THE RADIO RECORD

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"Put" and "Take" in Broadcasting

A Heart-to-Heart Talk with Listeners on Future Possibilities

A SERIES of interesting articles have recently appeared in the "Radio Times" on the future of broadcasting and the probable lines of development. The views of Val Gielgud, as expressed in this series, are thought provoking and worthy of reproduction. Two main points brought out are that perfect reproduction is now possible to those taking the pains to master the simple technicalities required; and, that each will get out of broadcasting in proportion to what is put in, i.e., discrimination in using broadcasting rightly and selecting items in accord with taste.

THERE exists among the many famous stories of Bismarck one which tells how, at the height of his power, he was questioned about his future. His reply was: "I need no future. My past is enough." In his case it was perhaps more than enough. But, for most of us, the present is so wearying and complicated, the past so disappointing, that it is to the future that we turn alike for consolation and for hope.

We all know, and most of us remember, that extraordinarily difficult moment, common in all our lives, when we first realize the fact that we are no longer children; that we have grown up; and that we must take ourselves seriously. The transition is made doubly difficult for us by the galling fact that our parents refuse to see any change in us.

Now all of us are, in some sense, the parents by adoption of Broadcasting. And I would urge that the time has come for us to realize that Broadcasting has come to man's estate; that it is no longer a joke, a toy, or a miracle, but a very real combination of Art and Craft, with a future before it that is not only remarkably interesting, but also practically illimitable.

A FEW weeks ago I happened to be paying a country visit to some people who had a large and modern wireless set, and a certain amount of, perhaps unusual, mechanical and electrical aptitude. For the first time I was forced in common honesty to admit that through the medium of that set I could hear a concert as perfectly and as satisfactorily as if I had been in the hall with the orchestra. This is no question of exaggeration. It is mere fact. It was so. I had not believed it possible. I had heard a good deal of broadcasting. I have done a certain amount of it myself. I have always been interested in its possibilities. But always before, I must confess, with a certain spirit of patronage, and "making allowances" ('of course an astonishing thing, but—'). The realization that the making of these allowances and reservations was quite needless entirely altered the situation. It was obvious in a flash that the allowances had to be made not for broadcasting, but for the mechanical imperfections of the average receiving set; that, given the right material and the right knowledge, there is no positive reason why perfect reception should not be generally achieved. It was rather as though mankind had made allowances for a rather inadequate view of a solar eclipse, patronising the sun for its efforts, while failing to use the proper instruments to obtain the "vision splendid." I was, in short, most properly humiliated.

FUTURE COMPLEXITIES.

TURN, then, from this humiliating present of realisation to the future. Whether we agree with Mr. Wells, Professor Julian Huxley, or Dean Inge, as to the likely future of the human race, there seems to be no possible doubt that, barring the death of mankind in a Greater War, the immediate future will see an ever-increasing and more complex mechanical civilisation. Twenty years ago the machinery of the embryonic motor-car was a mystery. To-day, every schoolboy is the perfect Guide to the Motor Show, and can probably describe the inward parts of the machines that won the Schneider Cup. Surely, then, it is not unreasonable nor unduly optimistic to assert that in the almost immediate future the technical knowledge that is evidently needed to secure perfect radio reception will be well within everybody's grasp.

IN this respect Wireless is running neck and neck with kinematography—if such a word is permissible. Both these Arts—for I persist in a stubborn belief that both must be included among the Arts—have suffered so far from imperfect technical background combined with the natural crudity of all immaturity. Both are now on the point of achieving technical perfection. It may be reasonable for people to say that a man should not write a book while he is learning how to read and write the alphabet; or at least that if he does so, they cannot be expected to regard him as anything more than a sort of elaborate music-hall turn. In the same way they have said that they could not take the "custard-pie" comedies of the early kinema seriously. Wireless has never been regarded quite so much as a poor joke as has the kinema. Its apparently miraculous properties have saved it from that fate. But I do not think that even its most fanatical supporters will deny that it suffers continually from a certain apathetic tolerance on the part of listeners; a tolerance based on this view of Wireless that "it is all very wonderful, but——."

May I, just for a moment, assume that that "but" is removed? That not only is the certain mechanical perfection achieved, but also a belief in Wireless as one of the important incidentals of life; an incidental as important as Music, or Painting, almost as Eating?

SPEED TO SOLVE SPEED.

GIVEN these things I would like, as everybody likes, most rashly to prophesy. Imagine— if you will indulge me so far—the beginning of every man's day not too many decades hence. You will, I am sure, agree that the curse of our modern mechanical civilisation is its speed, combined with the ever-increasing difficulty of being unable to be in two places at once, and of getting thence to a third! That curse is unlikely to be lifted. It is more likely to increase. Every second is going to have an added value as time goes on. Now, Perfected Broadcasting, as I would like to call the ideal of this article, will save a good many of these invaluable seconds. No longer will you need to prop the paper uncomfortably against the coffee-pot from which your wife wishes to pour out. You will keep the Improved Paper for the journey city-wards. At breakfast you will eat in peace, while the essentials of the news of the day will be quietly spoken to you from the future 2LO. And in the evening there will no longer be the need to cope with the traffic problem to hear concert music or dance. You can hear your concert perfectly from your arm-chair. You can give your dance in your own house.

I HAVE cited no more than a few instances of the future importance of broadcasting in our lives. Such development is bound to come. When it will come depends on the average listener. It is his demand that must be satisfied by the B.B.C. And if he likes his wireless set to be both imperfect and a toy it will remain so until inexorable progress defeats his apathy. Not that I believe him to be apathetic. That perfect reception is really attainable is not yet sufficiently widely known. But when it is, surely the demand will arise for this amazing instrument of civilisation to be used for the best at its best. Is there anything else in the world that can at the same time teach, amuse, inform, advise, warn, and satisfy artistically—all to an unlimited extent?

It would be as radically unsound to treat the future of wireless without seriousness or respect, as it would be to laugh at a scalpel, and use it for pencil-sharpening or nut-cracking. It would be sheer waste of a supreme opportunity.

SOME SUGGESTIONS.

I WOULD like now to suggest one or two practical ways in which such a more serious attitude might be brought to bear results.

Everyone, I expect, is familiar with Mr. Bernard Shaw's definition of the word "gentleman";—

that a gentleman is an individual who puts more into the common stock than he takes out of it. It is rapidly becoming necessary that, for a period at any rate, we should become gentlemen with regard to broadcasting, and all that the word Radio implies.

I do not mean that we should definitely give to broadcasting more than we hope to get from it. I suspect that to be impossible in any circumstances. But it is of vital importance that people should realise that in relation to broadcasting they should "put" as well as "take"; that they can and should give besides receiving.

And, when I say giving, I do not refer in any way to those ten shillings a year.. It is not a question of finance, but of supply and demand. If broadcasting is to remain an amazing toy, a minor amusement, that annual fee is important.

(Continued on page 3)

WHAT MUSIC DO YOU WANT?

EVERY LISTENER NOW HAS THE OPPORTUNITY OF RECORDING HIS OR HER TASTE IN RELATION TO THE MUSIC GIVEN BY THE MEMBERS OF 2YA's PROFESSIONAL ORCHESTRA. A VOTING COUPON TO FACILITATE EXPRESSION OF OPINION IS ON PAGE 5.

YOU MAY VOTE FOR THE REPETITION OF YOUR FAVOURITE NUMBER AND ALSO NOMINATE A REQUEST FOR ANY NUMBER OR ITEM THAT YOU DESIRE. SELECTION WILL BE MADE IN ACCORDANCE WITH THE WISHES OF THE MAJORITY. (Details on page 5.)

New Points For Listeners and Dealers-- *By "Meter"*

The aim of this section is to give listeners information of new and interesting devices and sets on the local market. It is free of advertising intent or influence and to the best of our ability will convey only absolutely reliable statements. Names, prices and sources of supply are mentioned for the benefit of readers and to save individual inquiry.

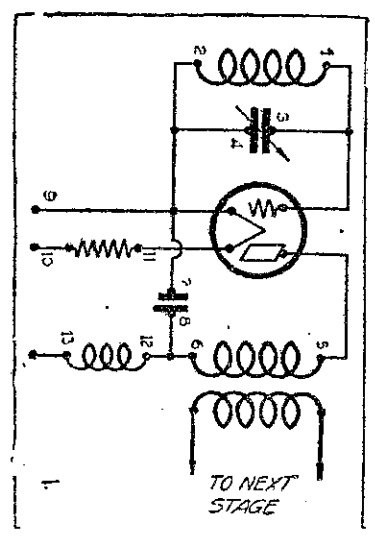
THE popularity of the short-wave bands is increasing day by day, and inquiries are to hand everywhere for information on short-wave receivers suitable for the reception of international broadcasting. Many excellent receivers are described from time to time; receivers which give excellent results if only the reader will stick to the specifications outlined. Many people will construct a receiver with perfectly suitable inductances with loose coupling to the aerial and then spoil the whole thing by the introduction of mechanically and electrically unsuitable condensers for tuning and oscillation control. One great fault is the placing of too great a capacity of tuning condenser across the grid coil, even amounting to a capacity as high as .0005 mfd. The absolute maximum capacity permissible across the grid coil of any short-wave receiver is .0001 mrd. This is essential, as a very small change of tuning capacity produces an enormous frequency change on the high frequencies. If too large a condenser is used the resultant tuning will be either critical to a degree or entirely uncontrollable. Some may object to the use of small variable condensers on the ground that the tuning range covered would be inadequate, but this is easily overcome by the provision of separate coil units for each wave band, of which there are several excellent makes on the market. It is often thought that a large variable condenser used in conjunction with a small vernier is satisfactory if the tuning condenser is adjusted to minimum capacity. This is not the case, as the minimum capacity of the combination will be in the neighbourhood of .00001 mfd. It is of great value to use condensers having metal end plates, provided they are connected to the rotor plates and thence to earth; this forms an excellent protection against body capacity effects. There must be absolutely no backlash or end play in the condenser bearings, otherwise the circuit cannot be adjusted accurately, and it will be found when tuning in a station, the relaxation of the fingers on the tuning knob will move the rotor plates and the station will be lost. It is also of great importance to use straight line frequency condensers. By so doing, the signals are spread evenly around the dial, and the tuning is consequently not crowded. The next best type of condenser is the "square law." Condensers for use in short-wave work should always be used with a smooth, running high reduction vernier dial control.

PROFESSIONAL TROUBLE SHOOTING.

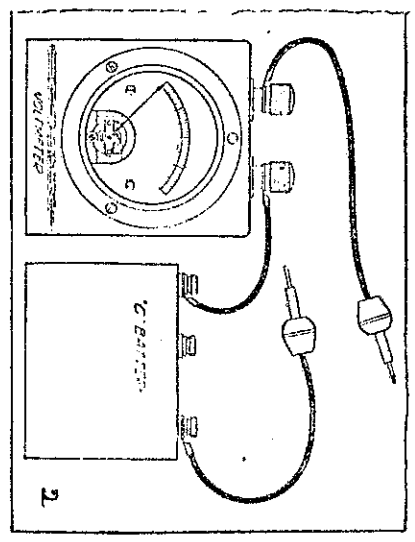
ONE of the first things that any professional set builder must learn to do is to pursue a definite routine for shooting trouble on a receiver (says the Chicago "Call Book Magazine"). In the following paragraphs, some idea will be given as to a standardised method of checking almost any receiver.

In the schematic diagram shown with this article may be seen a typical vacuum tube circuit containing a tuned grid section, a plate circuit employing either an r. f. transformer or an intermediate transformer (or, in some cases, an audio transformer), with a suitable r. f. choke coil, bypass condenser, and the necessary filament resistor. In Figure 2 is shown a simple sketch of a voltmetre, a C battery, and two testing handles. My means of the voltmetre and C battery, it is possible for the set builder to check any of the apparatus involved in the schematic circuit, Figure 1. For example, if it is desired to check the continuity of the inductance in the grid circuit of this receiver, or any receiver, the two testing handles are placed one on terminal 1 and one on terminal 2. If the voltmetre registers, it is an indication of the fact that the wire in the inductance is continuous, and, therefore, not open. This form of testing is a standard test for continuity, and may also be supplied to the inductance in the plate circuit of the tube marked 5 and 6. It may be likewise used in the r. f. choke coil by placing the test handles across Nos. 12 and 13. For continuity, of resistance, the same thing may be done across Nos. 11 and 11. This test may be applied to any circuit, regardless of how complicated or how simple, as long as the general procedure outlined above is carried out, and each and every inductance choke, resistance, or transformer. For example, if the test is to be made in the plate circuit of a detector, the test is made in the same manner, as if the audio transformer primary were in the position shown at 5 and 6 in the diagram, Figure 1. The test for the secondary of the audio transformer would be the equivalent of the inductance shown at 1 and 2.

When testing condensers, the method is the same, although the indications on the metre are the opposite. For example, when testing an inductance, a continuous circuit is made evident by the reading on the voltmetre, which shows that the coil is O.K. On the contrary, when testing condensers, no reading should appear on the metre, and if one does appear it proves either of two things: that in testing the con-



denser the operator has neglected to remove either a resistance or an inductance, which may have spanned the condenser, or the condenser is actually shorted. To make this clear, if the operator wants to test the variable condenser shown in the grid circuit of the tube in Figure 1, and places the test handles across the rotor and stator, and 4, the metre will give a reading because of the fact that the circuit is closed through the inductance 1 and 2. Therefore, in order to obtain a true idea as to whether the condenser is shorted or not, it is necessary to remove either the inductance connection No. 2, or that marked No. 1. When this is done, and the test handles are applied to points 3 and 4, no reading should show on the metre. If one does show, it is an indication that the plates of the variable condenser are touching, or that some metallic substance has



lodged itself between the rotor and stator, and consequently short circuited these two sections. To see whether the short circuit is a temporary one, turn the rotor back and forth, and observe the metre. If the metre reading remains throughout the turning of the rotor back and forth, it can safely be assumed that the rotor plates scrape against the stator throughout the full travel of the rotor. If the metre reads when the rotor is unmeshed, that is, furthest removed from the stator, this indicates that a short circuit exists some place other than between the rotor plates and the stator. This might be caused by a wrong connection on the condenser, such as a piece of wiring joining the rotor and stator binding posts together, and perhaps not being observed by the builder. This test of a variable condenser is the same, regardless of where the test is applied. For example, the diagram in Figure 1 may be considered the grid circuit of an r. f. amplifier. This same test can also be tried on the detector stage, or an oscillator in a superheterodyne. When making any of the tests referred to, it would be wise to remove A, B, and C power from the receiver.

For testing a bypass condenser, it is only necessary that the test handles be placed at the points marked 7 and 8 in Figure 1. If a reading occurs, the condenser is shorted, unless it should happen that the builder has left the B battery in the circuit, in which event there would be return back to terminal 9, which would give a fictitious reading, since the reading would be that of the circuit existing between points 13 and 9, rather than between points 7 and 8. It is, therefore, wise not to have any battery connected or eliminators when this testing is done, since these would give a wrong reading.

SHIELD THE NEW VALVE.

SET builders who propose using the new screen grid valve should pay strict attention to its shielding if the best results are desired. Careful shielding is the secret of success in using the screen grid valve. While inter-electrode capacity is practically eliminated in this valve, interstage coupling is not. Each radio frequency stage must be enclosed in completely interlocing heavy shields. Aluminium shields should be at least .08in. thick; copper not less than .05in. thick. The use of copper facilitates soldering of joints. Best results are secured by putting "cans" on the valves and by enclosing the lead which connects the plate from one valve to the coil of the next in a small grounded metal covering. Radio frequency chokes and by-pass condensers are necessary in the plate circuits to prevent coupling through the battery or eliminator circuits. For a three-stage amplifier it is also advisable to include chokes in the screen grid leads of each stage. The use of heavy shielding, solid construction and cushion sockets minimise microphonic noises.

BATTERY SETS STILL UNECLIPSED.

THERE are slight symptoms of panic among New Zealand radio traders over the advent of the new A.C. valve radio sets, in fear, as may be expected, that the demand for battery sets now in stock will completely disappear.

The San Francisco "Radio" remarks: "To-day every buyer seems to want an A.C. set, not because it gives any better selectivity, sensitivity, or tone quality, but because the average user is too lazy or too ignorant to take care of a storage battery. Most of the manufacturers, jobbers, and dealers are agreed that it is here to stay, and are diligently trying to perfect its minor defects.

"Undoubtedly new and improved types of A.C. tubes will be developed for various special purposes, just as have D.C. tubes. A shielded grid tube for A.C. filament operation is in the offing as a more efficient r.f. amplifier than the present A.C. tube used for that purpose. A new heater type, designed for longer life than those first marketed will also soon be available.

"The filaments of all the present power tubes used as audio amplifiers may be heated with raw A.C. with but slight hum. This can be eliminated by push-pull connection. But, contrary to general accepted opinion, such push-pull connection does not also double the lower output. In fact, carefully conducted tests have proved that push-pull connection of two tubes gives but 1.1 times the power output of a single tube with the same plate and grid voltage.

"The availability of A.C. tubes has also created a demand for means of converting D.C. sets for A.C. operation. This may readily be done at slight expense and trouble so that old sets can thus be brought up-to-date if desired. But the wise man, in our estimation, is he who takes advantage of the present low prices of D.C. sets and accessories. A battery-powered set gives just as good results to-day as the latest A.C. model.'

HEAT SPOILS FIXED CONDENSERS.

"WHEN in doubt, solder." That happens to be good radio advice for every point of the construction of a radio set with the exception of the connections to fixed condensers. The connections to fixed condensers should be made by fastening a soldering lug to each end by means of a small machine screw and nut. Fixed condensers are usually assembled under pressure, with some substance like beeswax used to make the article moisture proof. If you use a hot soldering iron on the metal ends, the beeswax with which the condenser is impregnated will run out and the capacity of the condenser will be changed considerably.

Many manufacturers of fixed condensers have changed the design of their product to include soldering lugs on the terminals. Some condensers still being sold at the present time may not be equipped with soldering lugs, and you may feel inclined to solder directly to the metal end. Use soldering lugs instead or you may ruin your condenser.

SHIELDED grid valves require radio-frequency transformers having a high primary impedance in order to give the high amplification of which they are capable. This means that the transformer primary should have about the same inductance as the secondary. Less selectivity but equally good amplification is obtained with impedance coupling, using a single coil common to both the plate circuit of one valve and the grid circuit of the next.

"Put" and "Take" in Broadcasting

CONTINUED FROM FRONT PAGE

For it is obvious that purely in return for such a sum—a sum which would not take you to the theatre or the kinema continuously for one week, even in the cheapest seats—the return is so great that the public cannot fairly demand any particular change for the better. Programmes are rather in the nature of mixed grills, sometimes even of the curate's egg. But for ten shillings a year and no trouble they are amazingly, incredibly good value. There is nothing like them for value in the world.

HOW TO GUIDE THE POWER.

BUT that is not the point. I think we have got beyond the stage at which we paid our ten shillings to the B.B.C. as we might to any toyshop. I think that nine-tenths of us who listen realise that we have got hold of something bigger than a music-hall turn, or even a greyhound race.

We have got hold of a great power, with infinite possibilities. And it is we who control it. The B.B.C. is only the medium which directs that control, supplying what we demand to the best of its ability. It must supply that demand, because we supply the money that its organisation demands.

But in its turn the B.B.C. is entitled to make certain demands on the public—on all of us. It is entitled to demand that this control of ours should be an intelligent control. That we should know what we want before we grumble because we do not get it! That we should see that our receiving apparatus is working properly before we abuse its transmitting machinery. That our criticism should be helpful and not just captious or would-be humorous.

Even if most people regard broadcasting as no more than an amusement they should be ready to devote as much serious attention to it as they do to their other amusements. (For the moment I will leave aside the question of the value of radio as a means of education, of S.O.S., of information, and so forth.)

Now, if people wish to hear music; to go to a theatre, a music-hall, or a kinema, they take a certain amount of trouble as a matter of course. They find out what is on there. They go to the particular building where what they want to see or hear is being performed. They arrive more or less at the beginning, and leave at the end. They do not go to the Coliseum, and grumble at the absence of Shakespeare from the programme, or expect to hear a jazz band in the middle of a classical concert. They criticise what they have gone to see or hear on its own merits, not for being or not being something quite different.

But broadcasting, by eliminating the trouble necessary in the case of getting to and from theatres and concert halls, has led listeners into the habit of taking no trouble at all. How many neighbours and friends don't we all know whose only method of listening-in to switch on vaguely at any time when nothing else happens to be occupying their attention! Is it unreasonable that in such cases the odds are heavily in favour of their finding themselves hearing something which interests them not at all? And then the B.B.C. gets letters complaining that its programmes do not contain what listeners really want to hear.

HOW TO LISTEN PROPERLY.

WE have all to remember that the B.B.C. is in the position of having to be a universal provider on a huge scale. It must satisfy in the course of its programmes the tastes of every one of us. And we all like very different things. I may hate Debussy. You may loathe jazz. My aunt may have a passion for household talks, and my cousins adore sacred music. And so adinfinitum. Surely it is up to all of use to watch for the items we like, and equally to avoid the ones we hate? Can we be surprised, let alone aggrieved, if we casually switch on, only to be bored or actively irritated, and to switch off again?

If a listener who enjoys Wagner takes the trouble to hear a radio Wagner concert, having first taken the trouble to see that his set is in perfect condition for reception, and will then write to the B.B.C. and criticise that concert on its merits, he will have put as well as taken. His criticism will be positively helpful, not negatively carping. He will have done his share towards helping radio to fulfil its best functions, and to do its best for him.

And similarly in the case of all different tastes. But to sit through any mixed programmes, starting at any time, ending when you feel inclined, doing other things meanwhile, and with your set only casually tuned in, and then to criticise from the point of view of your own taste, forgetting all the others listeners-in in the British Isles, is unfair. For you have got your money's worth. You can't help that. If, having paid your money, you don't take your choice, you cannot blame the B.B.C. You might as well enter any theatre without looking beforehand at what that theatre is presenting and then complain to the management that you haven't got what you expected.

WATCH FOR YOUR ITEMS.

BROADCASTING must cater for us all. Each of us can only hope to obtain his own pet result incidentally. And each of us must watch for and seize those incidents when and as they occur, as they will, in the cycle of programmes. It is something like a mobile encyclopaedia, and you must find page and paragraph from the index—the programmes—to get the information, the amusement, the music, whatever it is you personally want.

Finally, we must all use our imaginations. I have often boggled at the genius of the man who invented, and the men who have since kept up to date, Bradshaw's Railway Guide. My imagination can only get as far as being hopelessly staggered. Similarly, if we all imagine what it must mean to have to keep the British Isles supplied with radio programmes for a year; programmes that shall involve almost every taste, art, amusement, thought, that shall hurt the susceptibilities of none, that shall not be unreasonably monotonous, sensational, hidebound, and that must be kept rigorously uncontroversial in tone without being just shatteringly dull—I do not think there are many of us who would be prepared to accept the job.

I most confidently believe that it is largely by criticism that radio lives, and will grow to its maturity. But if that growth is to be upwards, and the maturity a new and worthy artcraft, as it can and should be, the criticism must be informed and helpful, and it must come from listeners who listen, not from those who merely lend a casual ear.

TRANSATLANTIC TALK

NEW YORK AND AMSTERDAM.

Radio telephone service between New York, the "Nieum Amsterdam" of Peter Minuit and the Dutch patroons, and old Amsterdam was opened last month, with William Westerman, president of the American Chamber of Commerce in Amsterdam, putting through the call. He spoke with Willis H. Booth, president of the New York Netherlands Chamber of Commerce, and vice-president of the Guaranty Trust Company. Mr. Booth, picking up the receiver at 32 Broadway, exchanged with Mr. Westerman the formal hopes for the prosperity of the new service and for goodwill between America and Holland.

When the first greetings were over, 78 dollars 50 cents (£15) for the first three minutes, Mr. Westerman's son stepped to the mouthpiece.

"Vader, hoe maakt U het? En hoe gaat het met moeder en Cor?"

He was, he explained later, asking after the health of his father and mother and corrie, his wife. He said he just happened to be passing through New York on his way to Curacao, Dutch West Indies ,and that he had not expected to talk with his father for many weeks.

A little later, the rate after the first three minutes had continued at 26 dollars 25 cents. (£5 5s.), for each minute, and the toll was mounting perceptibly upward, G. H. Ravelli, a member of the board of directors of the Netherlands Chamber of Commerce, got his wife, Mrs. Alida Ravelli, on the telephone. He asked for the children.

"Vitstekende gezonheid," came the voice from 3200 miles over the ocean. Which, said Mr. Ravelli, meant that his family was in "the pink of condition."

And so it went. One cosmopolitan conversation was to this effect (W. P. Montyn, Dutch Consal General in New York, was speaking to C. L. Hoover, American Consul General in Amsterdam): "How have you been since I saw you in Batavia?"

"Oh, fine," the reply came clearly. "I wanted to see you in New York, but I barely had time to catch my boat."

"Well, I'll see you next summer in Amsterdam."

The telephonic connection between new and old Amsterdam was made via London. Ten days previously telephone service was opened between New York and Belgian cities via the same route.

USEFUL HINTS

1. For radio work use solder that is cored with resin. The resin forms an excellent flux for both copper and tin, and dries hard, leaving a dry joint which will not collect dust. See that the iron is sufficiently hot to melt the solder to an extent that it will amalgamate with the surfaces of the wires to be soldered.
2. A fixed condenser across the headphone terminals may often improve the quality of signals.
3. A fixed condenser used in series with the aerial will, in most cases, improve selectivity.
4. Control of regeneration in a valve detector circuit can be made much smoother by use of a lower plate voltage and a higher number of reaction coil turns.
5. When B batteries begin to drop in voltage and crackling noises are evident, the cells may be used for longer periods by paralleling a large capacity fixed condenser of about 4 mfds. capacity with them.
6. Remember to use an insulating varnish on the wooden baseboard or on the cabinet, as many varnishes contain substances which will cause leakages. Shellac varnish can be used to best advantage.

A WIRELESS YACHT

The motor yacht Crusader, owned by Mr. A. K. Macomber, of California, is, from the wireless point of view, one of the most elaborately fitted private yachts afloat. Wireless programmes can be picked up by this yacht over long distances, and it is probable that in these days of extensive wireless broadcasting there are few parts of the world where the Crusader will ever be without wireless entertainment. Nearly every room has its wireless loudspeaker; and not content with receiving wireless from outside sources, Mr. Macomber has arranged to transmit his own wireless programmes from the yacht to his camp whenever he may be ashore. For instance, he is shortly to take part in a big game hunting expedition on the East Coast of Africa, and while on shore the hunting party will carry a number of portable receivers, which will enable them to pick up telephone conversation or music transmitted by the wireless telephone transmitter installed on the yacht, which will be anchored off the coast.

Elaborate Equipment.

Amusement is not the only use which Mr. Macomber makes of wireless. His yacht is also equipped with a complete and up-to-date wireless installation for the transmission and reception of commercial messages, news and weather reports, so that he may keep in close touch with the outer world. A 1½ k.w. Marconi valve continuous wave transmitter and 1½ k.w. quenched Marconi spark gap transmitter enables the ship to keep in communication with commercial wireless stations over long distances, while the ship's wireless receivers are capable of receiving messages from all classes of wireless stations. The yacht is also fitted with Marconi ½ k.w. telephone set, which is very easily operated and supplies the party with private telephone service between its headquarters on the yacht and any camps which may be established during the expedition.

PROTECT YOUR VALVES

Home-builders, experimenters, and others can prevent their valves from being burnt out by accidental contact of the B battery circuit with the filament circuit of their valves by means of a simple device. The device consists of an ordinary 40-watt electric light placed in series with the negative B battery. The filament of the lamp, when cold, offers but little resistance. When an excessive current drain is placed on the circuit the filament heats up and thereby increases the resistance of the lamp a great number of times.

When the set is operating properly the lamp does not burn. Whenever a short is placed on the B battery the lamp lights up, thereby warning you that a short circuit has occurred, and at the same time the amount of current in the circuit is limited, and your valves are protected. In actual operation the lamp may be short-circuited if you desire, but it should always be used in trying out a new circuit, or in making changes in your present circuit.

