2YA Gives Impressive Service on Flying Night---A Radio Pageant---Special Message from Edison

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THE TASMAN FLIGHT

2YA'S Fine Service

LIEUT. J. R. MONCRIEFF

CAPT. GEORGE HOOD

AT the time of going to Press, almost a full week after the inception of the first attempt at a trans-Tasman flight from Australia to New Zealand, no definite news is available as to the whereabouts of the two gallant aviators, Lieut. J. R. Moncrieff and Capt George Hood. In those circumstances little reasonable hope can be entertained as to their ultimate safety. Should they yet be found, there will, of course, be general rejoicing at their escape from what was unquestionably a perilous adventure.

Into the general aspects of the flight, there is but little occasion for ourselves, as a specialised radio journal, to enter. It is material, however, for us to place on record the special relationship of radio broadcasting to the flight, and the service, station 2YA in particular was able to render the New Zealand public by keeping them informed of the course of events on the night of Tuesday, January 10/11. The service rendered on that occasion was, we think, memorable. Had the evening been crowned by the successful arrival of the aviators, it would have been joyously memorable; but even with the drawback of an absence of that confirmation, the occasion marked an outstanding demonstration of the utility of public broadcasting, and the service it is capable of rendering in bringing the public in touch with events of moment as they transpire.

It is, of course, impossible to compute the number of people who kept in touch with the evening's news by means of the broadcast by 2YA and the re-broadcast by 3YA. Unquestionably an intense public interest was evoked by the event, and the probability is that the great majority of listeners throughout the country kept in touch up till the time of 2YA closing down at 2.30 in the morning, when hope for arrival at that time was abandoned.

THE SCENE AT TRENTHAM.

The scene at Trentham during the course of that evening will linger long in the memories of those who were able to attend—and it is estimated that there were on the ground, between the hours of 5 and 8 p.m., between 10,000 and 12,000 people. But not only will the scene remain with those who saw it, but a mental picture will remain with listeners, thanks to the generally able and trenchant description of the scene and incidents given by 2YA's announcer. Although individual praise to the units of an organisation is in general not desirable, we think listeners will agree that commendation is due to Mr. Ball for the caution and restraint, and at the same time enthusiasm, with which he handled the evening's work. In retrospect, the occasion might easily have been marred by either an undue laudation of assumed success, from which the rebound of disappointment would have been most marked, or marred by the adoption of the wrong tone. It is due to Mr. Ball to say that no such errors were made. Close contact was maintained with the officials of the Post and Telegraph Department and of the Defence Department; and every care taken to issue as official only that news derived from official sources. In the circumstances of the evening, the sifting of fact from rumour was more difficult than might be imagined, although the public, in the analysis of reports which has been proceeding for the past week, will appreciate some of the difficulties faced on that evening.

FINE SERVICE PLANNED.

From the inception of the news session at 7 p.m., 2YA listeners were informed of the Company's plans for keeping them in touch with the evening's developments. Speaking from the Trentham Park stand, where every facility had been granted for the broadcast by the Trustees of the Tasman Flight Fund in recognition of the interest of the public in the occasion, Mr. Ball outlined the scene presented by the historic racecourse embosomed in the encircling bush clad hills and lying under the brilliance of a perfect summer sun. He called to his side Uncle Sandy, and indulged in a little interesting dialogue with that gentleman, whose aid he sought momentarily in placing before the numerous children in homes throughout the land a mental picture of the scene presented. At the time a note of expectant optimism was dominant, and a little facetious badinage as to the absence of refreshments, liquid and otherwise, which would have been welcome under the then brilliant sun, was indulged in. The aeroplane was expected to reach Trentham, according to schedule, between 7 and 8 o'clock p.m., and with advice of the radio note having been heard at 5.22, all were on the tie-toe of expectancy of the successful culmination.

After the initial announcements at Trentham, the studio proceeded with the ordinary news session, and closed down in the ordinary way till 8 o'clock. As a preliminary to the evening's programme, it was announced that a relay had been effected with Trentham, and that news would be given as developments occurred. Throughout the programme very little of moment occurred to report; and as 10 o'clock approached anxiety began to be felt by the crowd on the course and also by listeners. With the announcement made on the conclusion of the programme that 2YA would remain on the air, there is no doubt listeners experienced relief at the service being given. From this time onward, anxiety grew, and the service from Trentham occupied more and more of the time, although, as it was impossible to give a continual stream of news or comment, relief was necessary by resort to the broadcast of gramophone records from the studio. The relay line, of course, was kept in contact, and frequently the announcer's voice cut across the studio music till that could be switched over.

—(Continued on p. 16.)

THE AMERICAN AEROPLANE IN WHICH THE FLIGHT WAS ATTEMPTED.

With Dealer and Customer

Getting Together To Solve Radio Problems

PARTICULARLY with regard to parts for valve sets, radio retailers should beware of cheapness when purchasing stocks. Oversea "bagmen" pass through New Zealand from time to time showing samples of low-priced radio goods. These should be very critically inspected, and, when possible, tested before purchasing. Selling cheap and nasty radio goods rebounds very quickly on the retailer, and he will soon find trade diverted to the "other man," who refuses to stock "dud" stuff, and tells his customers so.

KEEP A VALVE TESTER.

New Zealand radio dealers who regard themselves as up-to-date should have a valve-testing device, so that every buyer of a valve can see it tested before he pays for it. Many of the larger shops use valve testers, and it saves much dissatisfaction on the part of their customers. These valve testers may now be purchased for about £3 and upwards. One big New Zealand importing company tests every valve in a shipment as soon as the cases are delivered to their warehouse "Dud" valves are then weeded out, so that there is little risk of their being forwarded to any of the distributing agents. Naturally, in transit to the distributors there is a chance that valves will become damaged, so it is incumbent on the retailers to test them again before handing them over the counter to a customer. Besides, casualties are not infrequent in retailers' shops, where salesmen are just as liable as any other mortals to drop a valve.

THIS IS ENTERPRISE.

The trans-Tasman air flight afforded the radio dealers a fine opportunity for exercising whatever enterprise they possessed. They were splendidly served by 2YA, Wellington, which station broadcast all the latest information on the flight on the Tuesday the brave fellows sped across the Tasman. The Wellington dealers in many cases placed loudspeakers where they could be heard by the public outside. One Wellington company kept a loudspeaker in operation right through the night until 2.30 o'clock on the Wednesday morning, when 2YA, Wellington, signed off. The doorway of their shop was surrounded by an eager throng until the early hours of the morning. The proprietors also painted on their shop window in large, bold letters all the latest official news regarding the Tasman flight each day, and so that radio shop secured a wonderful advertisement. This is enterprise.

A YANKEE METHOD.

Instead of trying to sell a customer everything which he possesses in his shop, a certain Yankee radio trader says his way is to ascertain just what the conditions and the needs are and then sell the customer as little as possible to render him absolute satisfaction, telling him at the time how best to take care of it so that it will last him a maximum length of time. When he sells two battery clips, for instance, he throws in an envelope of steel wool and instructions on how to keep them free from corrosion It means a longer time before that customer buys his second set of battery clips, to be sure, but he has found that the results pay in the end.

TRY REVERSING THE PLUG.

A point which radio dealers should bear in mind is that when a receiving set is operated with a socket power unit, broad tuning may be caused by the fact that the power line will act as an aerial and ground system bringing the signal in through the power unit which will add to or subtract from the signal received in the normal way through the regular aerial. The effect of this is apparently to broaden the tuning that sometimes causes interference from local stations. Under these circumstances the broad tuning is not in the set but is due to the power line pick-up This difficulty may be eliminated by reversing the plug in the socket.

NEW A.C. VALVES.

The new A.C. valves, which enable the house-lighting current to be used instead of an A battery, have arrived in New Zealand, and good stocks are on the shelves. The circuits of existing radio sets must be slightly altered before the new valves can be used in them.

Adapting battery-operated sets to use the new A.C. valves presents a new sales opportunity to the industry. Several manufacturers in America have devised and are marketing apparatus to accomplish this with a minimum of re-wiring. In most instances, it is a practical undertaking. In some cases it may be expected to result unsatisfactorily. With the constants of the circuit, the valves, and the power supply individual in almost every installation, each re-wiring jab may be subjected to experimentation But, generally speaking, the plan opens up new fields of profit for the dealer through the sale of the necessary parts and accessories, as well as the service charge for doing the job.

LACK OF VARIETY.

Observers of window display effectiveness state that a series of well planned displays can lead the habitual window shopper to look at a display every time he or she passes. If, on the other hand, there is lack of variety in the character of the window display, the impression is soon created that that particular window is always the same and warrants no attention.

NEW AUDIO TRANSFORMER.

An American radio manufacturing company is now making a revolutionary new audio-transformer built on a radically new principle, being entirely without laminations It is said that the new transformer produces an amazing improvement in both volume and quality on distant stations—and better quality on locals. This new transformer has a solid core, cast from a new high-resistance copper-nickel-iron alloy called "A" metal. This core, cast in two pieces and fitted together, forms both core and shield. It completely encloses the winding, doing away with all need for further electrical or magnetic shielding. It is claimed that the "Acast" has the same efficiency in either first or second stages due to the fact that the D.C flux set up by the plate current produces but a neglible effect upon the properties of the magnetic circuit used in this transformer

CANNOT RENDER SERVICE.

Some New Zealand wholesale radio importers have made the egregious blunder of granting agencies to shopkeepers who have not the remotest idea of radio, and thus are quite unable to render service. An American observer says: "I have in mind just now a case where a harness and carriage merchant plunged into the radio business. He secured the agency for a very popular make of machine and at first sold a great number of them, but when the service calls came in he was lost. He could not check a circuit. He could not repair a machine. Some sixteen or eighteen of his patrons had to go elsewhere with the machines that he had sold, but on which he could not give service. Now this kind of treatment is a money loser for the manufacturer of that set because this same dealer is having hard work to-day selling his sets. The machine is not at fault—it is one of the best makes but the people of his district have turned against it. The radio dealers who know how to service machines are slow to take up an agency on machines that have been butchered by grocerymen, hardwaremen, candy, and cigar merchants."

CORRECT C BATTERY.

Go into the shops of many New Zealand radio dealers and ask what amount of C battery is required by one of the popular makes of valves, and the dealer will look at you nonplussed. The time has arrived when every set employing audio frequency requires a grid-biasing battery.

LSC—Loudspeaker coupling of either choke coil and by-pass condenser or output transformer of 1 to 1, or step-down ratio, recommended wherever plate current (D.C.) exceeds 10 milliamperes. The device known as a "sift-ron" serves the purpose adequately.

TO HOLD THE ATTENTION.

Winning attention is largely a matter of utilising the influence of motion, colour, and variety. Having once caught the passer's eye, attention must be held by what is in the window. That formula seems childishly simple, yet many an attention-attracting display which has aroused curiosity fails immediately after accomplishing that important step because there is nothing in it to warrant further inspection. The successful window concentrates the attention, once won by use of motion or colour, on a single central object in the window. Do not expect a passerby to conduct a treasure hunt for the particular thing which he or she wants. This is a fundamental of successful windows—concentration of attention on a single leading article, a piece of merchandise having wide selling appeal.

CORRECT VOLTMETER USAGE.

Service men employed by radio dealers should remember, in testing any battery with a voltmeter, the battery should be connected to the receiver on which it is to be used and tested, with the receiver turned on to give an accurate test of the actual voltage being delivered to the set. Occasionally batteries will test O.K. when not connected, because the high-grade voltmeters have a very low current drain. When the battery is actually connected to the set, with the set turned on, it may prove defective or of insufficient power. This also applies to power units. They should be tested when connected to the set with the set turned on, and such a reading with an accurate high-resistance voltmeter will shower the power being delivered.

DEMONSTRATION ROOMS.

The larger radio concerns in New Zealand should follow the example of some of the big gramophone companies, and have proper sound-proof demonstration rooms. In constructing a "demonstration room" proportion and the correct use of sound-absorbing materials are the two main factors to consider. The room should not be unusually high or long with respect to its width. Most small rooms are entirely satisfactory. It is only with rooms longer than 25 feet that proportion must be considered. The ideal demonstration room should be sound-insulated, and, to a certain extent, but not wholly, reverberation-proof. Too much deadening kills the overtones and ringing qualities of good music. Air spaces and sound absorbing material between the outer and inner partitions will serve to isolate the room from foreign noise. In America most demonstration rooms have the upper part of at least three of the walls made of glass Fortunately there still remains ample surface which can be treated for reverberation, and which will go a long way toward improving tonal reception conditions. The ceiling, for example, may be completely covered with a sound-absorbing material. There are a number of different styles of such felt-like compositions now on the market. In many cases these are finished like plaster and may be tinted. This same material should also be used against the panels below the glass on the side walls, if sound-absorbing fabric is placed on the surface of the inside wall of the room it will do double duty by reducing the intensity of sound-wave reflections, and preventing the reception of sounds from the outside Do not forget the floor. By all means cover it with a soft rug or a lined carpet.

OPERATE YOUR OWN "MIKE."

A new device is out in America which is of special interest to radio dealers. The manufacturers announce the following purposes of the device:—

1. Allows you to cut in at will on your loudspeaker and make announcements personally through it.
2. Allows you to hook up phonograph with loudspeaker.
3. Allows regular use of radio loudspeaker. (Any of these three steps with the simple throw of a switch.)

The purpose of this set is to enable the radio and phonograph dealers to readily make announcements through the amplifier and speaker of radio or phonograph. It consists of a high-power differential type microphone and a control box having a cord, with an adapter for slipping over the prongs of the detector tube, for attaching to the radio set. Three pin jacks are provided in the side of the control box to receive the microphone cord Two additional pin jacks are also provided to receive the terminals of a magnetic pick-up for playing phonograph records, where desired,. The control box is also provided with a volume control, and a three-position key type switch for turning off the radio programme while using either the microphone or phonograph pick-up with the radio set. As this set can be quickly attached to the radio, and the radio or either type of transmitter can be instantly switched on or off at will, it makes an ideal arrangement for the dealer who wishes to take advantage of the direct advertising possibilities of such a combination.

The device should be useful to dealers on occasions such as the trans-Tasman flight, when they could make near announcements to the public.

POOR JUDGMENT.

One would scarcely credit the lack of commonsense some New Zealand radio traders exhibit. One man who has a line of low-priced loudspeakers he wished to boom, persists in having one of these loudspeakers in operation when broadcasting is in progress. This loudspeaker is a tolerably good performer—at the price—and would be hard to eclipse at that price, but as a public demonstrator at a shop-door it is a decidedly poor advertisement for broadcasting. This trader has much better loudspeakers in stock, but he wants to "push" the low-priced line. The latter is all right in its way for those who cannot afford a better loudspeaker, but the general public which knows little or nothing about radio is apt to judge it by shop-door demonstrations. Traders, for the sake of the good name of radio, should never operate any but their best loudspeakers at their shop doors.

MIND YOUR WINDOW.

One prominent American radio manufacturer's service manager stated recently that only 20 per cent. of the hundreds of dealer stores he had observed use their windows in a way which helps their sales, while 80 per cent. discourage one element or another of the public by fundamental errors in appearance. There is no doubt that many a radio store is overlooking the opportunity which intelligent window display offers The habitual appearance of your window bespeaks the character of your merchandise and establishes a definite opinion of your store in the minds of the people of your community, whether they are prospects for radio or not. Effective window displays often create a sales impression on an individual which may not be capitalised for a year or more Yet many a radio store tells its prospective customers that it is an electrical junk shop, an engineering establishment, or a music store catering only to the wealthy when, in reality, it is attempting to sell radio to the average citizen.

VOLUME CONTROL

METHODS, GOOD AND BAD.

Many of the sets in use to-day do not incorporate any special form of volume control. Excellent and easily-fitted devices are now obtainable with which the degree of sound from the loudspeaker can be regulated to a nicety, but where these are not employed rough-and-ready methods are apt to prevail. Some of these are sound, but some are inherently bad, and inevitably give rise to distortion.

Cause of Distortion.

Decreasing B battery tension, for instance, is still quite a common method of reducing signals which are too loud. And, generally, as the volume is lowered by this method, distortion is introduced, though mercifully this is partly mitigated by the decrease in power! In general reduction of B battery tension, may be classed as a very unsatisfactory form of volume control, because it throws the working point of the valve off the proper amplifying slope.

De-tuning the aerial circuit is another favourite method of controlling strength, with many listeners But unlike the B battery method, there is nothing inherently detrimental to qualify in this. When the aerial circuit is out of tune, the input to the first valve is correspondingly reduced, but no noticeable distortion is introduced on this account, so such de-tuning is preferable to B battery adjustments.

How do filament adjustments show up when regarded as volume controllers? The answer to this chiefly depends upon which filament is meant, for whilst incorrect audio frequency filament-adjustments are sure to introduce distortion, a radio frequency filament can often be dulled to reduce volume without the slightest trace of distortion becoming apparent. The reason for this is partly a matter of degree of grid-saving—the grid voltages of the audio frequency valves are normally swinging near the danger point for distortion, but the smaller voltage input which the radio frequency valves bear will allow very great reduction in filament current without affecting purity of amplification.

Another Method.

Occasionally, but not often, one sees grid bias used as a volume control. The method is bad, for the same reason that B battery reduction and the dimming of audio amplifier's filament is bad—i.e., it throws the value off its correct position for amplification, which is on the straight steep part of its slope.

Another method of volume control, which is quite efficient, and has no noticeable effect on the purity of reproduction, is to employ a high-resistance potentiometer across the secondary one or other of the audio frequency transformers, if this type of audio frequency coupling is employed

The potentiometer must be capable of smooth control and should have a value of about 500,000 ohms, and the slider is taken to the grid of the valve. Grid bias is connected to one end of the transformer secondary as usual.

How to Design and Erect a Successful Aerial

The Theory of Electro-Magnetic Induction Clearly Explained

By "M.I.R.E."

In this article, the Theory of Electro-Magnetic Induction, or "Lines of Force," as applied to the receiving system, is set forth by M. I. R. E. in an exceptionally able and lucid manner, enabling the most uninitiated experimenters to grasp its principles without effort. Readers will do well to thoroughly digest the theoretical side of the subject, which is intended to throw light upon the practical demonstrations which are to follow. Stress is given to the little appreciated fact that a large aerial is not a vital necessity to multi-valve set owners.

Undoubtedly one of the most vexed subjects amongst those interested in radio is the question of the erection of an aerial, and how to design it, in such a way that maximum efficiency will be obtained.

First of all, let it be stated, that if an aerial is to be erected in a flat, open paddock, where the land is of the average, or better, farming variety, then providing certain well-known principles are followed, the electrical receptivity or efficiency may be predicted to within narrow limits of accuracy. The conditions alter immediately, however, just as soon as the ideal or simple conditions give place to more complicated circumstances, such as the presence of buildings, trees, etc.

It should be distinctly understood that the following remarks are strictly applicable to the reception of signals within the broadcast wave-band, which extends from 220 metres to 580 metres, and particularly with respect to wavelengths between 300 and 450 metres, these being the most frequently used in New Zealand.

POINTS FOR CONSIDERATION.

The main consideration in a flat, open space is to have two wooden masts as high as possible. A "T" type aerial should be used, i.e., with the downleads from the centre, coming straight down to the receiver, which should be installed in a building having as little metal as possible in its construction. From the receiver to the earth connection should be as short as possible. The earth connection preferred is one which makes contact to a water pipe forming part of a town water supply. Stripped of technicalities, this represents an ideal arrangement. Unfortunately, it can seldom be put into practice.

In order to enlighten the inquirer as to why the above is ideal, it is first necessary to consider briefly the theory of operation of an aerial in absorbing energy in the form of ether waves. In order to avoid complicating the explanation, a brief statement of what happens will be made, without detailing why it happens.

"LINES OF FORCE."

If a magnet is laid on a table and a piece of paper is laid over it, and then small pieces of iron (iron filings, for instance) are sprinkled on the paper, the filings will arrange themselves in a regular manner on the paper in such a way as to represent lines drawn from one "pole" to the other. If the magnet is of the same shape as a horseshoe, for instance, the "poles" are represented by the two ends, one being known as the "south" and the other the "north." The lines taken up and indicated by the orderly lines of iron filings, reach in semi-circles from one pole to the other across the gap, the semi-circles reaching out and becoming greater in length as well as radius, as they lie further away from the magnet. These lines are known as "magnetic lines of force," and are always found in close proximity to a magnet.

Now, if a wire (for instance, a piece of copper wire, such as is commonly used in electrical circuits) is caused to move through the magnetic lines of force in such a way as to "cut" them, then an electric current will be set up in that wire. This is the basis of the electric generator.

This action is exactly analagous to what takes place with a wireless aerial. At the transmitter, powerful currents are set up in the aerial, thus creating electric lines of force which extend round about the transmitting aerial and take up positions extending between aerial and earth. By virtue of the oscillating currents taking place in the aerial, the lines of force build up and collapse with tremendous rapidity, in step with the oscillations.

At a wavelength of 360 metres, which is practically the wavelength of 3YA, the frequency at which this action takes place is exactly one million times per second. The result of this disturbance in the electrical (or, perhaps, magnetic) medium, which has been called the "aether," created by this rapid creation and dissipation of the lines of force, is to send out waves which radiate outwards in all directions, with the aerial as a centre. The waves reaching the receiving aerial have a converse effect, because in "cutting" across the aerial wire they represent lines of force and induce electrical currents to flow in the aerial system. To all intents and purposes, therefore, the currents set up in the receiving aerial system represents electrical energy transferred from the transmitter through the aether.

PRINCIPLES APPLIED.

To apply these principles to the case of the receiving system cited at the beginning of this discussion it is only necessary to point out that the more lines cut (ignoring the time factor) or the longer the length of the lines cut means more energy induced, or, in other words, stronger signals. As the wave is advancing vertically, the higher the aerial the more this effect is taken advantage of. Long length of flat top portion of aerial is inconsequent so far as signal strength is concerned when considering the pick-up of the aerial. The length of the aerial must be kept within certain limits purely for purposes of ensuring that, in combination with the tuning arrangements of the receiver, it will function efficiently within the broadcast wave-band so far as tuning is concerned. There is a great deal of misunderstanding on this point, but, broadly speaking, there are the correct relationships between height and length of aerial systems.

ELECTRICAL AND GEOMETRICAL HEIGHT.

The reason it was recommended that wooden masts be used is purely a theoretical one, and that is that the geometrical height of the aerial is not the electrical height. In the case of the ideal T-shaped aerial the electrical height would approximate two-thirds of the geometrical height. If metal masts are used and these are connected to the earth, then the earth is brought so much nearer the aerial at each end, and although the geometrical height remains the same, the electrical height is reduced somewhat.

A building with a metal roof erected under an aerial materially reduces the electrical height, just as the funnels of a steamer do to a ship's aerial system.

DETERMINING FACTORS OF CURRENT FLOW.

The question of a good earth connection introduces a subject which is common to the question of size of wire used in an aerial, and also the question of the use of one or more wires in the overhead system. Suppose water were being forced through a pipe. To get double the water through the pipe in a given time, one of two things would have to be done, either the pressure would have to be doubled or the size of pipe be made twice as large. Therefore, in determining how much water is passed through the pipe there are two controlling factors, pressure and pipe resistance.

In the aerial system (or any electrical system for that matter) there are the same factors determining current flow. With a given height of aerial so many lines of force are cut and this represents a certain pressure available to induce currents to flow in the aerial system. The amount set up is dependent on the resistance offered to its passage in the circuit.

Too small conductors or a bad connection to earth represents resistance which will limit aerial currents, and therefore signal strength. Several conductors in parallel in the overhead system and downleads are therefore theoretically an advantage.

The theoretically ideal aerial described is of the T type. Undoubtedly the most popular type is the L type, and that, one that has the downleads coming down at one end, from a purely practical point of view, this is quite all right, but the reason the T aerial is put forward as superior is because it is absolutely undirectional in its receptivity.

That is it receives equally well north, south, east, or west, whereas the L type has directive effects in the direction in which it is pointing and towards the end from which the downleads are brought down. Thus an L aerial pointing north and south and with downleads at the southern end will receive better from a southerly direction than any other point of the compass. If reception is to be carried out from a definite direction then it is obviously an advantage to erect an aerial in this fashion, but it is a questionable arrangement where reception is being carried out from all directions.

In a continued discussion on this subject it is proposed to show that the main considerations in this discussion have been more of a theoretical nature in order to demonstrate principles and in order to throw more light on the discussion of practical points to follow.

LARGE AERIAL NOT A NECESSITY

In conclusion and in addition to the last paragraph it is necessary to point out that a large aerial is not a vital necessity where multi-valve receivers are in use. One of the big things scaring prospective purchasers from investing in radio is the idea that masts and wire must be plastered all round the house in order to instal radio. This is not so. A very modest affair will give all the results desired even with distant reception and the use of an indoor aerial or loop will give complete satisfaction to most people who object to visible outside wires.

So far as obtaining perfect results from an aerial are concerned, it is an obvious but very little appreciated point that if another valve is added to a set, the amplification represented by that valve will more than offset minor, or even major inefficiencies in the aerial system.

Hence the individual who makes his property look like a full-rigged battleship and uses a 4-valve set might just as well use a 5-valve set and be less ambitious with his aerial. Very large aerials are not therefore a necessity, though they may be desirable.

HELPFUL HINTS

IMPROVE YOUR RECEPTION

CRYSTALS IN REFLEX CIRCUITS.

For extreme sensitivity there is nothing to beat a galena crystal when used in conjunction with a fine copper catwhisker. Crystals marketed under various names, ending in "ite," are, in the majority of cases, galena.

DULL EMITTERS BURN OUT.

Don't burn dull emitter valves too bright in order to try to get better signals. The filaments may not burn out, but the dull-emitting properties of the valves will be impaired.

BEST POSITION FOR INDOOR AERIAL.

To obtain the best results, an indoor aerial should be as high as possible. The highest indoor position in any house is immediately beneath the roof tiling. An aerial consisting of six or eight parallel wires, attached to insulators, screwed to the under-side of the roof framing, is the best possible arrangement. In actual practice, such an aerial gives excellent results, especially if used in conjunction with a fairly sensitive valve receiving set.

REFLEX RECEIVERS.

If properly wired, a reflex receiver will perform remarkably well. It must be remembered the valves in these receivers are doing double duty, as both radio-frequency amplifier and audio-frequency amplifier at the same time, and therefore cannot perform at maximum efficiency. But reflex does give good results when used properly.

HAND-CAPACITY EFFECTS.

A metal shield will reduce hand capacity effect to a minimum in a set. It has been found that in a well-constructed, carefully designed set, capacity effects are absent.

USE OF BY-PASS CONDENSER.

It is a good plan to use such a fixed condenser, although the set will operate without. It usually improves the control of the regeneration.

RANGE OF CRYSTAL RECEIVER.

The consistent range of a crystal receiver is from 10 to 25 miles. However, under freak conditions, receivers of this type have been known to pick up signals of stations some hundred miles away. Much depends upon the quality, length, and height of the aerial.

