranium take place at the same rate, so that the activity of a uranium compound at any one instant is due to a balance between the opposing forces of decay and restoration. Half of this process of decay and restoration takes place in twenty-two days. Unlike both radium and thorium, the uranium X gives rise to no emanation, and consequently to no emanation X. Uranium has been used to test the constancy of radio-active processes. A sample was tested for many years at intervals of 48 hours, and up to the time of writing the sample has shown no perceptible sign of weakening of the radiation. A variation of one hundred thousandth of its activity would have been apparent, a singular example of the constancy of radio-activity and the powers of radio-active methods." You are incorrect in your supposition that radium is the only radio-active matter. We have thorium, uranium, polonium, and actinium. Besides, radio-activity is not confined to the radio-active elements. It exists everywhere, though in a minute degree. Normal air is slightly radio-active, as are freshly fallen rain and snow. It is believed that most matter, if not all, is radio-active.

P.D. (Normanhurst):—Answers to questions 1, 2, 3—yes, all O.K.

Answer: Bakelite panel do instead of aluminium? **Answer:** Bakelite can be used, but you might strike trouble with hand-capacity, which is worse on short-waves than on the lower frequencies. A piece of aluminium the same size as the panel required would cost about the same as the bakelite, and it is just as easy to work.

C.R. (Newcastle):—The best arrangement is the circuit No. 2, but use a primary coil. This will probably solve your selectivity problem.

L.A.Y. (Woolwich):—See below. Also see replies to other readers each issue back to about three weeks.

GENERAL:—Can any reader please supply Mr. L. A. Young, Margaret Street, Woolwich, with a copy of "Wireless Weekly" containing the Screen Grid Marco circuit. He is willing to pay for copy and postage.

J.F.L.D. (Newtown):—Increase number of turns 10 per cent. Screening would be an advantage, but it is not necessary in this receiver.

F.W.B. (Sams Souel):—Three-inch diameter formers. Primary and secondary spaced $\frac{1}{2}$ in. Secondary and reaction $\frac{1}{4}$ in. space. 24-gauge D.C.C. wire.

N.A.H. (Brisbane):—Regret we have no copies. Clamps are being returned. No more "B" class licences are being issued at present. It will not be necessary to change the valves to use a B and C eliminator, but you cannot do away with the accumulator unless you use an A, B, C eliminator. Prices vary. Approximately £15. See also below.

L.C.B. (Young):—Regret we have no copies left. This advice published in last week's queries. If you care to give full name and address we shall be pleased to publish a par. for you.

(2) Try changing grid leak.

(3) The correct valve would be the 4415 (special detector). The 425 is an r.f. stage valve.

B.K. (Ingleburn):—Try making these alterations. Connect aerial to first turn of 18-turn coil, and

earth to last turn of this coil. Connect the variable condenser across the 50-turn (instead of the 15-turn) coil, with rotor plates of condenser to end of coil. Test the set, then try an additional wire between the rotor plates of the condenser and the earth terminal.

G.H. (Wilcannia):—"What alterations are necessary before a Neurodyne using power 11a and 20A valves can be made to use six-volt valves, such as Phillips or Mullard?"

Answer: There should be no need to alter the receiver unless you are using filament ballasts, when these should be changed for the correct ones, when these can be plugged in. Plate and bias voltages probably will have to be varied as well as filament. Set may require re-neutralizing.

T.P.S. (Belgola):—"I am sending you enclosed with this a circuit diagram of a one-valve set, and I want you to see if it can be extended to a two-valve set. I should like you to publish a back of panel wiring diagram. I may say, I have seen the set made up, and it is a good one."

Answer: The circuit is a Belnartz and is so well known that you will find the circuit has been published in queries columns many times during the past year. You mention you are a subscriber, so if you still have copies, you will find the circuit and back of panel wiring diagram. In any case, there is nothing hard about adding the additional stage. The wiring is here given in words: From that side of the jack which connects to the plate of the detector valve, connect to the plate terminal of a B-1 transformer, and also to one side of this condenser, take a lead to the other side of the jack, and also to B plus terminal on the primary of the transformer. Now connect the grid terminal of the audio stage valve socket to the grid terminal of the audio transformer. Connect one filament terminal of the valve socket to A minus, and the other filament to A plus. Take a lead from the plate of the valve socket to one side of the loud speaker, and the other side of the speaker will then connect to B plus about 90 volts. If you intend using grid bias, connect the F minus terminal on the transformer to C minus about 450 volts. C plus should connect to A minus. If you are not using grid bias, merely connect F minus terminal of the transformer to A minus. You will probably find (whether the audio stage is added or not) that you will get better results using a larger primary (up about 15 or 20 turns).