4QG'S DISTORTION

Not only in New Zealand, but also in Australia, complaints of 4QG's distortion are rife.

The editor of the Sydney "Wireless Weekly" says: "The distortion noticed on 4QG, Brisbane, has been very much in evidence lately, and reports are to hand from all quarters on this. This is undoubtedly due to some form of atmospheric disturbance, as I have noted myself that the modulation from 4QG clears up for short periods. A change of weather conditions will probably, overcome this effect." A Wellington broadcast technician has quite a different theory as to the cause of 4QG's horrid distortion, which he attributes to certain engineering reasons at the station.

THE NEW ZEALAND Radio Record

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Schedule of Advertising Rates available from all advertising agents in New Zealand, or write: "Advertising Manager," Box 1032, Wellington.

Advertisements requiring setting should be in hand not later than Friday of each week to ensure publication in succeeding issue. Stereos and blocks, providing space has been arranged beforehand, can be accepted up to midnight Monday. Contract advertisements not changed will be repeated.

No responsibility is accepted for blocks, stereos, etc., remaining unclaimed after last use, beyond a period of three months.

A. J. HEIGHWAY,
Managing Editor,
"The N.Z. Radio Record,"
P.O. Box 1032.
Dominion Buildings, Mercer Street, Wellington.

WELLINGTON, FRIDAY, MAY 4, 1928.

FEATURE PROGRAMMES.

The evolution of the kinema programme contains a lesson for broadcasters. Everyone will remember that in the early days of the kinema a programme aimed almost to cover the whole gamut of human emotion, and consisted frequently of ten or eleven different pictures from a few minutes to ten or twelve minutes in length. Comics, travelogues, drama, tragedy, all were covered in the one programme to "maintain interest" and give "variety." That was the first phase, and it lasted for many years. Then gradually features came to be introduced, and one longer film was given with still a number of supports, the idea being that those that didn't like the feature might "get by" on the supports. Evolution still proceeded, and in the last few years we have seen the attainment of exclusive feature programmes—one star picture, beautifully produced and with orchestral accompaniment, sufficing to attract and entertain an audience in itself for a whole evening. Quality has replaced variety—variety being used in the sense of a hotch-potch of different things on the same evening. In this development the kinema has taken to itself an added strength. Its feature pictures attract a class of audience that the variety programmes never would satisfy, and in that way it has widened its audience immeasurably.

Broadcasting is proceeding along the same path of evolution. The normal concert corresponds to the early stage of the cinema, although it is true the effort is made to maintain a uniformity of type and quality in any one evening's entertainment. The tendency, however, definitely is in overseas countries to provide feature evenings, appealing to specific audiences at one time. In New Zealand the Maori pageant and the recent Shakespeare evening, St. Patrick's night concerts, etc., indicate the trend. Each feature attracts its own audience and provides a memorable occasion. Handicapped as the Dominion may be to some extent by limited talent, the demand may yet be met by encouraging those who are able to give the quality performances desired, to concentrate and develop feature evenings. The performance of "Jane" in the coming week and the one-act plays arranged for 1YA all indicate the tendency, which will certainly strengthen the appeal of broadcasting, and bring in new audiences.

LECTURETTES FROM 4YA

On Tuesday, at 7.30, Mr. R. W. Marshall, manager of the Dunedin office of the Government Tourist Department, will speak on popular tourist resorts.

Included with the musical programme for Tuesday night is a humorous address by Pastor W. D. More.

On Tuesday afternoon Mr. G. J. Butcher, of Messrs. Turnbull and Jones, Ltd., will continue his series of lecturettes on the "Domestic Uses of Electricity."

Mr. H. Greenwood, librarian of the Dunedin Athenaeum, will review the latest books at 7.30 on Friday evening.

Under the auspices of the Workers' Educational Association, a lecture on psychology will be given by Mr. J. T. V. Steele of Knox College, at 7.30 on Saturday evening.

HAD 2YA BEEN 500 WATTS

WHAT THE COMPANY'S ENTERPRISE MEANT

Last week, for a couple of days, listeners experienced what 2YA would have been like had its power been 500 watts instead of 5000. The Broadcasting Company's original obligation, according to its agreement with the Government, was to erect a station of 500 watts, but subsequently the company agreed to incur the greater risk and indebtedness in erecting a station of ten times the power.

On Tuesday evening last, and on Thursday afternoon, the station had to run on 500 volts. This was due to a break in the high-tension filament transformer.

The breakdown served to enable listeners to make a comparison between 5000 watts and 500.

RADIO BREAKS DOWN

(By a visitor.)

I was present at 2YA on the evening of the 23rd when, by a misfortune, the station was off the air.

What I want to mention is the evidence of the astounding popularity of radio which is so obvious at a time like this. For the forty minutes that the station was off the air, the two telephone lines were operating without a break, necessitating two people sitting at the phones answering enquiries positively without cessation.

Children asked if Uncle Jasper would be able to speak, grown ups expressed their own and their children's disappointment at the temporary breakdown. The disappointed members of the party who were to entertain during the children's hour resorted to an impromptu concert in order to keep depression away. Part of this could be heard when the station came at last into operation.

Intense relief was expressed when word came through that the station was again operating, and the two people who had been so busy at the phones were able to leave their posts. Indeed one could not conceive—other than by being present— how really popular radio broadcasting has become, and how great the disappointment when the station broadcasting is temporarily inactive.

WANGANUI CONCERT

The position regarding the relaying of the Wanganui concert is as yet uncertain.

BOON TO COUNTRY PEOPLE

SUNDAY AFTERNOON SESSION AT 2A

Commencing on Sunday, May 13, there will be an afternoon session from 3 to 4.30 at 2YA.

This extension of hours is expected to be generally welcomed during the coming winter, especially by country listeners.

SHAKESPEARE EVENING

A NOTABLE FEATURE.

The special efforts made at all stations to commemorate Shakespeare's birthday have evoked definite appreciation from a number of listeners. Correspondence, both direct to the stations and to the performers, has been fairly voluminous, and, what is more notable, of a high quality, indicating the appreciation of the definite circle of listeners. The modern tendency in broadcasting, as is evidenced from a number of quarters, lies in "feature evenings" of this character, as by that means those seeking special entertainment can receive it. It is plain that the Shakespeare audience is by no means small.

One particularly interesting appreciation received by Mr. Byron Brown from a medical man in a country town is worth reproducing. It runs as follows:—"Although quite a stranger to you, I feel I must write and thank you for your very delightful evening's entertainment. Your lecturette on Shakespeare was full of interest and most beautifully delivered, and was commented on by all of us as a lesson in cultured English diction. Your Cassius and Brutus was a splendid effort. The whole evening was a sheer delight, but I suppose some of our disgruntled ones would sooner listen to the —— Jazz Band Thank God, the age of jazz will pass, but beauty lives for ever. Once again, many thanks, and a sincere desire to hear you again."

Planning The Nightly Programmes

SCHEME OF CO-ORDINATION ARRANGED

No one outside of the Broadcasting Company knows the difficulties which surround the making of programmes. Something like 1250 programmes have to be arranged every year for the evening concert sessions and multifarious tastes have to be catered for.

In an effort to please all classes of listeners the programme organisers at the four stations follow, as nearly as possible, an arrangement by which no two stations are broadcasting the same kind of programme on the same evening, except on Sundays and Saturdays when church services and vaudeville programmes are on at the four stations.

Day of Week	1YA	2YA	3YA	4YA
Sunday ..	Church	Church	Church	Church
Monday ..	Silent	Classical	Band	Silent
Tuesday ..	Operatic	Popular	Silent	Classical
Wednesday ..	Band	Silent	Opera	Silent
Thursday ..	Popular	Band	Classical	Popular
Friday ..	Classical	Operatic	Popular	Band
Saturday ..	Vaudeville	Vaudeville	Vaudeville	Vaudeville

HEARD IN CANADA

NEW ZEALAND STATIONS

INTERESTING LETTER.

There is to hand from Canada an interesting letter from Mr. Marvin H. Thoreau, Strand Theatre, Vancouver B.C., which is worth reproducing. The appreciation of Mr. Sellen's notes is very satisfactory. We may say that we have also drawn the attention of the British Broadcasting Corporation's short wave department to the value of Mr. Sellen's weekly report.

Just a line to let you know how I appreciate receiving your interesting little paper.

I have been receiving your paper for some months now, and certainly appreciate the generosity of Mr. J. M. Bingham in sending it to me. I met Mr. Bingham during his recent visit to this continent and was greatly impressed with his knowledge of radio transmission. Our Western Canadian stations certainly need a man with his ability.

I hear 1YA and 2YA quite regularly and they certainly are superior to the Australian stations in quality of transmission. I was particularly impressed with the way the brass bands are handled as these are notably hard to broadcast without blasting effects.

I believe that if the New Zealand Broadcasting Company could see their way clear to install a high power short wave transmitter it would be a benefit to your country.

The short wave notes (by Mr. Sellens), which you publish in your paper, are the first articles to be read by me, and these are carefully filed for future reference. Mr. Sellens's notes have helped me identify several foreign broadcasters.

I note that Mr. Sellens receives 5SW better than 2XAD, in the morning, this I think must be due to 5SW travelling through darkness, and 2XAD through daylight. 5SW can be tuned in here about noon and steadily gets stronger until they sign off at 4 p.m. (midnight in London). Increasing darkness I believe is responsible 2XAD 2XAF, RFM, and KDKA on both 27 and 63 metres, are our best short wave stations.

1YA CHURCH COMMITTEE

A meeting of the 1YA Church Service Committee was held at the Auckland studio on Friday, April 23, at 2 p.m. Present: Mr. S. J. Hayden, in the chair; Rev. Ernest Nicholls (Baptist); Rev. H. M. Smyth (Anglican); Rev. W. D. M. Sutherland (Presbyterian); Rev. E. Drake (Methodist); Rev. Geo. Heighway (Congregational); Mr. D. Donaldson (Church of Christ), and Mr. Wrathall.

A letter was read from the company requesting advice on applications received from the Unitarian Church and the International Bible Students' Association. The application of the International Bible Students' Association was deferred for one month to enable inquiries to be made into the type of services broadcast

It was decided to recommend to the company that the evening of Sunday, September 30, should be allotted to the Unitarian Church and it was also suggested that it might be possible for a morning service to be broadcast from this church.

Slight alterations to the allocation of church services as decided upon at the meeting held on April 13, were adopted and services were arranged up to December 30.

The chairman was deputed to arrange for reports of the meeting to be sent to the Press.

The Rev. H. M. Smyth reported that arrangements had been made whereby the preachers at St. Mary's and St. Matthew's should exchange pulpits in the event of any difficulties arising in connection with the relay, so that listeners would not be disappointed in not hearing the particular preacher advertised.

The committee decided to meet again on Monday, May 21.

ANY single dry battery, or dry cell, has a voltage of one and a half volts, no matter what its size may be.

THE first wireless-equipped British merchant ship was the s.s. Champlain, of the Beaver Line.

SPORTING

NEXT WEEK'S FIXTURES

RUGBY AT ALL STATIONS.

Saturday, May 12:
Rugby football—
Eden Park—1YA
Athletic Park—2YA.
Lancaster Park—3YA.
Carisbrook—4YA.

(NOTES BY AUDIO.)

The chief event to be broadcast this week in sporting circles is the winter meeting of the Forbury Park Trotting Club from station 4YA. This trotting club has in the past had a very successful career and caters for the best class of trotters, besides reserving a race or two for the novice class. The approaching meeting which will be held on May 3 and 5 promises to provide excellent sport as the horses engaged represent the highest class of pacer and trotter at present in commission. In addition to the recognised events, particular interest will attach to the classic race of one mile and a half, for three-year-old trotters, and this event should arouse much interest. Listeners who are interested in the sport of trotting, and who will be unable to be present, should remember that station 4YA is now putting up exceptionally good performances, and at the last meeting of the club, held in January, reports of daylight reception were received from as far north as Paekakariki. At all other stations on May 5, King Rugby will hold sway, and as the competitions in the various centres are rapidly reaching an interesting stage much interest should be created.

A POWERFUL AMPLIFIER

TEN LOUD SPEAKERS

ENTERTAIN LARGE CROWDS ON ANZAC DAY.

AN interesting adaptation of radio apparatus to the amplifying of public addresses was demonstrated at the Basin Reserve, Wellington, on Anzac Day, by means of an installation fitted up by Standard Cables and Telephones, Ltd. By means of this apparatus every word of the speakers was heard by the crowd of some thousands that was present.

Ten loudspeakers fitted with ebonite horns, 3ft. 6in. in length were grouped in four pairs at suitable parts of the ground, whilst the remaining two faced the grandstand. Two microphones were used, one on each platform.

The actual amplifying system used is designed to give an output of 15 to 20 watts to work the loudspeakers, this being accomplished by four stages of amplification employing eight valves in all. The first two stages consist of a single 5-watt valve each, followed by a stage of two 5-watters in a push-pull stage, whilst the last stage consists of another push-pull with two 20-watt valves on each side, or four valves.

Current for the eight valves was all derived from accumulators, 12 watts for the filaments, 350 volts for the plates, and about 50 volts grid-bias.

It can well be imagined that the output from such an amplifier would be sufficient to give the required volume from a number of loudspeakers, which thereby enabled the whole crowd to hear the speeches instead of the hearing being confined to a limited few near the platforms.

Our Short Wave Corner

The number of those interested in short wave reception is steadily expanding, due, unquestionably, to the charm of thus being able to make contact with world centres. The service available from overseas stations is steadily growing, and in view of the experimental work being carried out, the time would seem not far distant when even better service will be available. This section is therefore being set aside for reports on interesting receptions from short wave listeners, and the discussion by enthusiasts of their special problems. Contributions should reach us not later than Friday to be sure of insertion in the following issue.

INTERESTING LETTER FROM NEW YORK

SCHNECTADY'S 100 PER CENT. INCREASE

Mr. F. W. Sellens writes:—I received a letter from New York, in reply to reports sent in to the G.E.C., which contains the following information of interest to short-wave listeners:—

"The General Electric Company transmits programmes from Schnectady on short-wave lengths, in accordance with the following schedule. (These I have transposed to New Zealand mean time and have allowed for summer-time operating in U.S.A. from May 1—one hour earlier).

"2XAD, 21.96 Metres.—Monday, 9 a.m.-2.30 p.m.; Tuesday, 5.30 a.m.-7.30 a.m.; Thursday, 9.30 a.m., 2.30 p.m.; Friday, 5.30 a.m.-7.30 a.m.; Saturday, 9.30 a.m.-2.30 p.m.

2XAF, 31.4 Metres.—Tuesday, 9.30 a.m.-2.30 p.m.; Wednesday, 9.30 a.m.-3.30 p.m.; Friday, 9.30 a.m.-3.30 p.m.; Sunday, 9 a.m.-3.30 p.m.

"Special features and events not occurring within the normal periods of transmission given above, such as speeches by internationally known men, portions of important conventions, boxing matches, world series baseball games, etc., that are deemed of national and international interest, are usually transmitted through either station, 2XAD or 2XAF, or both.

"February 20, 1928. Schnectady, New York, U.S.A."

The letter also states that "We shall be pleased to receive your comments regarding the reception of any of these transmissions."

This letter is signed by Mr. Prescott, the man who talks so often to 5SW early in the morning.

I have also received from Messrs. Philips Lamps (New Zealand), Ltd., the following information, that PCJJ are now transmitting on 30.3 metres, as follows: (New Zealand time):...Wednesdays, 3.30 a.m.-7.30 a.m.; Fridays, 3.30 a.m.-7.30 a.m.; Saturdays, 10.30 a.m.-1.30 p.m.; Sundays, 2.30 a.m.-5.30 a.m.

This gives about 100 per cent. more transmission hours from this powerful, popular station.

With the advent of daylight saving in Britain it is necessary to rise one hour earlier to hear the commencement of the morning transmission from 5SW. This now starts at 5.30 a.m. The evening programme begins at 11 p.m.

Saturday, April 21.

Big Ben was heard through 5SW, followed by the usual talk session.

From 2.45 p.m. till 3.32 p.m. 2XAD was heard at quite good speaker strength—Palmolive again supplying most of the musical items.

Some very good orchestral items were enjoyed from RFM during the late evening.

Sunday, April 22.

A programme consisting mostly of dance music was heard till 4.30 p.m. from the crystal room, De —— Hotel, Albany, New York, through 2XAF.

It was announced that stations WGY, Schenectady, WFBL, Syracuse, and WKBM, Buffalo, were transmitting this programme.

3LO, Goulburn, 7CW, Hobart, 6AG, Perth, and RFM, Siberia were also heard.

Monday, April 23.

At 5.57 a.m. 3MB opened up, announcing that the "test will now continue from 3LO."

The volume was not as strong as usual at first, but increased later. Fading was bad. Soon after they started an "Oscillating Oswald" made himself a nuisance.

RFM was heard during the evening.

Tuesday, April 24.

Tuned-in 5SW just after 6 a.m., when a lecture was being given. On account of daylight saving, the transmission had started at 5.30 a.m., our time.

Musical items were heard later.

2YG, Sydney, was testing during the evening. RFM was not as strong as usual.

Wednesday, April 25.

PCJJ was tuned early and was very well received; vocal gems from "Mikado" was very enjoyable. The programme continued till 7.37 a.m., when they signed off till Thursday, April 26, from 16.20, Greenwich mean time, which agrees with the schedule, included in this report.

Reception from PCJJ is best about 6 a.m. The increase in volume till this time is gradual, but decreases fairly rapidly.

Big Ben was heard at 5.30 a.m., followed by "London calling." Talks and music followed.

With me, reception from 5SW varies quite a lot. At times it is possible to follow a talk 10ft. away from the speaker quite easy, but more often it is necessary to stand quite close to hear.

2XAF was heard during the afternoon till 5.32 p.m., when they signed off, stating it was 1.2 a.m., E.S.T. Some enjoyable organ music was heard.

2FC, through 2ME, on 28.5 metres, was also heard during the afternoon, relaying the proceedings in connection with the opening of the University War Memorial and the reunion of the Returned Soldiers' Association. The carillon was heard from the Sydney University War Memorial, but the music from the bells was spoilt by the noises of the large crowd.

2FC was again transmitting on short-wave during the evening, as well as their usual wave-length. The Carillon was much better this time when put on the air about 10.27 p.m. (N.Z. time).

Thursday, April 26.

5SW was tuned in at 6.10 a.m. when a talk was heard. 6.15 "London calling," followed by the names of some of the artists for the evening's programme, was given. "John Henry and Oscar" in a humorous item were the first to appear. This was followed by "Harmony by —— Quartet." "John Henry and Blossom" were then heard.

2ME opened up at 6.30 a.m. and passed over to 2FC for a programme of music to be followed by the Carillon.

As this was intended for reception and to relay in England, when the bells started, I went back to 5SW, expecting to hear them rebroadcast from there, but there was "nothing doing." I went to and fro several times, but each time 5SW had something entirely different "on the air."

Probably reception of 2FC there was not strong or clear enough for relay.

Static was too bad during the evening, both on short-wave and normal, for anything further away than 2YA.

5SW was tuned in at 11 p.m. and static was not so troublesome on 21 metres. Reception was very weak.

Friday, April 27.

From 5.15 a.m. PCJJ was very good. Several times during each transmission reports are asked for as regards volume, modulation, fading, etc., to include the time of reception.

5SW opened at 5.30 a.m. with Big Ben. A talk on music followed.

Static was very bad again during the evening, but not so severe on the lower wave-band.

There was not any sign of 5SW at 11 p.m.

Other Receptions.

S. Saunders (Wellington): I have received stations on the short-wave band this last week.

April 20.

G.E.C. 2XAF, items from Stanmers Hotel, dance music, Wurlitzer organ items, also songs. Closed down 12.15 S.E.T.; 4.45 p.m. N.Z. time. 1FQ, Auckland, putting over records and calling 4CO, Clifton, Queensland. Got station of 31 metres at 5.15 p.m.; very loud, heard announcer speak, then closed down, putting over racing results.

April 22.

G.E.C. 2XAF, WGKY, WXAJ, Buffalo, Wurlitzer organ items. De Witzler's Hotel Orchestra, two songs with banjo accompaniment, orchestra, piano solos, orchestra "She's a Sweet Lady" and "Lonely Lady"; closed down 12.0 p.m. S.E.T.; 4.30 N.Z. time. 2AB, Wanganui, calling up other amateurs, morse was bad on American station. Got a station putting over jazz music, also lady sang 4.45 till 5 p.m.; also 3XU, Canterbury, Victoria, on morse, and another station putting over records. At 9.45 p.m. got Adelaide, but not call sign.

April 23.

3LO, Melbourne; announcer mentioned letters received from children in Singapore and all over the world. This station was fading at times, and broke down once. 4RB, Toowong, putting over records.

April 24.

5SW; talks, lady sings, choir and organ, not very plain. 2CB; talks about transmission at 9 p.m.

April 25.

PCJJ, Holland: high-class records till 7 o'clock N.Z. time; then put over dance records till 7.25; National Anthem, closing down 7.30 N.Z. time. This announcer speaks in four different languages.

On April 24 at 10.10 p.m. till 11.0, I got a station putting over orchestral music; also singing. About the 70 metre band.

April 25.

2XAF, WGY, G.E.C. National Broadcasting Company, N.Y. Got them at 2.55 p.m. (weak); Morse was very troublesome; Stanmer's Hotel Dance Orchestra, banjo and singing; song "Marcheta" with piano accompaniment. Cornet solo with orchestra, the player being some executionist. Stanley Marks Hotel, N.Y. (conductor of orchestra, C. A. Ralph), "Carnival of Venice." Talk about Lindebergh's flight; Wurlitzer organ, "The World is waiting for the Sunrise," continued programme at Buffalo Theatre. H. Smith's Orchestra, "Comedy Pieces," "Operatic Pieces"; man sings; Wurlitzer organ items. Closed down 5.31 p.m., N.Z. time; S.E.T. 1.1 a.m., N.Y.

At night, about 10.55 p.m. on about 28 metres, I got a band playing Irish airs very loud, but it cut off suddenly; no call sign.

On April 26, I got 3CG putting over records. About 10.30 p.m., also two other amateurs, but did not get call signs.

Friday morning, at 5.45, picked up PCJJ, Holland, coming through at good strength. This station is one of my best to receive. The announcer would be pleased to have letters giving time and strength of receptions. He also called out several names, "Hello! Hello!" Bonderoso, and Schmidt, etc. They closed down at 7.15, N.Z. time. The programme consists of records, mostly of the high class. 5SW was also on the air, but still on the weak side.

DAYLIGHT SAVING IN U.S.A.

Mr. S. Saunders advises that he heard WGY announce on the morning of April 30 that on and after May 1 their stations would operate on Standard Eastern Daylight saving time. This will affect stations "2XAF and 2XAD bvvancing their time here one hour which will reduce their ??? ??????? considerably. The schedule of time in Mr. Sellen's notes has been altered to the new time.—Ed.

ALL ROUND THE PACIFIC

LISTENERS-IN HEAR NEW ZEALAND

The closing in of the days in the Southern Hemisphere has naturally resulted in greatly improved reception of the New Zealand stations in Australia, for listeners-in over there are now enabled to tune in a YA in darkness before their own stations come on the air.

The last mail from Australia brought letters from all States except Western Australia. Tasmania was represented as well. Some very high praise was meted out to the New Zealand stations, especially 2YA, on the score of transmission as well as of programmes.

"R.G.G." in Ararat, Victoria, said: "I must say that your programme is equal to any in Australia, and I and my mother are looking forward to many an hour's enjoyment from now on by tuning in to your 2YA."

Letters have been received from Honolulu and various States of America—California principally, but as far east as Minnesota.

2YA has also been reported from as far afield in Canada as Alberta.

Going further north, reports have come from Alaska and the Yukon Territory (Canada). But as one goes further north one meets (but does not enjoy, in a radio sense) more daylight, for daylight is the bugbear of the radio fan. However, it is not to be supposed that the people in the Arctic would sacrifice their spell of daylight for the sake of radio. It, however, can well be imagined that radio helps greatly to make the winters in Alaska endurable.

A correspondent at Fort Yukon, Alaska, writes: "We have considerable interference in our reception of your stations, the chief of which is static. We also have some trouble from telegraphy, mostly from Japanese boats. Very seldom have we been able to hear you for more than twenty to thirty minutes without any fades.

"However, we must say that we have enjoyed your programmes very much when we were lucky enough to hear you. We think it rather remarkable that we have heard you at all. We do not expect to hear you again until next fall, as our days are getting too long. Within the next forty days we will have daylight for twenty-four hours a day. For six weeks in the middle of summer here the sun is never out of sight, and during the light period we do not get any radio. However, we will listen-in every night, and if we hear any of your stations again we will report them to you."

What is the Popular Taste?

VOTING FACILITIES FOR INSTRUMENTAL NUMBERS.

WE announced last week, in connection with the appointment of the new professional orchestra for 2YA, that it has been agreed that opportunity should be given the public to indicate the items that appealed most to them by nominating them for repetition on the corresponding evening in the week following, and, further, that listeners should have the opportunity of nominating any number desired for performance by the orchestra. Nominations in each case are to be sent to the "Radio Record," where selection will be made in accordance with the wish of the majority, and decision conveyed to the station director and orchestra in time for each evening's performance. Votes must not be sent to the station. Telephone votes cannot be undertaken.

The aim underlying this contact with the public is that close touch shall be maintained with public taste.

For the convenience of listeners desiring to record votes, a coupon is given below, but of course letters may be written if that is preferred, or if nominations are desired for more than one evening.

Nominations for Orchestral Item

"RADIO RECORD," P.O. Box 1032, Wellington.

For evening of (fill in day and date) .....

.....

My request for the open item is .....

.....

My choice for the repeat item is .....

.....

Signed .....

.....

The broadcasting stations receive many appreciative letters regarding the Sunday church services. Very popular are the children's sessions on Sundays. Appended is an extract from one of the latest letters Uncle Sam, of 3YA, has received:—"I cannot let the opportunity pass without letting you know how I appreciated your service to the children last night. It was a splendid discourse, and it brought forcibly home to me the splendid advantages the children have today to what it was in my boyhood days nearly seventy years ago. Yours was a splendid little sermon, so appropriate to our everyday life, and clearly showed what a little word or action can do. I was greatly taken with your little singer, singing her wee hymns of praise, and hope to hear her again and again. May God bless your efforts. Mr. Miller's (Congregationalist Church) was a grand sermon on the Old Book, and if for nothing else, the wireless is more than worth its money for children's and church services. May they long continue, and may you long be spared to do your part. I could tell the children many interesting stories and tales of the early days, but infirmities prevent my getting out. But we listen-in every Sunday, and all enjoy it. Now, one little word of criticism. I think the church service was somewhat spoiled by the Wellington concert. "Pop Goes the Weasel" and "Yankee Doodle" don't blend, in my opinion, with such a discourse as Mr. Miller gave, and I really think the company would be justified in making our Sunday concerts all sacred music. Of course, this is only my private opinion. You have to cater for all tastes, I know. I hope you will pardon my writing, but you have my best thanks and wishes for future success."

From the Woman's Point of View.

By VERITY.

TO-DAY AND TO-MORROW

The New Zealand Carreno.

A daughter of this Dominion, Miss Esther Fisher, returns to her own land to the plaudits of her countrymen and the welcome home of her friends. Of a rare intelligence and an artistic sensitiveness of the most remarkable, Miss Fisher has brought great gifts to bear upon her career, and has concentrated with distinction upon the lonely path of Parnassus, which is apt to "run uphill all the way." Admiring this young artist on her valorous peak of achievement, warm-hearted New Zealand rejoices in her success, and takes credit to itself for lustre conferred as being the land of her birth; having kept a kindly, prophetic eye upon Miss Fisher, predicting fame and fortune and valorous overcoming of obstacles. Many remember the farewell recital of Miss Fisher, then a gifted and beautiful schoolgirl, given just before leaving for Europe; in which the heart of the audience was won, and its musical taste captivated by an adorable shyness of manner, a sensitive interpretation of a difficult programme, fine technique, and unmistakable possession of the "one true light," without which all the technique in the world is at nothing in the make-up of the great artist. All of an interest unique, and the New Zealand public will hasten to hear and to see its own Carreno, who has returned to the home of her childhood, bringing her sheaves with her.