LOOSE VALVE CONTACT.

When the valve does not fit properly in its socket, a toothpick or a match whittled down to form a wedge can be placed between the socket and the valve to hold it tightly in place.

CRYSTAL SENSITIVITY.

A sensitive spot on a crystal soon loses its sensitiveness; when one spot is exhausted, find another, until the crystal is finished. Keep your fingers off the crystal.

CONCERNING CONDENSERS.

The fixed condenser in a receiving set should have mica dielectrics for best results. Do not use condensers in which the dielectric is paraffin paper. For the best operation of a set it is important to make sure the condenser is of the proper capacity for the part of the circuit for which it is intended.

CRYSTAL CUPS.

When mounting a crystal in a cup of the type in which the top or cap is screwed down to hold the crystal in place, you will sometimes find, especially if you are using a small fragment of crystal, that the latter cannot be fixed tightly even when the cap is screwed home. To get over this difficulty, take a piece of tinfoil and crumple it up in a small pad, place this in the cup first, to raise the crystal up a little, and then screw down the cap. Add more foil if necessary. If the hole in the cap is too large, roll some foil into a little stem, and bend this round into a ring, and lay on the top of the crystal. Or a brass washer having a smaller hole than that in the crystal cap may be introduced upon the top of the crystal.

EARTH CONNECTION.

A water-pipe is not the only method of making a good earth connection. A large metal object buried will also answer the purpose of a ground. In some cases, where it is impossible to obtain a good ground connection, a counterpoise is used.

HOME-MADE DRY "B" BATTERIES.

These may be constructed by breaking ordinary flashlight batteries in separate cells, and connecting them in series. These batteries usually have from two to three cells, and some extremely larger ones have four. Each cell will have approximately a volt and a half. It will, therefore, require 15 of these cells to make a 22½ volt "B" battery.

PLACE SET NEAR THE GROUND.

It is not commonly known that it is preferable to place the set near the earth, rather than near the aerial. For example, if you have the choice of an attic or a ground floor room for your wireless room, it is better to choose the latter. The lead-in may be fairly long, but the earth lead should be as short as possible.

GRID CURRENT

A NEW THEORY.

Ever since the advent of the first transformer coupled valve audio amplifier we have always guarded against the presence of grid current in the grid-filament circuit of the valves. We have been informed that grid current causes amplitude distortion, a change in the signal wave form, a reduction in the valve amplification, in general everything detrimental to good audio amplification. In fact, all fans have been warned against permitting grid current in any amplifiers.

Now we hear of a new system of audio amplification in which grid current is permissible; in which the amount of grid current usually encountered with very detrimental results in a transformer coupled audio system, has no effect upon the wave form or amplification. This new theory of amplification is propounded by E. E. Hiler, and pertains to tuned double impedance amplification.

DISTORTION ELIMINATED.

The presence of grid current is usually considered as an indication of valve overloading, and is made audible in the loudspeaker by a rasping or blasting sound on certain frequencies. With this new system, it seems as if this form of annoyance is removed. The reason for permitting a certain amount of grid current is founded upon the fact that the momentary change in the grid filament circuit when grid current is present is not reflected back upon the primary circuit of the coupling unit in this system of amplification. Neither is the amplifying operating characteristic of the grid choke altered until the grid filament resistance drops to a very low value.

IMPROVISED PICKUP

ELECTRIFIED GRAMOPHONE.

One of the most interesting developments in gramophone design in the last year has been the introduction of the so-called "electric pick-up" by which the music from the gramophone is reproduced on a loudspeaker operated by a valve amplifier, instead of on the ordinary gramophone reproducer. The new system generally gives a much improved quality of reproduction, and it also makes possible the production of a far greater volume of sound than can be obtained from the ordinary gramophone. This is a distinct advantage when the instrument is being used for dancing. Although the commercially made electric pick-up devices are fairly expensive, a simple experimental pick-up, capable of giving excellent results, can easily be made from an old wireless earpiece. The earpiece is detached from the headband, and the diaphragm beneath the cap is removed by screwing off the cap. The orifice in the cap is enlarged until the cap takes the form of a locking ring, which can be replaced on the earpiece to hold the diaphragm in position. The centre of the diaphragm is carefully burnished with sandpaper and a length of bus bar, or some similar rigid metal rod—an old bicycle spoke will do well—is soldered vertically on to the centre of the diaphragm, using as little solder as possible.

DO NOT DENT DIAPHRAGM.

Care must be taken not to dent the diaphragm. The vertical rod is then bent over in the same shape as the needle arm, which is attached to the diaphragm on the reproducer of an ordinary gramphone, and a needle-holder taken from an old gramophone reproducer is soldered to the other end of it. If no needle-holder is available a light brass screw connecter, which can be bought for about 3d., will do instead. Level with the edge of the receiver cap a light supporting hinge should be attached to the bus bar in the manner in which the supporting hinge at the edge of the reproducer is attached to the needle arm on the ordinary gramophone reproducer.

The connections for the apparatus are simple. One of the two wires in the cord from the headphone is connected to the grid of the first valve in a valve amplifier, and the second wire is connected to the negative terminal of the filament lighting battery. If desired, the pick-up can be attached to a wireless receiver by removing the detector valve from its socket and connecting one of the conductors in the cord to one termial of the primary of the first inter-valve transformer, and the other wire from the cord to the second terminal of the transformer primary. In use the telephone earpiece can be attached to the tone arm of the gramophile by rubber bands, with the needle bearing on the record in the ordinary way. No needle, of course, is used in the gramophone reproducer.

A UNIQUE DEVICE

NOVEL LOUDSPEAKER UNIT.

A striking novelty has just appeared on the New Zealand market in the form of a loudspeaker unit which, when applied to a cupboard, writing table, piano, door, window pane or similar object converts any of these into a loudspeaker. The device is connected to a radio set in a similar manner to that of the ordinary loudspeaker. It may be described as a pocket loudspeaker, the vibrations from which are amplified by the object it rests upon. If used in conjunction with a portable receiving set it can be placed on an empty cigar box or similar receptacle which then becomes a veritable loudspeaker. The various objects may be tested for tone so that the one best adapted for the purpose can be used. Resonance and tonal quality can be extracted from most unexpected objects, and interesting experiments may be carried out in this direction.

THE NEW ZEALAND Radio Record

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A. J. HEIGHWAY,
Managing Editor,
"The N.Z. Radio Record,"

P.O. Box 1032.
Dominion Buildings, Mercer Street, Wellington.

WELLINGTON, JANUARY 20, 1928.

CONSOLIDATION IN 1928.

While 1927 will be marked in New Zealand radio history as the memorable one which, practically at a bound, saw radio take its place as a definite, looked-for public utility, 1928 will, we believe, be equally notable for the consolidation of the ground won in public favour which we expect to see. As a source of public entertainment, the musical programmes now provided are excellent, but the work that remains to be done in building out the radio service is a gradual expansion of hours and the addition of supplementary services in news, market reports, and relays of public events as they take place. The work done in connection with the Tasman flight is an outstanding instance of what we have in mind in this connection. Service on similar lines, in relation to public events, as opportunity offers, will certainly be welcomed by listeners. 1928, as it chances, is election year, and as such, has an important bearing on the course of national life. It may be possible, in that connection, to render an educational service that would be of value.

From knowledge of the plans that we know to be in preparation, we feel safe in promising listeners a steady consolidation throughout 1928, and an increasingly interesting and informative series of programmes, which will be illuminated by a number of star features from time to time. The first of these is indicated in the Maori pageant, to be given on February 6 and 7. This will be found to be but the first of a series which will be distinguished as informative entertainment. The fare to be thus provided is certain to be attractive, and under its lure will lead to a progressive strengthening of public interest in radio and its service. In the enlargement of service that we anticipate, we confidently look for greater attention to rural interests, to whom radio is a necessity, and not a luxury.

The first broadcast station in Egypt was expected to commence transmission during last November.

In some cases a receiver of the tuned radio frequency type will cause trouble by oscillating so badly that it is impossible to get decent reception of the broadcast programmes. In types of sets having the radio frequency transformer mounted parallel to the variable condenser, the oscillations may be stopped by means of a simple expedient. Just move the three coils slightly closer to their respective condensers, and you will be surprised how quickly the unwelcome oscillations will be stopped.

The prospect of the production at some future time of gramophone records which will give visual reproductions of the persons as well as their audible performances was held out by Mr. J. L. Baird (the radio-vision inventor) in the course of a demonstration at London, when he exhibited a machine which is almost perfected.

Station 2FC Sydney announces a slight alteration in its transmitting hours. On Monday and Wednesday nights the station now closes at 11 p.m., while on Tuesday, Thursday, Friday and Saturday nights, the evening sessions are extended until 11.45 p.m. No alteration has been made in the Sunday night programmes.

2YA'S FLIGHT NIGHT SERVICE

NEWSPAPER PRAISES BROADCASTING.

The Christchurch newspapers relied greatly on the broadcasting, and the "Star" published the following laudatory comments: "Forty thousand radio receiving sets were probably in use to a late hour last night and well into the morning, enabling anything from 100,000 to 200,000 people to hear from Wellington the latest reports and rumours concerning the missing aviators. The service given by the Broadcasting Company in keeping its station on the air was greatly appreciated by the public, and thousands of people sat up in Christchurch until 2.30 a.m., when Wellington closed down.

The Wellington announcers stood by at Trentham and also at the Wellington studio as long as the Post and Telegraph Department had anything to offer, or any hope of locating the airmen. The announcements from Trentham, which were alternated with music from the studio, were always hopeful, and were appreciated by every listener."

The "Star's" radio correspondent, "Ariel," adds: "And there is where it is appropriate to mention the thought that came to the writer that without our broadcasting service, thousands of people throughout New Zealand would not only have missed the thrill of their lives, but would have spent a night of some anxiety and discomfort, perhaps, waiting outside newspaper and post offices after 6 p.m. for news of the New Zealand airmen."

SPORTING

THE NEXT BROADCASTS

January 28 and 30: Takapuna R.C. meeting—1YA.

January 27 and 28: Forbury Park trotting meeting—4YA.

TALK ON MAORI WORDS

Most New Zealanders, at one time or another, have regretted their non-understanding of Maori place names and words, many of which are used as place names or home names. A unique opportunity of learning and hearing a masterly explanation of the meaning of many such words will be presented listeners on the evening of the 27th, when Mr. J. F. Montague will deliver from 1YA a special talk on Maori words. Mr. Montague is a recognised authority on this subject, and is, moreover, one of the best-known elocutionists and adjudicators in the Dominion. His address, therefore, while interesting in itself, will also have the additional charm of being an elocutionary treat.

TOO MUCH JAZZ

SYDNEY STATIONS CRITICISED.

Mr. Julian Ashton, the noted Australian artist, holds strong opinions as to what should and should not be broadcast by the Sydney radio stations. In a letter to station 2BL he states that during the hour from 8 a.m. to 9 a.m. one day recently eight fox-trots were broadcast, also two very indifferent organ solos and the sickly sentimental song "Because I Love You." He declares that with the immense range of vocal and instrumental records by musicians and singers of renown it is monstrous that listeners should be subjected to such rubbish.

In the evening, says Mr. Ashton, listeners suffer from fox-trots broadcast from the Ambassadors and the Wentworth; therefore he hopes that this class of music will be strictly eliminated from the morning service. Mr. Ashton, however, thinks the weather forecasts is a most important feature of the broadcasting programme, a subject of interest to every mother of children going to school, every business man, every labourer, and all men on the land. He considers it important that a summary of the news should continue to the broadcast each morning, and he points out that listeners can gain fuller details from the papers.

Thomas A. Edison to Speak to New Zealand Listeners

SPECIAL GRAMOPHONE RECORD COMING TO 2YA

Mr. Thomas A. Edison, the world's greatest inventor and the real father of modern wireless through his incandescent lamp, will be 81 years old on Saturday, February 11, and he will have a special message to deliver to New Zealand people by radio on that date.

It came about in this way: Mr. A. R. Harris, General Manager of the Broadcasting Company, was for several years in Mr. Edison's laboratory, and the great American took a special interest in the young New Zealander, who has since kept in touch with his old chief. Recently when he wrote to Mr. Edison he suggested that a personal message to the New Zealand public by means of a gramophone record would be appreciated. In a typical Edison way the reply has been cabled back "Message shipped."

This message will be the great feature of an "Edison Feature Evening," which is now being organised. In an especial sense the means by which Mr. Edison will personally address New Zealanders represent the adaptation of science to modern life. First Mr. Edison's voice dictates his message to the gramophone record. This is then rushed across the world to us by fast trains and fast oil-burning steamers, and here in New Zealand the record will be put "on the air" by the greatest wonder of all and carry the master magician's voice direct to our listening multitudes.

Some additional interesting features will be incorporated in the evening, which will be quite an outstanding one.

ON FIVE METRES

INTERESTING EXPERIMENTS.

Interesting experiments are being begun by American engineers to investigate the value of waves about five metres long for wireless communication. So far it has not been found possible to communicate for more than a few miles with such short waves. One of the principal reasons for this is that if the waves are produced close to the ground, as they would be in ordinary circumstances, they are rapidly absorbed by buildings, trees, and hills. The second reason for the failure of waves of five metres and less to cover great distances is believed to be the fact that such short waves are not reflected by the Heaviside layer—a strata above the earth which bends all ordinary wireless waves gradually round the earth, and makes it possible for them to cover great distances. Instead, it is believed that the five-metre waves pass right through this layer and escape into free space.

ON TOP OF TALL MASTS.

In order to test this theory and to find out what commercial use may be made of five-metre waves, a number of special five-metre transmitters are being built. Instead of being installed in a building in the ordinary way, these sets, which have been made very compact, are being installed in waterprof cases on the top of tall masts in such a way that they can be controlled from the ground. The effect of this arrangement is that the wave is produced some distance from the ground, and it is not subject to the absorption which has caused five-metre transmissions to fail when the equipment was near the ground.

TENNIS BROADCAST

FEATURED BY 2YA

Intense interest is being shown in the visit of the French tennis stars, and 2YA's broadcast of the play on the two days the visitors will be at Miramar will be eagerly welcomed and will undoubtedly constitute a great advertisement for the game.

A preliminary talk from 2YA on the forthcoming event broadcast last week by one of the officials of the Lawn Tennis Association indicated the importance attached to the occasion. This talk stated that it was seven years since any international team had played in New Zealand, and in that match there were no New Zealanders, the losing team being Norman Brooks and G. L. Paterson, both of Australia. The present visit of the celebrated Frenchmen was unique, in that it was the first occasion on which a purely New Zealand team would be opposed to an international team on own own territory. The Frenchmen had learned their game and played it on hard courts, the result being that they played a very fast and spectacular game.

SUCH IS FAME

A dealer writes: We run a radio department in conjunction with gramophones and records, radio being on the top floor, with gramophones and records below.

To-day a customer came in and asked for the "Radio Record." The girl in charge of gramophones was embarrassed momentarily and then played him "London and Daventry Calling." This was the only "radio record" she knew. She knows better now!

NO BROADCAST

OF WELLINGTON RACES

PERMISSION REFUSED

Listeners in general will, we think, learn with regret that permission for the Broadcasting Company to broadcast the forthcoming meeting of the Wellington Racing Club on January 21, 23 and 25 has been refused

The Broadcasting Company's position in this matter is that it stands ready to render the service of broadcasting the events, but does not desire to intrude into the business of the racing clubs concerned. The public has in the past been given this service and nothing but praise exists for the manner in which it has been given In fact, the present refusal is understood to be related to the complaint that the service given is so good that it is possible for the desire to back certain horses in subsequent races to be created Whether this is so or not is in our opinion beside the point, which is that it rests with the public to express its desires in the matter to the authority concerned.

Every facility is always given the press for recording events and in our opinion it is a little regrettable that a barrier should be erected against the broadcasting of news sumultaneously with its occurrence. There is no question in our mind but that the publicity given by broadcasting to sport's events acts as a popularising agent and this is recognised by the willingness of the Lawn Tennis Association to have the play of the French stars broadcast and of the Auckland motor cyclists who have requested the company to broadcast its events.

As stated, it is not our place or that of the Broadcasting Company to intrude into the racing club's business.? The patrons of racing have the matter in their own hands. If a sufficient public demand is made we have every confidence that the authorities will recognise the desires of "sports" and accord the necessary permission if not for this, then for later meetings.

1YA FEATURES

NEXT WEEK'S PROGRAMMES

The prison scene in "Il Trovatore," one of the finest gems of opera will be broadcast from 1YA on Tuesday. In this scene there is one of the greatest duets ever written, "Home to our Mountains," where the fierce and revengeful old Gipsy in her hour of death thinks of the mountains where she brought up Manrico, and would fain fly back to that peaceful retreat. Madame Irene Ainsley takes the part of Azucena, the Gipsy, Mrs. Parry the part of Leonara, and Mr. Robert Peter that of Manrico.

The first of a series of twelve lectures dealing with old New Zealand will be given at 1YA on Tuesday by Mr. A. B. Chappell, M.A. Mr. Chappell has made a thorough study of the subject, and he is well qualified to present in an entertaining manner the result of his investigations. His first lecture will be entitled "The Days Before Discovery."

Included in the fine muscal programme on Tuesday evening will be Madame Irene Ainsley's singing of Handel's "Ombra mai fu" to which Miss Ina Bosworth will contribute a violin obligato. Mrs. Parry will also sing solos by Ronald and Mozart. Both Mr. W. Brough and Mr. Robert Peter have favourite songs for Tuesday evening, and they will also be heard in a duet.

A diversified programme of popular songs will be contributed on Wednesday by Miss Beryl Smith, Miss J. Dellore, Mr. J. Dellore and Mr. M. Ballance. Their items will comprise duets and a quartet, as well as solos. Selections are to be made from "La Boheme" and "The Pirates of Penzance."

Mr. T. Harris, elocutionist, has three varied items to offer on Wednesday evening. "Bannerman rode the Grey" one of Adam Lindsay Gordon's racy poems with plenty of action—"The Old Warrior" and "The Cynic"

THE SNAPPY THREE.

This combination is a very popular one on the radio. The vaudeville stage knows them well, and they provide an excellent vaudeville turn for "the air." Variety is the keynote of their programmes and they will continue to supply fresh and more extensive turns. The Snappy Three's next appearance at 1YA's microphone will be on Thursday.

Outstanding and Memorable Maori Pageant from 2YA

FULL ARRANGEMENTS BEING MADE FOR FEBRUARY 6 AND 7

The Maori Pageant to be broadcast from 2YA (and rebroadcast by other stations) on the evening of February 6 will unquestionably take rank as one of the finest spectacular events ever put on the air in Australasia.

The occasion is the anniversary of the signing of the Treaty of Waitangi, and the pageant is desired to cover in one broad sweep all phases of Maori life right from their coming to New Zealand nine hundred years ago down to the present. This history will be given in half a dozen phases, each inimitably handled by the poetic and musical genius of the race. The whole entertainment will be well balanced and memorable, and listeners everywhere would be well advised to arrange parties in order to let as many friends as possible have the unique experience of enjoying such an historical and musical treat.

The pageant will be broadcast twice, first on Monday, February 6, at the regular programme hour of 8 o'clock onwards, and on Tuesday, February 7, from 11 o'clock to 1 o'clock in the morning for the special benefit of distant dependencies and oversea listeners.

A large party of Maoris has been organised from the Wanganui district. There has been not a little competition for places in the contingent to perform at 2YA, for Maoris have rightly recognised that it is an honour to be selected for the historic occasion. The necessary speakers, for there is considerable histrionic work to be done, have been secured.

The Maori party will remain in Wellington throughout the week in question, and will add variety to the programmes throughout that period.

The Premier Quartet, which consists of Miss Mina Caldow, Miss Christina Ormiston and Messrs. Barry Coney and Birrell O'Malley, have a choice musical programme for Thursday evening. Their songs will comprise solos and two quartets, "The Sands of Dee" and "Softly Fall the Shades."

The items by the Griffths Duo on Thursday will be a musical sketch "Adventures by the Sea" and a humorous sketch, "House Hunting."

THE MAORI LANGUAGE.

One of the greatest authorities on the pronunciation of Maori words and Maori names is Mr. J. F. Montague, who will give a talk on this subject at 1YA on Friday.

Miss Lynda Murphy, a very talented young elocutionist who recently appeared in "Pygmalion" at Auckland, will give three sketches for radio listeners on Friday evening.

INSTRUMENTAL TRIO.

Throughout the week at 1YA the best of music will be supplied by the Bosworth-Hemus-Towsey trio. Selections from the works of the masters will be played.

Two vocal duets will be sung by Mrs. Cyril Towsey and Miss Lola Solomon on Friday evening. These will be Laure's "Crucifix" and Lohr's "The Day is Done." These singers will also contribute solos and, along with Messrs. E. Snell and Frank Sutherland, will be heard in the quartettes, "Cast Thy Burden" and "When Evening's Twilight."

On the Lyric Three and Miss Alma McGruer falls a considerable portion of Saturday evening's programme, but who are more able to provide a Saturday evening's entertainment? They will sing popular songs, and Mr. McElwain, one of the best humorists in Auckland, will supply much levity. Popular airs will be played by Nell the Bohemian and by Mr. H. Catterall (mandolin).

The services conducted by the Rev. Lionel Fletcher at Beresford Street Congregational Church will be broadcast on Sunday evening, after which will follow a studio concert provided by the St. Andrew's Quartet and the Bosworth-Hemus-Towsey Trio.

TALKS FROM 1YA.

"What is Top-dressing?" a talk of interest to farmers, will be given by Mr. H. H. Edwards at 1YA on Tuesday evening.

Mr. George Campbell will talk on "Motoring" at 1YA on Friday.

NEW DUO FOR 1YA.

A new combination to be known as the Hazell-Sutherland Duo is to make its debut at 1YA on Wednesday, February 1.

Miss Phyllis Hazell is an Australian contralto, who has recently come to Auckland from Sydney, where she was well known on the concert platform. She has also sung regularly from 2FC.

Mr. Frank Sutherland is well known to all listeners to 1YA, where he has been one of the most popular baritones for some time past. He is a member of the Waiata Quartet, but will now relinquish his place in that combination.

ON SHORTWAVE

PCJJ RETURNS

Mr. F. W. Sellens reports.—Short-wave reception is still suffering from summer time conditions, especially from the American stations.

On Saturday morning, January 7, Big Ben was heard, after which a man's voice was heard wishing all his old colleagues a happy New Year. Could not hear enough to understand what his talk was about. KDKA was not heard till after 4 p.m., and then weak 'phone strength at its best.

2XG, Rocky Point, N.Y., was heard testing on about 22.5 metres, and later on, about 32.5 metres. After testing on the latter wavelength, he said "This completes the test on wavelength No. 22." When testing, he said "Write down amateur," "write down expansion," "write down equation,' 'etc. et. All the words to "write down," if not clearly spodken, would be hard to understand.

4AE Gore and RFN were heard in the evening, static being bad on the latter station.

On Sunday afternoon KDK9 was not strong enough for the speaker till just before they closed down at 4.36 p.m. It was mushy. 2XAF was also very weak singing, off at 5.31 p.m.

RFN was the only short-wave station heard during the evening.

3LO was testing on 32 metres on Monday morning from 7 a.m. Music from gramophone records was received at good speaker volume. Fading was worse than usual.

As PCJJ was to transmit their first regular programme on Tuesday morning after their two months' silence, I was up bright and early. 3BY Melbourne, on about 31 metres, and a foreign station on about 18 metres transmitting high-class music were heard before the Dutch station started.

PCJJ started at 4.50 a.m. with the Dutch National Anthem. This was followed by a programme of gramophone items. Reception was spoilt by a morse station. The volume was disappointing after the strength they were heard on the previous Friday up till 7.30 a.m. Signals got so faint, that to me, they were not audible after about 6.30 a.m.

ANE Java was transmitting a programme of musical items, received at good volume, but was also spoilt by morse. 7CW was heard during the evening.

On Wednesday morning, Big Ben, through 5SW, was only just audible.

RFM was very good on Thursday evening. Band, accordion (or a similar instrument) and orchestral music was heard before 10.30 p.m.

On Friday morning ANE was tuned in at 5.20 a.m., when talk was heard till 5.30 a.m. After this, gramophone music was transmitted. Reception was good speaker strength and modulation, except for a short period, good. They called "Hullo amateurs in ——" here followed many countries. A long list of names and addresses was read from all parts of the world, South Africa, Australia, and New Zealand predominating, but included England, China, India, etc. Among the names were Mr. Rait, Brooklyn, and myself. All were thanked for valuable particulars, and advised that future reports were welcome.

PCJJ was on the air, but not strong enough to enjoy.

5SW were heard commencing their regular morning transmission. I missed Big Ben, but could hear a man and woman talking. Too weak to understand.

It was interesting to note that PCJJ and 5SW were about the same volume at 7.35 a.m.; both weak, but just strong enough to understand nature of transmission—speech or music.

RFN, the most consistent short-wave station of all, was up to its usual form during the evening.

Other Good Performances.

A. P. Morrison (Brooklyn): Having had a fairly long holiday at Christmas, I have had more time to search for DX short-wave stations. On Thursday, January 5, I received 2XAM on 23.8 metres, broadcasting programme from WJZ, New York City, New York, between 3.45 p.m. and 4.30 p.m. Some of the items heard were two pianoforte items by Ollie Yetton, also items by Edward Rice, violinist. The strength of this station was quite good working three valves on 'phones, because I believe it does not broadcast on extra high power. Saturday, January 7, I received station 2XAL on approximately 31 metres, relaying programme from WRNY, New York. The programme consisted of items by the Georgia Minstrel Boys in songs and patter, also selections from the Remington Band from the Remington Studio, New York, the conductor being Edwin Danials. Also last night, January 7, I heard Cartos Braggio, Buenos Ayres, station RCB8, on 45 metres, putting over gramophone items. Before closing he and his son gave a long talk in Spanish. I logged him at 11.15 p.m., and he closed down at 12.5 a.m.

This morning, January 8, I heard what I believe to be PCJJ, Holland, carrying out a preliminary test. I read where this station was to reopen again, but not till Tuesday morning, and thought they might carry out a test before that, so rose at 6 a.m. and picked this station up at 6.15 a.m. The volume was equal to 2XAF at its best, and I could distinctly hear people talking in the studio. One or two musical items were heard, but no announcement. What makes me more sure it was PCJJ was that six or seven carrier-wave adjustments were made. I did not hear him after 7 a.m. I also heard 5CW, Chelmsford, England, on the morning of Monday, January 2, 1.30 a.m., but reception was difficult on account of morse. On Friday, January 6, 2XAF's programme came in at great strength. He gave his wavelength at 31.2 instead of the usual 32.77 metres.

I might state that station KFON, 242 metres, runs late every Monday night until 10 p.m., sometimes till 10.30 p.m. I have also heard him other nights also running late.

PUBLIC INTEREST

DEMANDS BY TELEPHONE

MORE CONSIDERATION WANTED.

