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THE RADIO RECORD

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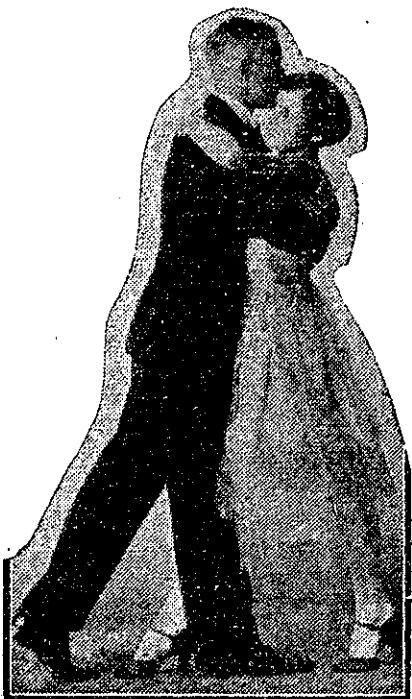
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The Waltz Taught by Radio

Miss Phyllis Bates and 2YA Help



On Left—
The Pas-de-Valse.
Fig. A (See article.)

The waltz is danced to $\frac{3}{4}$ time—three beats in a bar—played at a speed of about 42 bars a minute. The first beat of each bar is strongly accented.

The foundation step of the Waltz is the closed three step, called the pas-de-Valse. The first step of the three step is long, the second is also long though slightly shorter than the first, and the third is only a half step taking the foot slightly beyond the closed position. The first long step is always taken on the first beat of the bar.

There is a distinct body swing to the Waltz, which is really a reactionary movement of the trunk in opposition to the movement of the legs. By "opposition" I mean contrary. For example, when the right foot is forward and the left foot backward, the right hip and shoulder will be backward, when the left foot is forward, and right foot backward. The left hip and shoulder will be backward. This contrary movement originates at the hips and travels up the trunk to the shoulders. It is entirely natural and there must be no forced movement of the shoulders. When the feet are together there is no opposition of the trunk.



The Pas-de-Valse. Fig. B.

to Set
"the
Whole
World
Dancing"

The following notes and instructions are adapted from the lecture broadcasted from 2YA, Wellington on October 22 by Miss Phyllis Bates.



The Pas-de-Valse. Fig. C.

THE PAS-de-VALSE.

Count 1 (Fig. A): GENTLEMAN (Forward), Right—Long step on heel, swinging the balance well forward and rising to the ball of the foot; LADY (Backward), Left—Long step on the ball of the foot letting the balance pass backward and dropping to the heel just before the right foot passes.

Count 2 (Fig. B): GENTLEMAN (Forward), Left—slightly shorter step on the sole, balance well forward; LADY (Backward), Right—Slightly shorter step on the sole, balance over the right foot.

Count 3 (Fig. C): GENTLEMAN (Forward), Right—Short step just past the left on the ball of the foot. Both heels off the floor; LADY (Backward), Left—Short step just past the right on the ball of the foot—Both heels off the floor.

TO CONTINUE: Gentleman steps forward on left foot, and Lady backward on right foot, repeating the three movements, Long—Long—Pass.

THE NATURAL TURN (First Half).

Count 1 (same as fig. A): GENTLEMAN Right—Long step on the heel rising to the ball of the foot and making a half turn to the right. Left shoulder swinging round; LADY, Left—Long step on the ball of the foot dropping to the heel and making a half turn to the right.

Count 2 (Fig. E): GENTLEMAN, Left—Long step to the side on the sole; LADY Right—Short step to the side on the sole.

Count 3 (Fig. F.): GENTLEMAN, Right—Close right foot up to left rising to the balls of the feet; LADY, Left—Close left foot up to right rising to the balls of the feet.

THE NATURAL TURN (Second Half).

For the Second Half of the Turn the positions are merely reversed. The Gentleman's steps for the second half are the same as the Lady's steps for the first half, and vice versa.

*Note.—On the first half of the turn the gentleman is stepping round the lady and must take a longer side step to keep directly opposite his partner. On the second half of the turn his side-step is short while the lady takes a longer step to the side. Another way to remember this is—after a turn on a forward step, a long side step; after a turn on a backward step, a short side step.

THE "WALTZ CURVE"

The Waltz has an undulating movement which is sometimes called the "Waltz Curve." Observe how in the two steps described the movement is—Down on one, Up on the sole on two, Up on the ball on three. This Down Up—Up movement should be maintained throughout the dance and combined with the natural body swing, gives the true interpretation of the waltz rhythm.



The Natural Turn (first half)
Fig. E.



The Natural Turn (first half)
Fig. F.

All Poses by Miss Beryl Clarke and Mr. College.

All Photographs by S. P. Andrew.

For Prospects and Recruits

By M.I.R.E.

In discussing one of the primary considerations in the purchase of a radio set in the last issue of this paper, it was pointed out that it was an absolute necessity to choose a machine of standard make in order that satisfaction and service could be guaranteed and redress obtained in the event of trouble of any sort materialising. The recommendation to purchase a standard make was based on the fact that receivers operate according to laws well known to the initiated, and that in consequence infinite confidence could be placed in standard designs providing only the recognised agents, distributors, or manufacturers are consulted when advice or assistance is necessary in maintaining the equipment at maximum efficiency.

This consideration is of such paramount importance that it has been judged necessary to repeat a definition of it in order to emphasise its value to potential buyers.

It is hardly the function of this paper to give advice as to the best means of judging what makes of apparatus can be considered standard. Obviously, any types of equipment to be steered clear of cannot be named any more than it would be fair to state that this paper's advertising columns represent all the makes or names of distributors who fall into the category just laid down. A buyer would, nevertheless, be well advised to consult the advertising columns of publications devoting space to the subject of radio, and after having made a selection of likely machines write or phone the agents or distributors for further information. Invariably the get-up of advertising matter and method of dealing with inquiries will give an indication as to the service likely to be received at a later date in the event of a machine having been installed. The exercise of judgment along these lines will invariably narrow further inquiries into more restricted channels.

THE TYPE OF MACHINE.