Aunt Edna of 3YA.

To relinquish one's duty as a Radio Aunt or Uncle is a severe wrench, for it is one of the most absorbing of tasks, self-imposed and purely honorary as the duty is. An Uncle or Aunt does not like severing that invisible radio link which binds him or her to thousands of children.

That is how Aunt Edna, of 3YA, feels now that she has reluctantly decided to give up her position as assistant to Uncle Jack. Aunt Edna has been on duty at 3YA for the past eighteen months, and her singing and stories have found a big place in children's hearts, as many little correspondents confess. Despite the fact that Aunt Edna has always found her radio duties to be a severe call upon her time, she has unselfishly carried on. She has, however, at last decided to have a spell, to the regret of many young people. She appeared before the microphone for the last time on Monday, April 23, as Aunt Edna.

MISS ESTHER FISHER.
—S. P. Andrew, photo.

Unity of Empire.

At a dinner given at the Mansion House, the Duke of York said:—

"The people of the Empire are becoming conscious of a unity of purpose in Imperial matters. In each of the Dominions of the Empire, the question of how to improve Imperial trade and develop Imperial communications is being ceaselessly explored, and, best of all, being explored in the traditional British spirit."

Kinema Supermen.

Kinema propaganda has been largely responsible for a widespread popular belief in the ruthless efficiency of the American police, but Los Angeles fiction is again strangely at variance with fact. An official committee attributes the prevalence of crime in America largely to a "lack of average intelligence in the police force." St. Louis, for example, makes only 16 per cent. of arrests in connection with reported cases of murder or manslaughter, compared with 82 per cent. in this country.

Since figures relating to other States are almost as bad we may now perhaps manage to reconcile ourselves to the seeming inability of our detectives to chew cigars with appropriate fierceness and to wear their hats at a becomingly jaunty angle in a drawing-room.

Popularity of Old Time Dance Music.

The wish of many continental listeners for an hour or two of polka, mazurka, waltz, and quadrilles dance music was responded to by Radio-Paris some time ago, and now there is another growing desire for an occasional programme of this music which "thrilled our grandmothers." All our modern youths and maidens who dance, says a French paper, are not, it seems, fox-trot and tango fanatics.

Horsewomen's Race.

Five of France's best horsewomen met recently in the Bois du Boulogne to be inspected, together with their mounts, by the organisers of the race on horseback for women from Paris to Cannes. The race is the outcome of a challenge issued by Mlle. Mary Feraud, one of the competitors, to Mlle. Dorange, who recently rode on horseback from Paris to Berlin, and has won a prize offered for France's most perfect woman rider.

Mlle. Dorange could not accept the challenge, but it has been taken up by four other horsewomen. The conditions include departure and arrival every day under control, and the obligations on the competitors of saddling, feeding, cleaning, and attending to their mounts without assistance. The same horse must be ridden throughout the journey, which is over 500 miles.

Lion-Tamer Entrant.

Besides Mlle. Feraud, one other amateur has entered, Mlle. Gaiatry, a young Oriental lady, who appeared at the meet carrying a live tortoise as a mascot. The three other entrants are professional riders, of whom the most picturesque is a lady lion-tamer, who is known in the circus world as "Martha the Corsican," but may not start, as her horse is slightly lame.

Tidier Work Baskets.

To save temper and also waste of money and time, put small elastic bands round cotton and silk reels; the loose end can then be pulled under the band. No more tangled threads and untidy baskets if this is done.

"THE BETTER WAY"

A COMPETITION FOR HOME-MAKERS.

MONTHLY PRIZES.

All women whose homes are to them a source of abiding interest and delight, have their own treasured secrets of housekeeping: It may be an unusual recipe, a scheme for brightening an uninteresting room, a labour-saving notion, an idea for decorative work, a dress or toilet hint, or a pet economy. There is always a special method of performing various household tasks—the "better way." "The Radio Record" offers a prize of half a guinea each month until further notice for "Better Ways" from our women readers. The right is reserved to publish any entry not awarded a prize on payment of a fee of 2/6.

Entries must be written in ink, on one side of the paper only, and the name and address of the competitor should be written on the back of each entry.

The May "Better Way" competition closes on May 11, and the result will be announced on the women's page on Friday, May 18.

All entries to be addressed:

"VERITY,"
C/o "Radio Record,"
Box 1032, Wellington.

Country readers are advised to post their entries early to ensure their being in time.

TO-DAY AND TO-MORROW

British Beauty.

Helen of Troy, whose face (according to probably unreliable statistics supplied by a poet) launched 1000 ships, was not more successful in providing employment than the contemporary edition de luxe of Gilbert's "bright and beautiful English girl." The face of this young woman has launched 1000 new share issues and sets the wheels of countless factories in motion. But one is somewhat shocked to learn that it is in Germany that the wheels revolve most furiously on her behalf.

More than 170 tons of face powder, rouge and other aids to feminine loveliness were last year imported into England from Germany, English women being her best customers. We no longer expect British beauty unadorned, but is it essential that British beauty should be "made in Germany"?

Radio in Prisons.

Radio loudspeakers are being introduced into some of the Austrian prisons, notably at the convict prison at Stein, on the Danube, at an early date, in order that the convicts may enjoy the elevating influences which good music and noble literature can furnish, brought to them from the outside world. The principle proposed is to have a good loudspeaker placed in the central well of each prison, so that its programme may be audible in every cell. Music of the lighter kinds will only be given on exceptional occasions, and popular songs which might incite the convicts to join in will be avoided. Much care will be required.

Rural Influence of Radio.

The immense value of wireless in the villages is becoming more appreciated in France since the Radio-Agricole Francaise organisation, at whose head is a one-time Minister, M. J. H. Ricard. The society has decided to widen its scope considerably and to assist agriculture, brighten village life, and endeavour to stop the flow to the big cities by a renewal of active propaganda.

Cubist Mannequins.

Snow did not prevent enormous crowds collecting recently round Swan and Edgar's windows, where the latest French model frocks and costumes were alluringly displayed by cubist mannequins designed and modelled by Swan and Edgar's special artist.

Some of them had vermillion heads, with brilliant coloured cheeks and cubist hands and feet. Others had vivid "hair" of orange, blue and green, their ultra-cubist effect being enhanced by an entire absence of features.

These mannequins, although more fantastic than humanly beautiful, in no way detract from the loveliness of the toilettes. On the contrary, their "inhumanity" serves to increase the interest in the fashions so unusually displayed. The whole effect is helped by a vivid setting.

Betty's Frocks.

In spite of the fact that she was playing very much below her proper form, Betty Nuthall was quite the star turn at the big Mentone tournament.

Her new tennis frocks were very pretty affairs, being made with a short knife-pleated skirt, edged with a very narrow border of red, blue, or orange.

This same colour also edged the small turn-down collar of the sleeveless jumper blouse, and with the frock she wore a bandeau and a sleeveless jersey of exactly the same shade, an outfit which will be very much copied by our younger players this summer.

Ineffective Sarcasm.

The buttonless husband thought he might get something done by the use of a little sarcasm, so he announced: "Remind me to buy some needles and thread when I go out."

"Don't trouble to buy any," said his wife, casually, "you can always borrow mine, you know."

Men make reputations for themselves but it takes her best friends to make one for a woman.

AUNT EDNA OF 3YA.
—Photo, Binns.

A Hat of Mystery.

Last week I met a really lovely new-looking hat, which had but that moment arrived from Paris. It is of the completely disguising quality of hat. Simply perfect for the New Youngs whose eyes are still bright, as this hat seemed to disguise the new young truth, but advantaged the bright intelligence of the experienced eyes.

It was all black, a tight-fitting skull cap with a slight brim on front. There was a gathered frill of black lace which hung down over the front, the transparency of the lace just scarcely falling over the eyes, but sticking out so that the eyes peered out from under the frill, but were not hidden.

A huge diamond and emerald on a bar kept the lace in place over the left eye. Try the effect of this gathered lace on your skull cap (which makes all your little face failings glare at one) and see how you are a mystery at once—and interesting.—Lady Duff Gordon.

Stewed Steak and Chestnuts.

Ingredients: One large onion, two or three carrots, 1lb. chestnuts, 1lb. steak, pepper and salt, one tablespoonful flour, one pint of stock, and two Oxo cubes, mixed with one pint of hot water. Place chestnuts in cold water, boil for ten minutes, then peel; cut up onion and carrots and fry a nice brown. Mix flour with pepper and salt to season, and cover both sides of steak. Fry with vegetables for a few minutes; then place in casserole, and cover with stock and chestnuts. Cook gently in the oven for two hours.

The Letters of Annabel Lee

Shall I strew on thee rose, or rue, or laurel,
Brother, on this that was the veil of thee?
Or quiet sea-flower, moulded by the sea?

My dear Elisabeth:

Truly and reverently on Anzac Day New Zealand honoured the noble dead. In the Capital City, the gimcrack Cenotaph was metamorphosed into a thing of beauty and dignity by the wealth of flowers, perhaps loveliest of all being the great circle of blue and green hydrangeas, which came, with a message of remembrance, from the scholars of Marsden School. The blooms ranged through all sorts and conditions, from an armful of dim, sweet rosemary to the beautiful artificiality of palm and laurel, coloured and gilded and dyed with loving ingenuity and art. Outstanding were the magnificence of an enormous and beautiful wreath sent by the Prime Minister and Members of Cabinet, and the wonderful tribute of the R.S.A. to the memory of lost comrades. Of a rare loveliness was the silver, scarlet and blue offering of the Army Nursing Service; the golden tribute from Wellington East Girls' College; and the russet chrysanthemums and opalescent rosebuds from Miramar School. Black and White Cabs sent flowers; a sweet, blue-eyed girleen of seven summers gravely and with meticulous care placed upon the glowing pile a few stems of wilting blossoms, carefully tied together with string; and a tense moment came when the close crowd circling the Cenotaph slipped aside to allow a black-clad figure, with bowed head, to pass with a fragrant wreath of lavender and white blowing blossoms which, weeping, she had brought in memory of a young son, who fought a good fight and died at twenty-one years.

Majestic the music, reverent the worshippers, inspired the preaching at the Memorial Service in the Town Hall. At this memorable gathering the Salvation Army Band played those solemn marches which knock at the hearts of the most insensitive; the Toc H lamp, given in memory of a very gallant officer, was a light unto our spiritual path; and we thought long, long thoughts as we listened to the Rev. Fielden Taylor, beloved padre and true disciple of the good God, whose own life is a definite exemplification of that "doing out the duty," in the face of all odds, which we like to think an essentially British attribute. As he told in simple, graphic words the old gallant story of our light-hearted New Zealand boys, and the heroism and selfless sacrifice of Flanders and Gallipoli, the years rolled back as each of us remembered with pride and humility some dear soldier who came home no more. Under the baton of Mr. Temple White, a choir of voices gave a beautiful rendering of Elgar's great setting of "For the Fallen," Mrs. Woodward's voice crystal clear in the solo; while later, for our consolation, Mrs. Wilfrid Andrews sang "O Rest in the Lord," and, as we all joined in the noble "Lead, Kindly Light" at the close of the service, it may be that there came a glimmering of some soul of goodness in things evil, a dim hope "that good shall fall, at last, far off, at last to all, and every winter change to spring."

The reticence of his code, the obligation of honour, the creed of the schoolboy, these are dominant notes in a recent play by John van Druten. The fruit that is forbidden, the book that is suppressed, have an interest perennial for poor humanity; and now that the ban on "Young Woodley" has been removed, London is rushing to see the play, and wondering why any discussion arose. It is safe to predict that this production will win more than a passing popularity, for the series of episodes in the life of a boy is written from an unusual angle. The youthful protagonist sticks to his guns, follows the gleam, lives up to his own decision; thereby standing in his own light and relinquishing cherished ambitions, preferring, in the good old British way, to abide by his code, and bring upon himself the obloquy and cold shoulder of his world. Setting forth the idealistic love of "Young Woodley" for the wife of one of his masters, a spiritual attraction that is, of course, entirely misconstrued, the play is another exposition of that type of man, old or young, who refuses to say a word in his own defence, especially where She is concerned. It is difficult to fathom the reason of the earlier ban, except, perhaps, that there is a certain frankness of discussion, quite usual among boys—and girls too, for that matter.

"Sangster's Circus" has come to the films. A British production, this screen version of Margaret Kennedy's delightful novel, and an admirable one. Well and wisely has the play been cast; Ivor Novello, that Adonis of the kinema, being extremely charming as Lewis Dodd, the selfish and eccentric musical genius beloved by the constant nymph, and, interpreted by the handsome Novello, it is not difficult to understand the reason why. Whoever picked Miss Mabel Poulton for the part of the slim, pathetically precocious Tessa knew what he was about. Fair and young and lawless, this maid of the mountains flits into view amid opening scenes of great beauty screened in the Austrian Tyrol. Pauline, Linda, Kate, and the rest of the inimitable family live and move before the enthralled audience, and the story moves to its true conclusion, not having been hacked to produce that happy ending so greatly desired by the inartistic, which has been a lamentable feature in the picturisation of certain literary masterpieces, notably Thomas Hardy's imperishable "Tess of the D'Urbevilles," which in the film was ruined by its mawkish conclusion.

In merrie England, at this stage of civilisation, it seems one can put a shilling in the slot, loll back in a chair, contemplate the scenery for a short space, with full liberty to fidget or chat; and lo, in ten minutes or so, one becomes proud possessor of a string of photographs, each about 2 inches square, depicting your dimpled charm, your perfect profile, in changing aspects more or less agreeable. All done on the spot by a machine yclept the Photoman, which is propelled by a motor miracle, electric in character and lightning quick of action. The victim carries away half a dozen presentments of that boyish shingle, that naughty and nice, or plain and good countenance, as the case may be, which is the outward and visible envelope of the inward and spiritual beauty we all hope we possess. Very popular has this invention become in America, and no doubt 'twill reach New Zealand one fine day, thereby adding somewhat to the fun of the fair.

Your,

ANNABEL LEE.

Some Features of Next Week's Programmes

NOTES FROM 1YA

"The Daughter of the Regiment," founded on a romance of the Napoleonic Wars, is the opera which Madame Irene Ainsley's Quartet will produce in the studio on Tuesday evening. This opera, by Donizetti, was first produced in Paris in 1840, and later in London, when Jenny Lind created the part, it became very popular. Miss Nancye Hanna will take the part of Marie, Miss Mary Hamilton will be the Countess, Mr. Robert Peter will be Tonio, and Mr. Walter Brough will be Sergeant Sulpice. The whole studio production will be under the direction of Madame Irene Ainsley.

The first portion of the programme on Tuesday evening, prior to the presentation of the operatic scena, will be largely contributed by the members of the quartet and the studio trio.

The eighth of Mr. A. B. Chappell's series of talks on Old New Zealand—"The Treaty of Waitangi"—will be given on Tuesday evening.

The Hazell-Sutherland Duo and Miss Lynda Murphy, soubrette, will contribute items from the studio on Wednesday on the occasion of the relay of the organ recital by Mr. Maughan Barnett in the Town Hall.

Thursday's programme will be a very bright programme at 1YA. On the programme appear such artists as the Snappy Three, Ingall's Hawaiians, Mr. Thomas Harris, the Studio Trio, the Griffiths Duo, and the St. Andrew's Quartet, a combination of artists who can be relied upon to provide an entertainment which will please all.

The St. Andrew's Quartet of vocalists, always very welcome on the programme at 1YA, have a song cycle for presentation on Thursday evening. It is Oliver's "The Passing Show," and contains some charming melodies, solos, and concerted.

Another of Mr. George Campbell's popular lectures on motoring will be given on Friday evening.

A comedy play, "How He Lied to Her Husband," one of several such plays which are to be produced at 1YA by Auckland comedy players under the direction of Mr. J. F. Montague, will be broadcast on Friday evening. Besides Mr. Montague, Mr. George Hilton and Miss Irene Day are also on the cast. Mr. Montague will also give the solo item, "The Cricket Match at Killaloe."

A well-diversified programme has been scheduled for Friday, apart from the comedy play. The vocal items are of an assorted character. The vocalists will be Madame Irene Ainsley, Miss Gwenyth Evans, Mr. John Bree, and Mr. Reginald Newberry, while items will also be contributed by the Studio Trio, Miss Ina Bosworth (violin), and by the Internationals (vocal and instrumental). Included among the items will be three Maori melodies.

The popular week-end singers, the Lyric Quartet of Male Voices (Messrs A. Ripley, E. Thomas, H. Richards, and A. McElwain), have a fine programme for Saturday, in both solo and concerted items. Associated with them will be the Bohemian Trio in Hawaiian songs, Mr. James O'Kane (mandolin), and, by no means last, Mr. McElwain in humorous items. In a humorous duet Mr. Thomas will be associated with Mr McElwain. Dance music from Dixieland will follow the studio concert.

Following the relay of the Church of Christ service on Sunday evening a recital by the Municipal Band in the Town Hall will be broadcast.

NOTES FROM 2YA

Following up their Leider Evening of last Monday, the Ariel Singers are to provide a miscellaneous programme of somewhat lighter music on May 7. Modern British composers to be represented are C. Hubert, H. Parry, Coleridge-Taylor, and Michael Head, whilst two madrigals by that "Olde Englishes" genius, Thomas Morley (1557-1603), will also be heard. More of the "Sea Shanties," which have proved so popular in the past, will be rendered by the male voices of "The Singers," whilst "Songs of Araby" and "On Jhelum River" are also favourites that are sure to please. The next programme by the Ariel Singers will be on May 14.

Mr. Stanley Warwick will contribute acceptable elocutionary items at 2YA on Monday.

On Tuesday the Orpheus Quartet will sing "To Music" (by Schubert, arranged by Bairstow) and "Oh, Who Will o'er the Downs so Free." Mr. Arthur Coe and quartet will sing "Come Back to Me." "My Hero" (Strauss) will be sung by Mrs. Alice Harris, by request. Miss Lily Mackie's items are "Coming Home Along," and, with Mr. Len Barnes, Pinsuiti's fine duet, "Love Then." Mr. Barnes has chosen three very fine songs by Mallinson, "Four by the Clock," "Slow, Horses, Slow," "Sing, Break into Song."

Mr. Lad Heywood, whose mandolin contributions are always welcome, will be "in the picture" on Tuesday evening.

Several listeners have requested Mr. Doug. Stark, one of the popular comedians of 2YA, to "put on some of the old humorous songs that they used to know years ago." Well, Mr. Stark considers that these two should satisfy: "The Bird on Nellie's Hat" and "Roamin' in the Gloamin'." He will render them on Tuesday evening.

Mr Stark, in association with Mr. Len Barnes, will also present another of the humorous sketches in which the twain have proved so interesting.

The Warblers' Male Quartet will make its next appearance at 2YA on Thursday, May 10. The quartets are "A Mighty King is Wine" (Raff) and "How Much Wood Could a Wood Chuck Chuck" (Kucken). The quartet, with Mr. Ernest Elliot as soloist, will also "Give Me the Stars" (Jener). The quartet arrangement is by Mr. Thomas C. Wood. Mr. Stewart Nelson the tenor, will be heard in "Macushla." His sweet tyric voice is eminently suited to this beautiful ballad. Mr. Ernest Elliot (tenor) will sing "A Message from Missouri" (Evans), a pretty waltz song. His clear, rich voice should help to make the number a success. Mr. Harry Matthew (baritone) will sing "The Sweetest Ball" (Morrow), a beautiful ballad, which suits this promising young singer. Mr. Thomas C. Wood is singing that splendid song, "The Pauper's Drive" (Homer). This is one of the most telling and difficult songs written. The piano plays an important part, as the accompaniment is of a very dramatic nature. Mr. Wood's voice should overcome all difficulties, and listeners-in will hear something unique.

MR. F. OLDS.

—Steffano Webb, photo.

On May 11 the popular Etude Quartet will sing "Sweet Maiden" and "My Blue Heaven" (by request), arranged by Mr Len. Barnes. "Mark the Merry Elves," a trio, will also be sung. Miss Gretta Stark and Mr. Ray Kemp will sing a duet, "A Fairy Wand," from the opera "Maritana." Mr. Ray Kemp will also give the wonderful aria, "Largo al Factotum," from the "Barber of Seville." Mr. Frank Skinner will sing the dramatic "Lord Randal," made popular by Joseph Hislop, and also "Pleading," by Elgar. Miss Gretta Stark's number is "The Lass with the Delicate Air," and Miss Rita Arnold will sing two numbers, "I Love a Little Cottage," and also a dramatic number, "The Cry of Rachel."

Associated with the Etude Quartet on Friday will be the Two Boiled Owls, with their customary humorous contributions, and Mrs. Kenny's Steel Guitar Trio, a very pleasing combination.

The Italian mandoline continues to be a popular instrument at 2YA. On Saturday, May 12, Mr. Lad Haywood will have pleasure in playing further request items. The names of these are to be sent to the studio on or before that date. Mr. Haywood, who, by the way, is self-taught, will also play on this evening "Soldatenmarsch," by Laubach, and "Minuetto," by Nicole, two very bright numbers. He will present the latest jazz numbers as soon as they are available.

NOTES FROM 3YA

A mixed vocal quartet will support Derry's Band at 3YA on Monday evening. Four very popular artists will comprise this quartet—Mrs. D. W. Stallard, Miss Anita Graham, Mr. W. H. Inkster and Mr. W. Bradshaw. Also contributing will be Mr. W. H. Moses. A wide range of intsrumental and vocal items will be presented.

Uncle Jack, of 3YA, Mr. E. J. Bell, Public Librarian, to the grown-ups, will talk on "Books" at 7.30 on Monday evening.

Rudyard Kipling's well-known work, "The Bell Buoy," which was one of the favourite pieces given by Mr. Alexander Watson, the elocutionist, when he toured New Zealand, will be recited by Mr. W. H. Moses on Monday. His other selection will be a humorous one, "Only One."

Another talk on the care of the mouth and teeth will be given on Wednesday evening by a member of the Canterbury Dental Association.

Light musical comedy will comprise the major portion of the programme for Wednesday evening. The vocalists will be Mrs. Claris Shaw, Miss Mildred Russell, Mr. Gregory Russell and Mr. W J. Richards. The play chosen is the well-known one relating to a charming young lady of Ceylon. This quartet has previously broadcast such musical comedies as "Going Up" and "The Dollar Princess," which have earned high praise from listeners in all parts of the country. The excerpts from "The Cingalee" will be no exception.

MR. E. ROGERS.

—Steffano Webb, photo.

THE AVONION MINSTRELS OF 3YA.

A male quartet heard frequently on Saturdays in the Radio vaudevilles for which 3YA is noted.

MR. D. CLAPPERTON.

—Steffane Webb, photo.

On Wednesday 3YA will have Mr. A. H. Todd, of Ashburton, at the microphone again. 3YA has some top-notch elocutionists on its roster now, and one of them is Mr. Todd.

Trombone solos and banjo solos will add to the variety of Wednesday evening's entertainment at 3YA.

A night of opera is scheduled for 3YA on Thursday, the vocalists being the members of the Madame Gower-Burns Grand Opera Quartet. Included on the programme will be some well-known songs that are always favourites, such as the "Miserere," which will be sung by Madame Gower-Burns and Mr. Harold Prescott, "Jewel Song" and "Flower Song" (from "Faust"). Others may not be so well known, but their rendition by the quartet will prove a treat.

Interspersing the operatice selections will be items by the Studio Trio, clarinet solos by Mr. Munday, violin solos by Mis Irene Morris, cornet solos by Mr. R. Ohlson and recitations and musical monologues by that talented elocutioniste, Miss Naare Hooper.

Melody, variety and light-heardedness will mark Friday's programme. With the Melodious Four singing excerpts from that charming musical work "The Geisha," the Studio Trio playing popular tunes, Mr. Sydney Comfort in his best entertaining form, and with Mr. Les. Marston's Jazz Orchestra providing music of that type, Friday at 3YA should be one of the nights of the week

The usual Saturday night Radio Vaudeville—but with once more a change of artists—will be given at 3YA on Saturday. There will be the popular Miss Mabel Thomas and Mr. Dave McGill (correspondents all over the country complain when they do not sing every Saturday night), Mr. Robert Samson (fine baritone voice), Mr Jack Oxley (zither banjo), Mr. Jock Lockhart (Harry Lauder humour), the Studio Trio, Miss Dorothy Jenkin (humorous recitations), and others.

Two brand new artists to 3YA will appear on Saturday. One will be Miss Marion Woodhouse, L.R.A.M. (possessor of a rich cultural soprano voice), and Mr. Herbert Smith, a very versatile entertainer. There is little this gentleman cannot do, but on Saturday he is restricting himself to giving demonstrations on how to manipulate a tin whistle, an accordion, and a Swanee whistle.

MR. F. FILER.

—Steffane Webb, photo.

An Anglican Church service will be broadcast on Sunday, the Rev. Charles Perry being the preacher. Afterwards 3YA will rebroadcast 2YA.

4YA ATTRACTIONS

The service from Knox Church will be broadcast on Sunday evening. The Rev. Tulloch Yuille, B.D., M.A., will be the preacher.

Tuesday evening's programme will be provided by the St. Kilda Band, under the conductorship of Mr. James Dixon, and also by assisting artists. The band has arranged a splendid programme of melodious music, including two well-known marches, "Invercargill" (by Lithgow) and "Argandab" (by Thompson). Mr. Reg. Richards will present a group of baritone solos; Mr. F. C. Cooper will be heard in several bass numbers, including the popular Scottish song, "The Hundred Pipers"; and Miss Anita Winkel will be heard in humorous elocutionary numbers and a very amusing child impersonation.

Light items will characterise the concert on Thursday evening. Miss Dorothy West will sing three numbers from the revue "O, Boy!" Mr. J. B. McConnell, light baritone, will present a group of the latest popular songs. Miss Mollie Andrews will contribute several popular and humorous songs, and Mr. Charles Rowand, comedian, will be heard in comic songs. Humorous recitations and monologues will be provided by Mr. Carl Moller, and Mr. T. V. Anson will present some novelty piano solos.

The programme for Friday evening will be representative of good ballet music. Mr. L. E. Dalley, tenor, will sing "The Minstrel Boy," among other numbers. A vocal duet, "Battle Eve" (by Bonheur) will be sung by Messrs. L. E. Dalley and J. B. Macpherson. Miss Florence Sumner will sing "One Fine Day," from "Madame Butterfly." Mezzo-soprano solos will be contributed by Miss Molly Vickers, elocutionary numbers by Miss Sheila Neilson, and classical pianoforte solos by Mrs. W. Munro.

A light, entertaining programme will be presented on Saturday evening, when the 4YA Harmonists Quartet will present the vocal numbers from the musical play "Going Up." It is undoubtedly one of the most tuneful of the musical comedies. The solos, duets, quartets, and choruses will be heard from the members of the quartet party. An instrumental triol will also provide music, interspersed with the vocal programme. Cornet solos by Mr. George Christie, violin solos by Mr. A. R. Watson, and a flute composition by Mr. J. Stewart will go to make the evening's entertainment.

THE first paid wireless telegram was sent on June 3, 1898, by Lord Kelvin from the Needles Station, Isle of Wight.

Full Programmes for Next

NOTES AND COMMENTS

(By "Switch.")

IT is less than one hundred years since Michael Faraday discovered electro-magnetic induction between two entirely separate circuits.

ACCORDING to the London "Police Journal," wireless is playing a great part in the inter-communication of police forces in England and on the Continent.

ANOTHER remarkable proof of the efficiency of the British broadcasting service is provided in the annual breakdown statistics of the British broadcasting corporations. The combined British stations in 1927 had 65,299 hours of broadcasting fixed for them, and of this time only 0.03 per cent., or about 19½ hours, was lost through breakdown. Spread over the 20 stations being operated, this represents the loss of about one hour a year for each station through breakdowns. In 1926, the percentage of time lost through breakdowns was 0.07 per cent. of the total broadcasting time, while the year before it was 0.09 of the broadcasting time. The British longwave station, 5XX, at Daventry, was the most consistently used, broadcasting for about 5000 hours in the year with only 0.07 of this time lost through breakdowns. The London Station 2LO, which transmitted for 3560 hours with a breakdown time loss of only 0.02 per cent., or about 40 minutes in the year, was next.