W.T.S. (Glebe):—"I am desirous of building the Countryman's One-Valver. Would you please supply me with details as regards gauge of wire and size of former for coils?"

Answer: Use 24-gauge d.c.c. wire, and three-inch diameter former.

(2) "If I use a Phillips A615, what value filament rheostat will be required?"

Answer: Any value rheostat between 7 and 10 ohms will be O.K.

(3) "What rheostat will be required for an Osram DEL167?"

Answer: 50 ohms. In both cases the rheostats will give you good even control, which is very necessary on this receiver. If you consider any other valves, divide the filament voltage by the filament current in amperes. This will give you the resistance (in ohms) of the rheostat required to give even control.

O.T. (Georgia):—"Please run your eye over enclosed diagram. I can't get a move out of the screen grid valves."

Answer: We ran our eyes over your diagram, and they haven't stopped running since. Wind coils on three-inch formers as follows:—Primary, 20 turns; secondary, 47 turns; other coils in proportion. In any case you would do better to follow the circuit of the Marco with two stages of screen-grid r.f. amplification. It is exactly the same circuit as is "aiming" at. This circuit was published quite recently.

C. and P. (South Australia):—The valves will be O.K. There will be no increase in efficiency unless your previous valves were faulty.

"QUI" (South Kensington):—A crystal will not serve below 200 metres effectively as greater sensitivity is necessary.

D.H. (Coorparoo):—There will be no need to do this. Use the wavetramp described recently in queries. If you use the shield, insulate components from it. Use aluminium.

R.E.N. (Strathfield):—"I have sent in my coupon for the Model Aero Club. Is there any firm in Sydney or suburbs where I can obtain parts for building a model aeroplane capable of soaring about 1000 feet? Is it possible to obtain a ready-made twin-pusher? Where can Balsal wood be obtained?"

Answer: Your coupon has been forwarded. Messrs. Walther and Stevenson, George Street, Sydney, have several types of models; they can supply a twin pusher. It is very difficult to obtain Balsal wood at present, though some cabinetmakers may be able to supply. "Model Aircrafts," 1 Bond Street, have some, and Messrs. Walther and Stevenson will have a supply in about two weeks' time.

J.P.A. (Waltara):—"I have a four-valve receiver and get a jarring noise when any volume is put on. I am using an old 4 volt "A" battery which is hard to charge in one cell, and cannot be brought past 11.75, while the other shows 12.90. Has anyone noticed that jarring is worse when battery is nearly charged. Would you please advise what may be wrong?"

Answer: Probably sediment at the bottom of the cell is causing it to short. May be a loose connection inside the receiver, or a worn speaker cord. See that you are using correct grid bias.

A.C.S. (Wee Wee):—"I have a three-valve Cosor Melody Maker, and through a mistake I connected a six-volt accumulator to the valves instead of only using two volts. Consequently the screen grid valve and the power valve lit up, and I think they are burnt out. Could you tell me if this is so; also if any other part would be likely to burn out?"

Answer: Evidently you did not build your set properly, as otherwise the Cosor fuse would have burnt out. The writer had the same experience as yourself, but he only blew the fuse. He knew then that he had made an error regarding the filament voltage, and put in the spare fuse. Test your filaments in series with a small battery and a pair of telephones. You should always use the fuse supplied. If you did use it, evidently there is a faulty connection in the receiver, since the fuse only allows a certain current and voltage to pass. When a greater voltage is applied, the fuse burns out. If the valves have received the full voltage they may still be serviceable.

J.L. (Stannmore):—Use the Interference Eliminator recently described.

S.J.R. (Greenwich):—"I received some very sound advice through your columns recently, and am wondering if you will oblige again. I am at present working a five-valve standard Neurodyne. Oscillation gave a lot of trouble at first, but have just about got it under now."

Answer: Try r.f. chokes in various plate leads, or 1000 ohm resistors.

(2) "Set occasionally breaks into a terrific roaring."

Answer: Most probably due to microphone valves. As you are using an audio giving plenty of volume, and a dynamic speaker, you should use anti-vibration valve sockets, place the receiver cabinet on a rubber sponge feet, and it necessary turn the speaker away from the set.