Having arrived at a perspective of the market, infinitely greater confidence may be enjoyed in dealing at first-hand with the representatives of the concerns vending the machines of interest. The next step is to decide which type is best suited to the individual task and pocket. Before passing to some semi-technical considerations which it is necessary to discuss in order to arrive at a reasonably intelligent understanding of the subject, it is thought fitting to make reference to the habit which has become almost ingrained in the pub-

lic in demanding a demonstration of apparatus in their own homes.

Years ago, when electric irons were first introduced, electrical dealers were accustomed to having an ironing blanket and a piece of cloth in their shop in order to demonstrate that it was possible to actually iron by electricity.

The prospective buyer, however, didn't ask the dealer to send round an iron to his house to do the family's weekly ironing for a week or two in order to be satisfied that it wouldn't blow up or electrocute the washer-lady.

To-day any novelty of ironing by electricity is non-existent—in fact, any sort of an iron in use in a house where power is available is looked upon as a sort of curiosity.

WHO PAYS THE COST?

To-day the radio dealer is invariably in the position of the electrical dealer of yesterday. The prospective buyer is not prepared to select a set out of the shop, but he wants one sent to his place and an aerial erected, etc., in order to make certain that the set will actually receive signals on his property. That is unreasonable enough from many standpoints, but then he wants the set left for sufficient time to apparently satisfy himself that it is a set which works every day in the week, and is not one which knocks off on Tuesdays and Fridays! Last, but not least, he wants it for nothing, and the dealer has to take the risk of damage to apparatus and carry the burden of expense in time, and wear and tear of apparatus and accessories. Part of his job? Perhaps, but who pays? The public, of course, because the cost of selling radio under these circumstances is too high.

A gramophone concern will not make a machine and records available for prospective buyers to amuse themselves with while they are making up their minds; nor will a vendor of motor-cars let a demonstration model loose for several days in the charge of a prospect, and incidentally supply him with petrol! Yet this is parallel to

what is being demanded from the radio trade at present.

The remedy and obviously simple procedure is to act on the advice given previously and decide on either one or several standard makes having views of advertised performance and price, and make the arrangements most suitable to dealer and the buyer to try the machine out. The dealer will be able in the majority of cases to make arrangements in the best interests of the intending purchaser, such as an audition at his place of business or some other spot where several models of the same or competitive makes can be switched on at will, thus enabling a comparison to be made which it would be palpably impossible to arrange at the buyer's house, without very great inconvenience to everybody concerned. As a result of this a final decision may be made with ease and confidence at home, after a more or less temporary installation of the machine has been made, and the receiving conditions at the machine's ultimate destination checked up.

GUARANTEE OF SATISFACTION.

Presupposing that the dealer concerned is handling his business on sound lines, he will be willing to guarantee satisfaction. If the results obtainable after a fair trial, extending over a week, for instance, are not commensurate with the outlay, then the dealer should be invited to explain the position and make further recommendations. If continuing with receiver trials, it is necessary to take out a license (a short-period one will do in this case) should the trials extend over a week.

The only reason that a receiver which passes satisfactory trials in one receiving position, and will not apparently repeat the same performance in another, is because the second receiving position is inferior to the first, due either to the mysterious vagaries of the ether or to electrical interference with the functioning of the receiver.

The former is an uncertain factor, but in only isolated cases will it ever become of such importance as to cause

serious trouble unless any particularly desired station is consistently weak and unsatisfactory, whereas in another position this same station is strong. Where signal variations act to the detriment of reception in one direction they will act the opposite in another direction, and balance things up to the satisfaction of the listener.

Any suspicion that a receiver is not acting up to scratch can be checked by the dealer by setting up a similar model alongside and changing the aerial quickly from one set to another, using equivalent valve and battery power. The same symptoms should show up on each.

THE RANGE OF INTERFERENCE.

Electrical interference takes two forms, the first being caused through natural, and the second through man-made means. Natural interference or "static" is caused by electrical disturbances in the atmosphere and in the earth's crust. This becomes audible in a multi-valve receiver in the form of crashes or frying sounds, and when at its worst is intensely irritating and annoying. It comes in storms and will vanish for weeks in the winter months, but is usually present to a slight extent through the summer months. However, static is only apparent when distant stations are being tuned in and a large amount of amplification is being used in the receiver. With stations comparatively near, and especially stations of some power, static loses its ability to annoy because the relation of signal strength to noise becomes of such value that the signals easily win out and the static fades into an insignificant background of no more consequence than the needle-scratch of a gramophone. The point to be noticed by prospective buyers is that the signal strength of a distant station will always appear to be stronger under conditions clear of static than when there is a "noise" background. However, this question of static interference can be safely shelved for a future article because it is a subject which should be given a comprehensive treatment or left alone. Suffice to say that it is not

entitled to the serious consideration that it receives in the minds of intending purchasers of radio sets simply because any point, practically, in New Zealand to-day, is within range of at least one station which can deliver a signal strength sufficient to beat even bad mid-summer static and the listener therefore has a programme always available.

Those districts within a hundred miles of Auckland, Christchurch or Dunedin or within 250 miles of Wellington are definitely assured of programmes throughout the year.

Man-made interference comes principally from power or lighting mains and also from tramway wires, and is caused by the various electrical machines being fed by current from the wires setting up electrical impulses, which are radiated from the wires (just as a wireless transmitter radiates its energy), and are picked up by the radio receiver in the form of noises, which can scarcely be described as pleasant in most cases. Faulty insulators on power lines will invariably cause interference with radio reception in an area surrounding the fault extending over several hundreds of yards on occasions. The remedy to these troubles lies in action by the power supply authorities, who are now fully alive to the desirability of keeping their distribution systems as free of trouble as possible. The dealer is in a position to take the necessary action towards coping with these troubles when they assume prominence, and it is only in isolated cases where the interference is of a very definite nature that a receiver is seriously affected.