The intense interest displayed in the trans-Tasman flight, and the reliance placed upon the Broadcasting Company by the public for information in connection therewith, is indicated by the extent to which the telephones of 2YA were bombarded by the public during the evening of Tuesday, the 10th, and the morning of January 11. Although the station was endeavouring to give the public the fullest possible service by broadcasting on relay from Trentham all news as it came to hand, so that listeners could be kept closely in touch with the situation, hundreds of non-listeners bombarded the station by telephone, and in many cases, although courteously given such information as was available, undertook argument in the hope of extracting more than could at first be stated.

This is an evil which afflicts all sources of information at times when events of moment are under way, and in the case of many newspaper offices forces the announcement on such occasions that telephone inquiries will not be answered. In the case of the Broadcasting Company, its first duty is to its listeners, who pay for the service it is able to render, and in the case of non-listeners who ring the Broadcasting Company, the first requirement might reasonably be a courteous application and a ready acceptance of the information that is given. Throughout the whole period of public anxiety in connection with the aviators, it is literally true that an employee was stationed at the telephone to answer inquiries. Inevitably under the stress of the demand occasioned by public curiosity, there were long periods when certain individuals on frequent ringing found the telephone engaged, and it is on record that some such persons, on eventually getting through to the company, were inconsiderate enough to repay the company's courtesy by alleging that the telephone receiver had deliberatley been left off.

Listeners who were in touch with 2YA and 3YA (which rebroadcast 2YA on that occasion) will appreciate the special efforts made by the company to inform their clients and the public in general of the fortunes of the aviators, and will, we think, have little sympathy with behaviour of the type we mention. It can be taken for granted that it is the aim of the Broadcasting Company to give listeners, and the public in general, the fullest possible service through the medium that it has at command, and it is at any rate unreasonable for the execution of the service to be hindered by an unduly heavy demand on the part of the non-listening public for additional information per telephone.

From the Woman's Point of View.

By VERITY.

TO-DAY AND TO-MORROW

The Modern Girl Again!

Sir Edmund Gosse says: "The young man of to-day, being gentle and gracious, makes up for the boisterousness of the girls." The following verses were evidently written by a "young man of to-day":—

When I fare forth with Phyllis
Upon her pillion seat,
In my poor heart a thrill is
For all we pass or meet;
In beret, belt, and breeches
She scours the countryside,
Nor heeds the poor thing which is
Her partner for the ride.

Upon her T.T. model
She roars up every hill,
You'd think her off her noddle
To hear her Klaxon shrill;
And I, poor wretched creature,
Bump, jolt, and toss and pitch,
And pray the gods to teach her
To keep out from the ditch.

She takes me to the cricket,
And argues with the crowd,
I don't know how to stick it
When Phyllis thinks aloud.
It's "Well played, sir!" "Oh, splendid!"
"Go on, man, run!" she cries,
And, ere the inning's ended—
"Hi! Umpire! where's your eyes?"

Sometimes a game of Soccer
She'll take me out to see,
And some "fan" tries to shock her
With forceful repartee;
But Phyllis leaves him dumb, too,
Tho' it often seems to me
She's really only come to
Abuse the referee.

And, strange, I love her dearly,
Just why I cannot tell;
Her boisterous ways are clearly
Beyond my power to quell.
And yet I fancy Cupid,
Who pierced me with his dart,
Will help me, tho' I'm stupid,
To rule her by her heart.

Lamb Croquettes.

Slice up cold lamb and put through the mincer. To two cups of mince add half a cup of breadcrumbs, one tablespoon chopped parsley and thick white sauce to moisten, seasoning to taste. Mould the mixture into round nests, fill with left-over cooked green peas, and cover over with the meat. Dip in egg and breadcrumbs and fry in deep boiling fat.

Beetroot Cups.

An appetising salad can be made with apples and celery, beetroot and lettuce. Cook some small beetroots, scoop out centres. Fill with equal quantities of chopped apple, chopped celery, and chopped beetroot moistened with salad dressing. Serve on individual plates lined with crisp lettuce leaves.

Typist's Genius.

Two water-colour drawings executed by yet another untaught artist have made Miss Christine J. Hearn, a shorthand typist, somewhat of a celebrity among her colleagues at a branch of the Midland Bank, London; and have placed on record her preference for crinoline days.

The drawings, entitled "Yesterday" and "To-day," proved one of the "big hits" at the Midland Bank Art Club's exhibition.

"Yesterday" pictures a demure damsel in a pink crinoline and poke bonnet, looking out of a lattice window at a rose-garden. "To-day" shows an ultra modern shingled flapper, wearing a green jumper suit, and smoking a cigarette in a long holder.

The lady in the crinoline is Miss Hearn's ideal. She herself has never smoked a cigarette in her life. The modern lady is a portrait of her sister.

A Part He Knew.

A Hampstead family was discussing a "play tea," in which every man and woman has to represent the title of a play.

"I'm just going as myself," said the small son, "He who gets slapped."

A DAY ON DARTMOOR

Light and shade on the misty moorland,
Sunlight, and raindrops glist'ning down.
Soft white mist-wreaths rising and falling.
Hiding the sea and distant town.

Sweet wet wind from the open spaces
Driving the mist-wreaths far away.
Burning sun on the rain-soaked mosses
Where the grey rocks of granite lay.

Little stream, with the amber shallows,
Singing down to the distant shore.
White-winged seagulls circling over,
Then away to their home once more.

Dear white sheep, with their gentle faces,
Cropping grass amid bracken green,
Seeking rest in the great tor's shadow,
Sluking thirst in the amber stream.

Gleaming road winding ever upward
Where the blue heavens seemed to rest.
Glorious vision across the valley
From the top of that great hill's crest.

Just a day on the open moorland,
But oh! it's worth to a heart oppressed!
Surely my hand touched the hem of His garments,
Receiving His peace and joy and rest.

—Nellie Hadden.

TO-DAY AND TO MORROW

To Keep Loose Covers Tidy.

Take a sheet of newspaper and roll up in a long strip like a sausage. Then push strips well in at the back and sides of your loose chair or settee cover. This will prevent the cover from moving and getting untidy when sat upon.

Easy Darning.

Bed or table linen may be quickly and neatly darned by machine. Use No. 40 cotton, and adjust to the smallest stitch. Sew to and fro across the hole, and then stitching will leave strands across it; then sew to and fro across the strands. The result will be a splendid darn.

Renovating Old Golf Balls: A Wet Afternoon's Amusement.

Drop each ball separately into a pan of almost boiling water. Lift out when the skin of the ball has been softened, say, two minutes. Rub the ball sharply between the corrugated sides of two ordinary butter spades, and when all the gashes and bruises have been rubbed out drop the balls into a pan of cold water to harden. Dry them then take a little golf-ball paint in the palm of your hand and rub the ball between your palms till evenly coated. Drop each ball on an old newspaper to dry.

Real Teddy Bears.

Two real live Teddy Bears from Australia have arrived at the London Zoo. They are Koalas or Native Tree bears, which at first sight look like baby Brown Bears, but are really not related in any way to the other bears of the world.

They never grow up, but remain small and harmless all their lives, rarely exceeding a Pomeranian dog in size. Another point on which they differ from the bears, and one which brings them into line with all the other Australian mammals, is that the female possesses a pouch in which the young is carried until it can fend for itself.

The Koala has peculiar hands and feet, specially adapted for climbing trees, for two of its fingers can be opposed to the other three, so that the animal appears to possess two thumbs on each hand.

If the Zoo succeeds in keeping these animals alive for any length of time, it will be a great triumph, for they are notoriously "bad livers" in captivity, even in Australia, and as far as can be ascertained, only one other specimen has ever reached England alive.

Fairy Fantasies.

Referred to often as Australia's Ella Wheeler Wilcox, Mrs. Ruby Sykes Lyon is widely known as a writer of delightful verse and charming Fairy Fantasies. For some months past she has been paying special attention to children's radio bedtime stories and many of her productions have been broadcast by 3LO with considerable success. An entirely new series will be commenced shortly and the reading of them will be in the capable hands and Maurice Dudley as Billy Bunny at 3LO. These are sure to delight not only the many thousands of children who listen in regularaly during the Children's Hour, but also the large audience of grown ups who still retain the Peter Pan spirit which prompts them to tune in to 3LO whenever they get a chance to enjoy with the children the Fairy Stories and droll humor of Billy Bunny and the other story tellers.

Returnable by Instalments.

He was an up-to-date young Scot, and he gave his best girl a lipstick for a present because he knew he would get it all back.

Savoury Potatoes.

Bake some large well-washed potatoes till they are soft, but not burst. Halve them lengthwise, scoop out as much potato as possible without breaking the skin. Mix potato with half-pound of cooked fish, some fresh tomato pulp, salt and pepper to taste. Moisten with a little milk, or beaten yolk of egg. Beat well together, then stuff potato shells and bake in a pyrex dish in a hot oven for about 10 minutes.

The Letters of Annabel Lee

My Dear Elisabeth—

All New Zealand, in especial, the Capital City—for Trentham was to have been their triumphant bourne—is in suspense concerning the fate of the two brave men who essayed to fly the Tasman. The trail they blazed apparently held some peril, some snare they had not foreseen; and, in spite of the hope that springs eternal, it is to be feared that for them there will be "no more the heat of the sun nor the furious winter rages." Most of us are gamblers at heart; we are thrilled by those who put all their chances on one throw and all their eggs in one basket; we have a quite inordinate admiration for sheer pluck and endurance, and the national imagination has been captured by the daring of the two aviators of whose fate in the meantime only the gods can tell.

January, that uninteresting month, goes its slow way. Nobody is in town, nothing much happens, fashion for the moment is defunct. One big drapery house has added to its already innumerable departments another in the shape of a beauty salon to aid imperfect femininity; another is demolishing part of its shop on a well-known street corKhan-ish edifice to while away our hearts; while another well-beloved sartorial shrine in Cuba Street is selling off, closing its doors, and giving away, so to speak, all of that stock, the quality and beauty of which she who shops can tell.

One hears that in the quite near future we are to be frilled to the waist, which now at this long last is to be at the spot where a waist ought to be; which, alas, means a long farewell to the graceful line, the pliant elasticity and grace so dear to our hearts. Clothes, though sometimes tiresome, are very interesting. What would we do without them? There is a cult in the wider world, one hears, that advises a no-clothing cure for all the ills that flesh is heir to. A book has been written on the healthfulness of the nude by an enthusiast named Hans Saren, who advocates sunlight, the more the better, on the human form, sans frocks, sans "lingerie," and (some will say) sans decency. The book has been carefully translated by Arthur Jones, and has had a considerable sale, being illustrated with quite realistic photographs, which have attracted some purchasers in the mistaken belief that it belonged to that strange form of reading matter yclept indecent literature. Mr. Saren's effort has won the tolerance of that broad-minded ecclesiastic, Dean Inge, who, while stating that he considers the author a fanatic, thinks his theories will do good and is not averse from their publication. How amusing, to be sure, to visualise one's dearest enemy taking a walk abroad in Nature's garment! Alack, we are not all modelled on the noble lines of Milo's Venus, nor do many of us rejoice in the slinky allure of the nymphs of Botticelli. Shoes that are pointed, "stays" that were tight, indolence and slackness have done their fell work, and the human body, that masterpiece of beauty, has fallen from grace.

Mr. Beverley Nicholas is amusing and irresponsible concerning his contemporaries in his latest "Are They the Same at Home?" which will prove delightful reading to those who adore personalities and like to hear about "certain people of importance." Mr. Nicholas' pungent and penetrating comments are intriguing to a degree, as he makes merry, with witty impartiality, at the expense of the admirable Miss Ellen Wilkinson, and the mercurial Suzanne, playwright Pinero, and versatile Lloyd George, the modern Noel Coward, and the improving Mr. Wells. Nothing of caution can be discerned, discretion does not appeal to this gay chronicler; all is fish that comes to his net, tolerance is thrown to the winds, while youth and a charming audacity make hay of all and sundry.

Very different, very leisurely, very enthralling is Sir Edmund Gosse's "Leaves and Fruit," the recollections and impressions of a long and richly gifted life. Much does he write, in classic prose, of events and people he has known; and the book contains ripe criticism of art and letters, nor does this great thinker and writer disdain the modern literary young man and maiden, even though they be as exasperating as that highbrow family, the Sitwell trio. Lucky are those who can beg, borrow or steal a copy of this delightful book.

Saturday afternoon found me, accompanied by one other, in the De Luxe Theatre, which I find most restful in its colour effects and feeling of spaciousness. Viewing that enthralling picture "Ben Hur," I concured with the opinion of the unconventional Auckland divine, who recommended his flock to see it, even though they had to live on an apple a day for a week, or words to that effect. One does not readily forget the realism and terror of the galley scene, nor the thrill of the galloping white horses and charioteers in the magnificently staged race. Ramon Novarro is so virile and handthat it is regrettable the makers of some a hero, and such a fine actor, the film did not choose as a foil for him a more characteristic type than the sugary blonde who plays the part of the slave girl Esther, simpering and shaking her fair, childish ringlets until one longed to slap her. The Biblical story is introduced with skill and reverence, Miss Betty Bronson, in the glimpse we have of her as Mary, being reminiscent of a Madonna whose lovely face hangs on my wall in reproduction of a famous picture in the Florence gallery. There was nothing to offend, and much to admire; and in one of the scenes most relevant would have been Mr. Chesterton's deification of the humblest of domestic animals.

"Fools! For I also had my hour;
One far fierce hour and sweet;
There was a shout about my ears,
And palms before my feet."

In this week of waiting and watching for news—for the fate of the aviators has been in our minds, and keeps recurring to us all—what a boon has it proved to listen to such news as there was given over the wireless, in the clear and measured accents of the announcer. I do not yet possses a crystal set, though I shall in the quite near future, but in the house of a friend I heard of the efforts being made and of aeroplanes circling the sky in fruitless search. It may be, as some say, that these two young men were insufficiently equipped, not experienced enough, to make the hazardous experiment. I cannot tell. I only know that courage warms the heart, and if it happens that, after making their great gesture, they are no more seen, "He that dies in an earnest pursuit is like one that is wounded in hot blood; and a mind fixed and bent on something that is great doth avert the dolours of Death."

Your
ANNABEL LEE.

For Dusting.

Use a hot duster when polishing furniture in damp, foggy weather. The result is almost magical; all moisture is instantly absorbed and the furniture is polished and not smeared. Keep a spare duster warming by the fire to avoid interruption of work.

Bread Sauce.

When making bread sauce do not waste time preparing breadcrumbs: a decidedly better and more creamy sauce results from adding to the milk the required quantity of bread in a thick slice or chunk, and beating for one minute with a fork just before serving.

Refreshing Baths.

After dancing, or much standing or walking, give the feet a farm bath to which a few drops of turpentine have been added. When followed by a thorough drying with a warm towel and an application of a little coconut oil, finished with a dusting of boracic powder, this treatment will be found exceptionally refreshing.

Some Features of Next Week's Programmes

NOTES FROM 2YA

A special programme to be presented by the Celeste Quartet on Monday the 23rd inst., comprises popular numbers selected from well known operas. A glance at the official programme will at once convince listeners that an evening of outstanding merit is promised. The quartets are "The Anvil Chorus" from "Il Trovatore" and the spirited "Hunting Chorus" from "Dorothy." A soprano and bass duet, "Give Me Thy Hand" from Mozart's "Don Giovanni" will be sung by Miss Myra Sawyer and Mr. William Boardman. Selections have also been made from "Carmen," "La Boheme," "Tales of Hoffman," "Martha," "Samson and Delilah," and these numbers will surely go far towards making the evening an unqualified success.

Another old-time night—the last one was so popular that the Orpheus Quartet have arranged for Tuesday another set of these songs of long ago. The quartets are, "Stay in your own Backyard," "Does Your Heart Beat True to Me," and "Home Again." Mrs. Harris will render "The Garden of Sleep"—Miss Mackie, "Shells of the Ocean"—Mr. Coe, "The Old Rustic Bridge" and "Kentucky Home" (with quartet chorus), and Mr. Barnes, "When You and I were young, Maggie." Mrs. Harris and Mr. Barnes will sing the humorous duet, "Money Matters," a medley of old songs. It is the quarrel between husband and wife over money, and ends as all quarrels should do—happily.

The quartets to be sung by the Etude Quartet on Thursday are "See our Oars with Feathered Spray," "Peacefully Slumbering," and the well-known "Huntsmen's Chorus" from Weber's opera, "De Freischutz." This number brings in an imitation of the huntsmen's horn, and is typical of the hunt altogether.

—Stephen Webb, photo.

MR. D. SUCKLING, OF 3YA.

A fine tenor singer now regularly heard at 3YA. He is a member of a quartet in which also are Miss L. Hanham, Miss A. Vinsen, and Mr. F. C. Penfold.

The duet, "Flow Gently Deva," will be sung by Messrs. Skinner and Kemp. Deva is the old name of the river Dee in the Old Land in the time of the Druids. The words are written to the Tudor who peacefully sleeps in the banks of the Deva, but who leads his warriors, on wakening, to death and victory. Miss Stark sings Bishop's famous song, "Should he Upbraid," the song of the coquette. Miss Arnold, "Brown Eyes," and Mr. Skinner "Hedgin and Ditchin," a song of the worker of the country roads of England. Mr. Kemp's contribution is Tschaikowsky's great number, "Don Juan's Serenade," in which Don Juan sings to his beloved, but dares all his rivals to fight for his love. The two ladies of the quartet will sing a delightful little duet, "Fairy Voices."

The S mons-Ellwood-Short Trio

The Scherzo and Finale of Brahms to be played by the Symons-Ellwood-Short Trio next week, are the two last movements of the famous C Major Trio. The Scherzo commences with the mysterious pianissimo passage, suggestive of the whole of the Fairy World out in deadly earnest on some important undertaking. The middle of the movement has a much more flowing character, which eventually gives way to the return of the first soft section. The Finale is full of vigour—much more worldly, and a good contrast after the fairy-like Scherzo.

The Allegro from the C Minor Trio of Mendelssohn is full of spirit and, although not so often heard as the D Minor Trio, is equally fine.

Gurlitt will again be represented on this week's programme. This miniature trio, although very short, contains all the essentials of a fine trio—form and melody. The first movement is rhymic.

It is some time since any of the numerous trios of Mozart were broadcast by the Symons-Ellwood-Short Trio. This Allegro in C Major is a delightfully melodious composition, and will make quite an appeal with its graceful old-world feeling.

The Trio of Saint-Saens was written by the composer after one of his numerous sojourns in North Africa. The Andante in particular is most suggestive of the Arabic atmosphere of that country. The finale resembles a conversation between the three instruments, especially the violin and 'cello, who seem to ask and answer from beginning to end.

Sitt is a modern composer who has a gift of melody. The G. Major Trio is not of great length, but will be enjoyed for its clear exposition of ideas and interesting harmony.

On Friday evening the Renshaw Quartet will delight all listeners with a programmee chiefly composed of favourite old ballads—evergreen gems of vocal melody—many of which are Irish. Among these are the beautiful "Mountains of Mourne," to be sung by Mr. Davies, while Mrs. Dunn will again afford widespread pleasure with "Killarney" and "Dear Little Shamrock." In response to many requests Miss Nora Greene's beautiful contralto voice will be heard in "Hills of Donegal," while Mr. Renshaw's rich, resonant tenor will be heard in "Maire My Girl." Together they will be associated in the duet "Chime o' Bells," by one of our modern composers, Kettleby.

On Saturday, January 28, the Melodie Four will present three concerted numbers, in addition to several solo items. The quartets on this occasion will be "Please, Won't You Be My H'm," containing pleasing harmony and veiled humour, the point of which is not disclosed until the final chord. "So Blue," the song which is at present so deservedly popular, will be presented in four-part form by the quartet, which will make a feature of this item. Brahms's "Lullaby" will be the final concerted number, and in this the blend and interpretation reached an exceptionally high standard.

Mr. W. W. Marshall (basso) will sing "My Old Shako," a song which suits his resonant voice admirably. Mr. F. Bryant (tenor), who was so favourably received at this quartet's last appearance, will be heard in two solos, "Passing By" and "Look Down, Dear Eyes."

Mr. C. A. Williams, who on previous occasions performed with the "Melodie Four," has been transferred to the "Lyric Four" male quartet, who contribute regularly to 2YA, and his place in the "Melodie Four" has been taken by Mr. S. Duncan, who needs no introduction to listeners-in. Mr Duncan is the possessor of a pure lyric tenor voice, which he uses with studied artistry. His voice has been proved on previous occasions to be exceptionally well suited for broadcasting purposes. He also will contribute a solo on this occasion.

LECTURETTES AT 2YA

Lecturettes during the week will include another entertaining talk by Mr. Charles E. Wheeler, "Politics—the Humour In It," on Monday evening. Mr. Stanley W. Fearn's next talk on "Architecture" will be on Tuesday. Mr. A. J. Dry will give an account of "The Adventures of the Whaling Industry" at 7.40 on Tuesday evening. Another talk about "The Birds of New Zealand," by the representative of the Birds Protection Society, will be given on Thursday evening. On Friday evening there will be the usual lecturette on "Imperial Affairs."

—Clifford, photo.

MISS ANITA GRAHAM.

A singer with a range of nearly three octaves to her mezzo-soprano voice. For the last three years Miss Graham has been very successful at competitions. She has been a frequent and very popular radio singer, and she will be heard again next week at 3YA. A feature of her singing is her fine enunciation.

3YA NOTES

Mr. W. Bradshaw, popular tenor at 3YA, will be singing some favourite songs on Monday evening: "Tom Bowling," "The Holy City," and Elgar's "In Moonlight."

Some interesting observations on the critical questions of "Bolshevism" and "Bobbed Hair" will be given in two talks by Mr. J. J. Flewellyn at 3YA on Monday.

Miss Anita Graham, a mezzo-soprano with a fine voice of great range, will be singing two operatic selections on Monday evening.

Miss Mary Taylor, a singer from the Midlands and a popular artist at 3YA will be associated with Miss Lucy Fullwood, A.R.A.M., in two fine duets.

Wednesday's programme at 3YA will be supplied by the quartet consisting of Mrs. Claris Shaw, Miss Mildred Russell, L.A.B., A.T.C.L., Mr. Gregory Russell, and Mr. W. J. Richards, assisted by the Broadcasting Trio and Mr. Albert Spicer (humour). The quartet will sing three popular concerted items, while duets and solos will also be rendered.

The factors influencing the stock carrying capacity of a farm will be the subject to be discussed by Mr. R. E. Alexander at 3YA on Thursday evening. Mr. Alexander is principal of the Lincoln College.

An unfailing attraction is a Scottish concert. Some splendid entertainments have been broadcast from 3YA, and for next week one of the best is scheduled. On this occasion the programme of the romantic and heroic songs of Bonnie Scotland will be contributed by the Madame Gower-Burns Quartet. The concert will provide another rich musical feast for all. Besides the musical items, two humorous sketches will be performed by Miss Lucy Cowan and Mrs. H. McLeod. Both sketches are Scottish, being composed by J. J. Bell. Miss Fullwood, A.R.A.M., who sings as well as plays, will contribute pianoforte solos.

"The Erl King," that dramatic and thrilling song by Schubert, will be sung by Mr. T. D. Williams on Friday evening. Mr. Williams's great vocal powers can be expected to do full justice to this very difficult piece. Mr. Williams will also sing "Sea Fever" and "The Lowestoft Boat," which will have chorus accompaniments.

Miss Frances Hamerton and Miss Belle Renaut will be heard in some pretty songs on Friday evening. They will sing solos, and take part in duets and quartets.

Mr. Russell Sumner's solos on Friday evening will be "Mary of Allendale," "Temple Bells," and "Thora." Mr. Sumner will also take part in a duet entitled "Quarrelling," his partner being Miss Renaut.

Miss Naare Hooper, L.T.C.L., elocutionist, will contribute three items on Friday evening.

A real vaudeville programme has been prepared for Saturday, which for variety would be difficult to surpass. A goodly number of the best artists at 3YA will be taking part in grave and gay contributions to the evening's entertainment. The artists for Saturday evening will include Miss Mabel Thomas and Mr. David McGill, Mr. Robert Lake (baritone), Mr. H. Instone (humour, much of it original), Mr. Jock Lockhart (humour at the piano), Mr. Jack Oxley (zither-banjo).

On Sunday evening, after the broadcast of the Church of Christ service, a studio concert will be given. Miss Marjory Miller (soprano), Mr. F. R. Hawker (baritone), Mr. Fred Fox (cornet), and Mr. W. Hay (flute) will be the artists.

4YA NOTES

On Sunday evening at 5.45 p.m. Big Brother Bill's Children's Song Service will be conducted. On this occasion he will be assisted by the choristers of St. Paul's Cathedral.

At 7 p.m. 4YA will relay the service from the Methodist Central Mission, when the preacher will be the Rev. W. H. Hocking. At the conclusion of the service, if fine weather prevails, the St. Kilda Band concert from the rotunda will be relayed.

Tuesday night's concert from 4YA will be provided by the St. Kilda Band, under the conductorship of Mr. James Dixon. A particularly fine programme will be presented, including Rossini's "Tancredi" and the selection "Oberon" by Weber. Interspersed between the band's selections will be vocal items and recitals, mostly of the lighter type. Mr. Percy James, the well-known comedian, will entertain with several very humorous songs, and Miss Mary Pratt (mezzo-soprano) will be heard in three Scottish numbers, including the ever-popular "My Ain Folk." Mrs. J. Marshall, the clever mezzo-soprano, will feature a group of popular numbers.

Recitals, mostly of a humorous nature, will be given by Miss Roberta Williams and Mr. J. B. McConnell on Tuesday evening.

Orchestral items from the Octagon Theatre, relayed at intervals throughout the evening, will be a feature of Thursday's programme. This orchestra, under the conductorship of Mr. L. D. Austin, will be heard in some works by the great masters.

Miss Rita Holmes (soprano), Miss Winnie McPeak (contralto), Mr. F. M. Tuohy (baritone), and Mr. E. G. Bond (bass) will provide the vocal portion of Thursday's programme, which comprises the works of modern composers in the ballad style. The instrumental part of the programme will include 'cello numbers by Mr. Malcolm Robilliard, and pianoforte solos by Miss Alice Wilson, F.T.C.L. Pastor W. D. More will again be on the air in another humorous address.

At 7.30 on Friday evening Mr. H. Greenwood, librarian of the Dunedin Athenaeum, will give another interesting review of the most recently published books. Mr. Greenwood's successful talks have been, until recently, delivered on Tuesday afternoons, and have been much appreciated. Now that Mr. Greenwood is speaking in the evening sessions his audience all over New Zealand will be much larger and more people will be able to avail themselves of his excellent advice on literary matters.

The evening concert on Friday will be presented by several of the front-rank artists in Dunedin. The vocal numbers comprise a wide selection of operatic works, ballads and musical comedy numbers, among which will be heard "Your Tiny Hand is Frozen," from "La Boheme," sung by Mr. L. E. Dalley, and "Frisky Love Lilt," sung by Miss C. M. Law (mezzo-soprano).