AFTER you have built a set if you have a voltmeter available take a reading of the voltage between the two filament contacts of your sockets before placing any valves in the set. While it may be true that you have exercised the greatest care in building and checking over your set, the high voltage B battery wire may be crossed with one of the filament or ground wires in such a manner as to place 22½ or 45 volts across your filament connections instead of the customary 1½ or 6 volts of A battery. To test simply touch the two terminals of your voltmeter to the two socket contacts and note what reading the meter gives. If the B battery voltage has been placed on the filament terminals of your socket you will be quickly advised of the fact by the high reading of the meter.

THE London Metropolitan Fire Brigade adopted Marconi wireless signalling in 1900, and apparatus was fitted at Mitcham Lane and Streatham Fire Stations, London, S.W.

THE only satisfactory way of choosing a loudspeaker is to hear it working upon your own set.

THE new Paris-Bordeaux express, which accomplishes the journey between these two cities in seven hours and a quarter instead of the usual time of over nine hours, has now a special coach which is equipped with a receiver and picks up broadcast programmes for the entertainment of passengers. About sixty pairs of headphones are provided at present, and it is proposed that the system should be extended to all first-class compartments. An interesting technical point is that, once the train has moved outside the electrified area of the traction system, the reception is very much improved.

OWING to the acid getting on the terminals of an accumulator (wet battery) corrosion frequently occurs here. It may be prevented by smearing the terminals all over with vaseline. It is a good plan to put a little vaseline on any of the exposed metal parts of a wet battery cell such as the connecting pieces between the cells.

ALTHOUGH there are no broadcasting stations in Rumania, it is officially estimated that there are 15,000 owners of receivers in the country. They rely for their entertainment on programmes from Russia, Poland, Czecho-Slovakia, Hungary, and Jugo-Slavia.

ACCORDING to reliable statistics recently prepared, Germany exports more wireless apparatus than any country in the world except the United States.

POWERFUL broadcasting stations are being erected at Genoa and Turin, to replace the existing stations.

INTERESTING plans have been made to use wireless telephony for signalling purposes at the Victorian Light Car Club's 100-mile race, to be held on Phillip Island. Two Melbourne amateurs, Messrs. H. T. Simmons and M. Chaffer, will have charge of the apparatus, which will consist of two portable transmitters and receivers. One of the sets will be installed at the finishing point of the race, and the other will be placed at the farthest point on the course from this point. In this way officials conducting the race will be able to communicate over the main portion of the course. The sets to be used will be very simple, but they will be capable of working "duplex"—that is, communication will be possible without the need for the changing over of the aerial from transmitter to receiver which is familiar to listeners to most of the amateur stations. Power to operate the transmitters will be supplied by receiving high-tension batteries.

THE old British battleship "Centurion" has been fitted with a wireless transmitter that can steer, start, and stop the ship, so that she can be manœuvred from a distance by radio.

Sunday, May 6

1YA AUCKLAND (333 METRES)—SUNDAY MAY, 6.

3 p.m.: Afternoon session—Selected gramophone items.
4.0: Literary selection by the announcer.
4.8: Further gramophone items.
4.30: Close down.
6.0: Children's song service, conducted by Rev. L. B. Busfield, assisted by cousins from Beresford St. Sunday School.
6.55: Relay of evening service from Baptist Tabernacle. Preacher, Rev. J. Kemp; organist and choirmaster, Mr. Arthur E. Wilson.
8.30: Relay of organ recital by Mr. J. Maughan Barnett from Town Hall.
9.30: God Save the King.

2YA WELLINGTON (420 METRES)—SUNDAY, MAY 6.

6 p.m.: Children's song service, conducted by Uncle Ernest, assisted by St. Peter's Choristers.
6.55: Relay of evening service from St. Andrew's Presbyterian Church. Preacher, Rev. R. J. Howie, B.A.; organist and choirmaster, Mr. Frank Thomas.
8.15 (approx.): Relay of band concert of the Wellington Municipal Tramways Band from His Majesty's Theatre.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, MAY 6.

5.30 p.m.: Children's song service by Uncle Sam, assisted by scholars from Moorhouse Avenue Church of Christ.
6.30: Relay of evening service from Church of Christ, Moorhouse Avenue. Preacher, Rev. Howard Earle; choirmaster, Mr. H. Ames; organiste, Miss E. Hepburn.
8.0: Rebroadcast of 2YA, Wellington (concert by Municipal Tramways Band from His Majesty's Theatre).
God Save the King.

4YA DUNEDIN (463 METRES)—SUNDAY, MAY 6.

5.30 p.m.: Children's song service, conducted by Big Brother Bill and assisted by a choir of young people.
6.30: Relay of service from Knox Church. Preacher, Rev. Tulloch Yuille, B.D., M.A.; organist, Mr. W. Paget Gale.
8.0: Studio concert.
9.15: Close down.

Monday, May 7

1YA AUCKLAND (333 METRES)—MONDAY, MAY 7.

SILENT DAY.

2YA WELLINGTON (420 METRES)—MONDAY, MAY 7.

3 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results to hand.
5.0: Close down.
6.0: Children's hour—Aunt Gwen and Uncle Jeff, with the pupils of Miss Myrtle Lee. Song in unison, cousins, "The Land of Children's Dreams." Piano solo, Cousin Marjorie. Monologue, Cousin Nola, "I've Got a Pain in My Sawdust." Recitation, Cousin Joyce, "My Tables." Birthday greetings, Uncle Jeff and Auntie Gwen. Song in unison, cousins, "The Little White Hill of Dreams." Monologue, Cousin Joan, "Billy's Dream." Recitation, Cousin Dorothy, "The Rainbow Fairies."
7.0: News, market reports, and sporting results.
7.40: Lecture—Mr. H. E. South, "Books—Grave and Gay."
8.0: Chimes of the G.P.O. clock.
8.1: Overture—The Orchestra, "Zampa" (Herold).
8.10: Tenor—Mr. Chas. Williams, (a) "Thou Art Risen" (Coleridge Taylor); (b) "The Sea Gypsy" (Head).
8.16: Instrumental—The Orchestra, (a) "Alt Wien" (Godowsky); (b) "Sleeping Beauty" (Tschaikowsky).
8.25: Vocal quartet—The Ariel Singers, "Love is a Sickness" (Parry).
8.29: Instrumental—The Symons-Ellwood-Short Trio, "Trio in G Minor" (Dvorak).
8.39: Mezzo-contralto solo—Miss Ngaire Coster, "Amarella" (Winne).
8.43: Bass with chorus—Mr. J. M. Caldwell, three sea chanties, (a) "Blow the Man down," (b) "A-roving," (c) "Johnny, Come Down to Hilo" (arranged Terry).
8.49: Instrumental—The Orchestra, "Surprise Symphony" (Weber).
8.59: Weather report and announcements.
9.1: Soprano solo—Miss Jeanette Briggs, "Come Out, My Dears" (Dessauer).
9.8: Instrumental—The Orchestra, (a) "Melodie Arabe" (Glozosenow); soloist, Mr. Geo. Ellwood; (b) "Village Dance" (Burleigh).
9.12: Character sketch (four characters)—Mr. A. Stanley Warwick, "The Price" (dramatised by A. Stanley Warwick).
9.32: Madrigals—The Ariel Singers, (a) "April is in My Mistress's Face" (Morley); (b) "Now is the Month of Maying" (Morley).
9.38: Instrumental—The Orchestra, request items.
9.45: Tenor solo—Mr. Chas. Williams, "I'll Sing Thee Songs of Araby" (Clay).
9.49: Vocal duet—Miss Jeanette Briggs and Mr. J. M. Caldwell, "On Jhelum River" (Woodford-Finden).
9.52: Instrumental—The Orchestra, (a) "What'll I Do?" (Berlin); (b) jazz arrangement of Delibes's "Naila" (arranged Longe).
10.0: National Anthem.

3YA CHRISTCHURCH (306 METRES)—MONDAY, MAY 7.

3 p.m.: Afternoon concert session—Selected studio items.
4.25: Sports results.
6.0: Children's hour—Uncle Jack.
7.15: News and reports.
7.30: Talk—Mr. E. J. Bell, of the Public Library, "Books."
8.0: Chimes.
Relay of orchestral selections from Strand Picture Theatre Orchestra, under the direction of Mr. Harry Ellwood.
Studio concert from Derry's Military Band, under the direction of Mr. E. C. Derry, assisted by 3YA artists.
8.5: Vocal quartet—Miss Anita Graham, Mrs. D. W. Stallard, Messrs. W. Bradshaw and W. H. Inkster, "On the Banks of Allan Water" (arr. Blackshaw).
8.9: Selection—Derry's Military Band, "His Majesty" (Allan).
8.15: Soprano solos—Miss Anita Graham, (a) "Love the Pedlar" (German); (b) "A Birthday" (Woodman).
8.22: Selection—Derry's Military Band, "The Dawn of To-morrow" (Gravelle).
8.27: Tenor and bass duet—Messrs. W. Bradshaw and W. H. Inkster, "The Battle Eve" (Bonheur).
8.31: Tone poem—Derry's Military Band, "Finlandia" (Sibelius).
8.42: Bass solos—Mr. W. H. Inkster, (a) "On the Shores of the Aegean Sea" (Little) (b) "The Dinder Courtship" (Coates).
8.49: Allegro Marzialle—Derry's Military Band, (a) "La Ritarata Italiana" (Drusscher).
8.55: Dramatic recitation—Mr. W. H. Moses, "The Bell Buoy" (Kipling).
9.0: Weather report and forecast.
9.1: Relay of orchestral selections from Strand Theatre.
9.6: Vocal quartet—Miss Anita Graham, Mrs. D. W. Stallard, Messrs. W. Bradshaw and W. H. Inkster, "Because" (Lohr).
9.10: Selection—Derry's Military Band, "Humoresque" (Dvorak).
9.15: Contralto solos—Mrs. D. W. Stallard, (a) "Chiming Bells of Long Ago" (with chorus), (Shattuck); (b) "Passion of Spring" (Slater).
9.23: Fox-trot—Derry's Military Band, "Highways are Happy Ways" (Harris).
9.29: Soprano and contralto duet—Miss Anita Graham and Mrs. D. W. Stallard, "When Song is Sweet" (Sans Souci).
9.33: Humoresque—Derry's Military Band, "A Lightning Switch" (Alford).
9.43: Tenor solos—Mr. W. Bradshaw, (a) "When Other Lips" (Balfe); (b) "Good-bye, Sweetheart, Good-bye" (Hutton).
9.50: Humorous recitation: Mr. W. H. Moses, "Only One."
9.55: March—Derry's Military Band, "Dixie Rube" (Allan).
10.0: God Save the King.

4YA DUNEDIN (463 METRES)—MONDAY, MAY 7.

SILENT DAY.

Tuesday, May 8

1YA AUCKLAND (333 METRES)—TUESDAY, MAY 8.

3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Further gramophone items.
4.25: Sports results.
4.30: Close down.
6.0: Children's hour—Uncle George.
7.15: News and market reports.
8.0: Chimes.
8.1: Relay of overture from Majestic Theatre Orchestra, under the direction of Mr. J. Whiteford-Waugh.
8.10: Contralto solo—Madame Irene Ainsley, "O Mio Fernando" from "La Favourita" (Donizetti).
8.15: Instrumental trio—Bosworth-Hemus-Towsey, Trio, "Trio—Adagio and Scherzo" (Chopin).
8.25: Baritone solo—Mr. Walter Brough, "Will o' the Wisp" (Spross).
8.30: Soprano solo—Miss Nancye Hanna, "Lament of Isis" (Bantock).
8.34: Violin solo—Miss Ina Bosworth, selected.
8.39: Tenor solos—Mr. Robert Peter, (a) "Cloth of Heaven" (Dunhill); (b) "My Lady" (Cramer).
8.47: Relay of novelty interlude by Majestic Theatre Orchestra, under the direction of Mr. J. Whiteford-Waugh.
8.55: Weather report and forecast.
8.56: Talk by Mr. A. B. Chappell, M.A., "Old New Zealand—(8) "The Treaty of Waitangi."
9.11: Contralto solo—Madame Irene Ainsley, "Spinning" (Coningsby-Clark).
9.15: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Overture Raymond" (Keler Bela).
9.25: Scene and excerpts from the opera, "The Daughter of the Regiment" (Donizetti), produced under the direction of Madame Irene Ainsley.
Produced for the first time in Paris in 1840, later in London, when Jenny Lind created the part, it became very popular.
Sulpice, a grizzled old sergeant of the 21st Regiment of Napoleon's Army, finds a little girl lying beside her dead father on the battlefield. The old man takes the child into camp—she is adopted by the regiment, and later follows the profession of a vivandiere. Sergeant Sulplice has in his possession a letter addressed to the Countess of Berkenfeldt, which he took from the knapsack of the dead soldier, and he believes this letter to contain the secret of the girl's parentage. Events move on, and when the army is stationed in the Tyrol, Marie, the Daughter of the Regiment, meets with a young peasant named Tonio, and falls in love. He, to be near her, joins the 21st, but complications arise preventing their marriage. The Countess of Berkenfeldt having at last received the old letter sent her by Sulpice, arrives to claim Marie as her daughter. She is taken away to live in a castle, but cannot settle to the new life, and is impatient of all that separates her from the regiment. She longs for the drums and trumpets of the 21st, and remains constant to Tonio throughout the years that elapse. One day the well-known sounds of the band are heard—it is her own regiment, under the command of Tonio, promoted from the ranks for bravery and good conduct. A joyous reunion and eventually a consent from the haughty Countess, and Marie becomes the wife of Tonio, and once again is in touch with her beloved regiment.

Cast:

Marie (Daughter of the Regiment)—Miss Nancye Hanna.
Tonio—Mr. Robert Peter.
Sergeant Sulpice—Mr. Walter Brough.
The Countess—Miss Mary Hamilton.
Sulpice and Marie—"The Camp and the Battle."
Marie—"'Tis Known to All."
Marie and Tonio—"Ah, Do You Love Me?"
Tonio—"My Gallant Friend."
Marie—"Dear Friend, Farewell."
Marie, the Countess, and Sulpice—Lesson scene, "The Rosy Morn."
Sergeant Sulpice—"Two Grenadiers."
Marie and chorus—(a) "To My Heart, What is Wealth?" (b) "All Hail, France, My Country."
Finale—"Ah, We Three Meet Again."

10.0: God Save the King.

2YA WELLINGTON (420 METRES)—TUESDAY, MAY 8.

3 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results to hand.
5.0: Close down.

Week - All Stations - to May 13

6.0: Children's hour—Gramophone selection. Piano solo, Cousin Olive; violin, Cousin Maurice; song, Cousin Marjorie; piano, Cousin Joyce; violin, Cousin Maurice; song, Cousin Marjorie; piano, Cousin Olive.
7.0: News, market reports, and sporting results.
7.40: Lecture by representative of Agricultural Department.
8.0: Chimes of the G.P.O. clock.
8.1: Overture—The Orchestra, "Maritana" (Wallace).
8.11: Vocal quartet—The Orpheus Quartet, "To Music" (Schubert).
8.15: Tenor solo—Mr. Arthur Coe, "You in a Gondola" (Clarke).
8.19: Instrumental—The Orchestra, "Pagliacci" (Leoncavallo).
8.29: Humour—Mr. Doug. Stark, "The Bird on Nellie's Hat" (Solman).
8.34: Vocal duet—Miss Lily Mackie and Mr. Len. Barnes, "Love Thou" (Pinsuti).
8.38: Instrumental—The Orchestra, (a) "Andantino" (Lemare, arr. Bellingham); (b) "Il Bacio" (Arditi).
8.46: Soprano solo—Miss Alice Harris, "My Hero" (Strauss).
8.50: Vocal quartet—The Orpheus Quartet, "O, Who Will O'er the Downs?" (Pearsall).
8.54: Instrumental—The Orchestra, "Scenes Pittoresque" (Massenet).
9.4: Weather report and announcements.
9.6: Pianoforte solos—Miss Lyall Bennett, (a) "Nocturne" (Besley); (b) "Viennese Waltz" (Cyril Scott).
9.12: Contralto solo—Miss Lily Mackie, "Coming Home Along" (Brahe).
9.16: Humour—Mr. Doug. Stark, "Roaming in the Gloaming" (Lauder).
9.21: Instrumental—The Orchestra, request items.
9.28: Tenor solo and chorus—Mr. Arthur Coe, "Come Back to Me" (Hayward).
9.32: Baritone solos—Mr. Len. Barnes, (a) "Four by the Clock" (Mallinson); (b) "Slow, Horses, Slow" (Mallinson); (c) "Sing, Break Into Song" (Mallinson).
9.39: Instrumental—The Orchestra, "Carmen" (Bizet).
9.44: Vocal quartet—The Orpheus Quartet, "Robin Hood's Wedding" (German).
9.48: Sketch—Mr. Doug. Stark and Mr. Len. Barnes, original.
9.52: Instrumental—The Orchestra, "My Blue Heaven" (Donaldson); and other novelties.
10.0: National Anthem.

3YA CHRISTCHURCH (306 METRES)—TUESDAY, MAY 8.

SILENT DAY.

4YA DUNEDIN (306 METRES)—TUESDAY, MAY 8.

3 p.m.: Town Hall chimes.
3.1: Gramophone recital.
3.30: Social notes and news.
3.40: Studio music.
4.0: Address on the "Domestic Uses of Electricity," by Mr. G. J. Butcher, of Turnbull and Jones, Ltd.
4.15: Gramophone music.
4.25: Sports news.
4.30: Close down.
6.0: Town Hall chimes.
6.1: Children's hour—Big Brother Bill and young entertainers.
7.15: News and reports.
7.30: Address on "Tourist Resorts," by Mr. R. W. Marshall, manager of the Dunedin office of the Government Tourist Department.
8.0: Town Hall chimes. Concert by the St. Kilda Band, under the direction of Mr. J. Dixon, and assisting artists.
8.1: March—St. Kilda Band, "Invercargill" (Lithgow).
8.5: Baritone solos—Mr. Reg. Richards, (a) "Eyes that Used to Gaze in Mine" (Lohr); (b) "Youth Has a Happy Tread" (Lohr).
8.10: Intermezzo—St. Kilda Band, "Evening Revels" (Ham).
8.18: Musical monologue—Miss Anita Winkel, "The Clown."
8.23: Waltz—St. Kilda Band, "Prayer and Passion" (Grimm).
8.31: Contralto solo—Miss Dorothy Skinner, "Softly Awakes My Heart" from "Samson and Delilah" (Saint-Saens).
8.36: Bass solos—Mr. F. C. Cooper, (a) "Hundred Pipers"; (b) "The Little Ships" (Sanderson).
8.42: Cornet and euphonium solo, with band accompaniment, "Sweet Spirit, Hear My Prayer" (Wallace).
8.47: Humorous address—Pastor W. D. More.
9.2: Weather report and forecast.
9.5: Overture—St. Kilda Band, "Golden Cross" (Greenwood).
9.13: Baritone solo—Mr. Reg. Richards, "Love is a Dream" (Lohr).
9.17: Selection—St. Kilda Band, "Minstrel Melodies" (Bourne).
9.29: Contralto solos—Miss Dorothy Skinner, (a) "Pleading" (Elgar); (b) "Kate O'Shane."
9.35: Selection—St. Kilda Band, well-known hymns.
9.40: Recitations—Miss Anita Winkel, (a) child impersonation, "Mississippi"; (b) monologue, "Bread and Jam."
9.50: Bass solo—Mr. F. C. Cooper, "Ho, Jolly Jenkin" (Sullivan).
9.55: March—St. Kilda Band, "Argandab" (Thompson).
10.0: God Save the King.

Wednesday, May 9

1YA AUCKLAND (333 METRES)—WEDNESDAY, MAY 9.

3 p.m.: Afternoon session—Selected gramophone items.
4.0: Literary selection by the Announcer.
4.8: Further gramophone items.
4.30: Close down.
6.0: Children's hour—Uncle Tom.
7.15: News and reports.
7.45: Lecturette—Mr. Norman Kerr, "Physical Culture."
8.0: Chimes.
8.1: Relay of municipal organ recital from Town Hall, by Mr. Maughan Barnett, city organist, assisted by the Hazell-Sutherland Duo, vocalists, and Miss Lynda Murphy, soubrette, who will perform the following items from the studio:—
Contralto solos—Miss Phyllis Hazell, (a) "Sink, Red Sun" (Del Riego); (b) "Little Coon's Prayer" (Hope).
Baritone solos—Mr. Frank Sutherland, (a) "There Is My Heart" (Schubert); (b) "When the Sergeant-Major's on Parade" (Longstaffe).
Duets—Hazell-Sutherland Duo, (a) "Nights of Music" (Cowen); (b) "The Chocolate Soldier Duet" (Strauss).
Soubrette—Miss Lynda Murphy, (a) "Family Lullaby"; (b) "If You Knew Muvver."
10.0: God Save the King.

2YA WELLINGTON (420 METRES)—WEDNESDAY, MAY 9.

SILENT DAY.

3YA CHRISTCHURCH (306 METRES)—WEDNESDAY, MAY 9.

3 p.m.: Afternoon concert session—Selected studio items.
4.0: Talk by a member of the Canterbury Dental Association, "Care of the Mouth and Teeth."
4.25: Sports results.
6.0: Children's hour—Uncle Peter and Mother Hubbard.
7.15: Addington stock market reports.
7.30: News session.
8.0: Chimes and overture.
8.5: Vocal quartet—Miss Mildred Russell, Mrs. Claris Shaw, Messrs. Gregory Russell and W. J. Richards, "Sleepy Ceylon" (Moncton).
Soprano solo—Mrs. Claris Shaw, "She's All Right" (Rubens).
8.11: Banjo solos—Mr. George Dunn, popular melodies.
8.16: Bass solo—Mr. W. J. Richards, "Pearl of Sweet Ceylon" (Moncton).
8.19: Pianoforte solo—Miss Aileen Warren, "Cradle Song" (Brahms-Grainger).
8.23: Soprano and tenor duet—Mrs. Claris Shaw and Mr. Gregory Russell, "Pretty Poll" (Brahms-Grainger).
8.26: Instrumental trios—Christchurch Broadcasting Trios, (a) "Miniature Trio" (Gurlitt); (b) "Gavotte" (Gossec).
8.36: Contralto solo—Miss Mildred Russell, "My Cinnamon Tree" (Moncton).
8.39: Trombone solos—Mr. Ray O'Daniels, (a) "Sing Me a Baby Song" (Kahn and Donaldson); (b) "Everything Nice About You" (Waterson).
8.46: Tenor solo—Mr. Gregory Russell, "The Ladies" (Moncton).
8.49: Humorous recitations—Mr. A. H. Todd, (a) "Difficult Ways of Telling a Story"; (b) "Monty on Fashions" (Hayes).
8.58: Bass solo and quartet—Mr. W. J. Richards and chorus, "Hail, the Noble" (Moncton).
9.1: Weather report and forecast.
9.2: Overture.
9.7: Soprano solo—Mrs. Claris Shaw, "My Heart's at Your Feet" (Moncton).
Tenor and contralto duet—Mr. Gregory Russell and Miss Mildred Russell, "You and I" (Rubens).
9.14: Banjo solos—Mr. George Dunn, popular melodies.
9.19: Bass solo—Mr. W. J. Richards, "Dear Little Cingalee" (Rubens).
Vocal quartet—"The New Year" (Rubens).
9.27: Instrumental trios—Christchurch Broadcasting Trio, (a) "Celebrated Minuet" (Beethoven); (b) "Bolero" (Fernandez); (c) "Londonderry Air" (Morris).
9.38: Tenor solo—Mr. Gregory Russell, "I Love You So" (Norton).
9.42: Pianoforte solo—Miss Aileen Warren, (a) "Valse Brilliante in a Flat" (Chopin).
9.46: Soprano and tenor duet—Mrs. Claris Shaw and Mr. Gregory Russell, "Make a Fuss of Me" (Rubens).
9.48: Trombone solo—Mr. Ray O'Daniels, popular song melodies.
9.52: Contralto solo—Miss Mildred Russell, "The Dance I'll Lead" (Rubens).
9.56: Recitation—Mr. A. H. Todd, "Mixed and Muddled."
10.0: Vocal quartet—Mrs. Claris Shaw, Miss Mildred Russell, Messrs. Gregory Russell and W. J. Richards, "Island of Gay Ceylon" (Moncton).
10.4: God Save the King.

4YA DUNEDIN (463 METRES)—WEDNESDAY, MAY 9.

SILENT DAY.

Thursday May 10

1YA AUCKLAND (333 METRES)—THURSDAY, MAY 10.

3 p.m.: Afternoon session—Selected gramophone items.
3.30: Lecturette—Representative of the Auckland Gas Company, "Home Heating."
4.0: Literary selection by the Announcer.
4.8: Selected gramophone items.
4.30: Close down.
6.0: Children's hour—Peter Pan.
7.15: News and reports. Book review.
8.0: Chimes.
8.1: Overture—"Leonora" Overture, Part 1 and 2 (Beethoven).
8.9: Vocal trio—The Snappy Three, (a) "My Sighing Siamese" (Lewis); (b) "I'm Gonna Get a Girl" (Simon and Ash).
8.17: Instrumental and vocal—Ingall's Hawaiians, (a) "Palakiko Blues"; (b) "One, Two, Three, Four."
8.25: Recitation—Mr. Thomas Harris, "Herve Riel" (Browning).
8.29: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Finale" (Chopin).
8.39: Humorous sketch—The Griffiths Duo, "Business and Pleasure."
8.44: Vocal quartet—The St. Andrews' Quartet, "The Passing Show" Song Cycle (Oliver).
Quartet—"Come to the Show."
Soprano—"The Dancing Lesson."
Tenor—"Exit, Pierrot."
Quartet—"A Roundelay."
Soprano—"Enchantment."
Contralto and chorus—"Fairy Moon."
Bass—"Harlequin's Song."
Quartet—"The Passing Show."
9.19: Pianoforte solo—Mr. Cyril Towsey, "Lyric Pieces, Op. 43" (Grieg).
9.24: Recitations—Mr. Thomas Harris, (a) "The Amateur Rider" (Paterson); (b) "Paddy's Excelsior."
9.32: Instrumental and vocal—Ingall's Hawaiians, (a) "Aloha Land" (Herzes); (b) "Hilo Waltz" (Ingall); (c) "The End of a Perfect Day" (Jacobs-Bond).
9.41: Vocal trio—The Snappy Three, (a) "Who?" (Kern); (b) piano solo; (c) "So Blue" (Donaldson).
9.49: Humorous sketches—The Griffiths Duo, (a) "The Tea Shop"; (b) "Impressions of Life."
9.57: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Serenade" from "Les Millions d'Arlequin" (Drigo).
10.6: Vocal quartet—The St. Andrews' Quartet, "The Little Sunbonnet" (Lohr)
10.10: God Save the King.

2YA WELLINGTON (420 METRES)—THURSDAY, MAY 10.

3 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results to hand.
5.0: Close down.
6.0: Children's hour—Uncle Sandy. Gramophone selection, march; sketch, Cousin Zenocrate; violin, Cousin Muriel. Birthday rhymes, Uncle Sandy. Song, Cousin Marjorie; sketch, Cousin Zenocrate; violin, Cousin Muriel; song, Cousin Marjorie. Story time, Uncle Sandy.
7.0: News, market reports, and sporting results.
7.40: Lecture—Miss Margaret O'Connor, "Modern Dancing."

Band concert by 1st Battalion Wellington Regiment Band.

Lieutenant B. J. Shardlow, conductor.