Summed up, the question of interference is only a serious one under any circumstances to those who have ambitions towards distant reception, and who are of the same turn of mind as the individual who wants every Saturday afternoon to be a sunny one in order that he may always get his game of tennis. True radio broadcast reception consists of tuning in a station whose signals are of such a strength compared to any interfering noises that the signals preponderate to such an extent as to render the interference relative in noise to a gramophone needle scratch. In terms of a year's use of a receiver, there is really no spot in New Zealand where these conditions are not obtainable for at least 300 days out of the 365, and in the main centres this is obtainable for 365 including the 366th in Leap Year.

POWER BY RADIO

WONDERS IN STORE

PREDICTIONS BY EXPERT.

Beams of radio power, criss-crossing a city like searchlight rays and carrying light and power as wires do now, were discussed as future scientific possibilities, following spectacular demonstrations of present power transmission by radio shown by two Westinghouse engineers, Dr Harvey C. Rentschler and Dr Phillips Thomas, to the New York Electrical Society, at the Engineering Auditorium, New York City, recently.

Electric lamps, held up by Dr. Thomas in empty air, glowed brightly although not connected to power wires. In a novel radio furnace displayed by Dr Rentschler, chemical reactions possible only in a vacuum were initiated by radio waves. A disc of metallic tungsten, among the most infusible of all metals, was heated white hot in an instant by the invisible rays. That radio-power beams of a special variety might prove to be the long-imagined "death ray" was mentioned, not as a fantastic dream of some modern Jules Verne but as a sober scientific possibility.

MARVELS OF BEAM.

Radio waves like those used in broadcasting, except of shorter wave-length, can be reflected from metal mirrors to make narrow beams, like the beams

from automobile headlights. Dr. Thomas, who is research engineer of the Westinghouse Electric and Manufacturing Company, at East Pittsburgh, Pennsylvania, U.S.A., generated before the society waves of this type, not in beams but as short as 240 centimetres or eight feet, which is only about one-hundredth of the wave-length of the shortest waves ordinarily used in broadcasting. Dr. Thomas predicted that still shorter waves will be produced, capable of being concentrated into narrow and powerful beams.

"We may visualise," he said, "a parallel beam of radiation ten centimetres or four inches across, along which is being sent ten kilowatts of energy. What sort of effects shall we find? Will this be a means of delivering energy for heat and lights to individual houses?"

Tesla had a similar idea many years ago. Later improvements in the radio art make it interesting to consider such a possibility once more. We may imagine each house furnished with a half-wave oscillator in line with a parallel beam from a sending station, so that heat and light may be obtained very much as at present, by simply turning a switch, but without the costly transmission wire equipment now required.

A DEADLY RAY.

"Again, suppose it should happen that this four-inch beam of highly-concentrated energy should render conducting the air through which it passes. Then ordinary electric power could be sent along the beam as though the beam were a transmission line. The beam could be directed to any desired spot, with dire results to the target. It would constitute the so-called 'heat ray' employed with such deadly effect by the Martians in H. G. Wells' well-known story of their descent upon the earth." The radio furnace demonstrated to the society by Dr. Rentschler, who is Director of Research of the Westinghouse Lamp Company at Bloomfield, New Jersey, U.S.A., is designed to concentrate large amounts of radio power within a small space, rather than to send it for long distances over projected beams. Certain metals, although long known to the chemists, cannot be prepared usefully in metallic form by ordinary methods, because these metals are combustible when in fine powder, taking fire in the air like tinder whenever they are heated. By conducting the heating of these remarkable inflammable metals with radio power and in a vacuum, Dr. Rentschler has made them in metallic form and in some quantity. Two of these metals, thorium and uranium, belong to the group of radio active metals including radium. Now that the use of the vacuum radio furnace has made these peculiar metals available they are expected to find uses, Dr. Rentschler said, in industry.

GOLD AND SILVER INTO GAS.

Another use of the radio furnace is to turn metals like gold and silver into gases, so that their individual atoms can be weighed. These metallic

"MICROPHONE FRIGHT"

"Microphone fright" is a very real difficulty broadcast studio announcers have to contend with when some people are about to make their first broadcast speech.

At 3LO, Melbourne, only recently a successful sporting man and his coach were billed to broadcast their experiences and sat before the microphone for some time to acclimatise themselves, but when the fateful moment came neither of them was able to collect either his wits or his breath sufficiently to break into speech, and in dumb show they notified the infuriated announcer that they could not go on with it. The rest of their time had to be eked out by gramophone records.

Occasionally, however, a very poor starter develops with practice into quite a creditable long-distance speaker, once the "nerves" have been mastered. The announcer is in such cases a very present help in time of trouble. "Oh! Mr. Andrew!" wailed a lady speaker one afternoon to 3LO's announcer, "I am shaking all over—I don't believe I'll be able to speak!" Mr. Andrew replied: "That's nothing; I often feel that way myself. You just have to screw up your courage! After a few words you'll be all right." Amazed at this confession from a personage regarded as the very embodiment of sang froid, the lady screwed her courage to the sticking-point and made her talk one of the clearest and best she had ever done.

Countless other performers have also testified to the helpfulness of the announcer's presence and kindly smile at a critical moment.

atoms are so tiny that more than ten thousand billion billions of them are necessary to make an ounce. Some of them are capable of existing in free condition only for a ten-thousandth of a second or less. Nevertheless, the radio furnace permits them to be studied and weighed, with results of important value, Dr. Rentschler said, to atomic science.

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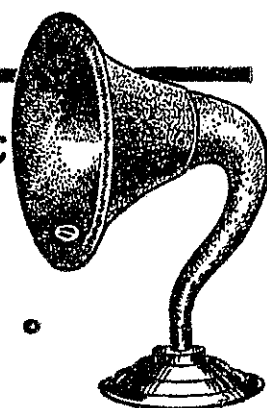
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ATWATER KENT RADIO

The Chit-Chat Club

Points from Papers Put "Over the Air."

(Set Down by "Telanother")

It was one of those biting southerly days, experienced in Wellington even during the summer months, and the members of the X club, knowing that the fires would be blazing cheerily, had arrived earlier than usual. The "wireless bugs," as was their wont, had retired to their own particular corner, and firmly ensconced in the deep leather-backed armchairs with which the club was so liberally besprinkled, with a "little of something to make the heart feel more cheery," had drifted on to the old—and ever new—discussion of the merits and demerits of the weekly programmes.