"If Thou Wert Blind" will be sung by Mr. J. B. Macpherson (bass), and

MR. CYRIL RISHWORTH, OF 3YA.

A popular baritone singer.

two numbers from "The Maid of the Mountains," "My Life is Love" and "Love Will Find a Way," will be presented by Miss Roma Buss.

Miss Maisie Macdonald, F.T.C.L., one of the pianistes in Dunedin who have attained the highest honours, will present pianoforte solos from the works of Beethoven, Chopin and Liszt.

Elocutionary items and musical monologues will be given by Miss Sheila Neilson.

An interesting programme presented by some of Dunedin's most talented artists, will be broadcast from 4YA on Saturday night. Orchestral music, under the conductorship of Mr. Charles Parnell, will be relayed at intervals from the Empire Theatre. The vocalists will be Miss Florence Sumner (soprano), Miss Irene Hornblow (contralto), Mr. R. A. Mitchell (tenor), and Mr. Arthur Lungley (baritone).

Full Programmes for Next

NOTES AND COMMENTS

(By "Switch.")

"Kelvin" (Wellington) has dropped me a line on shortwave reception. He writes: "About 1 o'clock on Wednesday morning of last week I picked up 2BL, Sydney, relaying the English short-wave station, 5SW, Chelmsford. Switched over to my shortwave outfit and got 5SW direct. He was relaying 2LO, London. There was a dance orchestra and vocal items. I tell you it came in with good loudspeaker volume with only slight variations in strength. The transmission was crystal-clear, and on the whole reception was the best I have yet obtained. This looks like great things in the near future."

To the people at 2YA, Wellington, permit me to pay my humble tribute for the way they rose to the occasion on the Tuesday the airmen were expected to arrive at Trentham from Sydney. It was no fault of the 2YA folk if the reports were incorrect that the aeroplane had been seen at this place and at that place. The public wanted the very latest reports, and they received them promptly. The description of the scenes at the Trentham racecourse was admirably done. Radio received a supreme advertisement on this occasion, for the man in the street was shown that the fellow who owned a radio set had the advantage over him.

Up till 2.30 o'clock on Wednesday morning 2YA, Wellington, was still on the air. Hundreds of listeners sat by their sets all through the night listening to the latest reports about the trans-Tasman aviators. One Wellington radio company operated a loudspeaker at their shop entrance and held an audience on the footpath until 2YA signed off at 2.30 a.m. It was an epic performance by 2YA, and the radio company availed themselves of it. Well done, 2YA! Well done, Natcia!

Deserving merit so often goes unsung, that one appreciates being in a position to give due credit to "Auntie Dot," "Uncle Sandy," and "Uncle Jasper," those delightful children's entertainers at 2YA, Wellington. I have received several brief notes commending my praise of those worthy persons, published last week. Exigency of space precludes publication of all these appreciative communications, but room can be found for a couple which are characteristic of the sentiment of my correspondents.

"Alfred T. N." (Kelburn) writes: "All who listen to the children's session at 2YA, Wellington, are not juveniles. It was with deep gratification that I read your eulogy of the kiddies' entertainers, "Aunt Dot," "Uncle Sandy," and "Uncle Jasper." This trio, I, too, believe, are the most competent I have yet heard, and my loudspeaker has brought in all the Australian and New Zealand children's sessions for three years past. Voice modulation is not the least evidence of the art of those three enjoyable entertainers at 2YA. Then, also, there is no slurring of syllables, and a due regard for correct intonation evidences a degree of perfection seldom attained by broadcast speakers. Yet, I cannot overlook the announcer at 1YA, Auckland, whose cultured, though rather higher-pitched voice and pleasing diction place him prominently among the announcers in this part of the globe. To the trio at 2YA, I say, "Carry on your noble work; continue to brighten the golden hours of childhood; for your kindly natures are bound to find quick response."

"Mater" (Thorndon) writes: "May I endorse your praise of the accomplished children's entertainers at 2YA, Wellington. Those gifted people contrive to create an 'atmosphere' which in our home is completely successful. The little ones have accustomed themselves to an intimacy with "Uncle Sandy," "Aunt Dot," and "Uncle Jasper," which is quite indescribable They are not ordinary mortals to our little ones. They are surrounded by the glory and mysticism of imaginative childhood, shared by the heroes and heroines of the fairy tales. Could we but all go back to those bewitching days, just for one brief hour, when those who peopled the tales of Anderson and Grimm were very real to us! Will "Uncle Sandy" kindly wave his wand and restore to us some of those tales of enchantment through the air. He will have a rapt audience in one little home. We grown-ups, too, would relish the telling by him."

"F.L." also writes: "While cordially agreeing with your commendation of 'Aunt Dot' and 'Uncles Sandy and Jasper,' I regret that mention of "Uncle Ernest' was omitted. I and my family thoroughly enjoy his session which is alive and vital to a degree. His personality comes through the microphone very very successfully and I would like him to know that his efforts for the children are enjoyed quite on a par with that of his able colleagues."

The "mixing panel" through which New York gets its Broadway theatrical production is an apparatus which is moved into the basement of the theatre from which the play is to be broadcast, and by the ingenious use of switches and numerous microphones the voices of the performers are always heard

Sunday, January 22nd

1YA AUCKLAND (333 METRES)—SUNDAY, JANUARY 22.

3 p.m.: Afternoon session—Selected Studio items.
4.0: Literary selection by Mr. Culford Bell.
4.30: Close down.
6.0: Children's service, conducted by Uncle Leo.
6.45: Close down.
6.55: Relay of church service from Pitt Street Methodist Church. Preacher, Rev. L. Dalby. Musical director, Mr. W. Leather.
8.30: Selected Studio items.
9.30: A thought.
9.32: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, JANUARY 22.

6 p.m.: Children's song service, conducted by Uncle Ernest.
6.55: Relay of evening service from Church of Christ, Vivian Street, Wellington. Preacher, Pastor W. G. Carpenter. Choirmaster, Mr. Will J. Mason.
8.30 (approx.): Studio concert.
Quartet—Etude Quartet, "The Heavens Proclaim Him" (Beethoven).
Soprano solo—Miss Gretta Stark, "How Beautiful Are the Feet" (Handel).
Quartet—Symons-Ellwood String Quartet, "First Movement, F Major Quartet" (Dvorak).
Tenor and vocal quartet—Mr. Frank Skinner and Etude Quartet, "Seek Ye the Lord" (Roberts).
Contralto solo—Miss Rita Arnold, "He Wipes the Tear" (Lee).
Instrumental quartet—Symons-Ellwood String Quartet, "Canzonetta" (Mendelssohn).
Baritone solo—Mr. Ray Kemp, "Lead, Kindly Light" (Evans).
Instrumental Quartet—Symons-Ellwood String Quartet, "Valse Triste" (Sibelius).
Quartet—Etude Quartet, "The Day is Gently Sinking to a Close" (Smart).

3YA CHRISTCHURCH (306 METRES)—SUNDAY, JANUARY 22.

5.45 p.m.: Children's song service from 3YA Studio, by Uncle Sam, assisted by choir of the New Brighton Presbyterian Sunday School.
7.15: Relay of evening service from Addington Show Grounds—South Island Conference, Seventh Day Adventists. Speakers: Mr. A. G. Stewart (of Sydney), vice-president of their Island Fields; Ratu Sailosi, Fijian Chief. Subject: "The Triumph of the Gospel in Cannibal Islands." Conductor, Mr. Llewellyn Jones. Organist, Mr. Phil Kilroy.

4YA DUNEDIN (463 METRES)—SUNDAY, JANUARY 22.

5.45 p.m.: Children's song service, conducted by Big Brother Bill, assisted by Choristers from St. Paul's Cathedral.
7.0: Relay of evening service from the Methodist Central Mission. Preacher, Rev. W. H. Hocking.
8.10: Relay from St. Kilda (weather permitting) of concert by the St. Kilda Band. Conductor, Mr. James Dixon.
9.10: Cose down.

Monday, January 23rd

1YA AUCKLAND (333 METRES)—MONDAY, JANUARY 23.

SILENT DAY.

2YA WELLINGTON (420 METRES)—MONDAY, JANUARY 23.

3 p.m.: Afternoon session—Selected Studio items.
Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
3.30: Lecturette—Representative of James Smith, Ltd., "Fashions."
3.45: Selected gramophone items.
5.0: Close down.
6.0: Children's hour—Aunt Jo. Gramophone selection, march. Aunt Jo sends birthday greetings. Piano solo, Cousin Edna, "In a Chinese City" (Niemann). Recitation, Cousin Isma, "The Moon Girl." Mouth-organ solos by Uncle Morrey. Aunt Barry, "Talks to Little Women." Piano solo, Cousin Edna, "Turkish March" (Mozart). Aunt Jo, story time and general chat. Gramophone selection, march.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Selections from Squire's Songs" (Squire).
8.5: Quartet—The Celeste Quartet, "The Anvil Chorus" from "Il Trovatore" (Verdi).
8.9: Steel guitar trios—Mrs. Mildred Kenny and party, (a) "Ever of Thee" (Hall); "In the Gloaming" (Harrison).
8.17: Bass solo—Mr. Wm. Boardman, "Song of the Toreador" from "Carmen" (Bizet).
8.22: Instrumental trio—Symons-Ellwood-Short Trio, "Scherzo, C Major Trio" (Brahms).
8.32: Soprano solo—Miss Myra Sawyer, "Doll's Song" (Offenbach).
8.37: Elocutionary—Miss Norah Burt, (a) "Little Waves of Breffney" (Gore-Booth); (b) "The Artist to Her Violin" (Gordon).
8.45: Pianoforte solo—Mr. Gordon Short, "Impromptu in F Sharp" (Chopin).
8.51: Vocal duet—Messrs. Edgar Swain and Wm. Boardman, "Fickle-hearted Mimi" from "La Boheme" (Puccini).
8.56: Musical novelty—Messrs. Walpole and Skedden, "The Disorderly Room."
9.2: Weather forecast.
9.4: Lecturette—Mr. Chas. E. Wheeler, "Politics: The Humour of It."
9.20: Instrumental trio—Symons-Ellwood-Short Trio, "Finale, C Major Trio" (Brahms).
9.30: Contralto solo—Miss Mabel Dyer, "Softly Awakes My Heart" from "Samson et Delilah" (Saint-Saens).
9.35: Steel guitar trio—Mrs. Mildred Kenny and party, (a) "A Kentucky Dance" (Smith); (b). "Kaniki March" (Smith).
9.43: Tenor solo—Mr. Edgar Swain, "M'Apaari" from "Martha' (Flotow).
9.48: Humorous recital—Miss Norah Burt, "They Never Quarrelled" (Anon.).
9.52: Musical novelty—Messrs. Walpole and Skedden, "A Curtain Lecture" (Henry).
9.58: Quartet—The Celeste Quartet, "Hunting Chorus" from "Dorothy" (Cellier).
10.0: God Save the King.

3YA CHRISTCHURCH (306 METRES)—MONDAY, JANUARY 23.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's hour—Chuckle and Aunt Pat, bedtime stories, songs, birthday greetings and letters.
7.15: News and reports.
8.0: Chimes. Relay of orchestral selections from the Strand Picture Theatre (by kind permission of the management). Orchestra under the conductorship of Mr. Harry Ellwood.
Studio concert by the Christchurch Municipal Band, under the conductorship of Mr. A. J. Schnak, assisted by 3YA artists.
8.15: Soprano and contralto duet—Misses Lucy Fullwood and Mary Taylor, "The Voyagers" (Sanderson).
8.19: March—The Band, "Conqueror" (Moorhouse).
8.27: New ideas by Mr. J. J. Flewellyn, "On Bolshevism" (M.S.), (own version).
8.32: Selection—The Band, "Verdi" (Round).
8.42: Mezzo-soprano solo—Miss Anita Graham, "Blind Girl's Song" from "La Giaconda" (Ponchielli).
8.45: Hymn—The Band, "Sandon" (Dykes).
8.53: Tenor solos—Mr. W. Bradshaw, (a) "In Moonlight" (Elgar); (b) "The Holy City" (Adams).
9.0: Weather forecast.
9.1: Relay of orchestral selections from Strand Picture Theatre.
9.15: Contralto solo—Miss Mary Taylor, "The River" (Elgar).
9.18: Waltz—The Band, "Dreaming of Brown Eyes" (Mayne).
9.28: Talk—Mr. J. J. Flewellyn, of his opinions "On Bobbed Hair" (own version), (M.S.).
9.33: Overture—The Band, "Tancredi" (Rimmer).
9.43: Mezzo-soprano solo—Miss Anita Graham, "Fierce Flames Are Raging" from "Il Trovatore" (Verdi).
9.48: Fox-trot—The Band, "Sweet as a Rose" (Evans).
9.54: Tenor solo—Mr. W. Bradshaw, "Tom Bowling" (Dibdin).
9.58: Soprano and contralto duet—Misses Lucy Fullwood and Mary Taylor, "Sing! Sing, Sweet Bird on the Wing" (Nutting).
10.1: March—The Band, "Half-and-Half" (Morrison).
God Save the King.

4YA DUNEDIN (463 METRES)—MONDAY, JANUARY 23.

SILENT DAY.

Tuesday, January 24th

1YA AUCKLAND (333 METRES)—TUESDAY, JANUARY 24.

3 p.m.: Afternoon session—Selected Studio items.
4.0: A literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: The children's hour, conducted by Uncle Leo.
7.0: Close down.
7.15: Talk on "What is Top Dressing," by Mr. H. H. Edwards.
7.30: News and reports.
7.45 Close down.
8.0: Chimes.
8.1: Relay of orchestral overture from Majestic Theatre—J. Whiteford-Waugh, conductor.
8.11: Baritone solos—Mr. Walter Brough, (a) "Harbour Night Song" (Sanderson); (b) "Tired Hands" (Sanderson).
8.19: Cornet solo—Mr. Fred. Bowes, "Wendowree" (Code).
8.24: Soprano solo—Mrs. J. Parry, "Down in the Forest" (Landon Ronald).
8.28: Relay of musical interlude from Majestic Theatre.
8.33: Tenor solos—Mr. Robert Peter, (a) "Mother o' Mine" (Tours); (b) "Songs My Mother Taught Me" (Dvorak).
8.41: 'Cello solo—Miss Lalla Hemus, "The Swan" (Sain-Saens).
8.45: Contralto solo—Madame Irene Ainsley, "Ombra mai fu" (violin obbligato by Miss Ina Bosworth) (Handel).
8.49: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Handel in the Strand" (Percy Grainger).
8.58: Talks on "Old New Zealand," by Mr. A. B. Chappell, (1), "The Days Before Discovery."
9.15: Evening forecast.

Week - All Stations - to Jan. 29

9.17: Relay of orchestral entr'acte from Majestic Theatre.
9.27: Bartione solo—Mr. W. Brough, "A Border Ballad" (Cowan).
9 31: Cornet solos—Mr. F. Bowes, (a) "Star of Bethlehem" (Adams); (b) selected.
9.39: Vocal duet—Messrs. R. Peter and W. Brough, "The Moon Hath Raised" ("Lily of Killarney"), (Benedict).
9 43: Soprano solo—Mrs. J. Parry, "Deh vieni non Tardar" ("Le Nozzo di Figaro"), (Mozart).
9.47: Instrumental trio—The Bosworth-Hemus-Towsey Trio, "Trio in D Major, Op. 70, No. 1" (Beethoven).
9.55: Prison scene from "Il Trovatore" (Verdi). Leonora, Mrs. Parry; Azucona, Madame Irene Ainsley; Manrico, Mr. Robert Peter.
10.10: A thought.
10.12: Close down.

2YA WELLINGTON (420 METRES)—TUESDAY, JANUARY 24.

3 p.m.: Afternoon session—Selected Studio items.
Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
3.30: Lecturette—Mrs. Barrington, of Turnbull and Jones, Ltd., "Electric Cooking."
3.45: Selected gramophone items.
4.0: Lecturette—L. A. Line, "First Aid."
4.15: Selected gramophone items.
5.0: Close down.
6.0: Children's hour—Uncle Jasper. Gramophone selection. Pianoforte solo, Cousin Phyllis, "Fireflies on Parade" (Bennett). Uncle Jasper sends birthday greetings. Musical medley; Pat and Mike (concertina, mouth-organ, accordian, etc.). Pianoforte solo, Cousin Phylliis, "Remembrance" (Oswald). Uncle Jasper, story time and general fun. Gramophone selection.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Madame Pompadour" (Fall).
8.5: Quartet—Orpheus Quartet, "Home Again" (traditional).
8.9: Italian mandolin—Mr. Lad Haywood, "Me and My Shadow" (Dreyer).
8.15: Baritone solo—Mr. Len Barnes, "When You and I Were Young, Maggie" (traditional).
8.20: Instrumental trio—Symons-Ellwood-Short Trio, "Allegro from Trio in C Minor" (Mendelssohn).
8.30: Tenor and quartet—Mr. Arthur Coe and Orpheus Quartet, "Kentucky Home" (traditional).
8.34: Elocutionary—Miss Violet Wilson, "Tale of Old Japan" (Noyes).
8.40: 'Cello solo—Mr. Geo. Ellwood, "Traumerei" (Schumann).
8.46: Contralto solo—Miss Lily Mackie, "Shells of the Ocean" (traditional).
8.50: Weather forecast.
8.51: Lecturette—Mr. Stanley W. Fearn, A.R.I.B.A., "Architecture."
9 6: Organ recital—Mr. Harry Brusey, (a) "Priere et Berceuse" (Guilmant); (b) "Cantelene in A Flat" (Wolstenholme); (c) "Finale" (Lemmens).
9.20: Soprano solo and quartet—Mrs. Alice Harris and Orpheus Quartet, "Stay in Your Own Backyard" (traditional).
9.24: Instrumental trio—Symons-Ellwood-Short Trio, "Miniature Trio" (Gurlitt).
9.34: Tenor solo—Mr. Arthur Coe, "Old Rustic Bridge" (traditional).
9.38: 'Cello solo—Mr. Geo. Ellwood, "Priere" (Squire).
9.42: Vocal duet—Mrs. Alice Harris and Mr. Len Barnes, "Money Matters" (traditional).
9.46: Italian mandolin—Mr. Lad Haywood, "What Does It Matter" (Berlin).
9.50: Soprano solo—Mrs. Alice Harris, "Garden of Sleep" (tradiitonal).
9.54: Humorous recital—Miss Violet Wilson, "A Victory for the Dentist" (Anon.).
9.58: Quartet—Orpheus Quartet, "Does Your Heart Beat True" (traditional).
10.0: God Save the King.

3YA CHRISTCHURCH (306 METRES)—TUESDAY, JANUARY 24.

SILENT DAY.

4YA DUNEDIN (463 METRES)—TUESDAY, JANUARY 24.

3 p.m.: Town Hall chimes.
3.1: His Master's Voice recital.
3.30: Address on "Fashions," by Miss Buccleuch, of the D.S.A.
3.45: Studio items.
4.0: Address on "The Domestic Uses of Electricity," by Mr. G. J. Butcher, of Turnbull and Jones.
4.15: His Master's Voice recital.
4.30: Close down.
6.0: Town Hall chimes. Children's hour—Big Brother Bill. Brother Allan plays the violin, Sister Nell plays the piano, and Brother Davy will sing. "The Happy Ditty," letters, birthdays, and one of Big Brother Bill's stories, not frogetting the Lollie Recipe.
7.15: News session.
7.30: Address on "Back to Otago," by Mr. W. B. Steele, secretary of Otago Expansion League.
8.0: Town Hall chimes. Concert by the St. Kilda Band, under the direction of Mr. James Dixon, and assisting artists.
8.1: March—The Band, "The Conqueror" (Rimmer).
8.5: Overture—The Band, selected.
8.17: Vocal solos—Mr. Percy James, (a) "By the Sad Sea Waves" (Stuart); (b) "Exercise" (Whittle).
8.24: Recital—Miss Roberta Williams, "Uncle Josiah's Idea on Women."
8.30: Trombone solo, with band accompaniment—Mr. T. Stalker ,"The Trumpeter" (Dix).
8.35: Mezzo-soprano solos—Mrs. J. Marshall, (a) "Tokio" (Condor); (b) "Somewhere" (Akst).
8.42: Recital—Mr. J. B. McConnell, "Lasca" (Duprez).
8.48: Selection—The Band, "Oberon" (Weber .)
9.0: Contralto solo—Miss Mary Pratt, "My Ain Folk."
9.5: Recital—Miss Roberta Williams, "Next Week."
9.10: Fox-trots—The Band, (a) "At Sunrise" (Donaldson); (b) "Riveriera" (Donaldson).
9.16: Vocal solo—Mr. Percy James, "Singers and Talkers" (Kent).
9.20: Humorous recital—Mr. J. B. McConnell, "A Dorg's Life."
9.26: Selection—The Band, "Hymns."
9.32: Mezzo-soprano solo—Mrs. J. Marshall, "Moonbeam, Kiss Her for Me" (Woods).
9 36: Recital—Miss Roberta Williams, "After the Marriage."
9.41: Waltz—The Band, "Always Peaceful."
9.51: Contralto solos—Miss Mary Pratt, (a) "John Anderson, My Jo"; (b) "My Heart is Sair."
9.57: Recital—Mr. J. B. McConnell, "Shut Up" (Limbery).
10.4: God Save the King.
10 6: Close down.

Wednesday, January 25th

1YA AUCKLAND (333 METRES)—WEDNESDAY, JANUARY 25.

3 p.m.: Afternoon session—Selected Studio items.
4.0: A literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: Children's session—Uncle Tom.
7.0: Close down.
7.15: News and reports.
7.45: Close down.
8.0: Chimes.
8.1: Relay of overture from Rialto Theatre—Henry C. Engel, conductor.
8.11: Duet—Messrs. Dellore and Ballance, "In This Solmen Hour" (Verdi).
8.16: Soprano solo—Miss J. Dellore, "Mother, You Know the Story" (Mascagni).
8.20: Cornet—Messrs. Davies and Salthouse, (a) "In the Garden of My Heart"; (b) entr'acte.
8.27: Duet—Mr. and Miss Dellore, selected.
8.31: Trio—Bosworth-Hemus-Towsey Trio, "Largo Assai, Op. 70" (Beethoven).
8 39: Contralto solo—Miss Beryl Smith, "Three Fishers" (Hullah).
8.44: Bass solo—Mr. M. Ballance, "That Lil Feller Wiith His Mammy's Eyes" (Gordon).
8.48: Mr. Cyril Towsey, "In Senta's Spinning Room" (Handel).
8.53: Elocution—Mr. T. Harris, "Bannerman Rode the Grey" (Werner).
8.59: Duet—Miss B. Smith and Mr. Dellore, "In Springtime" (Newton).
9.5: Evening forecast.
9.6: Relay of orchestral music from Rialto Theatre.
9.18: Tenor solo—Mr. J. Dellore, "Where'er You Walk" (Handel).
9.23: Duet—Miss Smith and Mr. Ballance, "I Was Dreaming" (Junker).
9.28: Elocution—Mr. Thomas Harris, (a) "The Old Warrior"; (b) "The Cynic."
9.36: Trio—Bosworth-Hemus-Towsey Trio, "Presto, Op. 70" (Beethoven).
9.46: Duet—Messrs. Dellore and Ballance, "O Mimi" ("La Boheme"), (Puccini).
9 51: Cornet duo—Messrs. Davies and Salthouse, "Ida and Dot."
9.56: Quartet—The Ariel Quartet, scene from "Pirates of Penzance" (Sullivan).
10.1: Close down.

2YA WELLINGTON (420 METRES)—WEDNESDAY, JANUARY 25.

SILENT DAY.

3YA CHRISTCHURCH (306 METRES)—WEDNESDAY, JANUARY 25.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's hour—Uncle Sam and Aunt Pat. Bedtime stories, songs, and letters.
7.15: Addington stock market reports.
7.30: News and reports.
8.0: Chimes. Relay of orchestral selections from Grand Picture Theatre Orchestra, under the direction of Mrs. Black.
8.15: Bass solo—Mr. W. J. Richards, "Banjo Song" (Homer).
8.18: Vocal quartet—Mrs. Claris Shaw, Miss Mildred Russell, A.T.C.L., Messrs. Gregory Russell and W. J. Richards, "Drink to Me Only" (Britton).
8.20: Instrumental trio—Christchurch Broadcasting Trio, "First Movement of C Major Trio" (Mozart).
8.30: Humorous recital—Mr. Albert Spicer, "The Intrusion" (own version).
8.35: Tenor and contralto solo—Mr. Gregory Russell and Miss Mildred Russell, "Somewhere a Voice Is Calling" (Tate).
8.38: Soprano solo—Mrs. Claris Shaw, "In the Time of Roses" (Corbett).
8 42: Violin solo—Miss Irene Morris, "Tempo di Menuetto" (Pugnani-Kreisler).
8.46: Vocal quartet—Mrs. Claris Shaw, Miss Mildred Russell, Messrs. Gregory Russell and W. J. Richards, "Maid in the Moon" from "San Toy" (Jones).
8.50: Contralto solo—Miss Mildred Russell, "L.A.B., A.T.C.L., "Mignonne! Here is April" (Del Riego).
8 53: Tenor solo—Mr. Gregory Russell, "Take a Pair of Sparkling Eyes" from "Gondoliers" (Sullivan).
8.56: Vocal duet—Mrs. Claris Shaw and Miss Mildred Russell, "Golden Bird" (Wood).
9.0: Weather report.
9.1: Relay of orchestral selections from Grand Theatre.
9 15: Bass solo—Mr. W. J. Richards, "The Farmer's Pride" (Russell).
9.19: Violin solo—Miss Irene Morris, "Liebeslied" (Kreisler).
9.22: Contralto solo and chorus—Miss Mildred Russell, L.A.B., A.T.C.L., and quartet, "My Moon" (Pelissier).
9.27: Instrumental trios—Christchurch Broadcasting Trio, (a) "Melodie Mignonne"(Sinding); (b) "Duet" (Bizet); (c) "Anitra's Dance" from "Peer Gynt" (Grieg).
9.37: Soprano solo—Mrs. Claris Shaw, "Learn to Smile" from "O'Brien Girl" (Hirsch).
9.41: Tenor solo and chorus—Mr. Gregory Russell, "O Dinah, Dear" (Barnes).
9.45: Humorous recital—Mr. Albert Spicer, (a) "Humorous Stories" (own version); (b) "'Is Pipe" (own version).
9.55: Vocal quartet—Mrs. Claris Shaw, Miss M. Russell, Messrs. G. Russell, and W. J. Richards, "Lay Me Down to Sleep in Carolina" (Ager).
God Save the King.

4YA DUNEDIN (463 METRES)—WEDNESDAY, JANUARY 25.

SILENT DAY.

Thursday, January 26th

1YA AUCKLAND (333 METRES)—THURSDAY, JANUARY 26.