8.0: Chimes of the G.P.O. clock.
8.1: March—Band, "Mazeppa" (Greenwood).
8.5: Vocal quartet—The Warblers, "A Mighty King is Wine" (Roff).
8.9: Humoreske—Band, "A Trip to Blackpool" (Raymond).
8.21: Elocution—Miss Edna Purdie, "Singers and Talker" (MSS.)
8.26: Fox-trot—Band, "Me and My Shadow" (Rose).
8.30: Baritone solo—Mr. Matthew, "The Sweetest Call" (Morrow).
8.34: Euphonium solo—Corporal J. Brittain, "The Cavalier" (Sutton).
8.39: Tenor solo—Mr. Nelson, "Kashmiri Song" (Finden).
8.43: Pot-pourri—Band, "Melodious Memories" (Finck).
8.55: Bass solo—Mr. T. Wood, "The Pauper's Drive" (Homer).
8.59: Weather report and announcements.
9.1: Elocution—Miss Edna Purdie, "The Lady from the West" (MSS.).
9.6: Tenor solo and chorus—Mr. Elliott, "Give Me the Stars" (Jones).
9.10: Waltz—The Band, "Donauwellan" (Ivanovici).
9.14: Baritone solo—Mr. Matthews, "Just a Cottage Small" (Hanley).
9.18: Fox-trot—Band, "Blue Skies" (Berlin).
9.22: Tenor solo—Mr. Nelson, "Macushla" (McMurrough).
9.26: Selection—Band, "Jamie's Patrol" (Dacre).
9.36: Tenor solo—Mr. Elliott, "A Message from Missouri" (Evans).
9.40: Trombone solo—Mr. W. J. Matson, "The Switchback" (Sutton).
9.44: Quartet—The Warblers, "How Much Wood Would a Wood Chuck Chuck?" (Kucken).
9.48: Selection—Band, "A Sacred Souvenir" (Hawkins).
March—Band, "We're Going Up" (dedicated to Capt. Bert. Hinkler).
10.0: National Anthem.

EXPERIMENTS in short waves are interesting quite a considerable number of French amateurs; and one of the latest to produce a new short-wave circuit is Monsieur Braleret. This well-known French experimenter has produced a new circuit which he claims facilitates very greatly high-frequency amplification on short waves. He has been giving demonstrations twice a week for some time past, and has satisfied a number of well-known authorities of the efficiency of his new circuit.

WHEREVER you use an insulated wire, especially cotton-covered wire or woven insulation, wind a strip of insulating tap around the end of the wire to prevent the covering from working loose. A short length of ordinary wrapping twine will do just as well, and may even look a bit better than tape. This will improve the appearance of your radio set a great deal and may even repay you for the time you have taken by preventing two wires from accidentally "shorting" sometime. Battery connectors which are subjected to considerable twisting and bending should be treated in this way to prevent the ends of the insulation working loose.

PLANS to continue the nation-wide effort toward stabilisation in the radio industry were announced in New York lately by the American Engineering Standards Committee, coincident with the election of Dr. A. N. Goldsmith, president of the Institute of Radio Engineers, as chairman of its committee on radio standardisation. One of the aims of the committee is to produce new radio designations, which will be "informative and helpful to the public."

TELEPHOTO pictures of the Hollywood, California, participants in the Dodge Brothers' radio programme commencing at 10 p.m. on March 29 over a national chain of stations, were sent out from that city to eight "key cities" of the United States immediately after the period on the air. The pictures were available within an hour and a half after the broadcast.

Programmes Continued

3YA CHRISTCHURCH (306 METRES)—THURSDAY, MAY 10.

5 p.m.: Afternoon concert session—Selected studio items.
4.25: Sports results.
6.0: Children's hour—Chuckle.
7.15: News session.
7.30: Talk by Mr. H. W. Beck, "Is There Any Best Breed of Poultry?"
8.0: Chimes and overture.
8.5: Contralto and baritone duet—Mrs. Ann Harper and Mr. B. Rennell, "Dear Love of Mine," from "Nadishda" (Thomas).
8.9: Clarionet solo—Mr. S. E. Munday, "Cavatina," from "Robert La Diable" (Meyerbeer).
8.14: Soprano Aria—Madame Gower-Burns, "Mother, You Know the Story," from "Cavalleria Rusticana" (Mascagni).
8.18: Violin solo—Miss Irene Morris, "Boat Song" (Ware).
8.22: Tenor solo—Mr. Harold Prescott, "On With the Motley," from "Pagliacci" (Leoncavallo).
8.26: Instrumental trio—Christchurch Broadcasting Trio, "Petite Trio" (Coerne).
8.33: Contralto solo—Mrs. Ann Harper, "Romance," from "Anna Bolena" (Donizetti).
8.37: Cornet solo—Mr. R. Ohlson, "Dream of Love" (Hock).
8.42: Baritone solo—Mr. Bernard Rennell, "Eri Tu," from "Un Ballo in Maschera" (Verdi).
8.47: Recitation and musical monologue—Miss Naare Hooper, (a) "Work and Triumph" (Morgan); (b) "The Little Yaller Dog" (Gallatly).
8.53: Soprano and tenor duet and quartet—Madame Gower-Burns and Mr. Harold Prescott, Mrs. Ann Harper and Mr. B. Rennell, "Miserere," from "Il Trovatore" (Verdi).
8.58: Weather report and forecast.
9.0: Overture.
9.5: Contralto aria—Mrs. Ann Harper, "Che Faro Senza Euridice" (Orfeo), (Gluck).
9.9: Clarionet solo—Mr. S. E. Munday, "Bohemian Girl" (Balfe).
9.14: Baritone aria—Mr. Bernard Rennell, "Clear the Way for the Calf of Gold," from "Faust" (Gounod).
9.18: Violin solo—Miss Irene Morris, "Allegretto" (Boccherini-Kreisler).
9.23: Tenor aria—Mr. Harold Prescott, "Flower Song," from "Carmen" (Bizet).
9.27: Instrumental trios—Christchurch Broadcasting Trio, (a) "Barcarolle," from "Tales of Hoffman" (Offenbach); (b) "Lokoczy March," from "The Damnation of Faust" (Berlioz).
9.37: Soprano aria—Madame Gower-Burns, "Jewel Song," from "Faust" (Gounod).
9.42: Cornet solo—Mr. R. Ohlson, "American Fantasia" (Hock).
9.47: Operatic quartet—Madame Gower-Burns, Mrs. Ann Harper, Messrs. Harold Prescott and Bernard Rennell, "See! See! Note His Looks," from "Marta" (Flotow).
9.52: Recitation—Miss Naare Hooper, "Over the Telephone" (Harrison).
10.0: God Save the King.

4YA DUNEDIN (463 METRES)—THURSDAY, MAY 10.

7 p.m.: Town Hall chimes.
7.1: Request gramophone concert.
7.40: News and reports.
8.0: Town Hall chimes.
8.1: Fox-trot selection.
8.7: Light soprano solos—Miss Dorothy West, (a) "Nesting Time in Flatbush"; (b) "You Never Knew About Me," from "O Boy" (Kern).
8.13: Jazz pianoforte solo—Mr. T. V. Anson.
8.18: Orchestral selection from Octagon Theatre Orchestra, under the direction of Mons. de Rose.
8.30: Light baritone solo—Mr. J. B. McConnell, "Pal of My Lonesome Hours" (Lyman).
8.34: Humorous recital—Mr. Carl Moller, "Young Men in Love."
8.39: Light mezzo-soprano solos—Miss Mollie Andrews, (a) "Why Don't You Smile" (Schwartz); (b) "Agatha Green" (Cooper).
8.47: Humorous solo—Mr. Chas. Rowand, "P.C. 49" (Hargreaves).
8.55: Weather report and forecast.
8.58: Relay of orchestral music from the Octagon Theatre.
9.10: Light soprano solo—Miss Dorothy West, "Till the Clouds Roll By" (Kern).
9.14: Jazz pianoforte solos—Mr. T. V. Anson, (a) "I've Got the Girl" (Donaldson); (b) "Waiting For the Moon" (Van Austem); (c) "My Blue Heaven" (Donaldson).
9.33: Light baritone solos—Mr. J. B. McConnell, (a) "When Day is Done" (Kalcher); (b) "If You Can't Tell the World" (Farri).
9.36: Recitations—Mr. Carl Moller, (a) "How the Chestnut Horse Came Home"; (b) "Admiral's Orders."
9.39: Light mezzo-soprano solo—Miss Mollie Andrews, "The Kilties Brigade" (Tate).
9.43: Orchestral selections from Octagon Theatre.
9.48: Humorous songs—Mr. Chas. Rowand, (a) "They Built Piccadilly For Me" (Hargreaves); (b) "The Mice Have Been At It Again" (Connor).
10.0: God Save the King.

Friday, May 11

1YA AUCKLAND (333 METRES)—FRIDAY, MAY 11.

3 p.m.: Afternoon session—Selected gramophone items.
4.0: Literary selection by the announcer.
4.8: Further gramophone items.
4.25: Sports results.
4.30: Close down.
6.0: Children's hour—Nod.
7.15: Lecturette—Mr. Geo. Campbell on "Motoring."
7.30: News and market reports.
8.0: Chimes.
8.1: Relay of overture from Rialto Theatre Orchestra, under the direction of Mr. Henry Engel.
8.15: Vocal quartet—Madame Mary Towsey's Quartet, "Sweet Minstrel" (Phillpot).
8.19: Baritone solo—Mr. John Bree, "Waiata Maori" (Hill).
8.24: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio in E Flat" (Dr. Thomas).
8.34: Soprano solo—Madame Mary Towsey, "My Lady Passes" (Maughan Barnett).

TO obtain the maximum service from dry "A" batteries, the rheostat must always be left in the "off" position when the set is not in use, or the batteries should be disconnected entirely. The rheostat should, in use, be controlled to keep the current as low as possible. Do not use more battery current than is necessary—in other words, turn up your filament rheostat only enough to get good results. As your "A" batteries get older, it will be necessary to turn up the rheostat further.

THE new shielded-grid valve greatly resembles, externally, one of the ordinary 201A type; it is of about the same diameter, but slightly longer. It is equipped with a standard four-prong base, the fifth connection being made to a small brass cap, which is mounted on the top of the glass bulb. The glass appears to be partially silvered on the inside, as do most valves, because of certain chemical treatments which they undergo during evacuation.

A NEW series of high power two-way transoceanic television tests by short-wave radio will be started soon between Newark, N.J., U.S.A., and London, England, according to Captain O. G. Hutchinson, managing director of the Baird Television Development Company of London. Captain Hutchinson announced the new tests in New York recently, just before his departure aboard the Berengaria for England, where he was to confer with John L. Baird, the inventor, and make further arrangements to continue the 3600-mile experiments. "After spending a few days in London, I will return to the United States with Mr. Baird," he said. "In the meantime, arrangements in America for the coming tests will go on as usual."

MR. A. H. TODD.
This popular elocutionist will be heard again from 3YA on

TO obtain the highest possible efficiency when using the new valves of the shielded-grid type, an external shield must be placed around each stage. This is found necessary in order to avoid oscillations, and to obtain maximum amplification.

WHEN using more than 45 volts of "B" battery, the addition of a "C" battery will add materially to the life of the "B" battery, and usually result in better reception. This battery is connected between the filament and the grid, and it reduces the amount of plate current, and, therefore, increases the service-hours of "B" batteries. The "C" battery should be connected at the negative of the "A" battery, in many sets between the filament lead on the (—) of the "A" battery to the "F" post of the transformer. When power valves are used, it is particularly necessary to keep the current drain as low as possible by using the proper high voltage "C" battery.

IN the reception of distance stations it often happens that the signal will fade out completely only to return a moment later. This happens without touching your dials or moving your position. This is particularly annoying at times when you are enjoying a good programme or are trying to intercept the call letters of the station. The trouble may be due not only to unavoidable atmospheric causes, but also to a low A battery or a dirty contact in one of the valve sockets. In either case the valve will light up bright for a while and you can hear the station plainly. The next instant the contact may be poor or the A battery voltage will drop slightly and the station will completely disappear only to return a moment later when the voltage comes back to normal.

SOME of the English newspapers are prone to give the utmost publicity to any adverse criticism of the British Broadcasting Corporation, which provides probably the finest service in the world. A writer in the London "Modern Wireless" says: "If piffling Percy Puggins of Biggleswade, having invested in a three-and-sixpenny crystal set which he is mentally incapable of understanding, finds himself one evening totally unable to hear anything from London or Daventry, piffling Percy immediately writes to one of the newspapers and asserts that the B.B.C. is governed by persons of an unintelligence that is beyond belief. The newspaper immediately places piffling Percy's complaint in a prominent place, causing that fool to go about with a swelled head for the best part of a fortnight."

8.38: Comedy play by the Auckland Comedy Players, under the direction of Mr. J. F. Montague, "How He Lied to Her Husband," by Bernard Shaw. Cast: He, Mr. George Hilton; She, Miss Irene Day; Husband, Mr. J. F. Montague.
8.58: Pianoforte solos—Mr. Cyril Towsey, (a) "Dance of the Doll" (Maughan Barnett); (b) "Valse Caprice" (Maughan Barnett).
9.6: Weather report and forecast.
9.7: Tenor solo—Mr. Reginald Newberry, "Golden Petals" (Phillpot).
9.11: Vocal and instrumental—The Internationals, (a) "Sweetie Pie" (Davis); (b) "Just a Memory" (Henderson).
9.20: Contralto solo—Miss Gwenyth Evans, "Hine e Hine" (Te Rangi Pai).
9.24: Relay of entr'acte from Rialto Theatre Orchestra, under the direction of Mr. Henry Engel.
9.29: Baritone solo—Mr. J. Bree, "A Red Rosebud" (Murry-Gibbs).
9.33: Elocution—Mr. J. F. Montague, "Cricket Match of Killaloe."
9.38: Soprano solo—Madame Mary Towsey, "Horses of the Dawn" (Brett).
9.42: Violin solos—Miss Ina Bosworth, (a) "Legende in E Flat" (Dr. Thomas); (b) "Belgian Lament" (Dr. Thomas).
9.48: Instrumental and vocal—The Internationals, (a) "Trumpet Solo"; (b) "Spanish Moon"; (c) "Mandy" (Hubert).
9.58: Contralto solo—Miss Gwenyth Evans, "Waiata Poi" (Hill).
10.2: Quartet—Madame Mary Towsey's Quartet, "Seventy-First Psalm" (Thomas).
10.6: God Save the King.

2YA WELLINGTON (420 METRES)—FRIDAY, MAY 11.

3 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results to hand.
5.0: Close down.
6.0: Children's hour—Uncle Ernest. Children's record from "When We Were Very Young" (A. A. Milne); song, Cousin Joyce; sketch, Cousin Frances; song, Cousin Joyce; recitation, Cousin Eileen. Stories and poems by Uncle Ernest. Gramophone selection.
7.0: News, market reports, and sporting results.
7.40: Review of to-morrow's football matches, by Mr. Chas. Lamberg.
8.0: Chimes of the Wellington General Post Office clock.
8.1: Overture—The Orchestra, "Morning, Noon, and Night" (Suppe).
8.11: Quartet—The Etude Quartet, "Sweet Maiden" (di Lasso).
8.15: Baritone solo—Mr. Ray Kemp, "Largo al Factotum" (Rossini).
8.19: Steel guitar trios—Mrs. Mildred Kenny's Trio, (a) "Hawaiian Love Song" (de Larno); (b) "Baby Feet Go Pitter, Patter" (O'Hara).
8.26: Contralto solo—Miss Rita Arnold, "I Love a Little Cottage" (O'Hara).
8.30: The Orchestra, (a) "A Song of the Volga Boatmen" (traditional); (b) "Praeludium" (Jarnefeldt).
8.38: Tenor solo—Mr. Frank Skinner, "Lord Randall" (arr. Scott).
8.42: Humour—The Two Boiled Owls, "Further Hoots" (original).
8.49: The Symons-Ellwood-Short Trio, (a) "Gavotte" (Adams); (b) "Cradle Song" (Schubert); (c) "Turkish Rondo" (Mozart).
8.59: Vocal trio—The Misses Gretta Stark, Rita Arnold, and Mr. Ray Kemp, "Mark the Merry Elves" (Callcott).
9.3: Weather report.
9.5: Lecture—Editor-Announcer, "Imperial Affairs."
9.20: The Orchestra, "The Belle of New York" (Karker).
9.30: Soprano solo—Miss Gretta Stark, "The Lass With the Delicate Air" (Arne).
9.34: Steel guitar trios—Mrs. Mildred Kenny's Trio, (a) "Kentucky Dance" (Smith); (b) "Rosie O'Ryan" (O'Donnell).
9.41: Tenor solo—Mr. Frank Skinner, "Pleading" (Elgar).
9.45: The Orchestra—Request numbers.
9.53: Contralto solo—Miss Rita Arnold, "The Cry of Rachel" (Salter).
9.57: Vocal duet—Miss Gretta Stark and Mr. Ray Kemp, "Of Fairy Wand" (Wallace).
10.1: The Orchestra—(a) "Humoresque" (Dvorak); (b) "Hungarian Dance" (Brahms).
10.8: Novelty—The Two Boiled Owls, (a) "Ain't She Sweet?" (b) novelty piano solo.
10.14: Quartet—The Etude Quartte, "My Blue Heaven" (Donaldson).
10.18: The Orchestra, latest fox-trot and waltz novelties.

3YA CHRISTCHURCH (306 METRES)—FRIDAY, MAY 11.

3 p.m.: Afternoon concert session—Selected studio items.
4.25: Sports results.
6.0: Children's hour—Big Brother.
7.15: News and reports.
8.0: Chimes and overture.
8.5: Opening quartet—The Melodious Four, "The Geisha" (Jones).
Bass solo—Mr. T. D. Williams, "The Dear Little Jap, Jap, Jappy" (Jones).
8.13: 'Cello solo—Mr. Harold Beck, "Chant d'Amour" (Cassella).
8.18: Soprano solo—Miss Frances Hamerton, "The Amorous Goldfish" (Jones).
8.22: Instrumental trio—Christchurch Broadcasting Trio, "Allegro Andante—Turkish March" (Bohm).
8.32: Vocal quartet—The Melodouis Four, "Lamentation" (Jones).
8.36: Saxophone solo—Mr. Les. Marston, selected.
8.41: Tenor and contralto duet—Miss Belle Renaut and Mr. Russell Sumner, "The Toy" (Jones).
8.45: Instrumental trios—Christchurch Broadcasting Trio, (a) "Blue Danube" (Strauss); (b) "Moment Musical" (Schubert).
8.53: Humorous mimicry and musical monologue—Mr. Sydney Comfort, (a) "Fun on the Farm"; (b) "Papa and the Baby."
8.58: Quartets—The Melodious Four, "We're Going to Call on the Marquis" (Jones); "Tho' of Staying Too Long" (Jones).
9.3: Weather report.
9.8: Overture.
9.13: Tenor solo—Mr. Russell Sumner, "Star of My Soul" (Jones).
9.17: Dance music—Les. Marston's Jazz Orchestra, (a) "Lucky Day" (Henderson); (b) "Take Your Finger Out of Your Mouth" (Yellman).
9.27: Soprano and contralto duet—Miss Frances Hamerton and Miss Belle Renaut, "With Splendour Auspicious" (Jones).
9.31: Dance music—Les. Marston's Jazz Orchestra, (a) "One Summer Night" (Conslow and Spier); (b) "Hallelujah" (Youmans).
9.39: Bass solo—Mr. T. D. Williams, "Chin Chin Chinaman" (Jones).
9.42: Dance music—Les. Marston's Jazz Orchestra, (a) "Me And My Shadow" (Jolson); (b) "Hello Cutie" (Friend).
9.50: Tenor solo and chorus—Mr. Russell Sumner and Melodious Four, "Love! Love!" (Jones).
9.54: Dance music—Les. Marston's Jazz Orchestra, selected.
10.2: Vocal quartet—The Melodious Four, "Before Our Eyes" (Jones).
Contralto solo—Miss Belle Renaut, "The Jewel of Asia" (Jones).
10.8: Dance music—Les. Marston's Jazz Orchestra, selected.
10.16: Humorous recitation—Mr. Sydney Comfort, "Birds of a Feather Flock Together."
10.20: Dance music—Les. Marston's Jazz Orchestra, selected.
10.28: Bass solo and final chorus—Mr. T. D. Williams and the Melodious Four, "It's Coming Off To-day" (Jones).
Dance music until 11 p.m.
God Save the King.

4YA DUNEDIN (463 METRES)—FRIDAY, MAY 11.

3 p.m.: Town Hall chimes.
3.1: Gramophone recital.
3.15: Afternoon tea music from the Savoy.
3.50: Studio music.

Programmes Continued

4.0: Music from the Savoy.
4.15: Gramophone selections.
4.25: Sporting news.
4.30: Close down.
6.0: Town Hall chimes.
6.1: Children's hour—Aunt Sheila and Big Brother Bill.
7.15: News and reports.
7.30: Review of the latest books, by Mr. H. Greenwood, librarian Dunedin Athenaeum.
8.0: Orchestral selection.
8.5: Tenor solos—Mr. L. E. Dalley, (a) "The Minstrel Boy" (Scott); (b) "The Dream" (Rubinstein).
8.10: Pianoforte solo—Mrs. W. Munro, L.T.C.L., "Liebeslied" (Liszt).
8.16: Mezzo-soprano solo—Miss Molly Vickers, "A Birthday" (Woodman).
8.20: Bass solos—Mr. J. B. Macpherson, (a) "The Bonny Sailor" (Rowley); (b) "The Little Ship" (Loughborough).
8.26: Recitation—Miss Sheila Neilson, "Thoro of Rimoul" (Tennyson).
8.31: Soprano solo—Miss Florence Sumner, "One Fine Day," from "Madame Butterfly" (Puccini).
8.36: Vocal duet—Messrs. L. E. Dalley and J. B. Macpherson, "Battle Eve" (Bonheur).
8.40: Orchestral selection.
8.45: Mezzo-soprano solos—Miss Molly Vickers, (a) "Only a River Running By" (Hopkins); (b) "Sing, Joyous Bird" (Phillips).
8.51: Pianoforte solos—Mrs. W. Munro, (a) "Humoresque" (Leonie); (b) "Rondo Brilliante" (Weber).
9.0: Weather report and forecast.
9.2: Bass solo—Mr. J. B. Macpherson, "The Sea Road" (Wood).
9.6: Recitations—Miss Sheila Neilson, (a) "Old Castle" (Anson); (b) "Our House Warming" (French).
9.15: Soprano solos—Miss Florence Sumner, (a) "In the Dusk" (Tate); (b) "The Lost Chord" (Sullivan).
9.21: Relay of dance music by Alf Carey and his orchestra from the Savoy.
10.0: God Save the King.

Saturday, May 12

1YA AUCKLAND (333 METRES)—SATURDAY, MAY 12.

3 p.m.: Relay description of Rugby football from Eden Park.
6.0: Children's hour—Cinderella.
7.15: News and reports, sports results.
8.0: Chimes.
8.1: Relay of overture from Prince Edward Theatre, under the direction of Mr. E. Beecham.
8.10: Vocal quartet—Lyric Quartet, "The Little Elf-man" (Ronald).
8.14: Bass solo—Mr. Ernest Thomas, "Volga Boat Song" (Koenemann).
8.19: Mandolin solo—Mr. Jas. O'Kane, "Military March" (Schubert).
8.24: Tenor solo—Mr. Herbert Richards, "Let Us Forget" (White).
8.29: Vocal and instrumental—The Bohemian Trio, (a) "Down Honolulu Bay"; (b) "Fair Hawaii."
8.37: Vocal quartet—Lyric Quartet, "Settin' Around the Fire" (Parkes).
8.41: Relay of entr'acte frmo Prince Edward Theatre, under the direction of Mr. E. Beecham.
8.51: Humorous duet—Messrs. Thomas and McElwain, "The Twins" (Morris).
8.56: Tenor solo—Mr. Arthur Ripley, "Mavis" (Craxton).
9.0: Mandolin solos—Mr. J. O'Kane, (a) "William Tell" Overture (Rossini); (b) "Evening Song" (Schumann).
9.7: Weather report and forecast.
9.9: Vocal and instrumental—The Bohemian Trio, (a) "Lei Aloha"; (b) "Waikeke Mermaid"; (c) "Aloha Oe."
9.19: Humour—Mr. Allan McElwain, "Some Humour."
9.22: Vocal quartet—The Lyric Quartet, "Woman" (Parkes).
9.26: Relay of dance music from Dixieland Internationals, under Mr. Clyde Howley.
11.0: God Save the King.

2YA WELLINGTON (420 METRES)—SATURDAY, MAY 12.

3 p.m.: Chimes of the G.P.O. clock.
3.1: Relay of Rugby football match from Athletic Park. Mr. Chas. Lamberg, announcer.
6.0: Children's hour—Aunt Dot and Uncle Toby. Songs, sketches, mouth-organ. Stories and birthday greetings for the little ones.
7.0: News, market reports, sporting results.
8.0: Chimes of the Wellington General Post Office clock.
8.1: Overture—The Orchestra, "Southern Stars" (Ascher).
8.5: Quartet—The Melodie Four, "When Evening's Twilight" (Hatton).
8.9: Italian mandolin solos—Mr. Lad Haywood, (a) "Soldatenmarsch" (Lambach); (b) "Minuetto" (Nicole).
8.16: Tenor solos—Mr. F. Bryant (a) "One Fleeting Hour" (Lee); (b) "Tired Hands" (Sanderson).
8.23: The Orchestra (a) "Serenade" (Von Blon); (b) "Passepied" (Delibes); (c) "Canzonetta" (Godard).
8.35: Baritone solos—Mr. R. S. Allwright (a) "His Lullaby" (Bond); (b) "Audacity" (Eville).
8.41: Humour—Mr. Geo. Titchener "Our Wedding" (Wood).
8.47: The Orchestra—"Lightning Switch" (Alford).
8.54: Bass solos—Mr. W. W. Marshall, (a) "Drinking" (traditional); (b) "Dear Voice I Love" (Royle).
9.2: Weather report.
9.4: Quartet—The Melodie Four, "Tom, Tom, the Piper's Son" (Kendall).
9.8: The Orchestra—"In a Persian Market" (Ketelby).
9.15: Tenor solo—Mr. Samuel Duncan, "Charmaine" (Rappe and Pollack).
9.19: Italian mandolin solos—Mr. Lad Haywood, request numbers.
9.25: Humour—Mr. Geo. Titchener, "Queer Mixtures" (original).
9.32: Vocal duet—Messrs. S. Duncan and W. W. Marshall, "The Moon Hath Raised Her Lamp Above" (Balfe).
9.36: The Orchestra—"Lilting Lucia" (Verdi-Black).
9.41: Quartet—The Melodie Four, "Slow River" (Schwab).
9.45: Dance programme.
11.0: National Anthem.

3YA CHRISTCHURCH (306 METRES)—SATURDAY, MAY 12

2.45 p.m.: Relay description of Rugby football from Lancaster Park.
6.0: Children's hour—Uncle Sam.
7.15: News and reports.
7.30: Sports results.
8.0: Chimes and overture.
8.5: Tenor solo—Mr. David McGill, "Allah's Holiday" (Friml).
8.9: Zither banjo solos—Mr. Jack Oxley, "Georgian Medley of Old-time Negro Melodies" (Morley); "Mary Lou" (Wagner).
8.15: Soprano solo—Miss Mabel Thomas, "Rackety Coo," from "Katinka" (Friml).
8.19: Tin whistle solo and accordeon solo—Mr. Herbert Smith, (a) popular melodies; (b) "Ragtime and Jazz."
8.24: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "'Tis the End, So Farewell," from "Katinka" (Friml).
8.28: Humorous recitations—Miss Dorothy Jenkin, (a) "Taking His Temperature"; (b) "Mr. and Mrs. Popperman."
8.35: Baritone solo—Mr. Robert Samson, "Hills of Devon" (Hussell).
8.39: Instrumental trios—Christchurch Broadcasting Trio, (a) "Farewell, My Love, Farewell" (Lehar); (b) "Gipsy Rondo" (Mozart).
8.49: Contralto solo—Miss Marion Woodhouse, "The Restless Sea" (Hamblen).
8.53: Scottish songs at the piano—Mr. Jock Lockhart, (a) "It's Nice to Get Up in the Morning" (Lauder); (b) "When I Meet Mackay" (Lauder).
8.59: Weather report and forecast.
9.0: Overture.
9.5: Tenor solo—Mr. David McGill, "The Carnival" (Molloy).
9.9: Zither banjo solos—Mr. Jack Oxley, (a) "Blanche" (Ellis); (b) "Romping Rossie" (Rossiter).
9.16: Contralto solos—Miss Marion Woodhouse, (a) "Dennis, Darlin'" (Stewart); (b) "Daffodil Gold" (Hodgson).
9.20: Swanee whistle solo and accordeon solo—Mr. Herbert Smith, (a) popular music; (b) "Bits and Pieces."
9.25: Soprano solo—Miss Mabel Thomas, "The Lass With the Delicate Air" (Arne).
9.30: Humorous recitation—Miss Dorothy Jenkin, "Pat and the Mayor."
9.34: Baritone solo—Mr. Robert Samson, "The Windmill" (Nelson).
9.38: Instrumental trios—Christchurch Broadcasting Trio, (a) "Serenade Espagnole" (Glazanoff); (b) "Flower Valse" (Tschaikowsky).
9.48: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "I Want All the World to Know," from "Katinka" (Friml).
Dance music.
God Save the King.