"I heard a most interesting lecture last week," said Wishart, the only bachelor member of the little circle. "What was it?" queried Hargost, better known to his cronies as Blinks. "The story of the apple," replied Wishart.

"Might have known there'd be a woman in it to interest you, Wishie," said Blinks.

"That old Adam and Eve stuff's worn out these modern times," said Harrison scornfully.

"Nothing of the kind, sir, nothing of the kind," said the oldest member fiercely. "It was good enough for a damn sight better man than you'll ever be, and," he added, as much as to finally clinch the argument, "it's good enough for me."

"Well, well, it's a ticklish subject," said Blinks. "I don't know that it's really worth arguing about, but I must say that when I look at Harrison, Darwin's theory does make a strong appeal."

"Oh, shut up," said Wishart. "The lecture wasn't about Adam, or Eve either. It was by Dr. Franklin Kidd, the visiting scientist, and concerned the everyday apple which we eat."

"Why on earth didn't you say so before?" said Blinks.

"Right at the start," said Wishart, "he gave me a shock by asserting that the apple was a living being, and that it breathed long after it left the tree. That, apparently, is what makes the cold storage of apples so much more difficult than storing butter or meat."

"I don't see how it can breathe," said Harrison doubtfully.

"You wouldn't, but it can suffer from other human ailments. For instance, it gets fungal rot at times," and so saying he looked with a meaning glance at Harrison, who pretended to take no notice of the allusion.

"Another thing about which great care has to be taken is the humidity of the air in the cool store. If the air gets too dry, the apple loses some of its water by evaporation, and then it commences to shrivel. Air movement is also needed in the cool store to carry off the volatile waste products that come from the apple. That is why ventilation is so important. One thing that Dr. Kidd said that appealed to me was that New Zealand fruitgrowers had made a great success of the business."

"They must have done so," said Thribs, "when you think of the prices they got in England last season. I believe," and, being a merchant, Winton Thribs always gave his opinions with the air of a man who knew. "the industry is now on a good basis, and I think fruitgrowers are going to get returns that will recoup them for the lean years they have had."

"I'll tell you a chap I think has improved a lot in his addresses," said Larton, who had arrived late, "and that is Stanley S. Bull. I heard him give one on Pompeii recently and it was very good."

"By jove, it was," said Blinks enthusiastically. "I thought I knew a bit about Pompeii, but I learned a lot from that address."

"That's the place they've dug up in Italy, isn't it?" queried Wishart.

"Your classical knowledge, my dear Wishie, is profound," said Blinks with a deep bow. "Pompeii was one of the great cities of ancient Rome."

"We should never have excavated it," said the oldest member. "Let the dead past bury its dead. Why should we go prying into their history?"

"That's the stuff," said Harrison. "Why, indeed, and why should we try to piece together the story of the earth? Why do anything?"

"You'll get the story of the earth in a single book," said the oldest member, standing strong for orthodoxy, "but I don't suppose that you, Harrison, would be able to appreciate such literature."

"Tut, tut," said Blinks. "We're on the religious shoals again. Get on with the yarn about Pompeii, Larton, my boy, or we'll have the oldest sinner here conducting an evangelical meeting."

"I suppose most of you know that around the beautiful Bay of Naples there are buried dozens of small towns, which flourished in Roman times. Of these, the largest was Pompeii, a city of 40,000 people—a place of holiday for Roman nobles and princes, and just one of those gay holiday resorts such as exist today in Deauville and Monte Carlo. It is nearly 1700 years since that city was buried in an eruption from Mt. Vesuvius, and yet such are the marvels of modern science that we have been able to uncover the buried

city, and see exactly how life went on in those distant times.

"In A.D. 63 an earthquake shook the city to its very foundations, shattering temples and theatres and ruining many of the houses. Half of the population fled, but as several years passed without a recurrence, they gradually drifted back. The Senate commenced rebuilding the city and artists and sculptors were employed by the hundred to embellish the buildings and private houses. The work was almost completed in August A.D. 79 when Vesuvius let forth its pent up fury, and in two days seven towns had ceased to exist."

"Pompeii at that time was in the throes of a municipal election..."

"Oh cut it out," said Wishart. "That's making it a bit thick. I don't suppose they ever had local bodies in those days, and even if they did, how could anyone know?"

"They were just as far advanced as we are in most ways," said Larton, "and we know the election was being held because of the notices which were everywhere in evidence—even down to little boosts for the candidates reminiscent of 'the man who gets things done.' The showers of light ashes and powdered pumice fell gradually at first, but everything was black as night—as it was in New Zealand when the pink terraces were destroyed. Many of the people escaped with their lives, as the fall at first was gradual, but others, thinking that it would cease, became entombed. So perished Pompeii."

"Centuries passed, and further falls of lava accumulated above the town. Vesuvius became so elevated that a Pompeian would hardly have recognised it. At various times excavation work was attempted, and in 1860 the Italian Government set out on a definite programme of work. To-day that work is being continued by the Mussolini government."

"Their literature, their art and their amenities of life were equal to—if not better than our own. Theatres were found, medical instruments the equal of any to be found to-day, and in fact a civilisation very much like our own. That is what existed in the Roman Empire no less than 1700 years ago."

"What a wonderful old place it must be," said Blinks. "Wish I had the money to go and haunt the ruins."

"Talking of places I'd like to visit—and those I'd keep at a safe distance, I reckon this Arctic exploration business is called in," said Harrison. "What's the use of the thing anyway? They go away, endure all sorts of hardships, and then get back through the skin of their teeth—all for nothing."

"They do wonderful work for science," said Brenton, who, being the outdoors man, could always find a word of praise for those who explored. "It's through the work of Arctic and Antarctic explorers that we have been able to advance the science of navigation to the pitch it has reached to-day. You should have listened in to the last address given by Lieut. Burt."

"As a matter of fact, I heard it," said Harrison, "but I wasn't impressed with the case he made out for exploration in the Arctic."

"I was," said Blinks. "Again and again Arctic explorers have made knowledge available to us, and we are deeply in their debt."