3 p.m.: Afternoon session—Selected Studio items.
4.0: A literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: The children's hour, conducted by Peter Pan.
7.0: Close down.
7.15: News and reports, book review.
7.45: Close down.
8.0: Chimes.
8.1: Relay of orchestral overture from Princess Theatre—Howard Moody, conductor.
8.16: Vocal quartet—The Premiere Quartet, "The Sands of Dee" (MacFarren).
8.20: Baritone solo—Mr. H. Barry Coney, "Silent Noon" (Vaughan-Williams).
8 25: Musical sketch—The Griffiths Duo, "Adventures by the Sea."
8.31: Soprano solo—Miss Christina Ormiston, "Waltz Song" from "Tom Jones" (German).
8.35: Instrumental trio—The Bosworth-Hemus-Towsey Trio, "Trio in D Major, Adagio and Allegro, Musette, Andante, Allegro" (Handel).

clearly and never appear to retreat from or come too close to the microphone. In the intervals between the lines an observer describes what is happening.

One of the most successful and realistic "interludes" ever staged at 4QG, Brisbane, was put on the air one night recently under the title "All Aboard." The "effects" were exceptionally well carried out, and many listeners, no doubt, closed their eyes and thought they were being taken on a pleasure trip to Sydney. The trams in Queen Street, the motor-cars, the crowd talking at the wharf, the ship's bells, the creak of the gangway, the revelry in the music room after dinner, and the landing in Sydney, all had their place in the playlet. The only effect missing was the roll of the ship as she entered the broad Pacific from the calm of Moreton Bay.

Seventy-five people participated in a radio telephony talk between New York and London in the early hours of a recent November morning. The demonstration of the Transatlantic service was made in connection with the visit to New York of the delegates to the Washington International Radio Conference. Each conversation was necessarily brief, but every word was heard clearly on both sides of the Atlantic.

Programmes Continued

8.45: Vocal trios—The Snappy Three, (a) "Baby Feet Go Patter, Patter"; (b) "Ain't She Sweet?" (c) piano selection.
8.52: Tenor solo—Miss Birrell O'Malley, "La Donna e Mobile" ("Rigoletto"), (Verdi).
8.56: Contralto solo—Miss Mina Caldow, "Elegie" (Massenet).
9 0: Evening forecast.
9.2: Relay of orchestral interlude from Princess Theatre.
9.17: Baritone solo—Mr. H. Barry Coney, "Alleluia" (O'Connor).
9.21: Humorous sketch—The Griffiths Duo, "House Hunting."
9.26: Violin—Miss Ina Bosworth, "Scherzo" (Dittensdoff-Kreisler).
9.30: Soprano solo—Miiss Christina Ormiston, Love's a Merchant" (Sanderson).
9.34: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio in D Major, Musette, Marset, Gavotte, Allegro" (Handel).
9.44: Tenor solo—Mr. Birrell O'Malley, "Serenade" (Toselli).
9.48: Contralto solo—Miss M. Caldow, "Chant, Hindoo" (Bemberg).
9.52: Vocal trios—The Snappy Three, (a) "In Shadowland"; (b) "Pretty Little Baby"; (c) piano, jazz selection.
10.1: Vocal quartet—The Premiere Quartet, "Softly Falls the Shades" (Silas).
10.5: A thought.
10.7: God Save the King.

2YA WELLINGTON (420 METRES)—THURSDAY, JANUARY 26.

3 p.m.: Afternoon session—Selected Studio items.
Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
3.30: Available sports results.
5.0: Close down.
6.0: Children's hour—Uncle Sandy's hour. Gramophone selection. Birthday rhymes by Uncle Sandy. Entertainment for the kiddies, our old friends of the nursery visit 2YA, Wellington. Mother Hubbard and her train. Gramophone selection. Uncle Sandy, story time.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: March—First Wellington Regiment Band, "The Boomerang" (White).
8 5: Quartet—The Etude Quartet, "See Our Oars With Feathered Spray" (Stevenson).
8.9: Waltz—First Wellington Regiment Band, "River of Pearls" (Rimmer).
8 14: Contralto solo—Miss Rita Arnold, "Brown Eyes" (Del Riego).
8.18: Selection—First Wellington Regiment Band, "The Bing Boys Are Here" (arr. Douglas).
8 26: Vocal duet—Messrs. Frank Skinner and Ray Kemp, "Flow, Gently Deva" (Parry).
8.30: Cornet solo—Bandsman W. Bark, "The Triplet" (Reynolds).
8.35: Mezzo-soprano—Miss Freda Dencker, "Come, My Darling" (Wagner).
8.40: Trombone solo—Bandsman W. J. Matson, "The Jigsaw" (Sutton).
8 46: Quartet—The Etude Quartet, "Peacefully Slumbering" (Strace).
8.50: Fox-trot—First Wellington Regiment Band, "Somebody's Lonely" (Gold).
8.55: Soprano solo—Miss Gretta Stark, "Should He Upbraid?" (Bishop).
9.0: Weather forecast.
9 2: Lecturette—Representative Birds' Protection Society, "Native Birds."
9.14: Baritone solo—Mr. Ray Kemp, "Don Juan's Serenade" (Tschaikowsky).
9.18: Selection—First Wellington Regiment Band, "Bric-a-Brac" (Douglas).
9.28: Vocal duet—Misses Gretta Stark and Rita Arnold, "Fairy Voices" (Dunn).
9.33: Selection—First Wellington Regiment Band, "Drink to Me Only With Thine Eyes" (Hawkins).
9.41: Tenor solo—Mr. Frank Skinner, "Hedgin' and Ditchin'" (Martin).
9 45: Mezzo-soprano solo—Miss Freda Dencker, "Faith in Spring" (Schubert).
9.50: Quartet—The Etude Quartet, "Huntsmen's Chorus" from "Der Freischu'z" (Weber).
9.55: March—First Wellington Regiment Band, "Nutgrove" (Hart).
10.0: God Save the King.

3YA CHRISTCHURCH (306 METRES)—THURSDAY, JANUARY 26.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's hour—Chuckle.
7.15: News and reports.
7.30: Talk—Mr. R. E. Alexander, Lincoln College, "Factors Influencing the Stock-carrying Capacity of a Farm."
8.0: Chimes. Relay of orchestral selections from Everybody's Picture Theatre Orchestra, under the direction of Mr. Albert Bidgood.
Scottish concert by Madame Gower-Burns's Grand Operatic Quartet.
8.15: Bariton esolo—Mr. Bernard Rennell, "Scotland, My Ain" (Chuter).
8.18: Soprano solo—Madame Gower-Burns, "The Blue Bells of Scotland" (arr. Brown).
8.21: Humorous sketch—Miss Lucy Cowan and Mrs. H. McLeod, "Just Missed the Train" (Bell).
8 26: Tenor solo—Mr. Harold Prescott, "Afton Water" (Hume).
8.29: Instrumental trio—Christchurch Broadcasting Trio, "Andante Cantabile from C Major" (Mozart).
8.39: Contralto solo—Miss Jessie King, "Doon the Burn, Davie, Love" (Hook).
8.42: Vocal quartet—Madame Gower-Burns, Miss Jessie King, Messrs. H. Prescott and B. Rennell, "Ye Banks and Braes" (Scottish folk song, arr. Rimbaul).
8.45: Soprano solo—Madame Gower-Burns, "Loch Lomond" (Anon.).
8.49: Pianoforte solo—Miss Lucy Fullwood,"In the Woods" (Heller).
8.55: Baritone solo—Mr. Bernard Rennell, "Bonnie George Campbell" (Keel).
8.59: Weather forecast.
9.0: Relay of orchestral selections from Everybody's Theatre.
9 15: Contralto solo—Miss Jessie King, "Cam Ye by Athol" (Gow).
9.18: Tenor solo—Mr. Harold Prescott, "Jessie, the Flower of Dumblane" (Rimbault).
9.21: Humorous sketch—Miss Lucy Cowan and Mrs. H. McLeod, "Oh, Christina" (Bell).
9.26: Vocal duet (soprano and contralto)—Madame Gower-Burns and Miss Jessie King, "Row Weel, My Boatie, Row Weel" (Smith).
9.28: Instrumental trios—Christchurch Broadcasting Trio, (a) "A Doubt" (Glinka); (b) "Czardas" (Delibes).
9.38: Tenor solo—Mr. Harold Prescott, "Mary of Argyle" (Nelson).
9.41: Soprano solo—Madame Gower-Burns, "Annie Laurie" (arr. Lehmann).
9.44: Vocal quartet—Madame Gower-Burns, Miss Jessie King, Messrs. Prescott and Rennell, "Wi' a Hundred Pipers" (West).
9.48: Instrumenttal trio—Christchurch Broadcasting Trio, selected.
9.58: Contralto solo—Miss Jessie King, "Leezie Lindsay" (Lees).
10.1: Pianoforte solo—Miss Lucy Fullwood, "The Return," being the last or third movement of "Sonata, Opus 81" (Beethoven).
10.6: Baritone solo—Mr. Bernard Rennell, selected.
10.9: Vocal quartet—Madame Gower-Burns, Miss Jessie King, Messrs. H. Prescott and B. Rennell, "Auld Lang Syne" (Rimbault).
God Save the King.

4YA DUNEDIN (463 METRES)—THURSDAY, JANUARY 26.

7 p.m.: Town Hall chimes.
7.1: Request gramophone concert.
7.30: News session.
8.0: Town Hall chimes. Relay of orchestral music from the Octagon Theatre Orchestra, under the direction of Mr. L. D. Austin.
8.11: Bass solos—Mr. E. G. Bond, (a) "Invictus" (Huhn); (b) "Lighterman Tom" (Squire).
8.18: 'Cello solo—Mr. Malcolm Robilliard, "Nocturne" (Chopin).
8 23: Soprano solo—Miss Rita Holmes, "Go Down to Kew in Lilac Time" (Peel).
8.27: Piano solo—Miss Alice Wilson, F.T.C.L., "Impromptu in B Flat" (Schubert).
8 32: Baritone solos—Mr. F. M. Tuohy, (a) "Rest, Thee, Sad Heart" (Del Riego); (b) "Tired Hands" (Sanderson).
8.39: Orchestral music, relayed from the Octagon Theatre.
8 50: Address—Pastor W. D. More, selected.
9.5: Contralto solo—Miss Winnie McPeak, "Little Red Dawn" (Chuter).
9.9: 'Cello solo—Mr. Malcolm Robilliard, "Andantino" (Lemare).
9 14: Bass solo—Mr. E. G. Bond, "Simon the Cellarer" (Ha'ton).
9 18: Piano solo—Miss Alice Wilson, "Chanson Triste" (Tschaikowsky).
9 23: Soprano solos—Miss Rita Holmes, (a) "Song of Sunshine" (Goring-Thomas); (b) "Spirit Flower" (Tipton).
9 30: Orchestral musical relayed from the Octagon Theatre.
9.40: Baritone solo—Mr. F. M. Tuohy, "So Fair a Flower" (Lohr).
9.44: 'Cello solo—Mr. Malcolm Robilliard, "Aria" (Tengalia).
9 49: Contralto solos—Miss Winnie McPeak, (a) "Big Brother Day" (Chuter). (b) "Twilight is a Maiden Fair" (Chuter).
9.55: Piano solo—Miss Alice Wilson, "La Fileuse" (Roff).
10.0: Close down.

Friday, January 27th

1YA AUCKLAND (333 METRES)—FRIDAY, JANUARY 27.

3 p.m.: Afternoon session—Selected Studio items.
4.0: A literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: The children's hour, conducted by Nod.
7 0: Close down.
7.15: Talk on "Motoring," by Mr. Geo. Campbell.
7.30: News and reports.
7.45: Close down.
8.0: Chimes.
8.1: Relay of orchestral overture from Strand Theatre—Eve Bentley conducting.
8.16: Vocal quartet—The Waiata Quartet, "Cast Thy Burden" (Mendelssohn).
8 20: Sketch—Miss Lynda Murphy, "Banana Oil."
8.25: Tenor—Mr. Ernest Snell, "Tangi" (Hill).
8.30: Flute solo—Mr. Hal McLennan, "Lucia Fantasia" (Kohler).
8.35: Soprano solos—Miss Lola Solomon, (a) "Rose Softly Blooming" (Spohr); (b) "The Old Refrain" (arr. Kreisler).
8.43: Baritone solo—Mr. Frank Sutherland, "Ever Bravest Heart" ("Faust"), (Gounod).
8.48: Talk on "The Pronunciation of Maori Words and Maori Names," by Mr. J. F. Montague.
9.3: Evening forecast.
9.5: Relay of orchestral interlude from Strand Theatre.
9 20: Tenor—Mr. Ernest Snell, "Black Roses" (Sibelius).
9.24: Duet—Mrs. Cyril Towsey and Miss Lola Solomon, "Crucifix" (Lohr).
9.29: Flute solo—Mr. Hal McLennan, "The Nightingale and the Frog" (Eilenberg).
9.34: Mezzo-soprano solo—Mrs. Cyril Towsey, "By the Sea" (Schubert).
9.38: Sketches—Miss Lynda Murphy, (a) "Daddy and Baby"; (b) "Good Girl."
9.46: Duet—Mrs. C. Towsey and Miss L. Solomon, "The Day is Done" (Lohr).
9.51: Flute solo—Mr. H. McLennan, selected.
9.55: Quartet—Waiata quartet, "When Evening's Twilight."
10.0: A thought.
10.2: God Save the King.

2YA WELLINGTON (420 METRES)— FRIDAY, JANUARY 27.

2.30 p.m.: Cricket resumes of Plunket Shield match—Wellington v. Auckland, on relay from Basin Reserve, Mr. A. Varney announcing. Interspersed with selected gramophone items and lecturette by Miss Christian, of Wellington Gas Company on "Gas Cooking."
6.0: Children's hour—Uncle Ernest and party.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Further Instrumental Selections from W. H. Squire's Popular Songs" (Squire).
8.5: Vocal quartet—The William Renshaw Quartet, "Hail, Smiling Morn" (Spofforth).
8.9: Humorous recital—Mr. Peter Dorrian, "The Widowed Earwig" (Thomas).
9.15: Soprano solos—Mrs. Amy Dunn, (a) "Killarney" (Balfe); (b) "Dear Little Shamrock" (Jackson).
8.22: Instrumental trio—Symons-Ellwood-Short Trio, "First Movement, C Major, Trio VI" (Mozart).
8.32: Baritone solo—Mr. Wilbur Davies, "The Mountains of Mourne" (Collisson).
8.36: Banjo trios—Mrs. Mildred Kenny and party, (a) "Old Comrades' March" (Teike); (b) "Comical Coons" (Grimshaw).
8.44: Vocal quartet—The William Renshaw Quartet, "Eileen Alannah" (folk song).
8.48: Violin solo—Miss Ava Symons, "Romance in G" (Beethoven).
8.53: Tenor solo—Mr. William Renshaw, (a) "Maire, My Girl" (Aitken); (b) "Absent" (Metcalf).
9.0: Saxophone solo—Mr. E. J. Askenbeck, "Saxophone Scandals" (Dornberger).
9.5: Weather forecast.
9.7: Lecturette—Editor-Announcer, "Imperial Affairs."
9.19: Instrumental trio—Symons-Ellwood Short Trio, "Finale, F Major Trio" (Saint-Saens).
9.29: Contralto solos—Miss Nora Greene, (a) "Silent Vale" (Stephenson); (b) "Hills of Donegal" (Sanderson).
9.35: Violin solo—Miss Ava Symons, "First Arabesque" (Debussy).
9.40: Soprano solo—Mrs. Amy Dunn, "By the Waters of Minnetonka" (Licurance).
9.44: Banjo trios—Mrs. Mildred Kenny and party, (a) "Norton's March" (Norton); (b) "I'm a Little Fond of You" (Caesar).
9 50: Humorous recital—Mr. Peter Dorrian, "The Obstructive Hat" (Anon.).
9.53: Baritone solo—Mr. Wilbur Davies, "Bryan of Glenaar" (Graham).
9.56: Saxophone solo—Mr. E. J. Askenbeck, "Consolation."
9.59: Vocal quartet—The William Renshaw Quartet, "Where my Caravan has Rested" (Lohr).
God Save the King.

3YA CHRISTCHURCH (306 METRES)—FRIDAY, JANUARY 27.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's hour—Peterkin. Bedtime stories, songs, and letters.
7.15: News and reports.
8.0: Chimes. Relay of orchestral selections from Crystal Palace Picture Theatre Orchestra, under the direction of Mr. A. J. Bunz.

Sensibly used, a five valve receiving set will save its cost many times over by entertaining the family inexpensively and giving the youngsters better mental food that they are fed ordinarily in places of amusement. Games can be organised, based on distance covered and numbers of stations brought in by the different members. Evenings at home can be made as thrilling by such means as many of the outside attractions. A whole neighbourhood group may be held together and safely led through the perilous years of adolescence.

Very often a nut is removed from some terminal in a radio receiver for the insertion of an extra soldering lug or wire. The experimenter, suddenly possessed with all thumbs, is often aggravated by his inability to get the nut back on the screw. An extremely simple method of replacing the nut is to take a wooden pencil, which has the lead point broken, and forcing its pointed end into the nut so that it is securely held in place. By then placing the nut over the threaded portion of the terminal, it is a comparatively simple matter to revolve it a few turns, so that the threads will mesh. The use of a pair of pliers or a "spin tite" wrench will then tighten the nut so that a good contact is provided.

Dry-cell valves can be used in some positions in a set and the larger valves in other positions. Trying different valves in different positions is one of the favourite indoor sports of the experimenter. The new poer valves have opened new possibilities in both volume and clarity of reception. A dry-cell valve is excellent as a radio-frequency amplifier in a set with 6-volt valves.

The old practice of mounting most of the parts of a receiving set on the upright panel is disappearing. Now, as many parts as possible are placed on the base or sub-panel. The advantage is obvious. Parts that might be affected by the body capacity of the operator are farther from him. Heavy parts that once placed considerable strain upon the thin upright panel, because of the leverage that an unbalanced weight has on its point of support, now sit securely on a firm foundation. If a modern set should slip from the hands of a man who was placing it on a table, and fall a few inches, it probably would sustain little if any damage. A heavily loaded panel might be split by the same kind of mishap.

Considerable confusion often results in wiring a receiver from a blue print, due to the fact that difficulty is experienced in remembering just what circuits have been completed. If the home constructor will obtain a blue crayon and cross out those wires and connections which he has made, from the blue print, he will have an accurate check as to which wires and connections have been made. This method has its advantages and after having once been used, will be resorted to at all times.

A convenient method for connecting batteries to a receiver is in the use of a valve base from a burnt out valve and a standard valve socket. The glass portion of the tube is removed by heating the sealing compound and breaking the glass away. Four coloured wires are then soldered to the valve base prongs, sealing wax poured into the opening, and flushed off at the top of the base. The four wires are then cabled and connected to the "A" positive, "A" negative, "B" detector and "B" amplifier terminals of the batteries. A socket is then wired into the receiver, using the same polarity on the terminals as has been observed in the tube base and battery cable. This makes an extremely simple battery cable and in the event that more than four wires are necessary, it is possible to double the arrangement by using another tube base and socket for any extra connections. The jumper between the "A" and "B" batteries may be either connected internally or externally from the receiver.

Perhaps no safer, quieter or more satisfactory source of power is a good storage "A" battery, a storage "B" battery with enough cells to deliver ninety volts or more, and an efficient battery charger. A trickle charger will take care of a battery and keep it in first-class order. Some chargers will deliver either a trickle charge or a higher charge as may be desired.

The majority of loudspeaker cords have one of the wires equipped with a red tracer. The wire, thus marked should at all times be connected to the "B" positive of the loudspeaker output of the receiver unless an output transformer is used. Damage may result to the speaker if the "B" battery voltage is applied to the wrong terminal. A convenient method for testing whether or not the polarity is correct, is to connect the speaker to the output of the receiver and observe the quality and volume of reproduction. Then reverse the terminals and repeat. If the volume and reproduction is of a better order, it is safe to allow the connections to remain. If, on the other hand, a decided decrease in quality and volume is observed, reverse the terminals to their original polarity.

Programmes Continued

8.15: Vocal quartet—The Melodious Four, "The Shepherds" (Percival).
8.18: Soprano solos—Miss Frances Hamerton, (a) "Song of India" (Rimsky-Korsakoff); (b) "Slumber Song" (Gretchaninoff).
8.24: Instrumental trio—Christchurch Broadcasting Trio, "Finale from C Major Trio" (Mozart).
8.34: Tenor and contralto duet—Mr. Russell Sumner and Miss Belle Renaut, "Quarrelling" (Rubens).
8.37: Baritone solo—Mr. T. D. Williams, "The Erl King" (Schubert).
8.41: Recital—Miss Naare Hooper, L.T.C.L., "Pennarby Mine" (Conan Doyle).
8.46: Tenor solo—Mr. Russell Sumner, "Mary of Allendale" (Nelson).
8.50: 'Cello solo—Mr. Harold Beck, "Romance" (Debussy).
8.54: Contralto solo—Miss Belle Renaut, "Field, Beloved" (Rachmaninoff).
8.59: Weather forecast.
9.0: Relay of orchestral selections from Crystal Palace Theatre.
9.15: Soprano solo—Miss Frances Hamerton, "Go, Lovely Rose" (Quilter).
9.19: 'Cello solo—Mr. Harold Beck, "Melodie Arabe" (Glazounof).
9.22: Baritone solos—Mr. T. D. Williams, (a) "Sea Fever" (Ireland); (b) "The Lowestoft Boat" (Elgar), (with chorus).
9.30: Humorous recital—Misis Naare Hooper, L.T.C.L., (a) "The Soliloquy of Suzette" (Hunt); (b) "Aren't Men Funny?" (Lane).
9.36: Contralto solo—Miss Belle Renaut, "A Fairy's Love Song" (Kennedy-Fraser).
9.40: Instrumental trio—Christchurch Broadcasting Trio, (a) "Serenata" (Moszowski); (b) "Valse Russe" (Bantock); (c) "Festival Dance" (Delibes).
9.52: Tenor solos—Mr. Russell Sumner, (a) "Temple Bells" (Finden); (b) "Thora" (Adams).
9.59: Vocal quartet—The Melodious Four, "Oh! What a Lovely Magic Hath Been Here" (Bantock).
God Save the King.

4YA DUNEDIN (463 METRES)—FRIDAY, JANUARY 27.

3 p.m.: Town Hall chimes. Afternoon session—Selected Studio items.
3.1: His Master's Voice recital.
3.15: Address on "Hands and Feet," by Mr. Fullerton, of the D.I.C.
3.30: Afternoon tea music from the Savoy.
3.45: Studio music.
4.0: Music from the Savoy.
4.15: His Master's Voice recital.
4.30: Close down.
6.0: Town Hall chimes. Children's hour—Big Brother Bill. Little Sister Fluffy will sing, Sister Valda plays the piano, Sister Maureen plays the cornet, and Sister Nada at the piano. This is a girls' night, and Big Brother Bill will tell stories of some famous girls. "The Happy Ditty," letters, and birthdays as usual.
7.15: News session.
7.30: Address on "Books," by Mr. H. Greenwood, librarian of the Dunedin Athenaeum.
8.0: Town Hall chimes.
8.1: Tenor solos—Mr. L. E. Dalley, (a) "Then You'll Remember Me" (Balfe); (b) "Now Sleeps the Crimson Petal" (Quilter).
8.8: Piano solo—Miss A. D. Allan, "Valse Lente" (Merikanto).
8.14: Soprano solo—Miss Roma Buss, "At Dawning" (Cadman).
8.17: Recital—Miss Sheila Neilson, "The Vicar of Marengo."
8.27: Bass solo—Mr. J. B. Macpherson, "A Dinder Courtship" (Coates).
8.31: Piano solo—Miss A. D. Allan, "Third Movement of Schubert's Sonata."
8.36: Mezzo-soprano solos—Miss C. M. Law, (a) "An Erisky Love Lilt" (Fraser); (b) "A Barra Love Lilt" (Fraser).
8.43: Recital—Miss Sheila Neilson, "The Rehearsal."
8.48: Tenor solo—Mr. L. E. Dalley, "Your Tiny Hand is Frozen" from "La Boheme" (Puccini).
8.53: Soprano solos—Miss Roma Buss, (a) "My Life is Love"; (b) "Love Will Find a Way" from "The Maid of the Mountains" (Simpson).
9.0: Piano solo—Miss A. D. Allan, "Liebestraum" (Liszt).
9.5: Bass solos—Mr. J. B. Macpherson, (a) "The Sentinel and I" (Watson); (b) "If Thou Wert Blind" (Johnston).
9.11: Humorous monologue—Miss Sheila Neilson, "Again."
9.16: Relay of dance music from the Savoy.
10.0: Close down.

Saturday, January 28th

1YA AUCKLAND (333 METRES)—SATURDAY, JANUARY 28.

Relay of Takapuna Jockey Club's meeting.
3 p.m.: Afternoon session—Selected Studio items.
4.0: A literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: The children's hour, conducted by Cinderella.
7.0: Close down.
7.15: News and reports.
7.45: Close down.
8.0: Chimes.
8.1: Relay of orchestral overture from Rialto Theatre—Henry C. Engel, conductor.
8.16: Concerted item—Lyric Three and Miss Alma McGruer, "Lullaby" (Parkes).
8.20: Mandolin solo—Mr. H. Catterall, "Dinky's Patrol" (Newton).
8.24: Tenor solo—Mr. Herbert Richards, "Stick It."
8.28: Instrumental and vocal—Nell the Bohemian, popular melodies.
8.33: Bass solo—Mr. Ernest Thomas, "A Sailor's Paradise" (Sanderson).
8.38: Humour—Mr. Allan McElwain, some merry moments.
8.43: Soprano solo—Miss Alma McGruer, (a) "Hindoo Song" (Rimsky-Korsakoff); (b) "Vanity Fair" (German).
8.51: Duet—Messrs. Richards and Thomas, "Tenor and baritone" (Newton).
8.56: Relay of orchestral overture from Rialto Theatre.
9.11: Evening forecast.
9.13: Guitar and vocal—Nell the Bohemian, popular airs.
9.18: Concerted—Lyric Three and Miss A. McGruer, "Home" (Parkes).
9.23: Mandolin solos—Mr. H. Catterall, (a) "An Old-fashioned Town" (Squire); (b) "Come" (Lugini).
9.30: Concerted—Lyric Three and Miss A. McGruer, "The Tin Soldier" (Parkes).
9.34: Relay of dance music from Dixieland Cabaret by The Internationals, under the conductorship of Mr. Clyde Howley.
11.0: A thought.
11.2: God Save the King.

2YA WELLINGTON (420 METRES)—SATURDAY, JANUARY 28.