4YA DUNEDIN (463 METRES)—SATURDAY, MAY 12

7.15 p.m.: News session.
7.30: An address, under the auspices of the W.E.A. on "Psychology," by Mr. J. T. V. Steele, of Knox College.
8.0: Town Hall chimes.
The 4YA Harmonists Quartet will present the vocal numbers from the musical play, "Going Up" (Harbach and Hirsch).
Opening chorus—Miss Mollie Andrews and 4YA Harmonists.
Baritone solo—Mr. F. M. Tuohy, "I'll Bet You."
Soprano and baritone duet—Miss Roma Buss and Mr. F. M. Tuohy, "I Want a Boy."
Soprano and mezzo-soprano duet—Miss Roma Buss and Miss Mollie Andrews, "If You Look in Her Eyes."
Tenor solo and chorus—Mr. R. A. Mitchell and 4YA Harmonists, "Going Up."
Instrumental trio (violin, flute, and piano)—"The Herd Girl's Dream" (Lebitsky).
Cornet solo—Mr. George Christie, "American Fantasia" (Hoch).
Mezzo-soprano solo—Miss Mollie Andrews, "A Touch of a Woman's Hand."
Tenor and baritone duet—Mr. F. M. Tuohy and Mr. R. A. Mitchell, "Down, Up."
Soprano and baritone duet—Miss Roma Buss and Mr. F. M. Tuohy, "Do It For Me."
Mezzo-soprano solo—Miss Mollie Andrews, "The Tickle Toe."
Instrumental trio (violin, flute, and piano)—"Heimweh" (Jungman).
Violin solo—Mr. A. R. Watson, selection from "Il Trovatore" (arr. Glover).
Soprano and tenor duet—Miss Roma Buss and Mr. R. A. Mitchell, "Kiss Me."
Scene and chorus—Miss Mollie Andrews and 4YA Harmonists.
Chorus—4YA Harmonists, "Hip, Hooray."
Cornet solo—Mr. J. Stewart, "Standchen" (Terschak).
Mezzo-soprano solo and chorus—Miss Mollie Andrews and 4YA Harmonists, "There's a Brand New Hero."
Soprano solo and chorus—Miss Roma Buss and chorus, "Here's to the Two of You."
Finale—4YA Harmonists.

Sunday, May 13

1YA AUCKLAND (333 METRES)—SUNDAY, MAY 13.

3 p.m.: Afternoon session—Selected gramophone items.
4.0: Literary selection by the Announcer.
4.8: Further selected gramophone items.
4.30: Close down.
6.0: Children's hour, conducted by Rev. Geo. Jackson.
6.55: Relay of evening service from Church of Christ. Preacher, Mr. E. Aldridge; organist, Mr. I. Lambert.
8.30: Relay of band recital from Town Hall by the Municipal Band, under the conductorship of Mr. Christopher Smith.
9.30: God Save the King.

2YA WELLINGTON (420 METRES)—SUNDAY, MAY 13.

3 to 4.30 p.m.: Afternoon session.
6.55: Relay of evening service from Church of Christ, Vivian Street, Wellington. (Special service in honour of Mothers' Day.) Preacher, Pastor W. G. Carpenter; choirmaster, Mr. W. J. Mason; organist, Miss Iris Mason.
8.15 (approx.): Relay of band concert of the Port Nicholson Silver Band from the Grand Opera House.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, MAY 13.

5.30 p.m.: Children's song service, conducted by Uncle Sam.
6.30: Relay of evening service from St. Michael and All Angels' Church of England. Preacher, Rev. Charles Perry, M.A.; organist and choirmaster, Mr. T. Vernon Griffiths, M.A., Mus.Bach.
7.45: Musical interlude from 3YA studio after church service.
8.15: Rebroadcast of station 2YA, Wellington—Concert by Port Nicholson Band from Grand Opera House, Wellington.
God Save the King.

4YA DUNEDIN (463 METRES)—SUNDAY, MAY 13.

5.30 p.m.: Children's song service, conducted by Big Brother Bill, assisted by scholars from Hanover Street Sunday School.
6.30: Relay of evening service from Hanover Street Baptist Church. Preacher, Rev. E. S. Tuckwell; choirmaster, Mr. H. P. Desmoulins.
8.0: Studio concert.
9.15: God Save the King.

THE Berlin Voxhaus broadcast station transmits generally on a wavelength of 482.9 metres, corresponding to a frequency of 620 kilocycles. Its normal power is of the order of four kilowatts, the station generally transmitting a morning, afternoon, and evening programme, the latter ending approximately about 12.30 a.m. Although its power is not over-great, the station possesses good transmitting characteristics, and it can generally be picked up all over England, using, under suitable conditions, a three-valver of normal efficient design and construction. The Berlin Voxhaus specialises in orchestral music. It has made a special study in this direction, and whilst its regular orchestra has a normal membership of nearly fifty performers this number is very frequently augmented for special concerts.

A STRIKING proof of the importance of absorption in wireless reception may be gained by the city listener if he takes his receiver to some country position. He will find an enormous increase in the signal strength of all the distant stations he could hear in the city, and in addition he will generally hear stations that could never be heard in the city. The reason for this is that the buildings, telegraph lines, and electric light lines of the city have a marked shielding effect, which greatly reduces the intensity of wireless waves near them. This is why country listeners obtain better reception than those in the city.

THE pioneer American station KDKA has been experimentally sending out transmissions on 2.5 metres but has now abandoned this wavelength as being too low for practical purposes.

MRS. ELENORE PRESCOTT
One of 3YA's popular artists. Wednesday.
—Steffano Webb, photo.

PLATE buckling in a wet battery is not so common a trouble as sulphating, and is usually due to the cells being charged or discharged at too high a rate. The heat set up in the cell causes the plates to warp or buckle owing to the expansion of the metal, due to the heat. Buckling has a tendency to loosen and dislodge pellets of paste from the plates with the risk of a short-circuit occurring between adjacent plates.

THE internal resistance of an accumulator (wet battery) is very low, so small as to be negligible for most purposes. If by any chance the terminals of the cells should accidentally become short-circuited, a very heavy current will flow through the battery, and, if the short circuit continues for more than a moment, will quickly cause damage to the plates owing to the heat generated. Every possible care must therefore be taken to prevent a short-circuit occurring.

NEVER work on your set with a screwdriver or a pair of pliers when the valves are in the sockets and your batteries are all connected. The main reasons against this practice are that you may accidentally drop a tool on top of a valve and break it or you may short the plus B battery lead with one of the filament wires.

THE shortwave service of 3LO, Melbourne, is listened to regularly at Barcelona, Spain, by Don Luis de la Tapia, and it is interesting to note that in the issue of "La Vangaurdia," published in that city on January 24, the following paragraph (translated in English) appeared:—

"Our subscriber, Don Luis de la Tapia, well known in the wireless world, advises having heard on 32 metres between 19.00 and 20-30 on Sunday, 22 January, a programme from Station 3LO Melbourne, 20,000 kilometres distant from Barcelona, with a two valve receiver."

FINAL proof of the growing interest in shortwave broadcasting is provided from America, where the Radio Corporation has perfected a new shortwave receiver of the well-known "Radiola" series, for use by amateurs. This receiver, which uses four valves, one of which is the new "screened grid" valve, is claimed to give good loud-speaker reception from all the high-powered shortwave broadcasting stations in the world.

ONE of the great American rubber importers keeps in touch with his plantations in Nigeria, Africa, by means of shortwave wireless.

Mainly about Construction

BY "MEGOHM"

Loose Coupled Crystal Circuits

SELECTIVE AID GOOD FOR DX

ON February 17 was described a simple method of making spider-web coils on cardboard formers, and at the same time the construction of a one-coil non-tuning crystal set was described. In the following issue, the 24th, a crystal set with two-coil tuning was described.

A simple but more selective type of circuit is now to be described. With the use of a secondary tuning circuit it is often possible to obtain an increase in volume of signals over that obtained from a single circuit.

The diagram of the circuit is shown with a variable condenser for each coil, primary or aerial, and secondary. If only one station is to be received, the primary condenser can be dispensed with by tuning the coil to the station's wavelength by finding the exact number of turns. By adjusting another coil to suit another station this could also be tuned in without a condenser, by changing the coil.

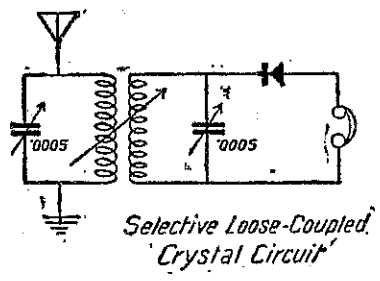
PLUG-IN coils can now be purchased very cheaply, and failing the usual type of holder, two plug-in bases could be procured, one to be fixed, the other to slide backwards and forwards on a small square of wood running in grooved strips.

Another method of obtaining fine tuning on crystal receivers is by using coils with taps connected to a switch, and a small capacity or vernier condenser to complete the tuning. There are at present on the market a number of five-plate variable condensers of good make, complete with knob and dial, that have been taken out of altered factory receivers. These are being retailed at a very low price, and are very suitable for tuning any coil that can be adjusted to be only a little short of the required wavelength. Spider-web coils similarly adjusted could also be used, a separate coil being provided for each station to be tuned in.

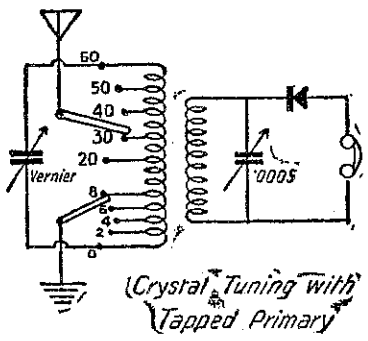
THE primary could conveniently be a .60-turn spider-web coil with taps as shown. When winding, a small loop is twisted in the wire at each tap and tagged with a piece of stamp edging to show the number of turns. A connecting wire is afterwards soldered to each turn to form the taps which are connected to the appropriate switch studs, which may be the heads of short brass screws in the baseboard. A switch arm is made from a strip of 18's brass sheet, drilled at one end to take a screw for pivot. The tapped coil is the fixed one, so that the taps present no difficulty.

The secondary coil may have 35 turns and may be tuned by a .0005 mfd. variable condenser. This coil mounting must be so arranged that its distance from the primary may be varied from close up or "tight coupled" to one or two inches away or "loose coupled." This may be accomplished either by a hinge arrangement or a sliding device of some kind. The connecting wires must not be too stiff or the coil may not "stay put." The gauge of wire for the coils may be 24's or 26's s.w.g., the former preferred.

THE winding of the tapped coil is carried out by putting on 40 turns with a tap at every ten turns, and to complete the 60 turns, 12



Selective Loose-Coupled Crystal Circuit



Crystal Tuning With Tapped Primary

turns are put on, then a tap, and a tap at every second turn to the end. By connecting these taps to switches as shown, any even number of turns that may be required is easily obtained. With such an arrangement it has been possible to dispense with a condenser, but a vernier is advisable for best results, and is connected "in parallel" across the two extreme ends of the coil. It is an advantage in crystal circuits to do as much tuning as possible with the inductance and employ condensers of as small capacity as practicable.

EITHER of the circuits shown will give good results on long distance if carefully constructed. By trial it is possible to adjust the number of secondary turns to suit stations near in wavelength so that only a vernier need be used for the secondary tuning, but the .0005 will be found more satisfactory, as it will cover the whole broadcast band.

LOOP AERIAL OPERATION

TWO SUITABLE CIRCUITS

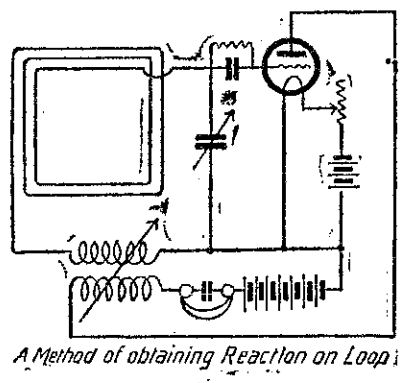
IN furtherance of the article on loop aerials given last week, two circuit diagrams are shown suitable for frame aerial operation.

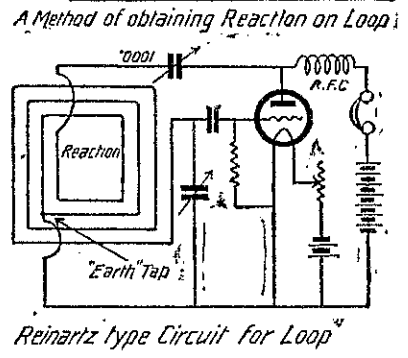
R.F. amplification is not an absolute necessity in loop operation, but it is necessary that all unnecessary R.F. damping be eliminated.

The Browning-Drake circuit is not very suitable for frame aerial operation.

REINARTZ REACTION.

WITH the tuning condenser across part only of the inductance, we get the Reinartz type of reaction, which has proved to be so effective in ordinary selective reception with outside aerials. Here a fixed reaction coil is wound continuously with, and in the same direction as, the main tuning inductance, either on to the same former or closely adjacent so as to be close coupled magnetically with the first. In other words, two or three turns of the loop are utilised to secure reaction. This is fed via a small variable reaction condenser from the anode of the detector valve, the high-frequency impulses being prevented by an efficient radio choke from passing to "earth" via the distributed capacity of the phones or transformer windings and H.T. battery in modern versions of the circuit. The reaction control is then carried out entirely by this small condenser; and with proper design of the circuit and with low-loss inductances it is of an extremely fine and, at the same time, manageable type. The number of


A Method of obtaining Reaction on Loop



Reinartz Type Circuit for Loop

turns required in the reaction coil is surprisingly small with valves of high amplification value and liberal electronic emission. The reaction condenser can be of low maximum capacity: .0001 mfd., the usual troublesome change in wavelength, with alteration of reaction coupling is then almost entirely avoided over the small range necessary for fine adjustment; whilst the reaction demands vary but slightly with frequency over the whole tuning range. This greatly facilitates "searching" in practice. A "super" circuit for loop operation will be given later.

QUERIES BY CORRESPONDENCE.

1. Every communication enclosing queries is to be addressed to "Megohm," Box 1032, Wellington, and must be accompanied by a stamped addressed envelope for reply by post.
2. Questions must be written so that a space is left in which the reply may be added.
3. No charge is made for replies.

An Information Service.

ALTHOUGH "Megohm" is at all times willing to answer queries, a large number have frequently to be dealt with in a limited time, with the consequence that replies involving much writing have sometimes to be shelved to await a chance to do them full justice. Readers are asked to note that this service is quite an optional one, and forms no part of the contract entered into when a subscription is paid.

Relations with queriists have so far been generally of a pleasant kind, and helping others in their difficulties has been an agreeable task, especially when letters have at times been received stating that the advice given has been effective. Inquirers are asked not to demand replies "by return," and not to get uneasy because they do not receive a reply for a week or two, as in the case of long distances considerable time is lost during transit each way.

Tuning the Crystal Receiver

GETTING THE BEST POSSIBLE RESULT

THE operation of setting the cat's-whisker and finding the correct wavelength for broadcast reception on a crystal set has always been looked upon as of so simple a nature that no one has thought it worth while to give the matter serious thought. We find, therefore, that whilst constructors and users of valve sets are given full and adequate advice on the correct method of procedure, the crystal user has been somewhat neglected on this particular point. It is the purpose of this article to rectify this omission.

I suppose we all realise that any increase or decrease of strength, however slight, is much more readily discernible on a weak signal than on a strong one, and yet how many of us act on the knowledge of this simple fact? We push the slider, turn the knob, plug in the basket coil (or whatever is necessary to find the correct wavelength on our particular set) to what we know from experience to be the best point for bringing in our local station, and then proceed to juggle with the cat's-whisker until we get what we think are the loudest possible signals.

WORKING ON WEAK SIGNALS.

DO we not always have an uneasy feeling at the back of our mind, spoiling our enjoyment of the programme or our pride in showing off our set to a pal, that what we believe to be the "loudest possible" is not really the very best of which our little receiver is capable?

When next you are preparing to enjoy your local station, employ the following method, and I venture to think that uncomfortable feeling of uncertainty will be entirely absent.

Start off as usual, but after having found the station required so place your cat's-whisker that only the very faintest signals are coming through. Now alter your wavelength finder up and down; if you find a better spot again adjust your cat's-whisker until the signals are only just discernible, and then try again for the best position of the tuner. In this way the exact spot can be found at which the loudest possible signals are discernible so far as the wavelength tuning is concerned.

Now we come to the setting of the cat's-whisker: Having carefully marked the exact position for the wavelength as found above, set the cat's-whisker to the loudest position which can be found, then "detune" the wavelength until the signals are at the very faintest point; next try for a better adjustment of the cat's-whisker, and when this is found, "de-tune" again for the faintest signals, and so on until the very best setting of the cat's whisker has been found. If you then switch back to the point previously marked for the best possible wavelength, you may feel confident that you have reached the "best possible' setting and can set down to 'enjoy the programme knowing that no amount of extra "fiddling" will bring better results.

THIS method of working on the weakest possible signal strength will be found the most advantageous one when testing the relative merits of various makes of crystal, and also for testing the best combination of crystal and cat's-whisker, and whilst on the subject of testing cat's-whiskers, here is a hint which has been found very useful.

Say you wish to find out whether a gold, silver, or copper whisker gives the best result with any particular crystal, fix all three whiskers into the detector in such a manner that they stick out at various angles. It is then only a matter of seconds to test each one in turn (using the weakest possible signals as outlined above) to ascertain which gives the best results.

Lastly, there is the annoyance of getting "shaken off" by the banging of a door or the thoughtless steps of those members of the family who do not share our enthusiasm for wireless.

After trying many gadgets, an enthusiast has found that by using a piece of silver wire (obtained from a jeweller) slightly thicker than the ordinary cat's-whisker (about 26 S.W.G.), and two inches long, tapering the end to a fine point with a file, and making up with a coil of large diameter (about twice as large as that in the usual cat's-whisker), a very fine and stable adjustment is obtained.

POSITION OF THE LOUDSPEAKER

THE position in which a loudspeaker gives the most satisfactory sound effect depends almost entirely, of course, upon the type of sound projector embodied in the instrument.

Ordinary cone loudspeakers give a good general distribution of sound waves, and are, therefore, not sensitive, as a rule, to the position in a room in which they are worked.

Horn-type loudspeakers (and, to a certain extent, moving-coil speakers) have rather more pronounced "directional" properties, and are largely affected by the position of objects in a room.

When a horn-type loudspeaker is operated in a room containing many sound reflecting objects it is advisable to mount the speaker at a fair height from the floor. This prevents air-wave formations from being checked too much by tables, chairs, and so forth—a condition which is very likely to obtain when the loudspeaker is situated at the usual "table" height from the ground.

Construction Continued

The Production of Reaction

ITS USE AND ABUSE

INSIDE a valve when in action, we have the filament heated by the A battery, which causes a stream of electrons to be shot off or "emitted" from the filament. These electrons, being negative, are attracted to the plate, which is always positive on account of the B battery current which flows from plate to filament and back to the B battery. The voltage impulses of signals that come to the grid have a great effect upon the conductivity of the space between the filament and grid with regard to the flow of electrons, so that as the grid becomes more or less negative, the flow of electrons decreases or increases. In this way the small impulses on the grid are able to produce larger changes in the plate circuit, and thus amplification is obtained.

FROM this it is seen that there is more energy flowing in the plate circuit than in the grid circuit, so that if we can feed back a little of the plate circuit energy in such a way as to increase that which is already in the grid circuit, this increase will be amplified and appear as a still greater increase in currents flowing in the plate circuit.

THERE is always a certain amount of "damping" in a wireless circuit, which tends to make signals die down. We can prolong the dying-down process by supplying energy to compensate for that which is lost, so in an oscillatory circuit we can feed in energy and wipe out the effects of damping.

If we use reaction to feed energy back into the grid circuit of a valve we can so adjust matters that the oscillations produced by passing waves are prolonged and die away gradually, or we can feed back a larger amount, so that once oscillations are started, they are maintained indefinitely. This latter conditions is called "self-oscillation," and occurs when the energy fed back balances that lost in overcoming resistance, and so on.

This process is equivalent to reducing the damping of the circuit, and it is most beneficial in increasing the sharpness of tuning of the circuit, since the lower the losses by damping, the sharper the tuning, and this holds good up to the point at which self-oscillation commences, when the damping is said to be reduced to zero.

THE actual method of producing reaction is quite simple. It is usually done by including in the plate circuit of the valve a coil which is arranged to act inductively upon the tuning coil in the grid circuit, by one of the usual methods of inductive coupling. When coils are so placed, currents flowing in one coil cause similar currents to flow in the other by the familiar process of electro-magnetic induction. Hence, this arrangement is often called reaction coupling.

So much for the good points of reaction. We must not forget that reaction wrongly used is a curse instead of a blessing, not only to the user, but to all his neighbours as well. It is quite easy to see how this may be if we remember that reaction is capable of producing continuous oscillations in the grid circuit of a valve. If that grid circuit is connected to an aerial, it is obvious that oscillations will flow in the aerial, and the whole becomes a miniature transmitter radiating rather weak continuous waves.

This radiation takes place upon whatever wavelength the user of the set is receiving, and so if he is trying to receive broadcasting, the radiation will be right on top of the waves from the broadcasting station and will produce howls and whistles in the receivers of everyone within a couple of miles or more, who may happen to be listening to the same station. Moreover, the speech heard in the oscillating receiver will be more or less distorted and spoiled, although a little louder than when reaction is properly adjusted.

TO make proper use of reaction when receiving broadcast, it should be adjusted so that the circuit is almost oscillating, but not quite. This is in the case of weak signals. When strong signals are being received, reaction may be very much reduced or brought to zero, full volume being still obtained.

Modern circuits are designed with a view to preventing detector oscillation from reaching the aerial, so that interference may be reduced to a minimum.

TIPS AND JOTTINGS

FILAMENT VOLUME CONTROL.

AS has been mentioned in past issues, dimming of filaments, either R.F. or detector, must not be carried to excess, or tone will suffer. Dimming must not be carried too near the point where the valve ceases to function, because distortion and bad tone are liable to be introduced. Detuning with the dials is satisfactory where a station spreads over a wide space on the dials, so that the detuned position is a number of degrees from the maximum. Rules cannot be laid down to exactly suit all receivers and all conditions, and ideas are given so that operators may find out which method best suits their case.

"HARNESS" FOR A.C. SUPPLY.

AMERICAN firms are now manufacturing what is called "adapter harness," by means of which an ordinary battery-operated set may be changed in a few minutes into an A.C. operated set without any structural or wiring changes. There is a transformer unit from which proceed several flexible cables, one for connection to the mains socket. To the other cables are attached several adapters, which are plugged into the respective valve sockets in the set for filament operation. Necessary grid-bias is also provided.

D.C. GENERATOR LIGHTS FILAMENTS.

THE Day-Fan Electric Company, of Dayton, Ohio, has made a new departure in batteryless receivers. This firm is now turning out sets in which a small motor generator giving direct current is driven by the alternating mains supply. For silent running the generator is suspended by straps and springs in the cupboard below the receiver cabinet.

NEW A.C. VALVES.

FIVE types of Cossor mains valves will soon be available. The chief point of interest about these valves from a listeners' point of view is that they can be used to replace the valves in any existing receiver. The only alteration in the receiver is the short-circuiting of the A positive and A negative terminals with a piece of wire. A pair of terminals at the top of each valve is then connected in parallel with the six-volt winding of a special transformer which supplies the heating power. B current is supplied in the same way as previously, from eliminator or battery.

BURNING THE SOLDERING IRON

YOU will find that the soldering iron soon becomes burnt if left too long in the gas flame, and all the tinning becomes oxidised. If this has happened badly, it is necessary to remove the coating with a rough file, and this soon destroys the iron. If, however, a "tin can" be used as a small "furnace," the burning is, to a large extent, avoided. The tin can is placed over the gas flame, and becomes red hot, the "iron" being inside. Two iron wires can be placed across the can for the purpose of supporting the soldering iron. The tin can should not be too large, or the iron will not get sufficiently hot. It should be, roughly, a very loose fit for the iron.

CONCERNING MICA.

THERE is no other natural substance, or artificial substitute, that possesses the same perfect cleavage, transparency, lack of colour when in thin sheets, flexibility, toughness, and resistance to temperature changes, or chemical decomposition. Finally it has exceptionally high electrical insulating properties.

Commercial mica is usually either of the potash or magnesian varieties, known respectively as muscovite or phlogopite. Indian ruby mica is found to be the best dielectric for condensers, whilst silver amber is widely used for separating the commutator segments on D.C. dynamos and motors.

The Loudspeaker.

When the impedance of the loudspeaker is twice that of the last valve, the greatest amount of undistorted volume will be obtained from the valve. Thus the loudspeaker should at least have an impedance higher than that of the last valve. An output transformer of suitable number of turns will suitably increase the impedance of the speaker circuit.

LIMIT OF SHORT WAVES

IT has now been definitely established that with ordinary receiving and transmitting valves it is impossible to work on wavelengths of less than about two metres. This rather contradicts several of the rumours which were current when amateurs first became interested in super-short-wave- working, and many almost impossible claims of successful working on one and even half a metre were made.

Valves Set a Limit.

Valves set a definite limit to the minimum wavelengths workable, for below a certain range (usually about ten metres) the capacity of the electrodes becomes too great to be balanced out. The size of the electrodes may be reduced a little to lower the capacity effect they present, but the mass cannot be cut down too far or the valve will not function.

Need for Accuracy.

A wavelength of 5 metres means a frequency of 60 millions of cycles per second, and the need for accurate tuning adjustment will be obvious. As an instance of the extreme care necessary in adjusting ultra-short-wave sets, it may be mentioned that in 5-metre experiments conducted recently at WGY, Schenectady, the actual transmitter was placed in the centre of a Hertz-type aerial (a vertical wire, one half of which is aerial and the other earth) and tuned by ropes from a distance of approximately 100 yards.

BATTERY AND ELIMINATOR

IF the ordinary listener were asked for criticism on the present standard valve set for broadcast reception he would probably concentrate on the batteries. The filament accumulator is troublesome because it requires periodical recharging and, in addition, exhibits a preverse tendency to run down just when it is most wanted.

As regards high tension, the dry-cell battery is a recurring charge on the wireless budget, and after the first few weeks of service usually develops artificial "atmospherics" of its own.

The remedy seems to lie in the use of eliminator units which are adapted to derive all the current and voltage necessary to run a multi-valve set direct from the electric lighting mains. At the present time the ideal combination is probably to be found in the indirectly-heated cathode type of valve in which special "false" filaments are fed directly from the mains, with a special eliminator unit for supplying the plate voltage from the same source.

Eliminator units designed to produce both filament and plate supply from the mains are, of course, available, but the indirectly-heated valve has the advantage that it is peculiarly free from noise, whilst owing to the fact that no current flows through the actual cathode, the latter is maintained at the same potential throughout its length and thus operates at maximum efficiency.