"What was his last address on?" queried Thribs.

"The final stages of Worsley's Arctic trip. They got amongst the rocks when close to Green harbour and had the dickens of a job to get clear, and safe into port. They bumped about on the rocks for a couple of days, and eventually got off by means of a kedge anchor, warping the vessel a few yards at a time. The timbers were leaking badly and they had to keep the pumps going day and night, in order to keep the vessel afloat. Had it not been for the fact that the boat was made of good old English oak, it would have been smashed to pieces."

"They got a great reception from the Norwegian miners when they eventually landed at Green harbour. The ship was pretty badly damaged, for, in addition to being on the rocks it had been badly crushed in the pack ice. The rudder was damaged and loose, the propeller broken, the main gaff broken, the engine room bulkhead burnt, and there were many minor breakages, so you can bet they were all pretty glad to see port again."

"They got some great glimpses of the Aurora Borealis while on the trip, and Lieut. Burt said that it was infinitely better than the Aurora Australis. This wonderful phenomena could be described as being normally of a luminous silver brightness varying at times to a faint semblance of an oil lamp; a very pale phosphorescent green, or a subdued flame colour. In its full glory it dims the moon, and extinguishes the stars, though when shining at half power the stars can be plainly seen, peeping through its fringes. Sometimes the lights would form a broad arch over the snow-capped mountains, being well-defined below and splintered

Pertinent Points On—

"STORY OF THE APPLE."

"POMPEII."

"JACK FROST."

"IN POLAR FIELDS."

above, into a thousand radiating silver spears. During the whole time the expedition was away, scientific work was carried out, and much added to the store of human knowledge through its efforts—so you see the money spent on these efforts isn't really wasted at all."

"What wonderful strides we've made in the last fifty years," said Blinks. "It's almost as if we were a race of super-men."

"Super-fools," growled the oldest member. "You are only reaping what the brains of others sowed for you."

"There's something in that too," said Harrison. "I heard an address from IYA one Sunday night recently, called 'Wireless and Prophecy,' and that was the view the lecturer took. He admitted that wireless was one of the most wonderful things of this wonderful age and said that there was a tendency to ascribe the glory of these things to the greatness of the human mind, and to point out to them as wonderful achievements of this brain age. That view, he said, was not to be despised altogether, but to get the real meaning they had to go deeper. Man was the discoverer of these things, often after the most patient research, but the forces themselves were the product of the Master Mind and came from the hand of God."

"It's true enough that we're apt to forget that we are but harnessing these forces, and not calling them into existence," admitted Blinks.

"The lecturer contended that most of them were contained in prophecies in the Bible, and quoted various passages, giving his idea of their inner meaning."

"That's just where I disagree with him," said Blinks. "During the war there were dozens of prophecy fiends who were willing to tell us from Isaiah or anything else exactly when it was going to end, and when the millennium was coming. Granted that the Bible is Divinely inspired, its interpretation requires the human element and that's just where these

would-be prophets go astray. Let us acknowledge that we are working according to some Divine plan, but for Heaven's sake let us leave prophecy alone."

"We're always coming across wonderful things," said Drexter, "and recently when I heard an address of Dr. E. Kidson's on frost, I realised how little I knew about nature."

"Yes, it was a good address," said Brenton. "Put things in a very practical way, which made them easy to understand. I always thought fighting frosts in orchards with fires was balmy."

"So it is," said Blinks. "How can you heat the whole of the atmosphere?"

"You don't have to. Dr. Kidson explained that frost is purely a ground phenomenon, and that even five feet from the ground the temperature may be several degrees higher than at ground level. By directly heating the air, the ground temperature is brought up, and so there is no danger of frost. Heaters such as are used in orchards are cheap, costing about 2s. each, and they burn crude oil. You have to have 100 to the acre."

"Good Lord," interjected Blinks. "Who wouldn't be an orchardist and spend the night going round and lighting up the heaters that had blown out?"

"They don't give much trouble that way. The cost is fairly high of course and to protect your trees for a year would cost from £10 to £20 an acre according to the number of frosts you had. This method of protection is but little known in New Zealand as yet, but it is bound to grow. The thing is to know when to expect a frost and then to take the remedy before the damage is done."

"I know there'll be a frost when I get home, if it isn't pretty soon," said Blinks, trying to be painfully facetious. "Its well after six now, so what about it boys?"

Five minutes later the cheerful fire was blazing alone in its glory, and half a dozen "wireless bugs" were fighting their way home in the teeth of the southerly.

By a proposed amendment to the South African Radio Act of 1926, it is hoped to place a better check on unlicensed set owners. The amendment makes it obligatory that "any person who sells, gives, or in any manner whatever supplies any valve, loud-speaker, or telephone receiver to any person who is not a licensed listener under this Act shall within seven days after such supply notify the Postmaster-General thereof by written notice setting out the name and address of the person so supplied."

ONLY EIGHT CIRCUITS

Not infrequently one hears people in New Zealand state that as new circuits are being brought out they will wait and get the latest.

The Sydney "Wireless Weekly" says: "There are just eight basic circuits in radio reception, and this despite the hundreds upon hundreds of so-called circuits. In fact, nothing serves to confuse the layman so much as the weekly appearance of new circuits with high-sounding names and lavish claims, producing the general but erroneous impression that radio is a constant experiment with receiving sets rendered obsolete a week after they are purchased. The plain truth is that new circuits are very, very rare, although new names are plentiful."

Present Basic Circuits.