2.30 p.m.: Relay resumes of Plunket Shield cricket match—Auckland v. Wellington, from Basin Reserve, Mr. A. Varney announcing.
6.0: Children's hour—Aunties Gwen and Dot, with their party.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"The Magic Waltz" from "The Last Waltz" (Strauss).
8.5: Quartet—Melodie Four, "Please, Won't You Buy My H'm?" (Dore).
8.9: Tenor solo—Mr. Frank Bryant, (a) "Passing By" (Purcell); (b) "Look Down, Dear Eyes" (Fisher).
8.18: Instrumental trio—Symons-Ellwood-Short Trio, "Trio in G Major" (Sitt).
8.28: Bass solo—Mr. W. W. Marshall, "My Old Shako" (Trotere).
8.33: Quartet—Melodie Four, "So Blue" (arr. Frank Crowther).
8.38: 'Cello and pianoforte duet—Messrs. Geo. Ellwood and Gordon Short, "Andante from Sarasate, F Major" (Strauss).
8.48: Tenor solo—Mr. Sam. Duncan, "If I Were King of Ireland" (Foster).
8.53: Quartet—Melodie Four, "Lullaby" (Brahms).
9.0: Weather forecast.
9.2: Dance and jazz items.
11.0: Close down.

3YA CHRISTCHURCH (306 METRES)—SATURDAY, JANUARY 28.

6 p.m.: Children's session, by Uncle Sam and Aunt May—Bedtime stories, song, birthday greetings, and letters.
7.15: News and reports.
7.30: Sports results.
8.0: Chimes.
Relay of orchestral selections from the Liberty Picture Theatre (by kind permission of the management)—Orchestra under the conductorship of Mr. Ernest Jamieson.
8.15: Baritone solos—Mr. Robt. Lake, (a) "Myself When Young" (Lehmann); (b) "Sacrament" (McDermid).
8.21: Something in original humour—Mr. H. Instone, "An Original Piece" (own version—M.S.).
8.26: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "But Now, Indeed, Farewell" from "Romeo and Juliet" (Goudnod).
8.30: Instrumental trios—Christchurch Broadcasting Trio, (a) "At Evening" (Pache); (b) "Vivace from Second Trio" (Godard).
8.38: Soprano solo—Miss Mabel Thomas, "Roberto o Tu Che Adore" from "Roberto Il Diavolo" (McDermid).
8.42: Zither banjo solos—Mr. Jack Oxley, (a) "Rose Leaves Gavotte" (Morley); (b) "Merriment" (Morley).
8.47: Tenor solo—Mr. David McGill, "If You Would Love Me" (McDermid).
8.51: Scottish song at piano—Mr. Jock Lockhart, "The Waggle of the Kilt" (Lauder).
8.56: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "Oh, Lovely Night" (Ronald).
8.58: Weather forecast and late news.
9.0: Relay of orchestral selections from the Liberty Picture Theatre.
9.15: Tenor solo—Mr. David McGill, "Down in the Forest" (Ronald).
9.19: Instrumental trios—Christchurch Broadcasting Trio, (a) "Swedish Folk Song" (traditional); (b) "Berceuse de Jocelyn" (Godard).
9.26: Humour—Mr. H. Instone, (a) "The Green Tie on the Yellow Dog" (a parody—M.S.); (b) "The Village Choir" (M.S.).
9.34: Zither banjo solos—Mr. Jack Oxley, (a) "Darkie's Dream" (Lansing); (b) "Darkie's Awakening" (Lansing).
9.42: Soprano solo—Miss Mabel Thomas, "Annie Laurie" (Lady Scott, arr. Rimbault).
9.48: Instrumental trios—Christchurch Broadcasting Trio, (a) "Chant Sans Paroles in A" (Tschaikowsky); (b) "Intermezzo" (Mascagni); (c) Valse Song" (Godard).
9.50: Baritone solo—Mr. Robt. Lake, "Three for Jack" (Squire).
10.4: Humour at the piano—Mr. Jock Lockhart, (a) "And So Say All of Us" (Fragson); (b) "Rachael" (Whelan).
10.11: Relay of dance music from the Caledonian Hall (by kind permission of Canterbury Caledonian Society and Mr. Reg. Stillwell)—Orchestra under the conductorship of Mr. Jackson.
God Save the King.

4YA DUNEDIN (463 METRES)—SATURDAY, JANUARY 28.

7.15 p.m.: News session.
7.30: Address on "Interior Decoration," by Miss Marguerite Puechegud.
8.0: Town Hall chimes.
8.1: Relay of orchestral music from the Empire Theatre Orchestra, under the direction of Mr. Chas. Parnell.
8.11: Tenor solos—Mr. R. A. Mitchell, (a) "There is a Flower that Bloometh" (Millard); (b) "Spirits Gentil" (Dinizetti).
8.18: Violin solo—Mr. A. Watson, "Le Cygne" (Saint-Saens).
8.23: Soprano solo—Miss Florence Sumner, L.A.B., "A May Morning" (Del Riego).
8.27: Cornet solo—Mr. George Christie, "Nodische" (Hoch).
8.39: Baritone solo—Mr. Arthur Lungley, "Serenade" (Massenet).
8.43: Relay of orchestral music from the Empire Theatre.
8.53: Contralto solos—Miss Irene Horniblow, L.R.A.M., (a) "Fairy Tales" (Wolf); (b) "I Know a Bank" (Shaw).
9.0: Flute solo—Mr. J. Stewart, "Poeme Elagiaque" (Zimmerman).
9.6: Tenor solo—Mr. R. A. Mitchell, "Cradle Song" (Schubert).
9.10: Violin solo—Mr. A. Watson, "Meditation" (Gounod).
9.15: Cornet solo—Mr. George Christie, "Absent" (Metcalf).
9.18: Soprano solos—Miss Florence Sumner, (a) "The Gleaners' Slumber Song" (Walthew); (b) "A Light Song, a Bright Song" (Drummond).
9.25: Flute solo—Mr. J. Stewart, "Il Primo Amore" (Von Suppe).
9.32: Violin solo—Mr. A. Watson, "A Dream Picture" (Ketelbey).
9.37: Baritone solos—Mr. Arthur Lungley, (a) "Elgey" (Massenet); (b) "Youth" (Allitsen).
9.44: Cornet solo—Mr. George Christie, "Parted" (Tosti).
9.48: Contralto solo—Miss Irene Horniblow, "At Columbine's Grave" (Shaw).
9.52: Flute solo—Mr. J. Stewart, "La Messagere Du Jour" (Donjon).
10.0: Close down.

MR. ALEX. SNELL.

Mr. Alex. Snell, baritone, possessor of a well-trained and brilliant voice. Mr. Snell is noted for his clear diction, and great artistry before the microphone.

Home constructors will find it is sometimes necessary to have a particular capacity in a fixed condenser which is not available at the time. If two condensers are connected in parallel, each having the proper value, the desired capacity may be obtained. The resultant capacity of two condensers connected in parallel is the sum of their individual capacities. In this respect, it is possible to get a .0003 mfd. condenser by connecting two .00015mfd. condensers in parallel.

Many prefer the low-voltage valves lighted by dry cells. Others like the more powerful 6-volt tubes lighted by storage batteries. Dry cells are easier to handle and safer than storage batteries, but a good storage battery with a battery charger will give very little trouble after installation. Some of the best records for long-distance reception in New Zealand have been established by dry-cell valves.

The old method of reducing volume of a radio set was to cut out the last stage of audio amplification; and consequently most old-style sets were provided with jacks, so that you could plug the loudspeaker into either the first or second stage as required. The development of special power valves for use in the last stage has changed all this, so that the best practice now is to keep all the valves in the audio amplifier end of the set working at all times and to control the strength of the signal before it is fed into the audio amplifier. There are several ways of doing this, perhaps the simplest being a rheostat control of one or more of the radio-frequency amplifier valves. Practically no loss in the quality of the signals received is noted when this type of control is used. The writer never uses his radio frequency valve for receiving the local station.

The tendency to-day is toward simplified control of tuning units and filaments, for most radio receiving sets must be sold to persons who want to avoid all inconvenience in operation. One-hand tuning seems to be in demand, though what the operators want to do with the other arm is not quite clear in these days, when the closed car has taken the place of the parlour sofa. It certainly does not increase the efficiency of valves to control five or more filaments with one rheostat, nor does it improve the tuning of a set to turn all the condensers with one knob. The two-control tuning system, however, will be found efficient.

The polished surface of a bakelite panel should be protected by home constructors at all times when the holes are laid out. A convenient method for protecting the surface of the panel, as well as furnishing a surface upon which pencil lines may be drawn, may be found in glueing a piece of paper to the panel surface before laying it out. Holes are located, centred and drilled before the paper is removed. After the panel is completely drilled, it should be soaked in water and the paper removed with a stiff brush. The water will dissolve the glue or paste used and a perfect finish will be preserved as far as the panel is concerned.

Experiments and tests with the Empire short-wave broadcasting station have almost been completed, and the new station is expected to be on the air officially early in 1928. The B.B.C. reports that it is proceeding with the erection of "spaced receivers" for the reception of programmes from America. The power of the new station will be anything up to 25 k.w., and the wavelength between 20 and 40 metres. It has already been proposed that the King should be invited to inaugurate official Empire broadcasting.

The recent inactivity of Philips Company's short-wave broadcast station, PCJJ, following the successful transmissions which stimulated short-wave broadcasting throughout the world, has been due to additions and alterations to the Netherlands station. Philips Lamps Ltd. state that the famous short-wave station has been moved from Eindhoven to Hilversum, where the station will be erected with larger studios. The power will probably be increased. It is hoped that the station will be transmitting again early in the New Year.

Sunday, January 29th

1YA AUCKLAND (333 METRES)—SUNDAY, JANUARY 29.

3 p.m.: Afternoon session—Selected Studio items.
4.0: A literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: The children's hour, conducted by Uncle Leo.
6.45: Close down.
6.55: Relay of church service from Beresford Street Congregational Church. Preacher, Rev. Lionel Fletcher.
8.15: Vocal quartet—The St. Andrew's Quartet, "O Lord Most Holy."
8.19: Soprano solo—Mrs. Richards, "Angels Ever Bright and Fair" (Handel).
8.24: Tenor solo—Mr. Robert Peter, "How Many Hired Servants?" (Sullivan).
8.29: Instrumental trio—The Bosworth-Hemus-Towsey Trio, "Trio in A Minor, Allegro Scherzando, Andantino con Moto" (Gade).
8.41: Contralto solo—Miss Phyllis Gribben, "O Rest in the Lord" (Mendelssohn).
8.46: Vocal duet—Messrs. Peter and Colledge, "Watchman, What of the Night?" (Sargent).
8.51: Trio—The Bosworth-Hemus-Towsey Trio, "Trio in A Minor, Larghetto con Moto, Finale Allegro" (Gade).
9.1: Mr. Arthur Colledge, "Pro Peccates" (Rossini).
9.6: Vocal quartets—St. Andrew's Quartet, (a) "God is a Spirit" (Sterndale-Bennett); (b) "The Peace of God" (Gounod).
9.14: A thought.
9.16: God Save the King.

2YA WELLINGTON (420 METRES)—SUNDAY, JANUARY 29.

6 p.m.: Children's service, conducted by Uncle Ernest.
6.55: Relay of evening service from The Terrace Congregational Church. Preacher, Rev. E. R. Weeks. Choral director, Mr. Len. Barnes; organist, Mr. Harry Brusey.
8.30 (approx.): Studio concert.
Tenor solo—Mr. Roy Hill, "The Living God" (O'Hara).
Quartet—Symons-Ellwood String Quartet, "Scherzo, F Major Quartet" (Beethoven).
Quartet—Ariel Singers, "God So Loved the World" (Stainer).
Instrumental Quartet—Symons-Ellwood String Quartet, "Finale, F Major Quartet" (Beethoven).
Bass solo—Mr. J. M. Caldwell, "Hear Me, Ye Winds and Waves" from "Scipio" (Handel).
Instrumental quartet—Symons-Ellwood String Quartet, "Minuetto" (Dittorsdorf).
Soprano solo—Miss Jeanette Briggs, selected.
Instrumental quartet—Symons-Ellwood String Quartet, "Bouree" (Bach).
Quartet—Ariel Singers, "The Builder" (Cadman).

3YA CHRISTCHURCH (306 METRES)—SUNDAY, JANUARY 29.

5.45 p.m.: Children's song service, by Uncle Sam, assisted by children from the Linwood Congregational Sunday School.
7.15: Relay of evening service from the Church of Christ, Moorhouse Avenue. Preacher, Rev. Howard Earle; organist, Miss E. Hepburn; choirmaster, Mr. H. Ames.
Solo—Mr. P. T. Thompson, "Where'er You Walk" (Handel).
Anthem—The choir, "O Worship the Lord" (J.W.K.).
8.15: After service the following concert will be given from 3YA Studio:—
Soprano solos—Miss Marjory Miller, A.T.C.L., (a) "Teach Me How to Pray" (Williams); (b) "When the Grey of the Sky" (Sterling).
8.22: Cornet solo—Mr. Fred. Fox, "For All Eternity" (Mascheroni).
8.26: Baritone solos—Mr. F. R. Hawker, (a) "For You Alone" (Geehl); (b) "The Song of the Torrent" (Mallinson).

(Continued on page 14.)

Mainly about Construction

BY "MEGOHM"

A Variometer Crystal Set.

NOVEL CONSTRUCTION

This is a variation from the solenoid method of tuning a crystal set, good volume and compactness being its principal features. Variometer tuning is not particularly selective, but it offers a satisfactory method of getting good volume from the local station with a smooth control equal to that of a tuning condenser at much less cost, though it entails a little more work than the making of a plain solenoid, but those who care for construction will find this an interesting piece of work that with a little care and patience will give good results.

The panel 4¼ inches wide by 6 inches high, may be of ebonite or 3-ply, and the base of ⅜in. rimu, is 4¾ by 4¼ inches. This part of the construction is similar to that of the selective crystal set, only dimensions are all smaller. A cover can be made in the same way.

THE VARIOMETER.

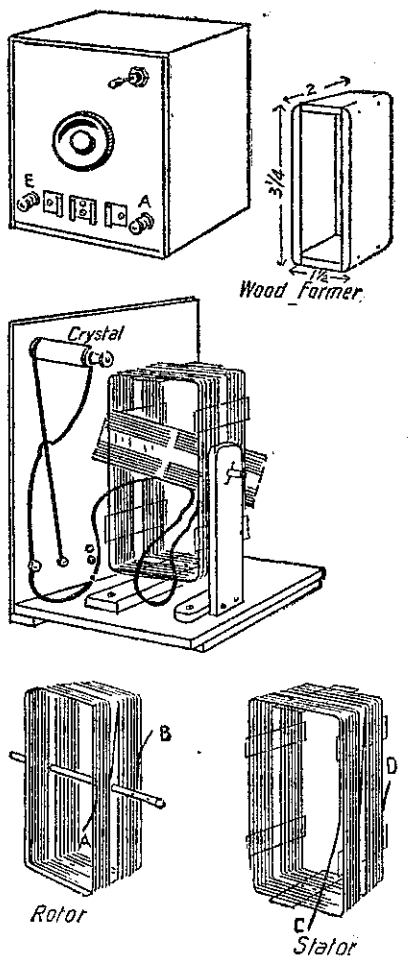
The essential part of this set is the variometer, which consists of two parts, the stator or fixed portion, and the rotor or moving portion, which is provided with a spindle fixed in such a way that the rotor may be turned round within certain limits, inside the stator. Turns of wire are wound upon both the rotor and stator, a space being left in the centre of the windings on each, to clear the spindle.

The first construction is a former for the rotor, and this is made of wood to the dimensions shown, the corners being neatly rounded off. Now a strip of thin celluloid (about 20 mils) is required not less than 11 by 1¾ inches. This is placed round the outside of the former, pulling tight, and overlapping in the centre of one of the long sides. The overlap is cemented with celluloid cement made by dissolving small chips of celluloid in liquid acetone, which may be obtained at the chemist's. The celluloid dissolves in about two hours. A very small bottle may be used, which should be kept corked. The cement is applied with a thin stick. When the joint is made, the whole should be tightly bound with many turns of twine and left a few hours to set.

WINDING THE WIRE.

The lap joint being set solid, the twine is removed and winding proceeded with. The wire recommended is 22's enamelled, but 24's may be used, a turn less being wound upon each of the four groups of winding. A small hole is made at the edge of the celluloid, which should be slid off the former ⅛in. at one side. With this edge to the left, the end of the wire is passed through this hole and turned sharply back to hold during the winding. The turns are now put on in the direction shown in the diagram of rotor, commencing at A and winding in the direction of the arrow. It should here be mentioned that the spindle to be used may be a straight wooden penholder about 4½ inches long and a little over ¼in. thick. Fourteen turns of 22's wire are wound on with the turns close together, then a space equal to the thickness of the spindle is left, the wire crossed over this diagonally, and the winding of 14 more turns proceeded with, the finishing end being cut off with five inches to spare, and temporarily secured with twine. The turns of wire are now to be secured with celluloid cement, especially the outer and inner turns of each group, as these will hold the others. When this work has set, a small amount of cardboard is required. Sixteen-ounce strawboard, about 18 to the inch, will suit. A number of squares of this are cut, 1⅝in. by 1⅞in., to make two lots each ¼in. thick. Two pieces are to be cut 3⅜in. by 1⅜in. The ¼in. lots are placed one at each end of the rotor, resting on the windings, and a single piece is placed at each side over the wires. The whole is now bound together with a couple of turns of twine in the same direction as the windings, but outside the cardboard, the twine to be exactly over the centre of the space between the two windings.

Six pieces of celluloid are now to be cut about 1⅜in. by 2in. One of these is slipped under the twine at each end of the former, and the winding of the



stator proceeded with in exactly the same way as for the rotor, the beginning of the wire being temporarily secured to a small nail driven into the wooden former. Fifteen turns are wound on each side, the space for spindle to be quite free, being left in the centre Now two of the remaining pieces of celluloid are slipped under the twine and windings, one above the position of spindle and one below on each side. The turns of wire are now cemented to each of the celluloid strips and left to set.

Now the formers have to be removed, and the easiest way to do this is to chip away one of the small ends of wooden former with a chisel. Then this will come away and the cardboard packing may be removed. The two parts of the variometer are now separate. The central position of the spindle must now be marked on each side of the rotor, and the holes made to be a tight fit for the spindle. One end of the spindle should now be thinned to fit the knob or dial to be used.

FITTING THE VARIOMETER.

Then the rotor is inserted into the stator with the commencing end A near the end C on stator, and the spindle is pushed into place, through the spaces in the stator and through the celluloid of the rotor. At the same time a washer of cardboard or other suitable material not less than 1-16in. thick is to be put over the spindle to separate rotor and stator at each side to keep them from touching. Two ⅛in. holes for small screws have to be made in the celluloid between the two windings at what is to be the bottom end of stator. Now the whole is stood on a piece of wood ½in. thick on baseboard, and the best working position found and spindle height marked on back of panel for drilling. The back bearing for spindle is now made of wood as shown, the height 3 inches or so, 1 inch wide, screwed to a small cross-piece to screw to baseboard. The back end of spindle is drilled 1-16in. to take a small nail as a cotter on each side of the bearing. When this has all been got into smooth working order, the last part is to get the stator into place so that it allows the rotor to move freely. The stator is screwed to the stand-piece by two ½in. brass screws through the celluloid. It may be necessary to pack the stator up with strips of card, to get the necessary position, and when all is O.K. the stator stand-piece can be screwed into position.

FINAL DETAILS.

Panel arrangements are the same as for previous crystal sets, 28's brass sheet being curled up for telephone clips if terminals are not used. The terminal on the left is the earth connection and that on the right for the aerial.

Ends A and C of variometer windings are connected together by five inches of thin flexible wire, and end B is connected inside to a short piece of the same flexible, which is brought through the rotor and connected to the back of the aerial terminal, which also connects to back or one end of crystal. End D of stator connects to earth terminal, and is continued to connect to 'phoe at that side. Be careful to thoroughly scrape off all enamel from wires where a connection is to be made. Soldered joints are best, using resin-cored solder.

Any type of crystal can be used, but if a cat's-whisker type is preferred it could be placed on the baseboard.

Tuning is accomplished by turning the knob until full volume is obtained. The fewer the turns of wire put on, the lower the wavelength that can be received, but lowering the range in this way cuts off higher wavelengths. The construction allows of turns being easily taken off both sides of stator and rotor if found necessary. The following materials are required, approximate cost being given:—

	s.	d.
½lb. 22's enamelled wire	1	4
Crystal from	1	6
Knob or dial ..... 1s. to	2	3
2 terminals	0	8
Wood, celluloid, brass ...	1	9
	7	6

ANSWERS TO CORRESPONDENTS

CRYSTAL QUERIES.

W.G. (Wellington).—For local reception only, space-winding is not very important, but for distance-getting and selectivity it is of value. Any motor-car trimmer will supply a piece of celluloid for a few pence. The cement is made by dissolving chips of celluloid in liquid acetone, obtained from the chemist's. In crystal double-detector circuits the two crystals should be as much alike as possible. In diagram No. 3 the 001 fixed condenser is probably not essential.

A correspondent at Paraparaumu gets Australian stations faintly upon crystal and two amplifying stages, and wishes to know how the strength of signals may be strengthened. Probably the audio amplifier could be improved by increasing plate voltages and putting a power-valve in the last stage, but the time appears opportune for a valve detector to take the place of the crystal, or the addition of the first two stages of Browning-Drake to make it a real set. It is possible to add an R.F. stage before the crystal, but the better way is as already mentioned.

E.T. (Auckland) wishes to know if a stage of R.F. can be added to crystal and two audio stages. It is quite feasible, but not very widely adopted in New Zealand, as more volume is usually obtained with a valve detector in place of the crystal, and the R.F. valve can be added at the same time or later. The detector would work off the same batteries as the audio.

(Continued Next Page.)

Seeking Pure Reproduction

A STUDY IN COMPROMISE

We are all looking for the perfect receiver, except perhaps the few who think they actually possess it. But such a piece of apparatus does not yet exist. There are certainly many good receivers, some of which might be classed as "nearly perfect," judged by our present standard. Yet a broadcast receiver is really after all a study in compromise.

In the first place, the receiver can only at the best reproduce what is sent out by the transmitting station, which primarily decides just what range of frequencies shall be put "over the air." As a rule the broadcast station is capable of sending out a wider range of frequencies than the average receiver and loudspeaker can reproduce. The highest speech frequencies are about 6400 cycles per second, and the highest note of the piano about 4100 cycles. If we arrange that our apparatus shall cut off frequencies above 6400, speech will be as perfectly reproduced as possible, but if we are content to cut off above the highest piano frequencies at 5000, then the final s in speech will be mutilated or lost, but musical notes up to 5000 frequencies will be received. But at these high frequencies the ear begins to be less sensitive, and the tones are weak. It is generally conceded that a cut-off at 5000 will not interfere with the intelligibility of speech.

A similar compromise has to be arrived at on the low musical notes, speech not entering into the question at this end of the scale. The lowest note of the piano is about 27 cycles per second, and the low pipes of organs may give a 32 or a 16-cycle tone. A modern broadcast transmitter will actually transmit a 30-cycle frequency, but few sets will reproduce it.

Generally speaking, it is the low frequencies of the musical scale that at the moment present the most difficult problem. If the detector valve is followed by an audio transformer with a primary winding of inefficient impedance, the lower musical tones will be under-amplified, and the extremely low notes will not be amplified at all. It is then an impossibility for any device in the second stage to replace the lost frequencies, so it is essential to ensure that the output of the first audio valve shall be as near perfect as possible. The following valve must be able to easily handle the volume passed along to it, and if heavy volume is aimed at this must be a super-power valve, or, alternatively, a pair of such valves operating one stage of push-pull, amplification, one of the best means of obtaining distortionless output with transformer coupling. In any case there is a tendency for the lower musical frequencies to be amplified less than the higher. The use of reaction tends to emphasise the lower frequencies.

It is important to make sure that the detector stage of the set is functioning properly. Find the correct values for the grid leak and condenser, and let them both be of the fixed variety by good makers. A fixed grid leak ensures freedom from any trouble likely to arise from variable contacts. A good valve socket is an important item, as much noise, and sometimes distortion, can be caused by a socket giving a poor fit for the valve pins.

An instrument of great value to the serious constructor is a milliammeter. Connected in the plate circuit of the last valve, it indicates the plate current in milliamps, possibly 20, if a super-power valve. If no distortion is present, the meter reading will be quite steady, but if there is distortion, extra current will be drawn in the plate circuit, and the meter needle will "kick" with an amplitude of, perhaps, two or three milliamps. Such a meter is also useful for many other testing purposes.

As has already been pointd out in this column, tone can be to a great extent regulated by careful adjustment of the values of fixed condensers on the audio side, particularly on the first transformer, if so coupled.

When the output of the receiver is heavy it is impossible to obtain good reproduction and satisfactory volume by attempting to pass through the loudspeaker windings the whole output,

(Continued Next Page.)

Mainly About Construction

(CONTINUED FROM PREVIOUS PAGE.)

SEEKING PURE REPRODUCTION

(Continued from Page 12.)

which consists of separate direct-current and alternating-current components. These two combined will be too heavy for the fine winding of the speaker, so the correct practice is to by-pass the direct current, so that it goes through the plate circuit only, and not through the speaker, which only receives the alternating current which conveys the impulses that actuate the diaphragm. This by-passing of the direct current is the function of the choke-filter that has frequently been referred to. There are several methods of connecting up the choke, and these will shortly be dealt with and their respective merits discussed. It will be seen that although the choke, by reason of its great number of turns over an iron core, offers great resistance to the alternating current, it is important that its resistance to direct current must be kept as low as is practicable in order not to unduly reduce the plate voltage.

So far, everything being properly arranged, a fairly good reproduction of the broadcast may be assured, but there is the loudspeaker to deal with, and this is quite frequently the worst offender in the circuit. If a horn type is in use, then the middle and higher frequencies may be quite pleasingly reproduced, but below a certain frequency, depending upon the particular dimensions of the speaker, the trouble begins. Below this point, which may be 200 cycles, the speaker cannot reproduce faithfully any musical tones, and if it left them alone, matters would be fairly tolerable. But the speaker endeavours to reproduce the sounds that are below its compass or range, and can only present them in distorted form, either as "blasting" or as discordant blur. Some of the lower sounds it is able to reproduce, an octave higher as harmonics, and this sometimes gives an impression that the lower notes are being reproduced. It is possible to govern the range of a speaker within certain limits. A fixed condenser of suitable value across the leads will make the tone more inclined to mellowness than without it, but the value must not be overdone, otherwise "woolly" tone is produced. A fixed condenser may be placed in series in one of the leads in order to determine to some extent what depth of frequencies shall be reproduced at the lower end of the scale. This condenser, which in any case should not be less than say .005 or .01 mfd., according to the speaker, if increased, will allow more of the low frequencies to be reproduced, and by careful experiment can be regulated to cut off where the frequencies begin to distort. This arrangement is most suitable when a horn speaker is used in conjunction with a cone. The horn is then left to take care of the high frequencies only, and the cone the lower. Once the correct value of the condenser has been determined, it can be permanently fixed inside the base of the horn, not across the two leads, but in series with one of them. In most cases quite an amount of detrimental "mush" will thus be cut out.