High-tension Eliminators

With regard to high-tension eliminators, it is generally found that the alternating-current type gives more satisfactory results, all round, than the D.C. type, though, of course, the latter is cheaper to install. In the former type the A.C. transformer completely separates the eliminator units from the outside mains, and thus protects the receiving set from variations in load and corresponding fluctuations in voltage.

WATER FOR ACCUMULATORS

In the article on construction of a B acumulator on April 13, "Megohm" stated as follows: "If distilled water is difficult to procure, water that has been boiled and allowed to cool is a good substitute. Where there is choice, rain-water is better than artesian, as mineral salt."

The above was not intended to be a recommendation to use anything but distilled water where it could be procured, and there is a distinct preference shown for the use of rain-water rather than artesian, for the reason stated.

A chemist writes to say that he cannot understand the object of boiling the water, as it will only destroy bacteria. The idea of boiling the water is not the writer's own idea, but well known to many, and is intended to purify the water as much as possible in a simple way, such as might have to be resorted to in country places. Even the presence of lime in water will be reduced by boiling, as instanced by the coating deposited inside a kettle when certain kinds of artesian water are boiled, though such water is certainly not suitable for accumulators.

Our correspondent is quite correct on the subject, of distilled water, about which he is naturally well informed, and it is undoubtedly the proper liquid to mix with the acid in accumulators. As a matter of actual experiment, however, the writer has made up accumulators with water direct from the tap, with common commercial sulphuric acid, and found them to function for long periods just as well as others made up on more scientific lines. But he does not advocate using anything but pure acid and distilled water, except in a case of necessity, as there is always a certain amount of risk with impure materials. Our correspondent also points out that rain-water does not require boiling if collected in clean vessels.

A CORRECTION.

In the article on the B eliminator last week near the top of the third column a slip occurred in dealing with 50-cycle A.C. There would be 50 impulses per second in each direction, and not 25, as stated.

Tune Carefully.

Listeners are reminded of the importance of tuning-in on all stations to the maximum dial position. The slightest detuning may cause distortion, except in the case of a receiver that is very unselective—a type that nobody cares to own nowadays. Listeners who suffer from distorted reception should tune in very carefully, listen to the loudspeaker, especially the lowest notes, and tune in so that distortion is absent, or at a minimum. It is often surprising what a little care in this way will do to improve reception for the whole evening. Volume may be controlled by the R.F. filament rheostat.

B Eliminator for Small Sets.

It was hoped that this would be dealt with in this issue, but the article has been unavoidably held over until next week.

AUCKLAND DIRECTORY

What to Buy and Where

ATWATER-KENT RADIO ..	Frank Wiseman, Ltd. 170-172 Queen Street.
AMPLION LOUDSPEAKERS ..	All Radio Dealers.
BREMER-TULLY RADIO	Superadio, Ltd., 147 Queen Street.
BURGESS RADIO BATTERIES,	All Radio Dealers.
CE-CO VALVES	All Radio Dealers.
CROSLEY RADIO	Lewis Eady, Ltd., 190 Queen Street.
FEDERAL, MOHAWK, GLOBE	Federal Radio House, 8 Darby Street.
GILFILLAN AND KELLOGG .	Harrington's, Ltd., 138-140 Queen Street.
GREBE RADIO	Howie's, Dilworth Building., Custom St. E.
MARCONI ECONOMY VALVES	All Radio Dealers.
MULLARD VALVES	All Radio Dealers.
RADIOLA RECEIVERS	Farmers' Trading Co., Ltd., Hobson Street.
RADIOTRON VALVES	All Radio Dealers.
RELIANCE BATTERIES .... N.Z. Made.	Reliance Battery Mfg. Co., Ltd., 96 Albert Street.
PHILIPS VALVES AND APPARATUS	All Good Radio Dealers.

Our Mail Bag

Good Music Appreciated.

"A Listener-in" (Hataitai).—I would like to express my appreciation of the good music performed week by week, by the Symons-Ellwood-Short Trio, including the solo works of these artists, and also the strong quartet. Our visits from artists abroad, who delight us with this class of music, are so rare, that I feel we cannot get too much from the Studio Trio. Personally, I would like one evening a week, solely devoted to their instrumental numbers, which I consider the cream of the programme. It is a great privilege to have music of the high standard given to us by these artists, over the wireless, and I would ask that we be favoured with at least our share of the items we look forward to.

A Query.

B. Wenlock (Waitati).—Could any "Radio" reader tell me of any station giving the call 9XF, as I picked up one last Sunday (April 15) at 10.20 p.m. giving the above call. I thought the announcer said Illinois, but the static was rather bad, so would not be positive.

Identity Wanted.

E. Green, Mount Biggs, Feilding.—In the last issue of your 'Record," I read a request by Mr. Crabbe, of Napier, for information regarding a station, apparently American, on about 310 metres. I think this station might be station KSL, Salt Lake City, Utah. I've had them very clearly on loudspeaker many times some months ago, but have not heard them lately. Another station is KNX, California, who used to be spoiled by 1YA.

Could any listener please explain what station this was? Operating on the same wave-length as 2ZF, Palmerston North, tuned in on my 5-valve set at about 6.30 p.m., but thinking it was 2ZF, I switched off, again until after tea. When I switched on again after tea, the speaker was flooded with music (orchestral). A little later a voice, easily distinguishable for an American, announced what I thought to be 9X—, something, testing. He acknowledged a report from a Mr. Stapleton in Detroit. Many reports were acknowledged from California, who all said volume was enormous and tone good. The next item was not announced, but was a quartet of ukulele players singing the song "Lucky Days," quite clearly. The next announcement was 9X, something, testing on 60,000 watts. I'm quite positive he said 60,000 watts, and then said something about "here in New York," and then another vocal solo, a woman singing. By this time 2ZF had started up, and were drowning this station out, but during a pause in 2ZF transmission, I distinctly head someone say, "from California," and saying "Volume good and a little fading." Dear sirs, I trust that some listener in New Zealand has been more fortunate than I was to log this station properly.. Stations I have logged after the main Aussies have closed down are 3DB, Melbourne, 5DN, Adelaide, KZRM, Manilla, and CYA, Mexico, and 2UE, Sydney.

Society Wanted in Dunedin.

St. Kilda (Dunedin): Might I be allowed to suggest through your columns that the time has arrived when we should have a Listeners' League, although I do not like the name, in Dunedin. I do not mean a complaining body, because, in common with all my wireless friends, I am perfectly satisfied with the service supplied by the N.Z. Broadcasting Company, but I think that perhaps such a society might be of use both to the company and to ourselves. We note with sorrow that the southern province is far behind in the matter of the number of licenses, but this is in a great measure due, in my opinion, to the benefits of radio not being so well advertised as they are up north. We have a splendid service at a cheap rate, and I am sure that in Mr. Webb and his assistants the company is well represented, but unless some action is taken the number of licenses will not rapidly increase. In the little corner where I live fully one-fifth of the residents have wireless sets, and we often meet, sometimes at each other's house, or more often in the street, and discuss our little problems to our mutual advantage. To give one example. Most of us now have discarded the dry B batteries for the wet batteries imported from America, and I and at least one other have adopted the series of copper pipes for earthing. These and similar questions could be well threshed out at periodical meetings of a listeners' league, and would help, in my opinion, to further the cause. I would be pleased to take an active part in helping to form such a society, and you are at liberty to disclose my name if necessary."

Melody Wanted.

A.W.L. (Khandallah): I note with interest the comments of G.C.C. (Nelson) in this week's issue of the "Radio Record" relative to the items given by the string trios of the respective broadcasting stations. As a constant listener-in I should like to express my appreciation for the excellent programmes which 2YA has recently bene putting on the air—programmes which can bring nothing but credit to those responsible for them. I agree with G.C.C. in this, however, that the 2YA trio confine themsedves too closely to "movements," etc., and I feel that the majority of listeners would much prefer to hear something containing more of a melody, while it should not be necessary to depart from the "classics" in order to do this. Your editorial suggestion that a vote upon the subject be taken seems an admirable way of testing the true attitude of the public.

[The nightly selection by the public of items to be played by the new orchestra will, we believe, be appreciated and will give opportunity for close contact with listeners' tastes.—Ed.]

Who's the Stranger?

C. J. Nordstrand (Onerahi): Could you or any other listener-in who may have had the same experience as we had, kindly enlighten us?

On Saturday night, April 14, we were listening-in to station 2BL, Sydney, the time here being just on 12 o'clock. The Sydney station was at the time broadcasting dance music. Suddenly and without warning, over the top of 2BL we heard a loud, clear, but very deep voice, announcing. We listened very attentively, and at a pause between the dance music again we heard it. It sounded very like a "Native war chant" to us more than an announcement. A man was talking in foreign lingo, then presently this loud announcement, or war-cry, as we called it, and a woman sang a peculiar chanting song in a foreign tongue. 2BL started up again, and covered it. All we could hear while the Sydney station was on the air was the loud voice, I suppose, announcing, but, of course, could not understand the "foreign language." However, in time the Sydney station closed down and we heard this foreign programme through. We had it on good loudspeaker strength all the time, but could not understand a word of it Could you please tell me what station it would be? We are very curious to know. The same morning we picked up accidentally again a programme from "Albert Street, Newport, South Africa" on loudspeaker strength about 2.30. Has any other listener-in received these stations? We should be pleased to hear of any who have. Our set is a five valve. We use a double aerial, or, at least, two aerials, and a good ground. As the metres are not marked on our set, we have no idea as to what number in metres these two stations operate on. Could you also please tell me if there is any other small station in Christchurch? We got a call sign recently, though there being a lot of static, we could only hear what sounded like this 2ZC, Christchurch. Thanking you in anticipation. Best of luck to your worthy paper, "Radio Record."

[The Christchurch station is 3ZC, on 250 metres.—Ed.]

A Suggestion.

Englishman (Christchurch): The first part of the "Record" I turn to after running through the programmes is your "Mail Bag," with its ever-changing collection of views from different listeners. It is most interesting and entertaining to see what is being experienced and thought by others, and I congratulate you on the success of your policy of giving the public an opportunity of freely expressing their views. I am writing now to pass on an item from the "Morning Post" for the benefit of our Taranaki friend who blames 2YA's transmission because, in his locality, it is not received perfectly, while other stations come in well. According to the "Morning Post," Brighton, on the Sussex Coast, is in exactly the same position in relation to 2LO. Although only a few miles away from London, as wireless goes, the South Coast town never has been able to get 2LO well, allegedly because of the close proximity of the South Coast downs, and in point of fact now gets London best through relays from the Bournemouth station. The paper adds: "Curiously enough, the best reception of all is from the far-distant Continental stations in Germany and Austria, which can usually be heard far more plainly than English stations." I pass this on, sir, in case it might be of interest to Taranaki as suggesting some locality or directional fault under which they are suffering. It is not suggested in Brighton that 2LO's transmission is wrong because they do not receive it well. As I am a retiring soul, I advance this information to you under shelter of the white flag of anonymity, as I do not wish to be assailed by any fierce Taranaki champions.

Taranaki Reception.

Seafarer (Wellington): My experience, extending ever since 2YA has been operating, may prove of interest to our Taranaki friends, who say that 2YA is to blame for faulty reception suffered by them. My vessel has a good set—and needless to say it is a great boon which we wouldn't be without—and there is always someone listening. Reception in the New Plymouth area of 2YA is always bad, but as soon as we get out east or west sufficiently it clears up. Why? Get a map and see. Once we get away from the shielding effect of the big mountain it clears up altogether, and the station comes roaring in The explanation of why New Plymouth people can get other stations while they can't get 2YA well, is simply that the sound waves come from different directions. I know the Taranaki folk won't have a word said about their mountain, but—well, facts are facts. All I know is that once we are out of the line of the big hill reception is good, and that being so, why blame the station?

A Satisfactory Set.

Selector: Having constructed the R.R. selective crystal receiver by "Megohm," I am writing to let you know that it does all it is claimed to do. The first night I tried it I received 2YA on the 'phones clearly. Since then I have had 2YA every night. I cannot get them in daylight until about 4.30 p.m., when they are only just audible. From the children's hour at 6 o'clock onwards the station comes in at good 'phone strength. I can get 2YA when 4YA is on, but not very loud, as the tuning is too sharp, that is, with earth in 6, aerial in 5, and crystal in 4. But when 4YA is not on the air I use crystal in 1, aerial in 2, and earth in 3. I can get 4ZM, Dunedin, very loud, and also 4ZB, Dunedin. The Shakespeare night from 2YA was very good; every item was heard quite plainly in the 'phones. What is the air-line distance from Wellington to Dunedin?

I wound 80 turns of wire on the coil, and I took another tap off at the 60th turn, with crystal plugged into the top of the coil and aerial in the extra tap and earth at the bottom of the coil. There was an improvement of nearly 50 per cent. in 4YA's volume, but the tuning is, of course, very broad. I wound my wire on a bottle, which was 3 inches in diameter, and then smashed the bottle out. This is better than winding on cardboard as you are not liable to stretch the wire or widen the spaces With E in 6, A in 5, and C in 4, the dial setting for the condenser for 4YA is 108 degrees, and a movement of 3 degrees either way cuts the station out, yet on going down the scale to about 58 degrees 4YA comes in nearly as loud as at 108. I now wish to make an amplifier so as to bring in 2YA on the speaker. Will such an amplifier be described in the N.Z. Radio Listeners' Guide? I use a Neutron crystal, with a copper catswhisker.—[Yes, the Guide will describe an amplifier.—Ed.]

SHIELDED GRID VALVE

TUNED IMPEDANCE COUPLING CONDEMNED.

An American radio writer, in referring to a new circuit, says:—

"A very special feature of the radio-frequency amplifier circuit of the receiver is that it does not employ the tuned-impedance coupling, which has been believed necessary to the operation of shielded-grid valves. This type of coupling is, inherently, extremely broad in tuning and is far from desirable; though circuits for tuned-impedance coupling are given with the data sheets accompanying shielded-grid valves as a theoretical, but not necessarily a practical, means of operating these valves. This type of coupling is highly undesirable in a radio receiver which is to be sufficiently selective on modern broadcast-receiver conditions, and it introduces circuit losses occasioned by the necessary grid-blocking condenser and grid leak which seriously impair the amplification possibilities of the shielded-grid valve; for, unlike the practice in previous radio-frequency amplifiers, regeneration is not employed in a shielded-grid amplifier and may not well be utilised to offset circuit losses.

"It is apparent to engineers that the amplification obtainable from a shielded-grid receiver is dependent upon the excellence of the tuning circuit (coil and condenser) making up the R.F. amplifier stage; and the selectivity upon the degree of coupling of one valve to the next through the tuned circuit."

COOKING BY RADIO

NEW DOMESTIC POSSIBILITY

Radio is now destined soon to enter the kitchen and help the housewife cook meals in an incredibly short time. Science has just perfected a new household marvel in the form of a device which may be called a "radio" stove. It is based, strange to say, on the principle of the radio knife which has been so successfully used in bloodless surgery.

The new electric cooker is adapted from the diathermic heat device used by physicians and reduces the time of cooking meals from hours to seconds! For example, steaks have been broiled in half a minute, eggs fried in two seconds, and large potatoes baked to the queen's taste in fifty seconds.

This new cooking apparatus is simply a high-frequency electric device. It broils, bakes, or fries by passing several hundred thousand volts of electricity through the food, at a frequency of a million and more cycles. It cooks the food wtih a harmless heat. Essentially it is not different from the electric knife used in the latest bloodless surgery, or the machine which generates heat within the body tissues to clear up lung congestion in pneumonia patients and relieve neuritis and rheumatic pains.

Tesla Coil Development.

That high-frequency currents will cook is not a new discovery, for Tesla coil experimenters were baking potatoes twenty years and more ago. But the experimenters are working to develop the proper type of machine and fittings to make high-speed cooking practical in the home. If they succeed, electric cooking may become cheaper than coal or gas, a contributor to "Popular Mechanics" prophesies.

It is explained that while the average high-frequency apparatus has an efficiency of but 50 per cent., as compared with 90 per cent. for good resistance-type heaters, the time element is so much in favour that it more than offsets the losses. It takes about an hour to heat up an oven and bake a large potato, but if the same work can be done in 50 seconds, the cost will be no greater than burning an electric light for one minute, it is estimated.

The problem that the experimenters still have to solve is the type and size of high-frequency generator to be used and the best type of electrodes for different forms of food. Using an electrode that is too small to broil a steak may cause the meat to burn, and one too big will slow up the cooking, as it does not permit the necessary concentration of current in a small area.

A Striking Advantage.

One striking advantage of high-frequency cooking, particularly of meats, it is pointed out, is the equal distribution of cooking throughout the food. It eliminates steaks burned on the outside and too raw within, for the colour, all through the meat, will be exactly the same as the colour on the outside. Neither the metal plate beneath the steak nor the electrode about it becomes hot, since all the heat generated is produced by the resistance of the meat tissues.

Potatoes can be baked by simply sticking a small electrode, or a piece of wire in either end. Eggs broken in a metal tray, which is connected to one side of the electric line, can be fried by touching the other electrode to their surfaces. To hard-boil an egg in its shell, it is only necessary to stick a needle in either end, insert the wires, and turn the switch. Actually the egg is not boiled, in the usual sense, for the current apparently coagulates the albumen by vapourising the water in it. The water, reduced to steam, will burst the shell within a few seconds.

Entirely Different Taste.

Manufacturers of physicians' electrical equipment are rather doubtful that high-frequency cooking will ever become practical for the average home, though its novelty, or the nutritional value of the food or its taste, may overshadow all objections. Those who have eaten meat broiled in this way say that it tastes entirely different from the usual steak, the taste being a cross between broiled steak and boiled meat, owing to the fact that it loses none of its juices and only a very small part of its fats.

One of the great advantages claimed for cooking with the diathermic stove is its cleanliness and simplicity. The stove, which can be used wherever electricity is to be had, is extremely simple in operation. The heat is regulated by a single dial in much the same way as a radio receiver is operated to tune in a station, and to increase or decrease the volume of the music. The "radio" cook merely snaps on a switch and keeps an eye on the dial which indicates the volume of heat and also shows when the food is thoroughly done. Another snap of the button shuts off the heat. What could be simpler?

TELEVISION AT SEA

RADIO OPERATOR SEES FIANCEE

A Press Association cable message from London, recently published in the New Zealand Press, reported that, by means of television, the chief radio operator of the Atlantic liner, Berengaria, at sea, was able to see his fiancee in London.

The "New York Times" published following wireless report of the experiment:—

London, March 7.—Television spanned a thousand miles of ocean early this morning to reunite Chief Radio Operator Stanley Brown, of the Berengaria, with his fiancee, Miss Dora Selvy, in London. For twenty minutes, Miss Selvy sat in front of the transmitter in the Baird Laboratory in London, while Brown, far at sea, watched her smile and gesticulate, and saw her big brown eyes looking straight at him out of the Berengaria's receiving set.

A characteristic little habit of Miss Selvy's of arranging her dark bobbed hair at the back of her head first made Brown recognise her in the television, according to a message received from the Berengaria by the Baird Company. Then, when she turned and appeared in profile, Brown was convinced of her identity.

A Thrilling Experience.

The message telling of the success of the experiment was sent to the Baird Company's managing director by Captain Hutchinson aboard the Berengaria. This message told how thrilling it was to see the images from home so far at sea, and said the ship's radio continued to function during the entire test.

Miss Selvy, who is employed in the London office of the Western Union, said later that it was easier than posing for a photograph. She said it would have been even more thrilling to have spoken into the transmitter, or seen an image of Mr. Brown thrown on a London screen.

Talked and Smiled.

"I felt quite natural through it all," she said. "I simply had to face the apparatus, as I had been told to do. I talked, smiled, and turned around—I suppose that was just to prove to him that I was a living being. I was very much excited about it, of course. I wonder how I looked so far away."

J. L. Baird, the television expert, explained that the apparatus aboard the Berengaria was nothing new, and was similar to that which sent images from London to Glasgow more than a year ago.

"We deliberately used an old and well-tested apparatus," he said. "If the Berengaria had had the necessary complex apparatus, it would have been entirely possible to send Brown's picture back to Miss Selvy in London."

Recorded by Gramophone.

A record of the photograph of Miss Dora Selvy, sent by television from the Baird Laboratory in London to the steamship Berengaria in mid-ocean on March 6, (says the "New York Times") was picked up by two amateur radio operators in Jamaica, Queens, New York city, during the transmission, it was learned last night at the home of Boyd Phelps, operator of radio station 2EB at 8505 167th Street, Jamaica.

The picture of Miss Selvy was recorded on an ordinary phonograph disc by Phelps and Werner H. Olpe, operator of radio station 2BCO, 14 Brooklyn Avenue, Jamaica, with the aid of an ordinary receiving set, to which parts worth approximately 15 dollars were added for the test. Boyd said he was mailing a copy of the photograph to the Baird Laboratories to prove his claim that he picked up the picture in transmission.

Phelps and Olpe had been on the look-out for signals, but until the night of March 6 they had been unsuccessful. When Boyd detected the signals, he sent for Olpe, and for a professional piano tuner.

In a written statement given out last night, Phelps said the picture was "heard" about 9 p.m., and the transmission lasted more than an hour.

AS far back as 1889 the War Office adopted Marconi wireless apparatus for use in the field in South Africa.

NEWS FOR THE CHILDREN

HOW WIRELESS SAVED A CONTRACT

A shipbuilding firm near Newcastle, England, recently saved a valuable contract by the help of wireless.

They had tendered for repairs to a big liner, and would have got the contract but for the outbreak of the strike. The ship was sent to Rotterdam to be repaired after the strike had broken out, but she had not reached there when the strike ended. The shipbuilders at once wired to the owners, and persuaded them to send a wireless message to the vessel The message was received, the liner turned back to Newcastle, and the contract was saved for the British firm

A NEW SOURCE OF HEAT

It is well known that the radio-active elements produce heat in the course of their radio-activity, and it has now been discovered that when the element titanium is subjected to a heat of 1700 degrees centigrade, its atoms begin to break up and give forth great heat.

The energy of the heat so produced is much greater than the electric energy employed, and a German engineer has patented a method of utilising the heat. It remains to be seen if it can be used for practical purposes.

WIRELESS WORKS A BEACON

One of the uses to which wireless will one day be put is the control of mechanism at a distance.

Although there have been produced some interesting examples of what can be done in this way, such as the wirelessly-controlled motor-car, airship, and motor-boat, none was found useful or reliable enough, until the introduction of the wirelessly controlled fog-signal. There are parts of the British coast where a fog-signal is necessary, but where, owing to the rocks, strong tides, and rough seas, it is impracticable to provide any form of signalling apparatus or lighthouse needing regular attention.

One such place is Roseneath Patch, a sandbank in mid-channel at the entrance of the River Clyde. This bank is marked by a beacon, but in foggy weather a sound warning is necessary.

After many experiments, the Marconi Company has succeeded in devising a wonderful apparatus which, worked by wireless signals, fires a gun every twenty seconds. The firing can also be stopped by wireless.

One of these signals has been established on Roseneath Beacon as a permanent safeguard for navigators. The wireless signalling apparatus is installed at Gourock Pier, a mile and a half from the Beacon. When fog is observed the transmitter is operated, and immediately the guns begin to boom out at the Beacon. When the fog lifts, a different kind of wireless impulse is sent from the transmitter, instantly stopping the guns.

This is indeed one of the victories of peace, and another triumph of the beneficent work of Senator Marconi.

SEA v. LAND

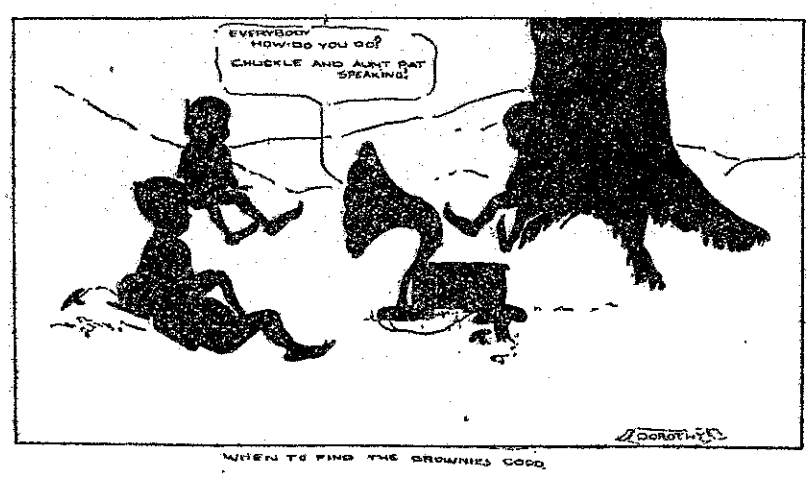
Said the turtle to the tortoise:
Turtle families have more toys
Than yours, for when one wishes
For a romp, the little fishes,
And the lobsters and the crabs,
And the funny little dabs,
Rush to play with them—but *you*
Live on land! What do you do?

DISMAL

Although I'm black I give you light,
Though cold, I give you heat,
And babies always seem to think
I'm very good to eat.

And yet you break and burn me,
Or keep me in a hole;
So altogether it's no fun,
To be a lump of coal!

Children's Sessions for Next Week



WHEN TO FIND THE BROWNIES GOOD

AT 1YA.

TUESDAY, May 8—Uncle George will entertain with stories, songs and birthday greetings. Cousins will also assist with bright songs.

WEDNESDAY—Here's our Uncle Tom with his numerous ditties and jokes. Always sure of a good laugh when Uncle Tom comes to Radioland. Yes, he will sing for us, too.

THURSDAY—Peter Pan will conduct the session, and guess who is assisting. The Edendale Boy Scouts. They will give choruses, mouth-organ selections and Hawaiian duos. Hurrah for a happy evening.

FRIDAY—Uncle Joe will be in charge. And our old friend "Old King Cole" will be there, and won't we be glad to hear him again. We can be sure of a merry hour and a hearty laugh. When King Cole laughs everybody has to laugh.

SATURDAY—Cinderella will amuse the nephews and nieces in Radioland with song and stories and birthday greetings. There will also be cousins giving piano items and songs.

AT 2YA.

MONDAY, May 7—Auntie Gwen and Uncle Jeff have a jolly hour for our little ones. Miss Lee's pupils will join in the fun, and sing you lullabies. There will be puzzles, stories and music—all that delights little ones.

TUESDAY—Big Brother Jack with his merry laugh will take you to joyland, that dear happy land of little people. School holidays are beginning so several little cousins have volunteered to help. Cousins Marjorie, Olive, Joyce and Maurice—What fun! Big Brother Jack is a happy, good-natured Brother.

THURSDAY—Uncle Sandy, the Uncle who creates beautiful rhymes for each little person who has a birthday. Some merry little serenaders will help him and together they will amuse you between 6 p.m. and 7 p.m. Cousins Marjorie, Zenocrate, and Muriel.

FRIDAY—Uncle Ernest with his thrilling travel stories. Where shall we go on May 11? Uncle Ernest is not giving away any secrets, but it will be to some land teeming with interest. He will take with him Cousins Joyce, Francis and Irene.' Up in the air to where?

SATURDAY—Auntie Dot and Uncle Toby with their barrel organ. Uncle Toby plays the organ and Auntie Dot turns the handle and takes care of the monkey. Felix, too, will be asked to sing and give reports as to his doings at the lighthouse. Cheerio all.

AT 3YA.

MONDAY, May 7—Listen to Uncle Jack to-night, and all join in the "Good-night" song: —

Sing a song at twilight,
When the lights are low,
And the flickering shadows
Softly come and go.
Whip-poorwills a'singing,
Robin's in his nest.
May our song at twilight
Lull you to rest.

WEDNESDAY—Uncle Peter and Mother Hubbard's good-night song:—

God that madest Earth and and Heaven
Darkness and light;
Who the day for toil hast given;
For rest the night;
May Thine angel guard defend us,
Slumber sweet Thy mercy send us—
Holy dreams and hopes attend us
This livelong night.

THURSDAY—Chuckle and Aunt Pat greeting you to-night in:—

"How do you do? Everybody,
How do you do?
When the skies are dull and gray,
And you're feeling just that way,
Isn't it nice to hear us say—
How do you do?"