(3) "There is a slight hum on the dynamic speaker, which is of well-known make."

Answer: There will always be a slight background hum whilst the radio is not reproducing, but the hum should not interfere with reception. If it does, the filter or rectifier is probably faulty.

(4) "I am desirous of making a short-wave adaptor, preferably one screen grid and detector to use with my perfectly good audio end. I have all copies of your paper for the last two years, so if you can give me an idea where such an adaptor could be found, I should be pleased. I could use the r.f. and detector of the All-Empire or Midget."

Answer: A short-wave adaptor incorporating a screen grid r.f. stage and detector was published about six months ago. Author was Percy Graffam. The r.f. and detector portion of the Midget would make a good adaptor.

QUERY COUPON

If you are in difficulties about reception or set-construction, let us know, and we will endeavor to see you right. Make your questions brief to the point, and, where possible, show lay-out and wiring design. Under no circumstances will answers to queries be made by letter or by telephone. All answers will appear in the columns of this department in the order in which they are received.

The Radio Information Service, 4008 38th St., WIRELESS W. E. B. L. Y. Please answer the accompanying queries in your earliest convenience. I enclose this coupon in order to indicate that am a bona-fide reader.

R.L.G. (Alstonville): "I am desirous of constructing a receiver for listening to commercial stations from 600 metres up, and would appreciate your opinion of enclosed circuit. Also, would you let me know through queries columns the number of turns required, gauge wire, etc., to cover the bands. My object in constructing this outfit is to secure practice in reading Morse, which I am endeavoring to learn."

Answer: The circuit is O.K. It is a Reznartz. The winding of coils would prove a tedious business, and a better and even cheap plan would be to use various combinations of honeycomb coils, which can be bought quite cheaply these days. For 600 metres the secondary coil should be one of about 106 turns, and the reaction coil about 50 turns. Various combinations would allow you to tune up to higher wavelengths.

(2) "Are any of the amateur stations transmitting Morse lessons for the benefit of 'Proving Radio' students? If so, what times and wavelengths?"

Answer: Write to the secretary of the "Proving Radio Club," Mr. C. Y. Hook, 29 Bialgowrie Street, Dulwich Hill, who will be pleased to advise you.

H.S. (Mildura): Your letter has been passed on to Mr. Lyons, of 2BL, who is dealing with the subject of aerodynamics from 2BL.

A.A. (Auburn): Sorry, cannot advise you unless you give us more details to work on. Brief letters are appreciated, but you must narrow down the troubles for us. State symptoms. Also do not forget query coupon.

W.T. (Leichhardt): The resistance of the potentiometer is 400 ohms.

E.W.C. (Gordon): Use an aluminium shield behind the panel, insulating components from it, and connecting to earth. See coil details in last issue of WIRELESS WEEKLY, special short-wave number.

(2) "Have you discontinued the short-wave notes for good?"

Answer: No; but difficulty is experienced in obtaining reliable information. Arrangements are being made for regular listeners to submit reports in the near future.

W.J. (Auburn): Ever tried using ink instead of water? It's easier to read. Evidently the output is not sufficiently filtered. Try another choke and condenser. The trouble with home-made eliminators in the country is that the primary supply is not always reliable.

B.B. (Campbell): See details on gramophone amplifier recently described.

N.C.W. (New Zealand): Use two stages of transformer coupled audio with power valve. This will be quite O.K. Also see remarks on the subject in recent issue.

E.A.S. (Newcastle):—Probably local interference. Suggest comparing observations with any neighbors who have sets. This may lead to locating of source of interference.

G.T.B. (Tumut):—"Which are the primary and secondary coils in the Countryman's One?"

Answer: The primary is the aerial coil, i.e., the coil to which the aerial is attached. The secondary coil is the one that connects through the grid leak and condenser to the grid of the valve. The other end of this coil connects to the filament.

(2) "Could you give me instructions for adding an R.F. stage to the Countryman's One?"

Answer: See reply to "E.S.," Marrickville, October 25.

C.Z. (Melong):—See this issue.

GENERAL: "Capt. C. R. Weber desires to thank those readers who communicated with him as requested through Query columns in connection with his Corsor set. Owing to the vast number of letters received, it is not possible to reply to all except through the courtesy of WIRELESS WEEKLY, by inserting this notification." Capt. Weber, R.A., writes: "I may add that the reply to my query was very good indeed. Also the publishers should be pleased that they have so many readers willing to assist each other. I desire to tender my thanks for the promptness in answering my other queries."