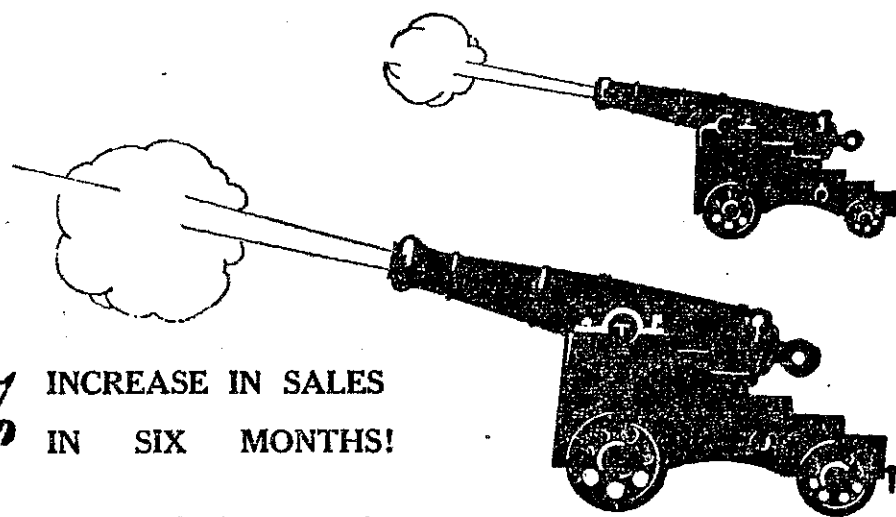
Our present-day basic circuits are as follows:—

1. The simple vacuum tube receiver, a most elementary tuner.
2. The simple vacuum tube receiver, with a most elementary tuner, and no provision for so-called regeneration or radio-frequency amplification.
3. The regenerative receiver, in which part of the output from the detector is returned to the detector to increase the strength of signals.
4. Audio-frequency amplification, used in conjunction with all kinds of receivers in order to increase the sound volume in 'phones or loudspeaker.
5. Tuned radio-frequency amplification, in which each stage is tuned so as to secure the utmost transfer of radio energy from one stage to the next.
6. Untuned radio-frequency amplification, utilising fixed transformers which require no tuning or adjustment.
7. The reflexing arrangement, whereby a set of tubes do double duty, first as radio-frequency amplifier and then as audio-frequency amplifier.
8. The super-heterodyne, whereby the incoming wave is thrown into interference with a locally generated frequency, setting up a so-called intermediate frequency current which is amplified and then detected.

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A. J. HEIGHWAY,

Managing Editor,
"The N.Z. Radio Record,"

P.O. Box 1032,
WELLINGTON.

WELLINGTON, FRIDAY, OCTOBER 28.

Next week's programme from 2YA marks the inauguration of the Broadcasting Company's policy of improvement. The company has shown a consistent desire to effect betterment as its income permitted, and with the growth of listeners following on the opening of 2YA, is now in a position to embark upon a policy of steady improvement. The first stage of that reorganisation is now effected, and the result will soon be apparent to listeners. Broadly speaking, the policy covers the employment of the best possible professional talent on a permanent basis, to be supplemented by others as proof of merit is given. The engagement of the outstanding instrumental trio comprised in Ava Symonds, Gordon Short, and George Ellwood, for regular performances was in itself an important move, but that is now supplemented by the formation of a number of professional high-class quartets. These will appear on different nights, when they will be responsible for a major number of items on the programmes, both collectively and individually. The benefit of regular engagements along these lines lies in the fact that encouragement will be given to consistently add to the repertoire available. Special efforts are in hand for the provision of new music, and the advantage of permanent groups is that necessary study can be given to the consistent expansion of the range of songs available.

This policy was outlined by the Director of Music, Mr. W. J. Bellingham, some weeks ago in our columns. It is in essence the policy that has been applied by the picture theatres in relation to their orchestras. Through the encouragement given by permanent employment, the number of skilled musicians has been greatly enlarged over the last ten years, until now, the bands of skilled musicians employed by outstanding theatres give performances that are most attractive, and in themselves constitute no mean draw. The same encouragement will now be possible in relation to concert items and concert performers, and there is no doubt that the claim made some little while ago that the Broadcasting Company was the greatest employer of concert talent in New Zealand will be more than justified. The benefit of this development will not be felt immediately, but will be progressively experienced over a number of years. The value of such an assured market for suitable talent is immeasurable, and will give encouragement to ambitious talent to perfect itself for public performance. The importance of a market in the development of talent is shown by Australian experience in contrast to that of New Zealand. There is no reason to suppose that the average Australian has any greater musical talent and ability than the average New Zealander, but the fact that the Australian broadcasting stations have had a wider range of talent to draw from for their performances is due very largely to the fact that ambitious Australians have had a ready market for their talent in the theatrical companies organised regularly in Sydney and Melbourne. After a training to qualify for a position therein, and possibly a tour of New Zealand, much of this talent reverts either to private employment, or undertakes teaching, or enters the bonds of matrimony. In either case, it provides a reservoir of talent which has no equal in New Zealand, simply because of the lack of a ready market for the efforts spent in training. The Broadcasting Company now provides such a market, and the effect will be felt in a steady raising of the standard and broadening of the field of opportunity.

Next week, too, marks the inauguration of the Children's Session on a major scale. As indicated earlier, this is being developed to include performances by the children themselves. The efforts of the organiser have been met by an encouraging response from the teachers and pupils of local schools, and interesting and meritorious chorus and individual work will be going on the air. This harnessing of youthful enthusiasm in the cause of broadcasting is all to the good, and immediately raises the standard of the children's session to a very high level.

The reorganisation effected by the initiative of the Broadcasting Company should satisfy all listeners. It may be taken as a very definite proof of the value of the system installed in New Zealand, namely, private enterprise under Government regulation. There is no question that broadcasting is a public utility of very great value, and all associated with it—the listener, the trade, the operating company, and the supervising Government—are concerned to secure the best possible results. The results that now are being secured prove, we think, the soundness of the policy laid down by the Government originally, that the best service would be derived from a blending of private initiative under regulations imposed in the public interest. The art of the showman must be sought to continually interest and appeal to listeners with new features and new developments, and the mentality capable of that is unquestionably most responsive to private control with its encouragement of enterprise and initiative. We are satisfied that the standard now being set will leave nothing at which to cavil by those who seek high-class public entertainment in addition to the news and educational service by means of lectures, stories, etc., that can be given by broadcasting.

FROM AUSTRALIA

MARKED APPRECIATION

INTERESTING COMPARISONS.