FRIDAY—And Big Brother says to-night:—

"Sweet dreams children, Sweet dreams children, Sweet dreams children, We're going to leave you now."

SATURDAY—Uncle Sam, Aunt May and Aunt Vi greet you, and sing:—

"Hush! Here comes the dream man!
Now you children, run up the stairs,
Put on your nighties, and say your prayers;
Ride with Mister Dream man,
Till daylight comes again,
And see all the wonders of wonderland,
On the dream man's train!"

SUNDAY—Children's Song Service, conducted by Uncle Sam, who will be assisted by the scholars from St. Matthew's Sunday School, St. Albans.

AT 4YA.

TUESDAY, May 8—Could you sing lovely songs if you had neither dad nor mother? You would if you lived in a beautiful home set on top of a cliff, with a big-hearted woman like Mrs. Gerrard to mother you. Mrs. Gerrard is the matron of the Anglican Memorial Home for Boys, and she is bringing 30 boys to sing part-songs to the Radio Family. You simply MUST listen-in to-night. Part-songs, birthdays, jokes and riddles; and Big Brother Bill telling stories. One is about the way some wonderful little insects build their home, and fight for it when the time comes.

FRIDAY—Here we are again with boys and girls singing and reciting to the Radio Family. Yes, and some lovely mouth organ solos, too. "If you've had the blues to-day, why, listen in to 4YA." That's poetry while you wait, like the cobbler does the shoes. Aunt Sheila will be telling more about Helen of the queer adventures, and Big Brother Bill will find a corner somewhere. New riddles? Of course! Letters? Rather! The Radio Postie? I should certainly say so! And if there is anything else you would like, just write to 4YA and say so.

SEEING BY TELEPHONE

Seeing the person you are talking to while making a telephone call is no longer a possibility of the future; it is being done every day by Mr. J. L. Baird in his laboratory in St. Martin's Lane, London.

Mr. Baird can send from one room to another a recognisable image of the face of the speaker. The speaker sits in front of three intensely powerful electric lamps which illumine his face with brightness. The extreme image of the face is thrown by a lens upon an apparatus which picks out little bits of the image one by one with infinite quickness and throws them upon one of those wonderful little cells which respond to light and generate an electric current which is stronger or weaker as the light itself is stronger or weaker

These electric currents are sent through the telephone line to a lamp at the receiving instrument, the rays of which are recombined one after another, with equal rapidity, so that the eye actually sees an image of the person sitting before the first instrument.

The way in which the system is worked out is very technical, and Mr. Baird is now hard at work improving his instrument, which he aptly calls the televisor. If his efforts are crowned with success we may hope before long to be able to fit televisors to our instruments at home; that is, those of us who do wish to see the person at the other end of the line.

A COLOUR CAMERA

Something quite new has taken place in the realm of colour photography. In both France and Germany roll films have been manufactured which can be exposed in an ordinary snapshot camera, and when developed give pictures in natural colours far in advance of anything seen before

One of these films, known as Lignose, is being used quite freely on the Continent; it is as easy to use as an ordinary film, and very little more difficult to develop. The colours are marvellously natural and brilliant. Before many months have passed it will be possible to make prints on paper from the coloured films, also in natural colours.

INVENTOR OF RADIO VALVE.

The Faraday Medal has been awarded to Professor J. A. Fleming, inventor of the wireless valve.

He was Professor of Electrical Engineering in the University of London from 1910 until his retirement in 1927, and has played a notable part in the development of a great many applications of electrical science.

LOOSE-END LIMERICKS

(*Re-arrange words in italics to form rhymes.*)

WITH his hair an old fellow of Bute
Used to make the new strings for his *ulet*,
But now his head's *rabe*
And he's no hair to *prase*,
He has to toot tunes on a *lufet*.

A HOLIDAY-MAKER from Bury
Fell into the Broads from a *rhyrev*,
When brought back to *dunorg*,
And asked "Are you *wrodden*?"
He replied rather damply, "Not *revy*."

A SILLY old fellow of Brighton
Left his home—and also the *ghilt no*,
So when he returned
He found something had *druneb*,
In fact his old homestead had quite *noge*.

THE "B" BATTERIES

WHEN TO DISCARD THEM.

Failures in wireless receivers are being traced daily to the discharge of the high-tension ("B") battery. The low-tension ("A") battery is always under observation, because, unless it is fully charged, the valves do not light to customary brilliancy. It is, therefore, a simple matter to judge when it needs recharging, by noting the condition of the valve filaments, although this method is not recommended as a scientific test. There is no corresponding crude test which can be applied to the high-tension battery, and its condition therefore often escapes attention. The only satisfactory method of testing a high-tension battery is by the use of a voltmeter. High-tension voltmeters are now so cheap that one should form part of the equipment with every valve receiver. It is worth remembering, however, that some of the cheaper high-tension voltmeters are badly designed, in that they impose a rather heavy drain on the battery undergoing test. They should therefore be used as little as possible, and left on the battery only long enough to obtain an accurate reading. It will usually be found that the pressure of a high-tension battery will fall off fairly steadily until it has dropped to about four-fifths its original voltage.

When Trouble Starts.

After that point is reached, the battery becomes noisy, and it is likely to be unreliable, as the voltage may fall without warning to two or three volts. Thus, it is generally wise to discard a high-tension battery when it has been used until its voltage has dropped to 36 in the case of a 45-volt block, or 18 in the case of a 22½-volt block. In ordinary circumstances the life of the battery to this point should be between three months and a year or more, depending on conditions of use. If a sudden battery failure occurs before the battery is about three months old, it is likely to be due to the failure of one section. Most batteries are now divided off by terminals into sections of different voltages, and these sections can be tested one after the other by the voltmeter. When the defective section is found it can be bridged over by a piece of wire so that it is removed from the circuit, and the battery will then probably last for many weeks longer, giving a slightly lower pressure, of course, than if one section had not failed.

THE Royal Society of Arts, London, W.C.2, is offering a prize of five guineas in a competition for the design of the best wireless cabinet.

MEASURE YOUR AERIAL

It is very often desirable to know what the natural electrical length of an aerial is. The only way to measure the length accurately is by means of a wave meter—and this is beyond most people, who are interested in radio. But there is a way to find approximately the electrical length, and this is good enough for most people.

The rule for single wire aerials: Take the combined length of aerial and lead-in from end of wire to set, divide by three, and multiply by 4.8, or, for an inverted L-type using four wires, multiply by 4.5. This gives the approximate electrical length in metres. For example:—

A single wire aerial is 100 feet long, has a lead-in wire 50 feet long. What is its electrical length

100 plus 50—equals 150, which is the total length in feet.

150 divided by 3—equals 50, total actual lineal length in metres.

50 multiplied by 4.8—equals 240, which is the electrical length of the aerial in metres, or, the wave-length the aerial will receive without additional adjustment or tuning. This aerial will not receive below 240 metres with the ordinary broadcast receiving set, although the aerial will serve quite well for ultra-short-wave reception with a short-wave receiving set.

How Wireless Has Lightened the Task of the Whaler

By R. G. Walker, in "Sydney Radio"

JUST three years ago a ship set out for the Antarctic Ocean well provisioned, well fitted, and well manned, and she was accompanied by several smaller ships—ugly little things—each with a barrel on her mast, and a perky gun in her bows. This was the whaling ship, Sir James Clark Ross, and the little ships were her assistants. They went to an unknown job in more or less unknown waters, and they knew they would meet with many unforeseen experiences in the five or six months they would be away from the civilised world.

Their forebodings were not without foundation. One of their greatest fears was the losing of the little fleet. The ships would be away for days hunting the elusive whales, and ever so often bringing their captures back to the mother ship to be flensed. The weather was often bad, and visibility poor, despite the fact that the sun never set.

They fought the snow and blinding sleet, and worst of all the merciless, pinching ice. They were stoical men, and being Norwegians, they said little; but there is no doubt they felt a great deal. Many times they lost the bearings of the mother ship, having strayed further from her than usual when hard on the heels of some big fish, and many weary hours they scanned the frozen wastes anxiously searching for the faint plume of smoke which would indicate the big ship and safety.

AT one time a small whaler was lost for many days, and the big ship made a cache of provisions and coal on the ice on the chance that the unfortunate whalemen would find it before they ran out of fuel and food, and exhaustion bade them give up the search. Day by day the season was getting later, and it was more and more dangerous for the big ship to stay so far south; every day the water lanes in the ice grew narrower, and the wind howled over the dismal wastes more drearily as the Antarctic winter drew on, pounding together the great bergs and floes, and making them shriek in their ceaseless conflict. The mother ship waited as long as she could, but as the pack ice showed signs of closing the entrance to the Ross Sea (and a change of wind would mean imprisonment in the ice for the winter), the Sir James Clark Ross steamed slowly for the open sea, the little whaler and her crew given up as hopeless.

It was by a stroke of luck they found her, steaming anxiously round a huge berg, navigating the ever-narrowing lane of water between the two limitless floes, and never was a crew more glad to be reunited.

ALL this has become ancient history within the passing of three years, but it served to show what wireless could mean to whalers. The Sir James Clark Ross was later fitted with wireless, and is now able, practically the whole of the time she is in the Ross Sea, to communicate with New Zealand. She can get the news of the world, and hear music from several of the New Zealand and Australian broadcasting stations. Indirectly, any member of her crew can send a message to his friends or his wife and family in Norway to let them know he is safe and well. But most important of all, she can maintain communication with her tiny fleet.

INSPIRED by the success which has attended the Sir James Clark Ross, two other fleets have been fitted out, led by the ships, C. A. Larsen and N. T. Nielsen Alonso. These, as well as the Sir James Clark Ross, has profited by experience, and have been fitted out with the most efficient wireless apparatus that money can buy. The N. T. Nielsen Alonso has a more powerful and more elaborate wireless installation than any merchant ship afloat, and all her small whalers are fitted with wireless sets capable of communication over a distance of 500 miles. There is now not the slightest danger of the smaller ships getting lost, or for a moment getting out of touch of the rest of the fleet, and the mother ship has not the slightest difficulty in communicating direct with wireless stations in Norway using her short-wave transmitter.

THE Nielsen Alonso is using Hobart as her base, and all the way from Larvik, her home port in Norway, she has been testing her wireless apparatus as well as small telephony transmitters intended for small whalers, which, by the way, are five in number, and are called Pol I, Pol II, etc., the word Pol being Norwegian for our word Pole. The telephone transmatters use a wave-length of 300 metres, and so far have proved quite reliable over about 100 miles. They comprise two half-emitter receiving valves, connected together in parallel, a common telephone microphone, a couple of heavy duty dry cell high-tension batteries, and a thick wire loose coupler very clumsily and obviously home-made, but wonderfully efficient for all that.

The pet piece of apparatus in the Nielsen Alonso's wireless "shack" is the short-wave transmitter, or, rather, short-wave adaptor of the long-wave C.W. transmitter. The plate voltage for the large 500 watt valves is obtained from a motor generator set fed from the ship's 110-volt direct current lighting supply. It is changed from direct to alternating current by the motor generator, and then stepped up to 5000 volts, and rectified by two large valves. There is all the other gear which is standard on most ships—spark transmitter and emergency apparatus.

THERE are numerous receivers which are capable of covering all wavelengths from 20 to 25,000 metres, and enable the operators to pick up Press messages from the high-power stations of the world, or to listen to amateur experimenters communing with one another.

One of the most important pieces of apparatus on the ship is her wireless direction finding set. It is accurate within one degree out of the 360 into which the complete circle of the compass card is divided. Down so far south all magnetic compasses, such as are used on ordinary ships, are useless, and simply run round in circles, because the ship operates almost on top of the southern magnetic pole of the earth; but the wireless direction finder never errs, and on it the ship depends entirely for her bearings. It is also used to locate the smaller ships when they get out of sight of the mother ship. They, too, are fitted with the latest direction finding apparatus, and with it they can locate the mother ship's position in a couple of moments. With this apparatus, they are never afraid of getting lost, and many of the old terrors are removed. They keep in constant touch with the mother ship, and follow her wirelessed orders.

THE men who have the worst time on a whaling ship are the flensers. They work anything up to fourteen hours a day, cutting up the whale blubber, and getting themselves covered with oil, filth, and offal from their prey. The wireless operators have a better time, but not so very much better, all things considered. On the little ships, the skipper generally directs operations, trains and fires the whale gun, and operates the miniature wireless set in a cabin which looks too small to get into. In rough weather, he has an exciting time, wedging himself against the steel walls of the wireless "match box"—it is nothing more—and operating the set with one hand, while he stops it falling off the table with the other. Every uneasy jerk of the little ship makes him send dots instead of dashes and dashes instead of dots. After he has been working for a while, the set goes 'dead," and he has to go outside and break the ice off the lead-in insulator. Ice is one of the greatest troubles these operators experience. It clings to the aerial wires and insulators, and makes the aerial leaky and useless, and weighs it down until it is necessary to let the aerial down, and break the ice from the wire. No, you will admit it is not an easy job, but whaling would be a much harder trade if it were not for wireless.

Notes from Auckland

(By Listener.)

BROADCASTING played its part well in the remembrance of Anzac on Wednesday of last week. 1YA rose to the occasion in a manner that showed careful and adequate preparation on the part of the staff who realised that through their efforts the reality and solemnity of the occasion could be borne to thousands who were unable to congregate in or near the Town Hall. The procession of returned men who marched up Queen Street was excellently described by Mr. Culford Bell. The popular Auckland announcer described the scene simply and most fittingly, in the finest effort that has been achieved by the local station for some time. Mr. Bell is certain to receive many messages of congratulation for his effective verbal picture of the parade. The relay of the service from the Town Hall came through splendidly, as did the memorial service from St. Matthew's in the evening.

TUESDAY'S Shakespearean night was an unqualified success. It is strange that the average person has little appreciation of Shakespear's works and pays scant attention to the reading of them, but it is safe to prophesy that, after Tuesday's broadcast there will be an increased attention to the dramas of the world's most famous writer. The spoken word, well spoken has an appeal that no cold print could make. The capable interpretation of characters by Auckland's histrionic talent, and the well chosen instrumental and vocal music provided a real Shakespearean education, a classical treat that suited all tastes Tuesday's broadcast has done something more than providing an evening of entertainment: it played a big part in developing an appreciation that should be much to the benefit of the next Shakespearean repertory company that happens along.

AUCKLANDER'S are displaying a keen interest in the first appearance of the big studio orchestra at 2YA, and the local programme is very likely to be neglected on Tuesday evening, when the talented band of Wellington musicians makes its first appearance before the microphone. There are hopes that ere long the Wellington innovation will be duplicated in the Northern City.

THAT musical and dramatic organisations are eager to assist in the great work of broadcasting was plainly shown at the recent meeting when delegates representative of almost all important societies concerned with public entertainment gave unanimous approval for Mr. Harris's scheme for co-operation in programme efforts. Members of the committee appointed are most enthusiastic and their deliberations next Friday will help radio along considerably. Such committees will create harmonies beyond the power of a transmitting plant to convey effectively in a direct form, yet these harmonies will be reflected in future programmes. The dramatic features now promised regularly will supply a longfelt want, and next week's initial effort is assured of a keen reception. It would be well for listeners to bear in mind that these, like the operatic presentations, require an unrealised amount of preparation and rehearsal on the part of far more than a single individual.

THE local press has given a prominence greater than it deserves to the report that there is a decrease of over 3000 in the number of licenses issued this year, upon the number current just prior to March. It is stated that about 1000 have notified that they do not intend to renew their licenses. These are probably the total of those who will not listen in during 1928, and their perecentage, out of over 11,000, is a very small one—a remarkably small one, when the figures of other countries are concerned. Fluctuations in the personnel are bound to occur, particularly when there are always folk who will be drawn for a brief spell to anything they regard as a novelty. The loss of this thousand is one that the commencement of a year will overcome with ease and rapidity. Of the other 2000 it is safe to assert that they belong to a class who require several reminders before they forward their annual dues. Business people are well aware how large such a class is. By the time these notes are read we may anticipate that there will be a second rush on the registration counter, with the usual flood of excuses about forgetfulness, pressure of business, etc. There is certainly no need for pessimism about the future of broadcasting in the north. It took strong root here, and figures in two months time will undoubtedly prove a rude shock to the "I told you so's" of to-day. Auckland district probably cannot expect to regain the pride of place from which the Wellington district recently ousted it, but it will run that province a good and consistent second. Radio is not a luxury, it is a public utility and is here to stay.

G.E.C. STATIONS

INTERESTING DETAILS

VISIT BY MR. W. A. WATERS.

Mr. W. A. Waters, A.M.I.E.E. (Palmerston North), writes as follows:—I notice in this week's "Record" that Mr. J. A. Huxtable, of Mount Eden, Auckland, desires some information on the General Electric Company's station and their methods, and as the writer spent ten days in Schenectady two years ago, as a privileged guest of the General Electric Company, I am sending the information along that he desires.

Their broadcast station, WGY, as well as 2XAF, 2XAD, etc., are controlled from the main studio on the ground floor of the International General Electric Building, at the entrance to the main works. The huge factory buildings, numbering over 100, are arranged on two sides of a "street" about a mile long. On the top floor of one of the big buildings in the works (about a quarter-mile from the studio) is the original WGY transmitter, the Milliken Towers being erected on the roof of the building, similar to 1YA. This station (as well as their other transmitters) is crystal controlled, and the crystal is kept in a case at constant temperature to ensure its accuracy.

The day I visited WGY transmitter it was radiating 9000 watts on test. About three miles away from the studio (air line), out in the open country, is located their South Schenectady transmitter and research department for radio development. Here is located the super-power station of WGY, which had an aerial power of 50,000 watts, and was used on Saturday nights when I was there. They have since radiated 100 k.w. from this station. In the same building were other transmitters, and tests were in progress broadcasting on various wave lengths simultaneously on the one programme. Sometimes as many as seven wave lengths were broadcast at one time in connection with their research work.

As we all know now, this has been consolidated down to WGY, 380 metres (ordinary WGY, 5000 watts and super-power WGY), and 2XAF on 31 metres and 2XAD on 22 metres.

One interesting point I might mention re 2XAF was that on the day that I visited this (2XAF was situated in a separate building) and saw this transmitter in action, the engineer, who was acting as my guide (Mr. Russel Hoff, who also sometimes announces over WGY), remarked that the valves were running very hot, and the research engineer replied that he was not worrying as it was the first time they had pushed 10 kilowatts into the air on short-wave! What did a valve matter when they had succeeded in radiating such an amount of energy on short-wave telephony!

We all went outside the building (snow was 2 feet deep), and with a theodolite had a peep at the radiation meter halfway up the aerial! It was there and then that I contracted the short-wave infection.

Now, it is a development of U.S.A. for a number of broadcasting stations to "tie in by wire" and broadcast the same programmes. This is called chain broadcasting, and often as many as 50 stations broadcast the one programme of an important event (such as a fight), and half a dozen, up to two dozen, stations on the one programme are quite common. This cuts their running costs and enables the best talent to be used, as listeners pay nothing for listening to U.S.A stations. Hence you are quite likely to hear WGY, WHAP, WMAK, WEAF, 2XAD, etc., from the announcer when you are actually listening to 2XAF in New Zealand, as they are on "chain hook-up," as our American cousins call it.

Often one announcer takes charge and gives all the station calls on the "chain" until the stations individually sign off themselves at the termination of the broadcast. Recently I heard them announce various stations from Buffalo to New York (a distance about equal to Auckland from Wellington), with Rochester, Syracuse, Albany, Schenectady, etc, at the intermediate points. All these stations tap the one line, and as WGY, Schenectady, for instance, does the announcing, two-thirds of the distance along the line, and the orchestral music is fed into the same line, probably 300 miles away, it is obvious that the orchestra is unaware that the announcer such a distance away is on the job.

I trust this information is what Mr. Huxtable was after.

AORANGI'S WIRELESS

A FINE EQUIPMENT

LETTER FROM MR. OWEN.

Writing when "nearing Fiji" Mr. J. H. Owen, president of the Wellington Radio Society, says:—

By permission of Commander R. Crawford, and the kindness of the Chief Wireless Operator, Mr. C. F. G. Taylor, I am able to give you a few details of the wireless plant on board the s.s. "Aorangi." The equipment, as a whole, is quite the most up-to-date installation on the Pacific and consists of:

Transmitting Sets.

(1) 1½ K.W. Radio Corporation Spark Set, on 800, 706, 600 and 450 metres.
(2) 1½ K.W. Radio Corporation Set, continuous wave attachment tuned to 500, 600, 2000 and 2,400 metres.
(3) 1½ K.W. Amalgamated Wireless (Australasia) short wave transmitter set, 21 and 37 metres.
(4) ½ K.W. Hamilton Wilson Emergency set run off 18 volts. Sydney has been worked at 1200 miles on this.
(5 and 6) Two ½ K.W. Lifeboat sets.

A Direction Finding Set is installed which enables the vessel to locate her position in foggy weather.

Receiving Sets.

(1) A two-valve short wave.
(2) A three-valve, tuned for 300 to 100 metres, using 1 radio, 1 detector, and 1 audio valve.
(3) A Radio Corporation Set tuned for 200 to 20,000 metres, using 1 oscillator, 1 detector, and 3 audio valves.
(4) There are two other sets, both short wave, constructed on board—3 valves and 3 coils.

The main aerial is 330 feet 7/18 strand. The short wave aerial is a vertical one, 60 feet. On short wave Sydney and Wellington are worked continuously, the rates being 6d. and 5d. per word. Transmissions have been received and sent to Burnham, Somerset, U.K., on short wave, rate 11d. per word. This is frequently impossible at sea owing to induction from ship's fans, motors, and general electric equipment. Loudspeakers, cone type, four in saloon, four second class, and one third class, enable passengers to hear the excellent ship's orchestra from any part of the ship. Concerts are received from New Zealand, Australian, and American stations when circumstances permit. Finally a Radio Communication Company's Automatic Distress Call device is installed which rings a bell when a distress call is sent out, and so alarms the operators (of whom there are four in all). It works in conjunction with a three-valve set. The total number of valves in use for all purposes aggregate 32.

AUSTRALIAN PROGRAMMES

2FC, SYDNEY, 442 METRES

WEDNESDAY, MAY 2.

8 p.m.: "Big Ben"; Sydney Calland, baritone. 8.8: Lionel Lawson, violinist. 8.16: Keith Desmond, excerpts from the third act from "The Christian" (Hall Caine). 8.24: Sadie Grainger Broad, soprano. 8.32: Joe Cahill, entertainer. 8.40: Lionel Lawson, violinist. 8.48: Keith Desmond, entertainer, (a) "Gimme the Ground" (Dryblower). (b) "The Little Bottom Drawer" (James Hunter). 8.56: Sydney Calland, baritone. 9.4: Late weather forecast. 9.5: Elliott Napier will continue his series of talks on "The Great Barrier Reef." 9.20: Sadie Grainger Broad, soprano. 9.28: Joe Cahill, entertainer. 9.36: H. W. Varna and company will produce the play, "Captain Applejack's Adventure" (by arrangement with J. C. Williamson, Ltd.). The play made famous in Australia by Laurence Grossmith. 10: "Big Ben"; incidental music to part two. 10.2: Part 2, "Captain Applejack's Adventure. Scene: The dream on the pirate ship. 10.18: Incidental music to part three. 10.20: Part three, "Captain Applejack's Adventure. Scene: Ambrose's home again. 10.38: Late weather forecast. 10.39: Len Maurice, popular baritone. 10.45: Dance session arranged by Len Maurice. 10.58: To-morrow's programme and late news. 11: "Big Ben"; National Anthem; close down.

THURSDAY, MAY 3.

8.5 p.m.: From the Masonic Club, Castlereagh Street, Sydney, a farewell concert (arranged by the Masonic Club), to Raymond Ellis, prior to his return to England. The 2FC Studio Orchestra, conducted by Horace Keats. 8.15: Raymond Ellis, baritone. 8.25: Margaret James, soprano. 8.34: Ellis Price. 8.40: Male Voice Choir (conductor, William Bourne) . 8.50: The 2FC Studio Orchestra. 9.6: Peggy Dunbar, contralto. 9.15: From the studio, during the interval at the Masonic Club—Edgar Warwick and Eileen Dawn, radio sketch. 9.26: From the Masonic Club, continuation of the farewell concert to Raymond Ellis; the 2FC Studio Orchestra. 9.37: Margaret James, soprano. 9.45: Ellis Price, entertainer. 9.52: Male Voice Choir (conductor, William Bourne). 10: Raymond Ellis and Margaret James, duet. 10.6: The 2FC Studio Orchestra. 10.15: From the Ambassadors, the Ambassadors' Dance Orchestra (conductor, Al. Hammet). 10.30: From the studio, late weather forecast. 10.31: The Ambassadors' Dance Orchestra (conductor, Al. Hammet). 10.42: Studio music. 10.47: The Ambassadors' Dance Orchestra (conducted by Al. Hammet). 10.57: From the studio, to-morrow's programe and late news. 11: "Big Ben"; the Ambassadors' Dance Orchestra, in popular numbers until 11.45 p.m. 11.45: National Anthem; close down.

FRIDAY, MAY 4.

8 p.m.: "Big Ben"; from Her Majesty's Theatre, Sydney (by permission of J. C. Williamson, Ltd.), the first act of a new musical comedy. 9.10: From the studio, William Dallison, tenor . 9.18: W. F. Kay will continue his series of theatrical talks, dealing this evening with Melate George Coppin. 9.33: Oliver King, bass. 9.42: Lindley Evans, pianoforte solos. 9.50: The Ambassadors' Dance Orchestra (conductor, Al. Hammet). 10: "Big Ben"; William Dallison, tenor. 10.8: Lindley Evans, pianoforte solos. 10.16: The Ambassadors' Dance Orchestra (conductor, Al. Hammet). 10.25: Oliver King, basso. 10.32: From the Ambassadors, the Ambassadors' Dance Orchestra. 10.40: From the studio, late weather forecast; studio music. 10.57: From the studio, to-morrow's programme and late news. 11: "Big Ben"; the Ambassadors' Dance Orchestra. 11.45: National Anthem; close down.

SATURDAY, MAY 5.

8 p.m.: "Big Ben"; from the Prince Edward Theatre, Sydney, introductory music by the Prince Edward Concert Orchestra, conducted by Albert Cazabon, Eddie Horton at the orchestral organ; Albert Cazabon and Concert Orchestra. 9. Big Ben"; from the studio late weather forecast. 9.1: Reginald Hayward, baritone. 9.9: Madame Emily Marks, soprano. 9.18: Charles Lawrence, entertainer. 9.26: From the Prince Edward Theatre, Sydney, Albert Cazabon and Concert Orchestra. 9.40: From the studio, Madame Emily Marks, soprano. 9.48: Reginald Hayward, baritone. 9.56. Dorothy Dewar, soubrette. 10.4: Charles Lawrence, entertainer. 10.14: From the Ambassadors, the Ambassadors' Dance Orchestra (conductor, Al. Hammet). 10.34: From the studio, late weather forecast. 10.35: Dorothy Dewar, soubrette. 10.42: The Ambassadors' Dance Orchestra (conductor, Al. Hammet). 10.57: From the studio, to-morrow's programme and late news. 11: "Big Ben"; the Ambassadors' Dance Orchestra, in popular numbers until 11.45 p.m. 11.45: National Anthem; close down.

PATENT POOLING

Representatives of nearly two hundred radio manufacturers in the United States, members of the Radio Manufacturers' Association, have voted in favour of a workable patent pooling plan for the common utilisation of radio and electrical devices controlled by its members. "The patent interchange plans are by far the most important in the radio industry at the present time," said Mr. Geddes, executive vice-president of the Association. "The adoption of such measures will not force all the members of the Radio Manufacturers' Association to deliver their holdings for free use of the other members; rather this will be done only by those who are in favour of such an arrangement, for which they will be adequately compensated by those who make use of the patents. The plan will call for the utilisation of patents by all members who so desire them."

SO great is the carrying power of the short waves that an efficient two-valve shortwave set is capable of picking up signals from most countries of the world in, say, a twelve-hour constant watch.

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