A good cone speaker will reproduce most of the deep organ notes in ordinary use, and reproduce them without distortion if volume is not overdone, and provided the amplifiers are "delivering the goods," there will be little trouble at the lower end of the scale. Few cones will give much strength of tone above the middle frequencies, although odd makes stand out in this respect, but on very high notes they are all weak. This is where the high-pitched horn mentioned above steps in and preserves the balance in a pleasing and satisfying manner, when a speaker of each type is used.

RESISTANCE COUPLING.

It is necessary in amplifiers to have an amplification characteristic that is within certain limits independent of frequency, and the ordinary valve complies with this condition. But in the case of the methods employed in coupling the valves, a compromise is arrived at between the possible and the ideal. Pure resistance coupling, if it could be carried out upon the ideal lines that introduce too many practical difficulties, would be near to perfection, but in actual practice it is not convenient to use resistance alone, so the varying but not the direct potential of the plate resistance is conveyed to the grid of the next valve through a condenser of sufficient capacity. This type of amplifier depends solely upon the amplification of each valve, and to overcome this disadvantage valves with a specially high amplification factor are now made for resistance-capacity coupling. A great advantage of this method of coupling is that on the lowest organ notes, there is not the great falling-off in amplification that is present in high-ratio transformer coupling, and the amplification at twenty cycles may not fall as low as half that in the middle of the audible range. The use of high value grid leaks or larger coupling condensers is necessary to effect this, but in practice the amplification of such very low notes would cause trouble, and distortion would take place through overloading of the valves, besides trouble caused by the slow reduction of excessive charges by dissipation through the high value grid-leaks. With frequencies up to about 3000 the degree of amplification can be regarded as independent of frequency, or at an even rate through that range, above which it falls off.

Whilst a high voltage is necessary on the plate for best operation of resistance coupling, the drop across the high resistance keeps the actual voltage on the valve at a much lower figure than is given across the battery terminals, and consequently the best working voltage is frequently not supplied. Consequently, whilst even amplification is secured over a wide range of frequencies, there is a tendency for valves to be overloaded, with the result that distortion is present in what is generally claimed to be a distortionless amplifier.

IMPEDANCE AMPLIFIERS.

With a view to improving the resistance-coupling system, a low-frequency choke coil was substituted for the high resistance in the plate circuit. By this means a much higher inductance is obtained than is possible on the primary winding of a good transformer, and the great drop in high-tension voltage of resistance coupling is avoided. But this system, still retaining the grid leak, is liable to the choking effect caused by a heavy signal charge being unable to get away rapidly. In order to get rid of this effect, the dual-impedance circuit has been devised, in which a low-frequency choke of very high impedance (200 to 250 henries) takes the place of the leak between grid and filament. This is the principle of the "Truphonic" amplifier. Commercially, the two impedances are wound upon the two outside legs of a shell type of core, the plate impedance being of considerably lower value than that connected to the grid. Three stages of dual-impedance amplification may be used with success, but a good transformer is frequently used instead for the last stage, and increased volume is thereby obtained. For great volume the type of tube for the three stages would be 201A, 112, and 171. An output filter or output transformer should also be employed, and valves must be given full rated filament voltages, ample plate voltage, and correct grid bias.

A good method of adapting this method of amplification in the Browning-Drake receiver is to incorporate one stage in place of the first audio transformer, retaining the A.F.3 in the second stage of the audio amplifier. Experimenters can test the idea by connecting up the primary of a spare audio transformer as the plate impedance and the secondary of another as the grid impedance.

This amplifier allows of a greater degree of amplification of the lower frequencies than does any other system, and, moreover, by varying the values of the coupling condensers, the amount of such amplification can be adjusted to suit the loudspeaker and the taste of the listener.

SELECTIVE TUNING.

As a receiver is made more selective either by improvement of coils or tuning gear, or by the addition of a wave-trap, it becomes more necessary to pay careful attention to the tuning. On a near-by station many listeners make a practice of reducing volume by de-tuning the aerial circuit, and such a method has been advocated at times by British technical journals. Whilst with an unselective receiver little harm may be done by adopting this method, when selectivity is secured, both or all dials should be very carefully tuned to the exact maximum position, otherwise distortion is liable to be introduced. Volume must then be cut down by other means, the best being firstly the cutting-down of reaction to nil, and then the lowering of R.F. filament voltage. Detector voltage may also be reduced, but dimming the audio filaments should never be resorted to, as that will cause tone to suffer. A variable high resistance across the speaker is not a good volume control for most conditions, as if there is overloading of valves, operating the resistance only reduces volume without removing the overloading, which is simply made more bearable by its lessened intensity.

Want of fine tuning on the local station may easily give an impression of distorted transmission, especially when one tunes in to a distant station that must be tuned finely to be brought in clearly, and finds reception from that station free from distortion at equal volume to the local.

The Wellington station, 2YA, is a sharply-tuned station, and this assists listeners to obtain high selectivity the more readily, and at the same time careful tuning is necessary in order to do full justice to both station and receiver. But there should be no attempt to extort from the receiver more volume than it is designed to give, and a ten-guinea outfit should not be expected to equal one costing several times that amount. Dealers are not very keen on the idea of listeners tinkering with factory-made sets, and they are not to be blamed for this attitude. If you wish to experiment, buy a set of components or make any you feel capable of constructing, hook them up on a board, make alterations to your heart's content, and with care and patience you will soon improve the initial hook-up into a set that will give results superior to the average cut-price factory-made article, and at same time you will learn a great deal about the why and wherefore of radio.

ANSWERS TO CORRESPONDENTS

(Continued from Page 12.)

DANIEL CELLS.

One or two readers appear to have placed too much sulphuric acid in their gravity type cells, so that action has been rather violent. The original directions say "not more than one of acid to four of water," and the amount of acid may be considerably less than this, as violent action is to be avoided. The acid is only to commence the production of zinc sulphate solution, which rises to the top of the liquid, and forms a distinct layer, in which the zinc must be. It is this double layer of solutions that enables the porous pot to be dispensed with. The cells will probably give full voltage when settled down.

112-VOLT B BATTERY.

"Radio" (Auckland).—You appear to have made your plates before getting the tubes, but no harm is done, provided there is sufficient space for a strip of celluloid between the pair of plates. By sorting the plates you will probably be able to put most of the wide ones into the wide tubes. If a few are too wide to go in, bend them slightly down the centre to suit the curve of the tube. Tubes 1 1-8in. diameter are not usually obtainable in New Zealand. You will find most working dimensions stated exactly where necessary. The article you mention is to appear shortly. A chemical rectifier is not recommended for charging this battery. A valve rectifier is far more reliable, and is recommended. If a chemical charger goes wrong it may ruin the battery, but a valve charger can do no harm. Ordinary insulated wire can be used in the battery, but enamelled is best, as the acid spray during charging soon rots cotton or similar covering.

Valuable Tips and Jottings

(BY MEGOHM.)

VOLUME CONTROL.

Dimming the R.F. filament is one of the best means of volume control, as by this means the overloading of the detector and consequent distortion are avoided. Of course, reaction must first be reduced if the set is not a neutrodye. A variable high resistance across the speaker leads answers as a volume control within a certain range, but if it is used to give a big reduction of volume, tone is inclined to be scratchy.

SHORT-WAVE SUPERHETS.

Superhets for short-wave reception are finding favour in America. For the very low wave-lengths a good type autodynes the incoming signals to 30,000 cycles instead of the usual 1000 cycles. A two-stage amplifier, oscillating slightly, amplifies the 30,000 cycle signal component and a second detector makes the signal audible. The intermediate frequency amplifier oscillates weakly, say on 31,000 cycles, so that these two components combine in the second detector to give a 1000 cycle note. This method effects a great reduction in power and motor ignition interference.

DOUBLE-GRID TUBES.

American factories have started making the double-grid tubes. Mr. H. Gernsback, in a "Radio News" editorial, points out that the importance of this tube has been brought under the manufacturers' notice for two years, and no notice was taken of the matter, although during that time such tubes have been freely sold in Britain and Holland and, says Mr. Gernsback, "The chances are that the European tubes are every bit as good as the new American one."

THE SHIELDED GRID VALVE.

The new Marconi shielded grid valve is finding favour in Britain. Similar valves will shortly be produced in America. The valve is used for R.F. amplification and makes external neutralisation unnecessary. This is effected by interposing a fine mesh secondary grid or shield between the usual grid and plate, the inter-electrode capacity being thereby overcome within the valve. There are five connecting prongs, three at one end, two at the other. The valve is mounted horizontally, the centre resting in a correctly sized hole in a copper screen in the plane of the screening grid. This leaves the grid and plate circuits separated by the screen. Normal filament current 0.25 amp. at 6 volt, plate volts 120, 80 volts on screening grid, 9 volts on control grid, amplification factor 110, plate impedance 175,000 ohms.

AUDIO FREQUENCIES.

The normal human ear detects frequencies between 16 and 20,000 per second, but between the extreme ranges of the transmitter and receiver, audio frequencies are in practice usually limited within 100 to 5000 cycles. The lowest note of the piano is about 27 cycles. A 32-foot organ pipe gives 32 cycles, and a 64-foot 16-cycle tone The highest note of the piano is about 4100 cycles. The highest speech frequencies make th, f, s and z, about 6400 cycles per second. A 5000-cycle limit distorts these sounds.

LOUDSPEAKER COUPLING.

The condenser in a loudspeaker filter coupling should not be of too small capacity, owing to the fact that the reactance of this fixed condenser varies according to the cycle frequency. At 30 cycles the reactance of 2 mfds. is 2650 ohms, and at 5000 cycles only 31 ohms. It will thus be seen that at low frequencies high resistance is introduced into the circuit, so there should be not less than a 2 mfd. condenser employed. High capacity will reduce the a.c. resistance.

OUTPUT TRANSFORMERS.

A push-pull amplifier stage is at the same time an output transformer, so that a choke filter is not necessary. If an output transformer secondary winding has an impedance to match the loudspeaker winding at the lowest frequency used, maximum power will be delivered to the speaker at that audio frequency. As the transformer impedance rises more rapidly than the loudspeaker impedance. The output transformer compensates for some of the defects of the loudspeaker. In cases where an output transformer does not seem to be satisfactory, it is probably owing to the secondary not matching approximately the speaker winding in impedance.

RECTIFYING TUBES.

The Raytheon BH double-wave rectifying tube for B eliminators delivers 85 milliamps at 200 volts, with a suitable transformer. This tube rectifies without a filament, is guaranteed by the manufacturers for at least 1000 hours' service, which is, roughly speaking, twelve months' use. Larger sizes of the tube will pass 125 and 350 milliamps respectively.

FIXED RESISTANCES.

Fixed resistances may vary as much as 10 per cent. above or below their stated value, so where accurate results are required, two or three should be tried in turn and the best one determined for the particular position.

WAVE-TRAP.

Constructors of the selective crystal circuit as a wave-trap only, should try connecting the aerial to the end of coil opposite to earth, as under some conditions this may be found to be the best position.

HIGH CAPACITY FIXED CONDENSER.

The ordinary type of high-capacity paper dielectric fixed condenser stands up very well to high voltages for eliminator smoothing. The case of a new one of Dubilier make breaking down has been investigated and showed that the cause was an accidental tear in the dielectric paper, which was turned back, leaving only one thickness of paper where there should be two. This shows that the system as carried out is good, apart from accidents of a mechanical nature. This type of condenser is made from two long strips of thin tinfoil, between which are two strips of very thin waxed paper. Outside each is another strip of waxed paper, so that when the whole is rolled up, two thicknesses of paper everywhere separate two adjacent tinfoils.

"MOTOR-BOATING."

"Motor-boating" in resistance-coupled amplifiers occurs between zero and a value just above 30 cycles, usually because the filter systems of eliminators are resonant within that band. To eliminate this without external apparatus, the amplification over-all must not exceed approximately twenty.

PLATE CURRENT.

The average general purpose valve requires from 1 to 3 milliamps plate current, depending upon whether used as a detector or amplifier. A small power-valve takes from 3 to 10 milliamps, and a super-power anything up to 20 milliamps. The higher the plate voltage the greater the milliamps passed. Resistance-coupled audio amplifiers consume considerably less H.T. current than transformer-coupled.

A 16-FOOT LOUDSPEAKER.

An American experimenter in the search for sweet and mellow music, has constructed a 16-foot wooden loudspeaker horn. It is made from two 16-foot boards 16 inches wide, each sawed diagonally from corner to corner. In order to accommodate the horn in an ordinary house, the wide portion rests upon the rafters of the ceiling, and the narrow end comes down between the walls. The sound is conducted through an ornamental grating in the centre of the ceiling. It is said to give really good reproduction.

SECRET TRANSMISSION.

The latest idea for secret transmission of radio messages is to arrange two beam stations some distance apart, arrange for the message to be broken up into fragments to be alternately transmitted by the two stations. The beams are arranged to intersect at a given point, and in that zone both portions of the message are received as though sent out in the ordinary way. The area of the receiving zone would depend upon the sharpness of definition of the beams.

(End of Construction.)

A Hawera correspondent ("Buzz") writes asking whether power-line interference can be stopped if its source is located. The trouble is due to the generation of radio frequency currents at spots where there should be no radio frequency currents and the broadcasting of these volunteer energies with the power lines acting as an aerial. As one writer puts it, "What more natural, then, than to seize upon these emanations at their source and block them from the lines? There are various ways of doing it. In some instances they are allowed to wander into a condenser which acts as a sort of sump tank and loses them until their ambition is all gone. In others they are actually choked out of the line. Occasionally they are grounded."

Programmes Continued

8.33: Flute solos—Mr. W. Hay, (a) "Romance" (Freund Fritz), (Mascagni); (b) "Sylvia" (Pizzicati), (Delibes).
8.40: Soprano solo—Miss Marjory Miller, A.T.C.L., "The Rosary" (Nevin).
8.44: Cornet solos—Mr. Fred Fox, (a) "Rule, Britannia" (arr. Hartmann); (b) "The Lost Chord" (Sullivan).
8.52: Baritone solo—Mr. F. R. Hawker, "Blow, Blow, Thou Winter Wind" (Sargeant).
8.56: Flute solo—Mr. W. Hay, "Chant du Soir" (Speelman).
God Save the King.

4YA DUNEDIN (463 METRES)—SUNDAY, JANUARY 29.

5.45 p.m.: Children's song service, conducted by Big Brother Bill, assisted by the Choristers of St. Paul's Cathedral.
7.0: Relay of evening service from St. Paul's Cathedral (Anglican). Preacher, Rev. Canon Nevill.
8.10: Relay from St. Kilda (weather permitting) of concert by the St. Kilda Band. Conductor, Mr. James Dixon.
9.10: Close down.

Summer Time and Broadcasting

CORRESPONDENTS' DIVERSE VIEWS

Our invitation to readers, particularly country readers, for their views on the effect of "Sidey" time on radio reception bids fair to draw some interesting letters. Below we give the first instalment, and expect a further interesting collection next week, from which some general conclusion may be drawn.

"The Worst Thing Ever."

F.J.M. (Pahiatua). Just a line in reference to "Sidey Time." I consider it the worst thing that could have happened as regards radio reception. I have a "Browning-Drake 5" and I can assure you it takes me all my time to hear 3YA at 8 p.m. "Sidey Time." Goodness knows how country chaps with two or three valve sets get on. In fact there are five people I know who are talking about "chucking" radio up. It takes a real good set to pick up 3YA and 1YA in daylight. I have tried quite a number of sets and I can assure you that the average five valve set will not pick up the two above stations in daylight. Of course I am referring to country places only. It is one thing to be under an aerial of a broadcasting station and another thing to be about a hundred and fifty miles away from a station. 2YA, of course, is A1 as far as power goes, but there are times when we want 1YA or 3YA programmes instead. How does the two or three valve chap get on then at anywhere up to 9 p.m.? with not only the musical part, but the news and market reports; for instance 3YA's stock report which, of course, interests the former mostly. My slogan is down with "Sidey Time," not only me but 99 per cent. of radio people here. Thanking you for your invitation for readers' views.

Hope it is Cut Out.

R.S. (Hastings) Your reference to "Sidey Time" in this week's issue of the Record, prompts me to write and say I have every sympathy with the country listeners-in. I know that I do not derive half the pleasure from my set as formerly. I hope that "Sidey Time" is cut out.

Local Conditions Blamed.

S.J.T. (Hillgrove).—As a country listener, I would like to express my disagreement with the letter from "A.R." in this week's "Record." If "A.R." cannot get daylight reception from Dunedin, Wellington, or Christchurch, then there must obviously be some local condition which militates against radio reception. In any case, when signal strength is so weak that daylight reception is impossible, then it would be spoiled practically every night by static, to a great extent. The same thing applies to Australian stations, also, at this time of year, "Sidey Time" or otherwise. In regard to 4YA and the small number of licences, the Broadcasting Co., while citing the immediate increase in Wellington and Christchurch on the erection of modern stations, apparently, for some reason peculiar to itself, refuses to admit the possibility of the same thing occurring at Dunedin. Dunedin has not, and never has had, a station comparable with any of the others. Here (50 miles away), while the volume is ample, the quality is so poor compared with the other stations, that we seldom listen to 4YA at all. There has been a slight improvement lately, but only slight.

Reception is Affected.

A. Dawe (Featherston).—You asked in your last "Record" what effect the daylight saving has on reception. Well, I must say that to-night is perfect, as I am at present listening-in to 1YA at 8 p.m., and it is very good. Christchurch and 2YA always comes in good, and clear, but 1YA is off and on, kind of the way, but Australian stations are poor—very poor at times. To-night 2BL Sydney is fair on the headphones. 9 p.m. My set is a five-valve, but I must say we would get far better concerts if we had this hour taken off. For myself, I should like the ordinary time.

A General Supporter.

Listening In (Ohakune): Your correspondent, 100 miles from Dunedin, who condemns summer time, makes, in my opinion, one great mistake. Many opponents of reforms die hard, and those of summer time are no exception. I have heard of one farmer who has sufficient imagination to tell us his cows give less milk under summer-time milking. Instead of setting out to blame summer time for all the ills we have, let us start by trying to discover any other reason. I have no tickets on summer time, but I believe it has come to stay, as many who were absolutely against the innovation are now right out for it. I speak principally of farmers. I care little for or against summer time, but I know it is responsible for our set failing to get much that we did get over the air two months ago, and I wrote to you, Sir, a few weeks ago, pointing out that as we were now unable to get any news from any stations except Wellington that it would be a great boon to listeners-in if 2YA would arrange to be on the air on Wednesdays from 7 to 8, as that being silent day for 2YA we in the backblocks were that day without anything on the air till about 9 o'clock. Dunedin station should, and I fell sure will, be improved, but your correspondent must remember conditions play a big part in reception. We are 200 miles from Wellington, and get that station any time it is on the air, but we have a friend near Te Kuiti who gets very poor reception from Wellington, but gets Auckland and Christchurch at 3 in the afternoon. Last winter we got Dunedin splendidly, and we hope to do so again, but as you ask for suggestions I would again say give us 2YA on Wednesdays from 7 to 8, and we in this part will have little to complain about.

Our Mail Bag

ANSWERS TO CORRESPONDENTS.

J.M.S and F.S.—You have not signed your name to your letter. You are each entitled to your opinions as to the merits of the respective orchestras, trios, etc., but other people are equally entitled to theirs.

Children on the Air.

Still Learning: In the "Radio Record," just to hand, I find several correspondents are complaining about the children's session, that it is mainly sloppy, sickly staff. Now, sir, let me tell these people the children must be catered for, and what is sloppy and sickly to one is sugar to another, and when the jam is put on too thick for me I switch on to some other station. I might say I am old enough to remember the seventies, and I now spend two or three hours every week listening to the children's sessions, and though I agree with one correspondent, that Uncle Sam is out on his own, I maintain that several other Uncles and Aunties are excellent in their work. Let me advise your critics to listen in on Sunday evening's children's sessions, to Wellington, Christchurch, or Dunedin, and I guess they will be rewarded. As for children not wishing to hear other children singing and reciting, I do not agree with that claim, and, again, if you do not put on children, where are you to get sufficient adult talent to keep the station open? In conclusion, let me say I have learned a lot through listening to Uncles Sam, Ernest and Sandy, and to Aunt Dot, and others. But do not curtail the children's sessions. P.S.: The remarks about the announcers are unworthy of notice. I notice at times that the announcer's voice gets a bit tired, and no doubt at times they are glad when 10 o'clock comes, but who would blame them? Taken all round, the announcers are a fine lot.

An Old Hand's Views.

Sir,—We read some complaints from listeners about the programmes, but I state that there is not one broadcast company in the Southern Hemisphere which has made more progress than has the N.Z.R.B.C., and is there any other station which can put on a better programme during the children's session than does 3YA? We have more variety and better programmes during this session than I have ever heard any station in Australia put on. I can remember 2BL when they used to be called 2SB from the "Daily Guardian" newspaper office, and I heard 2FC when they first started on 1100 metres, and I have seldom heard a session which can equal that of 3YA. No, Mr. Editor, listeners cannot growl. Ask any old hand who has been at the game for four or five years, and I think you will find he is very enthusiastic about the progress made by the company. The evening sessions are a credit when one considers the limited talent available in New Zealand. One thing I would like to suggest is what about an afternoon programme during Sunday. In the winter months I am sure country listeners would appreciate it.

Radio Sunday Sessions.

Satisfied (Ohakune): I wish to express my appreciation of the programmes put on lately on Sunday evenings, after church, particularly at 2YA and at 4YA. I like band music, but the semi-sacred concerts now being given are a great treat, and though I am not a wowser I hope these will be continued, and the secular music kept for during the week. In my opinion the Broadcasting Co. are giving us great value for our money, and in the music, vocal, instrumental, band, and choral items, together with talks, market reports, and news, and a host of other incidentals, there is enough on the air to satisfy the public, no matter what their taste may be.

P.S. We listened on Tuesday till midnight, and were very disappointed that 2YA did not get on the air on Wednesday to tell us about the missing airmen, but instead we had to wait till 7.15 Thursday night for the news over the air.

Christmas Programmes Appreciated.

E. C. Horton (New Plymouth): Just a line to express appreciation of the Xmas broadcast from 1YA, Auckland. The items on the air during the week were of a high standard and good variety, and must have pleased the majority of listeners. The main feature was the duration of the broadcast, and it was very gratifying to be able to use the receiver during most of the day and evening. This is what makes radio worth while, and should have greatly impressed intending purchasers, and I hope the time is not far distant when we can look forward to the stations starting at midday. In my opinion it would be better to be on the air from 12 till 2 each day than as at present from 3 till 5. The former time would enable more listeners to use their sets and also for dealers while the streets are busy. The "Radio Record" is also appreciated, and is a very interesting publication

AUSTRALIAN WAVE-LENGTHS

PROPOSED ALTERATIONS.

A Melbourne writer says:—

"There have been some references in the Press to the effect that the wavelengths of the Australian broadcasting stations are to be altered. The basis and extent of the alteration have not been disclosed; but the Postmaster-General's announcement is of considerable importance.

"The announcement is something in the nature of a warning that some changes will take place early this year. The need for prior notice of the change is very obvious when we read that the lowest wavelength is likely to be about 225 metres. At present it is 255 metres, and it is doubtful if many receivers—except the latest types—are capable of being tuned to anything below 250 metres.

ALTERATIONS TO RECEIVERS NECESSARY.

"The alterations will not be costly, but it will be a nuisance to owners of sets to have to get their tuning brought down to 225 metres. There is no reference to changing the upper section of the broadcasting band of wavelengths—that is, above 650 metres—so we may assume that the authorities do not intend making any alteration in the long-wave station at Perth. The existence of that long-wave station—the only one in Australia—is rather surprising, and may have something to do with the failure of broadcasting in West Australia.

"With crystal receivers of the slider coil inductance type it will probably be necessary to rewind the coil or coils—and similarly with valve sets using fixed inductance an alteration may be necessary. With a modern efficient condenser designed to receive frequencies between 200 and 550 metres of wavelength the effect of the proposed change will be negligible.

"The best way to make sure of this is to get your dealer to test the set. If the dealer is up to date he will have a set tester or an oscillator which will enable him to generate in the oscillator a radiation of, say, 200 metres. The oscillator will act as a transmitter, and the receiver under test will pick up the 200-metres transmission if its tuning range is suitable. If not, the test will be made in 210 or 220 metres; and thus the tuning range of the receiver will be ascertained.

WHY CHANGE WAVELENGTHS?

"This question will occur to many readers, and forcefully so to those whose receivers are incapable of "going down" to 200 metres. A little reflection will remind us that the wavelengths as used to-day are not satisfactory. There is a crowding of the stations between 350 and 400 metres.

"The Postmaster-General's announcement refers to the Washington Conference and its decision on wavelengths. That decision apparently is guiding the authorities here in the matter. The decision was that broadcasting should be carried out on wavelengths between 200 and 600 metres, with two additional bands between 1000 and 2000 metres. The latter band was put in to meet the conditions in Europe, where there are a number of long-wave stations like Daventry in England on 1600 metres.

"The 200-600 metre band gives the set manufacturer a better chance of making efficient sets. The sets can be more compact, simpler in operation and the aerial can be smaller, as listeners know since the change to 371 metres of 3LO.

"The subject of the most suitable wavelengths for broadcasting is still one for argument, but it would be a great pity if our present conditions were to be altered in any drastic manner."

CARE OF VALVES

EXCESSIVE A BATTERY.

Present-day valves, for the most part, have so-called thoriated tungsten filaments, the action of which, even at this late date, is not fully appreciated by the average listener.

The electronic emission of the thoriated tungsten filament depends upon the presence of a layer of thorium atoms on the outer surface of the filament. It will be noted that, unlike the oxide-coated filament found in some valves, the thoriated tungsten filament is not merely thorium-coated, but it is permeated throughout its entire mass with the rare element thorium. During in the normal operation of such a filament, the thorium on the outer surface is gradually evaporated, reducing the emission, rendering the valve short-lived. However, while the heat of the filament serves to evaporate the thorium particles on the surface, it is also boiling fresh thorium particles out of the mass and up to the surface. Thus the surface is being continually replenished. Just so long as the filament voltage is not increased beyond 10 per cent. above the rated value, this evaporation and replenishing process continues at an equilibrium rate, so that a constant layer of thorium is maintained on the surface.

Valves Paralysed.

When subjected to an over-voltage on the filament, however, the evaporation becomes excessive, so that the valves accordingly become more or less paralysed. Operating these valves at sub-normal voltages is also liable to paralyse them slowly, as the filament temperature is so low that the process of boiling out the thorium from the interior of the filament becomes abnormally retarded. Hence it is important that the thoriated tungsten filament valves be operated strictly at their rated voltage, by means of hand rheostats with an accurate voltmeter, or, better still and simpler, by means of amperites, the self-adjusting rheostats.

GOOD TIME AHEAD

IMPROVED RECEPTION.

From 1928 to 1933, radio reception conditions will improve, according to the sun spot interference theory. A well-known scientist states: "We must be patient for a short while now, and await better conditions rather than strive for distance at the expense of batteries and loss of sleep. There seems to be some effect of sun spots on radio reception."