A radio fan at Nundah, Brisbane, Queensland, who has a six-valve neutrodyne and fifty feet of aerial and listens in to the concerts from New Zealand stations while 4QG is broadcasting market reports, etc., writes a very interesting letter concerning 1YA, 2YA, and 3YA, and the Australian stations. We make the following excerpts:—

"I have been receiving 2YA for some time now, though I still have a little trouble in bringing them in at good strength owing to our local station, 4QG, being only five miles distant, and also working on 385 metres. 4QG is, as you know, a 5000-watt station, and it causes many radio experimenters very much worry because it wanders. That is to say, it doesn't stay on 385 metres steadily, but varies above and below a good deal. Probably this has something to do with my receiving 2YA at less strength than 1YA and 3YA.

"For the past week or more 3YA has been coming in at very fair loudspeaker strength, and we can all hear everything in the other rooms of the house. On several occasions I had a window open behind the speaker, and some friends heard the orchestral music a quarter of a mile away, and they asked where the music came from, because no Australian stations were starting their evening programmes so early. I thought it quite a joke. Still, you can tell how well 3YA has been coming through from that, I think.

"As regards fading, well, it seems to depend a lot on the nature of the climatic conditions between us. At times all three stations fade right out, but generally on such nights the main southern stations like 2FC, 2BL, and 3LO do the same, or nearly fade right out, and these stations are only half the distance and are all 5000 watts each.

3AR Melbourne is a 3000-watt, but does not usually come in here any better than 3YA, and 3AR fades more often and as far as any at times. No Australian "B" stations come in as clearly and consistently at the same time by the clock as your two stations 3YA and 1YA, and quite often 3YA tunes in equal to 2BL (Sydney) and 3LO (Melbourne) at the same time in the evening.

"To-night is a wonderful night, and all three—1YA, 2YA, and 3YA—are coming in very clearly, and 3YA and 1YA are as loud as 2BL, Sydney, with no fading worth mentioning. 2YA came in well, but still not as good as the

LYALL BAY SCHOOL ON 2YA.

The Lyall Bay School choir (conductor Mr. H. G. Hall), is to supply the items for the Children's Session of 2YA on October 27, filling the hour from 6 to 7 p.m.

others. Earlier in the evening I tuned in 3YA and was listening to the band playing "The Indian Love Lyrics," and later turned the dials up to 2YA and couldn't make out why that station was playing the same music. I turned back to 3YA and suddenly realised one station was rebroadcasting the other. I cannot tell which was being rebroadcast, as they both came in very clearly, so you have me beaten.

"I should like to compliment the Broadcasting Company on their stations and to wish my many friends in New Zealand the best of luck."

Praise From Ballarat.

Another writer says: "Though you have never asked for any reports from listeners, while I was listening to you, which I do nearly every night, I thought you would like a true and concise report on your excellent transmissions. Being the first in Ballarat to go in for radio, and having built every type of set going, and picked up every station in Australia, Tasmania, New Zealand, Philippine Islands, KDKA, Pittsburg, 2FL, California, and the Russian short-wave station, I thought it would interest you to know what we think of your fine station in Ballarat. . . .

I may state I am a radio dealer, so I have plenty of visitors to hear your station, and the praise you get from them all is what prompted me to write to you."

Praise for 3YA Items.

"We had great pleasure in listening to the programme which you broadcast from the theatre to-night. We received it with good volume and clearness. The Municipal Band is a credit to your town, and if ever I have the luck to go to New Zealand I shall go and hear them.—An appreciative Tasmanian."

A schoolteacher at Cooyar, Queensland, writes: "We were able to follow every word of Miss Dunn's recitation. Please convey to her my compliments on her very distinct pronunciation. (I wish she could give my pupils at school a few lessons in pronunciation.) It's no good my trying to single out any special item, because all were very good. I myself consider the programme equal to any of the Aussie stations."

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CARNIVAL WEEK OPENS

NEW ZEALAND CUP AT RICCARTON

The Christchurch racing carnival opens at Riccarton next week-end with the N.Z. Cup, which will be run on Saturday, Nov. 4. From 11.30 3YA will be on the air and 2YA will rebroadcast.

The racing will be described by the company's official announcer, Mr. A. R. Allardyce, who will also, every evening, commencing on Friday, give a talk on the prospects for the next day's racing.

MR. SIDEY TO EXPLAIN SUMMER TIME

Summer Time Bill comes into operation on Sunday, November 6. On the eve of that notable happening (Saturday, Nov. 5) Mr. T. K. Sidey, M.P., to whose long-sustained and persistent efforts is due the passing of the law, will speak from the studio of 2YA. Mr. Sidey is especially desirous that the farming community should hear what he has to say, but his remarks will, of course, be of interest to all classes. Mr. Sidey will speak at 8.30 o'clock on the evening of Saturday, November 5.

LONDON ON THE LOUD-SPEAKER

GOOD RECEPTION ON PCJJ RELAY

Mr. F. W. Sellens, of Northland, reports most interestingly as follows: The past week has been of special interest to short-wave listeners.

On Friday evening last, October 14, 6AG and RFN were both heard, the former being spoilt by moxse.

2XAD, KDKA were both at good strength on Saturday afternoon, and 2XG was heard testing. 3AQ, 2AU, and 1AI, all New Zealanders, were on the air on Sunday in the afternoon. KDKA and 2XAF both were quite good speaker strength during the latter part of their programme, the former signing off at 11.14 Eastern Standard time, and the other at 12.1 Eastern Standard time.

Early on Monday morning, while waiting for 2ME, through 2FC, to commence their second Empire programme, I heard 6AG carrying out a "duplex telephony test" with Java. Through listening to this I missed the opening of the Sydney programme, but held them from about 5.20 a.m. till 6.41 a.m., when they signed off. The programme consisted of vocal and instrumental items and greetings from prominent Australians to well known men in Great Britain.

A similar programme was heard from the same station from 6 to 7 the same day. During the transmission they stated that cablegrams had been received saying that the morning's broadcast had been well received in Britain except for fading.

Later on the same evening, 6AG, Perth, was heard at his best, and 2-Taradale was logged.