W.H.J. (Victoria):—Amperites can be used. Four-voit type. Sorry can't follow the rest of your writing.

J.B. (Maroubra):—Suggest a four-valve Marco.

A.B.C. (No address):—Receiver is a good one, and valves are quite O.K. If the manufacturer used them, since it is a well-known receiver, and the firm is reliable. Perhaps one or more of the valves has become faulty.

S.D.C. (Drummoynne):—Add a two-valve amplifier. Any good speaker will be O.K.

D.F.G. (Woolowin):—"Why do you say 'Any good make will do'? Why don't you say straight out—'Pay a lot of money to our advertisers!'"

Answer: See reply to querist S.D.C. (Drummoynne). Because we refer to a good type of product, we do not infer that it is a costly affair. For instance, you can pay £50 for a loud speaker. But some other "good" ones are very cheap, and yet they give excellent results. Glad you think all our advertisers have good apparatus.

L.M.L. (Sydney):—N.D.

D.M. (Enmore):—"Re the subject of crystal sets. I think it is about time you gave us a page or two regarding crystal circuits and the latest information

about them. I am always disappointed when I see no mention of crystal receivers in your paper. I hope you will give us some circuits, and all the latest information on crystal sets.

Answer: Crystal receivers are gradually becoming extinct, and we very seldom receive requests for information on such receivers. Our articles are made up according to the trend of radio. However, your suggestion will receive consideration.

L.T. (Bronte):—Quite O.K. Use same number of turns as mentioned in article.

GENERAL: A letter received from the Dutch section of the International Amateur Radio Union reads: "Dear Om, We beg to inform you that the QRA of our QSL section, the only for Holland, has been changed. The new address is, QSL Bureau, N.V.I.R., Postbox 400, Rotterdam, Holland. Kindly inform your members and the radio press of your country as soon as possible. Tax es '73."

"W.W." (Macquarie Street):—Mr. Hull's comment follows: It is certain that the American receiver mentioned, when correctly adjusted, has a very great radio frequency gain, and consequently a high degree of sensitivity. However, as we have said many times, high sensitivity does not necessarily mean great receiving range. The nine-valve receiver certainly would receive any signals which were louder than the atmospheric and other noises which constitute a "background," but there are many other receivers which would do the same. Some manufacturers make a feature of long-distance reception, and endeavor to make the reader think that the performance of their receiver is extraordinary in that respect. In most cases the feats of reception mentioned in the advertisements could be duplicated by any other really good receiver, providing it was operated in the same location and under the same excellent conditions. When they claim that 19 stations at 6000 miles, seven at 7000 miles, and six at 8000 miles were received, it simply means that the receiver was being operated in a very splendid location under still better conditions. Incidentally it indicates that the receiver, like many others of a similar type, was highly sensitive and highly selective. The receiver mentioned probably would be satisfactory providing it was not expected to bring in "79 programmes over 6000 miles," or even over 1000 miles, except under very unusual conditions.

We have very grave doubts about the "Super Earth-wave Aerial." We believe that most of the claims made for super operation of aerials of any type whatever are 100 per cent eyewash. At least one of the Chicago super aerial firms has been put out of business by Postal Fraud Order of the U.S. Postal Department.

N.B. (Newcastle):—Glad to hear you got such good results on the All Empire. Add R.F. stage as per first stage.

DRIVE IT FROM THE MAINS!

DID YOU KNOW THIS?

That in Any Electric Light Socket There is a Means of Doing Away With All the Inconvenience, Expense and Failures of Battery Operated Sets?

Look at it This Way

You can leave behind all B battery worries for good with the Wallace B Eliminator Kit, at 59/6. You Can Convert Any One, Two, Three, or Four Valve Set to Complete Electric Operation with the Wallace A.B.C. Power Pack, at 95/-.

You Can Convert Any Four or Five Valve Set to Electric Operation with the Wallace Special B Eliminator, at 67/6.

You Can Convert Any Larger Set—any Set at all—to Complete Electric Operation with the Wallace UX280 B and C Eliminator Kit, at £7.

Or use one of these B or B and C Eliminators alone, at the above prices, and at least avoid B Battery Worry. All Kits include Power Transformers—No Bell-ringers.