Sun spots throw out enormous eruptions of electrons and other electrical particles, some of which reach the earth's atmosphere. When these sun spots are particularly intense, radio reception is apt to be disturbed. The sun spot cycle is eleven years; that is, there is a minimum of spots on the sun for a time, after which they gradually increase to a maximum, and return to a minimum—the whole period occupying a cycle of eleven years.

A Change This Year.

The last sun spot minimum was in 1922, and it would be inferred, therefore, that reception in 1932 would be progressively worse to 1928, and that in succeeding years, reception should improve and be at its best in 1933.

It will be interesting to see whether this occurs, and whether observations on sun spots will show a closer correlation with radio reception conditions.

There is no definite relation between radio transmission effects and the aurora or magnetic storms, the scientist points out, admitting, however, that these phenomena do affect wire telegraph services (not wireless telegraphy) frequently paralysing it entirely. The only effect on radio waves, is that in some instances it has been known to either diminish or increase the intensity of the received waves, thus causing fading of signals.

Weather Has Little Effect.

Strange as it may seen, and contrary to general belief, weather, in general, has very little effect on radio reception: the principal causes of these vagaries lie in the upper reaches of the air, whereas the weather is manufactured or changed in the lower levels of the atmosphere—below the clouds. Static, on the other hand, he advises, consists of waves which are identical in character with wireless waves, though they are caused by natural electrical discharges in the air. Lightning is another form of such discharge. Static, as is fairly well known, occurs most frequently in the torrid zones and storm areas, being worse in summer than in the winter months.

A Strange Theory.

The theory that static represents a system of communication is still upheld by some people who are of the opinion that the Martians are endeavouring to establish communication with the earth.

However, it is firmly believed that science will eventually overcome static, whether it be called interference or signals, and in the meantime, until 1933 at least, we may look forward to a period of good reception unmarred by the troublesome noises which we are all experiencing of late.

B BATTERY POINTS

TO EFFECT ECONOMY.

It sometimes happens that a B battery is not asked to provide its full voltage. For instance, its maximum reading may be 108 volts, while 90 or so volts suffice for the valve requiring the highest H.T. Thus, 18 volts are standing by idle. Nine or so of these will be useful to provide compensation for the drop in voltage which inevitably accompanies the latter day of a battery's life.

The remaining 9 volts can be used for grid bias purposes, thus saving the complication and additional expense of a separate grid bias battery.

The negative wander plug of the B battery should be moved up to "9 volts," and the positive plugs moved up correspondingly at the other end. The grid bias negative plug can then be inserted in any one of the B battery sockets between 0 and 9 volts.

VARYING THE LOAD.

It should always be remembered that the first group of cells in a B battery, used with a multi-valve set, has to do the most work. They have to provide current for the valve taking the least B battery voltage, as well as those which take most. For instance, supposing there are three valves, each with separate B battery, plus tappings, taking 45, 60, and 90 volts. The cells between 60 and 90 volts have to supply current for only one valve, those between 45 and 60 for two, and those between 0 and 45 have to supply current for all three.

The work can be evened up a little by shifting all the wander plugs up for periods, viz., that one in 90 up to 108, the 60 up to 78, the 45 up to 63, and the negative plug to 18. Then the probability is that if the battery is of the "dry" type, a cell or cells between 18 and 45 will be the first to "pack up." Such can be short-circuited, and the battery used until all the cells between 18 and 90 are hors-de-combat, shortages in voltage being made up by additional 12 or so volt units.

The cells between 90 and 108 should be the last to go. A 108-volt battery, so handled, has given 16 volts of useful energy after a period of nearly eighteen months' work. It provided the last 16 volts out of a total 88 necessary for a three-valve Det.-2 audio-frequency set, 72 in the form of a complete unit, used for the detector and first audio valve.

HOME-MADE CRYSTALS

A SIMPLE RECIPE.

Super-sensitive crystals at 2s. 6d. per gross! Here's how. Get some pure lead (Pb.), not solder or lead alloy. Also some flower of sulphur—ordinary powdered sulphur. Cut the lead in small pieces and mix with the sulphur in the ratio of seven parts by weight of lead to one part of sulphur. Place the mixture in a crucible, a tin cup, or some convenient container other than glass or porcelain. Heat over a Bunsen burner or over red coals in a stove. In a very short time the mixture will begin to glow and the lead and sulphur will fuse together. At this point, remove the mixture from the heat and place the container in a basin of cold water to cool.

Water to be Avoided.

Do not let any water get on the crystal, as it will ruin them. If you have had things just right, you will have a lump of material that is super-sensitive over its entire surface. If the lump is crumbly, you have "cooked" it too long, and if it is streaked with lead you did not cook it long enough, or else you used too much lead. Your crystal will then be sensitive only in spots, and not over the entire surface as it should. Use a very light contact. Some home-made crystals are as good or better than the best natural crystal ever used. Fine for reflex, too!

The above materials may be purchased at any chemists.

RESISTANCE CHANGES

TEMPERATURE EFFECTS.

Many listeners cannot understand why a certain length of wire possessing a known value of resistance will show a variation while current is flowing through it.

To comprehend this phenomena, certain actions must be visualised by the interested fan. First, the formation of molecules results in the wire possessing a certain value of resistance per inch, foot, or mile of wire, whichever dimensions suits the fan. If the molecular structure of the wire is altered, the resistance for that inch, foot or mile of wire is changed. The more the structure is varied, the greater the change in resistance. When current is caused to pass through wire the action of the current is to heat the wire, the heat generated being dependant upon the amount of current flow. The action of the current not only heats the wire, but in heating it changes its molecular formation, with the result that the resistance changes.

Molecular Structure.

It must be understood, however, that the molecular structure is not always altered by the heat generated in the wire. That is, the elements comprising the wire may have such molecular formation that within certain limits of heat, these formations will not change appreciably, with the result that the resistance of the wire does not change with increase in temperature. Such a wire is said to possess negligible temperature coefficient and the resistance remains practically constant over at certain range of applied watts. Such resistances are best suited in battery eliminators and electrified receivers where constant resistance is necessary under various loads.

THAT RUSSIAN STATION

RECEPTION IN AUSTRALIA.

A correspondent in New South Wales writes to the Sydney "Wireless Weekly":—"I have noticed various references in the Press and radio journals to the wavelength of the Russian station RFN, some of which are misleading. For the information of short-wave enthusiasts who may experience difficulty in locating this station, I might state that RFN's wavelength is exactly 60 metres. He may be picked up every night except Wednesday, and occasionally on that night also. The evening session opens about 8 o'clock with a talk, which is given in the Russian language. Invariably the station, on opening, announces in English. Likewise an announcement in English is made at about 9 o'clock. On a good low-loss set the station is as easy to tune in as 2FC, whilst the music transmitted is as clear as could be wished. Another short-wave station, situated in Java, transmits an excellent programme between 10 and 11.30 on Saturday nights. I heard the station, controlled by the Dutch East Indies Laboratory, transmit a special test programme on 31 metres on Monday morning, November 28, between 5.30 and 7.15 a.m. The volume was such that the music could be heard from the speaker 50 feet away. 2XAD is another Yank station heard easily every Sunday morning at about 7 o'clock, generally transmitting a sporting event."

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The Children's Corner

By "ARIEL"

Dear Radio Children,—

Who heard the elephants and lions at Wirth's Circus broadcasting their sweet melodious voices on Saturday night? I expect every one of you did, and got heaps of thrills from Jumbo's items. Don't you think it was very brave of Auntie Dot and Uncle Jasper to sit and talk to you from among all those wild beasts? I couldn't have done it for all the tea in China; but then, I never did like loud noises, such as thunder, doors banging, hooters and fireworks, and people shouting in my ear. Anyway, Auntie Dot had to admit once that her knees were knocking, which goes to show how brave she was to stay there, in spite of feeling shaky!

I expect most of you are still enjoying holidays at the beach or in the country, and I hope those of you who only get to the sea occasionally are making the very most of every minute. Do you look for sea anemones and starfish, and crabs, and pretty seaweed and shells, and watch the seagulls? If you come across a starfish it means that it has been left stranded by the tide, and it is best to throw it back into the water, as it cannot live for long on land. Do you know that a starfish can climb up rocks just about as quickly as a snail, and that it can wriggle itself along the sand at about the same rate? It manages this performance by means of its rows of little feet, which you will find running along its rays if you turn it on its back.

I wonder how many of you know how useful seaweed is? Once upon a time it was considered quite useless, but now we use it for such a lot of things. To begin with, it helps to break the force of the heavy seas, and makes a home for numerous sea creatures. Some kinds are used in the making of iodine, soap, varnish, and glass, while others are gathered by cartloads in tons and tons, and put on the fields to make the crops grow. The little blobs we so often see and tread on for the fun of popping them are little balloons filled with air to keep the seaweed afloat on the water.

Then there are many rarer and prettier kinds, like fairy trees, in red and pink and white, the which are most attractive when dried and pressed for a collection. Of course, you have to find out the correct names and label them all.

Shells, too, make a fascinating collection, and you can spend many long hours hunting for new ones. Some are so delicate and tiny that unless you are looking very carefully you will miss them altogether.

Anyway, I am sure you are all having the time of your lives, and will just hate leaving the out-of-doors when it's time to begin school again.

Love to everyone,

ARIEL.

CHILDREN'S HOUR AT 2YA

Uncle Ernest has been browsing under the shadows of Ngauruhoe at National Park. On January 6 he again resumed his arduous duties at 2YA. All Radioland welcomed him back.

Monday is Aunt Jo's night. A delightful hour will be spent with our cousins of Radioland.

Tuesday—Hurrah for Uncle Jasper! Good fun for one whole hour. He will be ably assisted by "Pat and Mike," musical medley artists.

On Thursday Uncle Sandy's hour is sure to prove instructive and entertaining. His birthday rhymes will be the feature of the evening. Uncle Sandy writes these specially for the little ones. He will be assisted by Aunt Dot.

On Friday Uncle Ernest and his bright little troupe of serenaders will provide ample fun for you all.

Aunts Gwen and Dot will have some treasures in the box for the kiddies on Saturday. The box to be opened at 6 p.m. sharp.

MRS. WREN—ARCHITECT

Such a fuss about houses!" exclaimed Jenny Wren. "If everybody did what I do the housing shortage would end itself. My husband and I generally start building in the spring; it is so pleasant to work in the sunshine, with a snatch of food now and then. The house is usually ready at the end of a fortnight. It is no mean, put-up thing, but large and comfortable enough to rear a good sized family in.

"I've built many houses in my time; I often had to do most of the building myself. My husband, as you know, is a professional singer, and I cannot always rely on his help. Of course, he tries to keep the building season free, but if we're hard-up he has to earn something to keep us going. He's such a dear.

"As I mentioned before, we build in the fine spring weather. I've found from long experience that one good model house that has proved itself reliable is the best to stick to, and so I don't go trying lots of new ways. There isn't time. I find for my purpose that a cosy, one-roomed cottage is the most convenient.

"For the site I like a little private place where we can get an equal amount of sunshine and shade. We do not usually have any bother with that, as there are so many pleasant places. When we've got our building materials we lay the foundation-stone (stick, my husband calls it), and then build up the walls, putting on the sweetest little roof you can imagine. We have just one entrance, and we do not make it too large, so that no cold draughts can come in. It is so cosy and warm inside.

"Having done my building, I bring up my babies. My husband says I have never had an ugly baby in my life, and that's a good deal for a man to say, isn't it? They really are darlings. When I come back from my shopping I find them all at the door, every mouth open! It is all I can do to get enough food for them. The only serious trouble I have is about steps. My husband prefers an elevated position, so that I am bound to have a flight of steps, and the children often fall down them when they are young. Now I must be getting back to them. Good-bye! Come to see me at the Privet, Lawnside."

MUCH TOO EARLY.

"Why is breakfast at six like a pig's tail?" "Because it's twirly!"

FROM THE WIRELESS ALPHABET

(By Eleanor Farjeon.)

E IS FOR ETHER.

Ether it is everywhere,
In the earth and in the air,
In the mountains white and green,
And in the spaces in between.

Ether's in the garden-walls,
In the cloud before it falls,
In the cliff and in the sea,
Ether is in you and me.

All the noises ever made
Are upon the Wavelengths laid,
All the Wavelengths ever known
Travel through the Ether's zone.

That is why the Wavelengths roll
Through the earth from Pole to Pole,
There and here, and here and there,
Through the Ether everywhere.

G IS FOR GOOD NIGHT, EVERYBODY!

Good night, everybody!
Young and old.
The play is over,
And the tale is told,
The dance is ended,
And the song is sped.
Good night, everybody,
Go to bed!

H IS FOR HOSPITALS.

O listen! in the Hospitals
The Voice across the Wireless calls
Forget your pain a little while,
Poor sufferers, and learn to smile.
We to your bedside music bring,
To you the golden voice shall sing,
To you the violin shall play
For a short while your pain away.
For you we'll fill the heavy hours
With fancy's unseen birds and flowers,
For you we'll range across the seas
To catch the sounds shall bring you ease.
Forget, forget! the Wireless calls
To listeners in Hospitals;
Forget why you have ceased to smile,
Forget your pain a little while!

RIDDLES

Why is G like plum cake? Because it makes a lad glad.

Why is H good for deafness? Because it makes ear hear.

Why is J like your nose? Because it is close to the eye (I).

Why is K like a pig's tail? Because it is at the end of pork.

WHAT A BLOW!

"That man can knock down a house with one blow of a hammer."

"Goodness! He must be very strong!"

"No, he's just an auctioneer.

AMERICA'S QUEST

YOUTHFUL GENIUS.

There has just arrived in Europe an emissary from the American League for Fostering Genius.

The object of the League is to give a good education to children who show unusual signs of talent at an early age and whose parents are very poor. The League is already playing fairy godmother to 300 American children, and now means to include other nationalities.

For this reason it has sent Miss Winifred Stoner to investigate the claims of French and English infant prodigies. She ought to be a good judge, for she wrote verses when she was five.

The greater part of the children's time is spent in cultivating their talents: budding Handels have music lessons and young Michael Angelos study painting. But all the children are taught to type before they learn to write, and they are all taught Esperanto.

The League for Fostering Genius has a noble aim, and the people who give their money to it are much to be admired. Yet we cannot help wondering whether they will produce a genius of the purest water, for it is a remarkable fact that nearly all geniuses have had to make their own way. We must wait twenty years for the results of the League's fostering care.

THE LOST ELEPHANT

AND THE STOLEN TRAIN

Some people are incredibly careless. The other day we heard of a man who mislaid an elephant; now we hear of someone who lost a whole railway train! Both these interesting items of lost property have been recovered.

The elephant had merely gone for a stroll down a lonely lane, but the train had been stolen by Polish railway officials. It was made up of 42 trucks of coal when it left Chorzaw in Upper Silesia, but the coal was delivered to accomplices at various towns, where it was sold. The engine and 42 trucks were not so easily disposed of, however, and after a police hunt the truth has just come out.

SAFETY DOWN IN THE SEA

AN IDEA FOR SUBMARINES

What may be quite an important invention has been devised to add to the safety of submarine crews.

It is a buoy filled with compressed air and attached by a cable to the conning tower. Should the craft get into difficulties while submerged the buoy is simply released, so that it will rise to the surface and attract the attention of passing vessels.

The cable contains a telephone wire, so that communication could be established with the imprisoned crew.

NEWS FROM EVERYWHERE

An Act of Goodwill

The Paris police have forbidden the use of the word Boche in kinemas; the word German is always to be used.

Robin's Nest in a Mackintosh.

A robin has laid five eggs in a nest built in the folds of a mackintosh hung in an apple tree in Cumberland.

A Link With Lincoln.

The widow of a man who made clothes for Abraham Lincoln has just celebrated her hundredth birthday.

The Penny-a-Day Man.

A Nottinghamshire man who started work ninety-six years ago at a penny a day has just retired at 103.

In the Porridge Pot.

At a training school in Belfast the other day a boy fell into a large pot from which he was ladling porridge.

Praise for Boy Cooks.

A lady who has been teaching cookery to boys in London says they learn more quickly than girls and make twice as much in a given time.

The Parrot's Revenge.

The wife of a Spalding councillor is recovering from blood-poisoning caused by being pecked by a parrot after she had accidentally prodded it with a fork.

The Scout in the Window.

A South African reader writes to tell us of two other Scouts in a stained-glass window. Both died in the war, and appear together in a window in St. Paul's Church, Durban.

Fishes Go by Car.

The River Trent has been restocked with 5000 roach and perch taken from the Birmingham Corporation's reservoirs and conveyed to Nottingham in basket-shaped tanks by motor car.

HAS THE RAINBOW REALLY AN END?

The rainbow is more or less than a semi-circle according to the height of the sun above the horizon and the height of the observer. If we were on a narrow peak of a high mountain and the rain were falling at a considerable distance we might see a circular rainbow, which would thus have no end.

The Tasman Flight--2YA's Outstanding Broadcasts

Stirring Scene at Trentham

AN EVENING FOR EVER UNFORGETTABLE

AN ANXIOUS EVENING.

(Continued from Front Page.)

There is no need for us to recapitulate the details of that anxious evening, for unquestionably it became very anxious, not only to those on the ground, but to all in their homes who had the imagination to picture the drama played out between the men concerned and the fast falling shades of evening—unless indeed, as some think, there had come a sudden end at sea beyond sight of New Zealand. All that could be done from Trentham was done. Poignancy was given to the occasion by the description of a tense group of the loved ones of the flyers keenly awaiting their arrival. Admiration and a thrill of human sympathy was evoked for Mrs. Moncrieff and her companion, Mrs. Hood, when at midnight the former rose to the occasion of saying a few words through the micro-

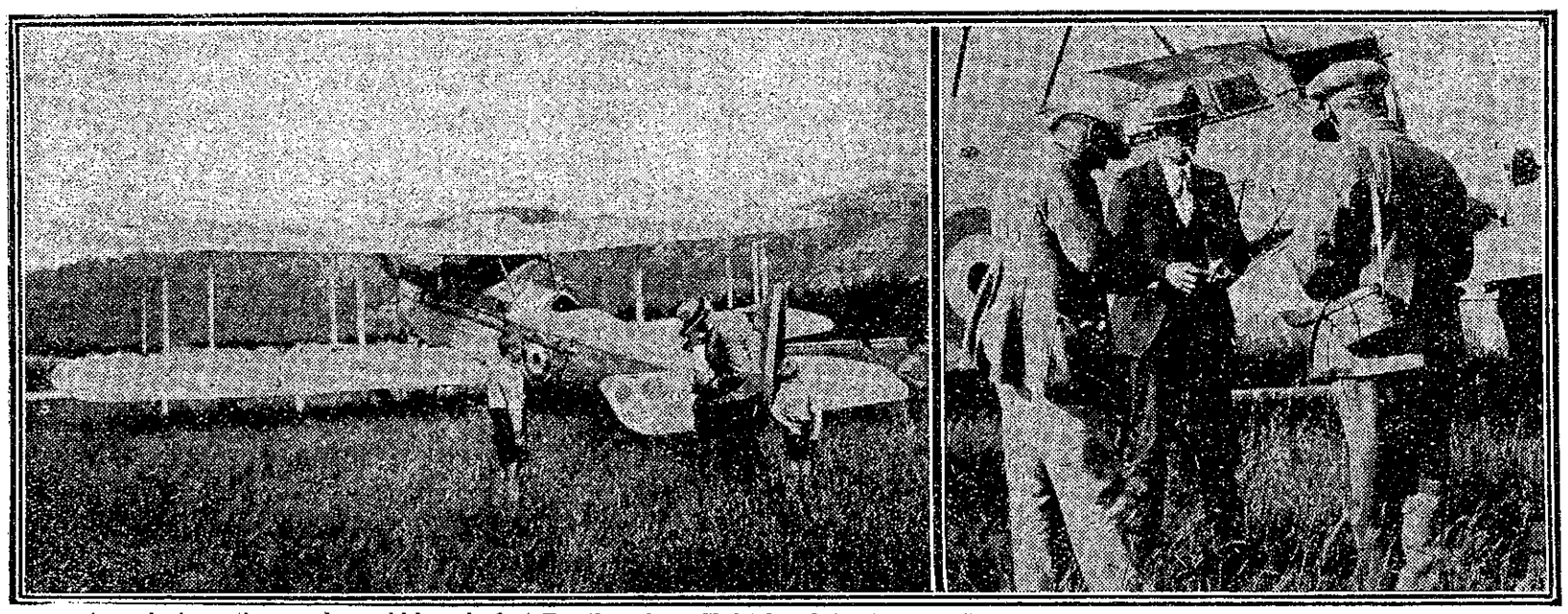
That night on the Trentham racecourse! Will it ever be forgotten by those who waited and watched—and hoped? In the early evening, thousads; as the night gave place to the early hours of the morn, many hundreds watched and waited—and in their hearts prayed—for the safe-coming of the two intrepid young men who through the limitless void were blazing an air trail above the watery wastes of the Tasman between the great Commonwealth of Australia and our own fair Dominion.

When early in the day the news came that Lieut. Moncrieff and Captain Hood had commenced successfully their long voyage and were to all appearances "well away" the triumphant conclusion of their adventurous enterprise seemed to be taken for granted, and there were few, if any, who did not confidently believe that the 'plane would come sweeping gracefully to the landing ground at Trentham somewhere between 7 and 8 o'clock that evening And what an evening for the consummation of such an enterprise! The sun, supreme in the heavens, glossing the azure blue of the almost cloudless sky, and scarce even the semblance of the gentlest zephyrs to stir the stillness of a perfect summer's eve. Surely Nature and all the Elements had in friendly conspiracy united to provide an ideal setting for the grand finale, and to reward the gallant aviators with all the essential conditions for a perfect landing. And so, by train and bus and car the crowds trooped hopefully to the appointed rendezvous, filling to capacity the seating accommodation of the main grandstand, thronging the lawns and overflowing a wide area of the surrounding grounds. Well before 7 o'clock the stage was set for what would indeed have proved a great reception.

From where the microphone was then placed—on the course proper in front of the stand—the scene, having regard to its occasion, was one to which only a poet could do justice. The very atmosphere seemed to pulsate with the spirit of hopeful expectancy. It needed but the thrill of the longed-for appearance of a moving speck 'twixt sky and distant hill tops, just the first faint throbbing of the engine of the fast approaching 'plane, to have sent the great crowd wild with enthusiastic excitement and to have started a cheer such as would have literally rent the heavens.

But time sped on. Seven o'clock came, seven-thirty, eight, the sun disappeared, and as it went the clouds, radiant in a glory of brilliant tints, gradually became dull and drab. The while, countless necks were craned in vigilant search of the aerial voyagers. Doubtful conjecture began to clip the wings of hopeful optimism. Just as the warmth of the summer's eve gave place to the chill of night, so fell the mental temperature of the watchers.

Then came the moon, and with its coming, its silvery beauty soon to be masked by the massing clouds, and with its coming the entire scene was changed. Only from the vantage point of the members' stand was it possible to drink in the full significance of this new scene. Picture it, if you can. In the centre of the course the parked cars of the official party, now much thinner in personnel than it was; figures moving about silently in the semi-darkness, and flitting now and then into the glare of the one big bonfire or the rays of a motor headlight; nearer the stands a much larger crowd, parading the lines in quiet conversation, besieging the officials for news, mustering every now and then in large groups in front of the "mike"—now located in the members' stand—and eagerly absorbing and discussing the reports that were broadcast so soon as they were officially released. It was a weird scene, profoundly impressive. But by far the most notable feature of the memorable occasion was the psychological characteristics of the watchers. The tenseness of their growing anxiety could be felt—literally felt—as the hours wore on. In a very real sense Trentham was thrilled by that touch of nature which makes the whole world kin. Men and women were united by a common anxiety, and a common sympathy for the three watchers who personified in themselves the concentrated anxiety of the multitude—the mother of Lieut. Moncrieff and the wives of the two airmen who with courageous and confident optimism "stood by" from early evening until the very last.



Photograph shows the aeroplane which arrived at Trentham from Christchurch in charge of Capt. Findlay to assist in the search for the missing airmen. Right:—The airmen discussing the prospects.

phone to the listening public. With a steady voice, and the fullest confidence of their success in the light of the reports of their having been seen, she breathed her conviction as to her husband's capacity to make a successful landing in completion of his historic flight. At the same time she conveyed her thanks to the public, both there and throughout New Zealand, for the interest any sympathy they were taking in the enterprise.

From this point, as more reports, apparently confirmed from separate angles, came to hand of the aviators' search for Trentham, interest became at once more engrossing and more anxious, as listeners realised the increasingly difficult problem presented by the passage of the hours and the exhaustion of the petrol.

Then came mention of preparations for the sending up of rockets and incidents in connection therewith. At two o'clock the crowd had dwindled considerably, and at 2.30 the authorities recognised that it was useless hanging on any further, and 2YA reluctantly closed down.

TRIBUTE TO OFFICIALS.

A tribute should be paid to all the Government officials concerned—officers of the Post and Telegraph Department and of the Defence Department, as well as of the Broadcasting Company for the steady efforts made throughout a long evening to give the public the information it sought. Practically all were on duty continuously without a meal or relief from 4 o'clock in the afternoon, or earlier, to 4 o'clock in the morning, by which time many were only reaching their homes from Trentham.

Although the evening's broadcast was unfortunately not crowned by news of the successful arrival of the plane, the evening was a very striking demonstration of the service that broadcasting is capable of rendering to the public. Unquestionably hundreds of thousands listened, at any rate in the earlier part of the evening, to the radio waves from Trentham, and thus felt that they were as closely in touch with the event as if they were on the ground itself. Broadcasting thus takes rank in the public mind of the Dominion as an organ of immeasurable utility.

IN CHRISTCHURCH.

REBROADCAST MUCH APPRECIATED.

Crystal set users at Christchurch on Tuesday evening had all the thrills and excitement of the people at Trentham. The descriptions of the scene there were so graphic that listeners experienced all the expectancy of those who were looking over the Trentham hilltops for the first sign of the aeroplane. The occasion of the re-broadcast of 2YA was historic, and excitement was tense. The listeners-in heard all the news there was, and in that way fared better than did the people at Trentham, who were the victims of all manner of wild rumours.

Though the silent day at 3YA, this station went on the air on Tuesday, and helped to establish in the minds of the public the value of broadcasting as a public utility. The broadcasting stations have "put over stunts" before, but these have generally been in the way of entertainment. On Tuesday, however, the stations served another purpose, that of purveyors of news to many thousands of anxious people.

It was an interesting sight at 3YA during the evening, and until the close down at 2.30. Apart from the station staff, other men who were greatly interested in the flight were there. The place resembled a newspaper office during war time, when local strategists were wont to gather to await the cable news, and then to work out on a map what the opposing armies had done, and would, or ought to, do. So it was with the flight across the Tasman. As each report came through from 2YA, there was much speculation as to the position of the lost airmen, and conjectures were made as to the probable course to be pursued by them. Their chances of landing before their benzine supply was exhausted were keenly debated.

Widespread appreciation of the enterprise of the Broadcasting Company in this matter has been expressed.