Eliminator Parts Sold Separately

Power Transformers, 300 volts, 75 mils., with filament winding to suit valve, 25/-. A.B.C. Power Transformer, 300 volts, 75 mils., with filament winding, and further filament winding for A.C. valves, 32/6. UX280 type Transformers, 600 volts, 100 mils., centre-tapped, with filament winding, 30/-. Wire-wound Voltage Dividers, 5/6. Variable Resistors, 100,000 ohms, for detector or radio tap, 4/6. Pilot 900-ohm Resistors, for C tap, 4/6. Philips 373 Rectifiers, 17/6. Mullard DU10 Rectifiers, 17/6. Hydra 4-mfd. Condensers, 6/9; 2-mfd., 3/6. Radiotron UX280 Full-wave Rectifiers, 30/-. Power Chokes, 30 henry, low d.c. resistance (these are infinitely better than burnt-out transformers, 10/6.

"Electrified Radio," a handy booklet, tells all about electrification of sets, with circuits of Eliminators and Electric Sets. 1/-, Posted 1/3.

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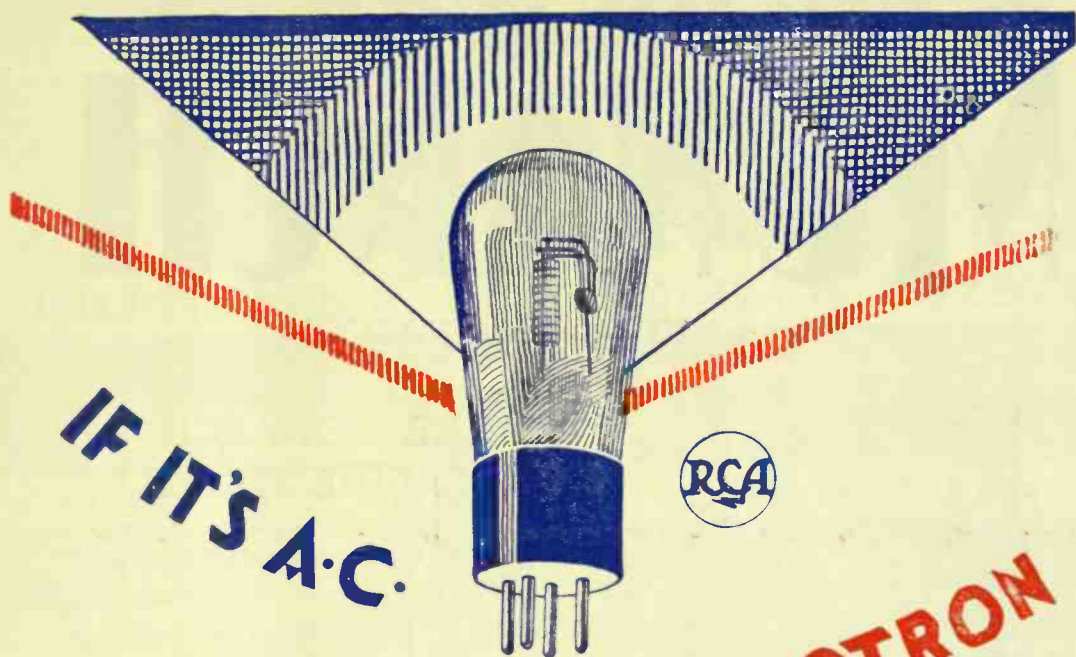
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IF IT'S A.C.

THEN IT MUST BE **RADIOTRON**



Look for this Seal.

Radiotron—

- UX 226 Amplifier .. 15/-
- UY 227 Detector £1/7/6
- UX 171A Power Amplifier 19/-
- UX 280 Rectifier £1/10/-

BECAUSE Radiotron Valves are subjected to over 40 individual laboratory tests before they are released—because leading manufacturers of quality receivers specify Radiotrons for initial equipment and for replacements—and because of their world wide reputation for dependability, most owners of Electric Receivers choose Radiotron A.C. Valves.

Distortionless performance due to watchlike assembly, long life and economy resulting from sturdy construction are assured with Radiotrons.

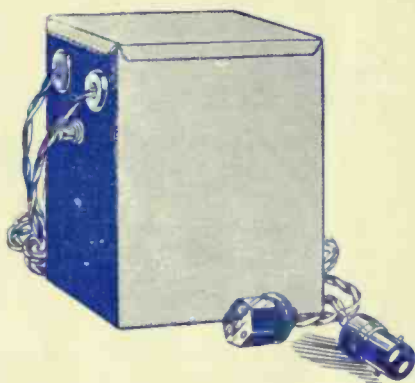
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