On Wednesday morning PCJJ was on the air as usual in good form. Early in the programme Mr. den Hertog, the Australasian managing director for Philips, spoke to his friends on this side of the world. After calling a few personal friends, he announced that PCJJ would be on the air Tuesdays and Thursdays as usual from 18-21 GMT till the end of October, after which they would close down for about six weeks for reconstruction. He also stated that this station intended to relay at least a part of the Olympic Games in 1928. Mr. den Hertog further said that they would relay the London programme from 18-19 GMT (6 p.m.—7 p.m.) for the benefit of Australian listeners.

At 5.30 a.m., N.Z. time, Big Ben was heard striking 6 o'clock. I believe this is the first time that this famous clock has been heard in New Zealand. It was not heard during the previous relay from PCJJ, of which I got a complete log. After the clock striking, "London calling" was heard, and the announcement that the London Radio Dance Band, directed by Sidney Firraan, would give some foxtrots. This class of music was on till 5.58 a.m. at good loudspeaker strength.

At 5.59 the Greenwich Time Signal was given, which consisted of a long whistle, finishing with a series of dots, the last of which is exactly 6.30 G.M.T.

(6 a.m. N.Z. time). After this the weather forecast, news bulletin, sports, theatrical, etc., etc., was given. From 6.15 to 6.30 a.m. the Davenport Quartet gave some musical items, and at 6.30 a lecturette was commenced on Poland, when PCJJ returned to their studio, thus completing a very enjoyable hour back in London. Reception was splendid.

During the evening I logged four new stations on telephony—all Australian amateurs, 7AQ Hobart, 2VW and 2RB, of New South Wales, and 4QR, of Queensland, each in the vicinity of 32 metres. 6AG was also conducting his usual test.

Tuesday and Thursday evenings I was not listening. RCBS (Buenos Ayres) and RFN were heard at good volume by friends on Thursday evening.

AVOID TREES

AFFECT RADIO WAVES.

New Zealand listeners who have their aerials erected near trees should make every endeavour to erect their aerials well above the height of the trees, for it has been proven that trees deviate radio waves.

The tentative conclusion that trees cause deviation of wave fronts prompted the United States Government Bureau of Standards to focus its direction finder around a tree in an open field. While the transmitting set, located a number of miles away, at the Soldiers' Home, was sending on wave-lengths of 400 and 1400 metres respectively, there was a negligible amount of distortion, either directly in front or behind the tree. However, when the loop aerial and receiving set were placed to the right or left of the tree the intercepted radio wave deviated as much as five degrees. The tree involved in this test was only 40 feet high, which factor prompted the Government investigators to assume that greater distortion would be caused by proportionately larger trees.

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Some Features of Next Week's Programmes

IYA FEATURES

Miss Ina Thomson, whose beautiful contralto voice continues to delight listeners at IYA, will render several numbers on Tuesday evening, including Beethoven's "In Questa Tomba."

Having been absent from IYA for some considerable time, Mr. Hartley Warburton will make a welcome re-appearance before the microphone on Tuesday evening. His numbers will include the famous "Questa O Quella," from "Rigoletto," and "A Bachelor Gay," from "The Maid of the Mountains," by Tait.

At IYA on Tuesday, Nell, the Bohemian, who is the lady member of the well-known Bohemian Duo, who are such favourites at IYA, will enchant listeners with her own quaint rendering of Maori folk songs.

Elocutionary items will be given at IYA on Tuesday by the well-known young Auckland elocutionist, Miss Winifred Crosher, a notable prize winner at the recent Auckland musical festival. Maud Peacocke's "Lynette" will be among the items to be given by her.

The instrumental section of the programme at IYA on Tuesday will be provided by Mr. Vic. Bedford, popular flautist, and Mr. Martin Richardson, violinist.

At IYA on Wednesday Mr. Clinton Williams's resonant baritone voice will be heard in the "Harvest Song." He will also contribute two numbers, "Open the Gates of the Temple," and the great oratorio solo, "It is Enough," from "Elijah." Both these numbers will have organ accompaniment by Mr. Arthur E. Wilson.

The sweet tenor voice of Mr. George Barnes will be heard at IYA on Wednesday in a number of items, the chief of which will be "The Last Muster."

Mr. Culford Bell, elocutionist and announcer at IYA, will contribute a talk on "Shakespeare's Comedies," which will find favour among followers of "the Bard."

The second half of the programme at IYA on Wednesday will be taken up with a grand organ recital, the organist being Mr. Arthur E. Wilson.

Mr. Stan. Pritchard, now an established favourite at IYA, will contribute to an excellent programme at IYA on Thursday. He will delight with the "Harbour Night Song" and other vocal gems.

The brilliant pianist, Miss Maida Hooker, will make her second appearance before the "mike" at IYA on Thursday, and will render several numbers.

Miss Berta Carr, the well-known soprano, who has been heard but once only from IYA, will contribute several delightful solos, including Rachmaninoff's "In the Silent Night," from IYA, on Thursday.

Mr. Thomas Harris, elocutionist, will once again be heard per medium of the microphone at IYA on Thursday. His voice will be heard in the declamatory "Hell Gate of Solissons," and in a humorous number, "The Plaint of the Tram Conductor."

Mr. Walter Smith's Radio Band, one of the finest combinations of its kind in the Dominion, will contribute the second half of the programme at IYA on Thursday. Their numbers will include vocal and instrumental renditions of all the most popular songs and novelty numbers.

One of the most popular duos at IYA, the Asquiths, will again entertain and delight listeners with their much appreciated drawing-room entertainment at IYA on Friday.

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Symonds-Ellwood-Short Trio on October 31st

Widespread interest has been aroused by the announcement of the engagement for 2YA of the Symonds-Ellwood-Short trio, who will make a first appearance on October 31. What may be termed the musical autobiography of these three exceptionally talented artists, which was published in last week's "Radio Record," was a record of individual experience and achievement such as can be claimed only by the very few. Each of the three has been eulogised by many critics. One of them, writing about Gordon Short, said: "There is no denying the man's artistry. His technique is amazing, his touch ranges from a Hambourg punch (without raised arm) to the airy delicacy of Leonard Borwick. If there was a speed limit in pianistic convolutions, Gordon Short would be before the Court every day; but these are the outward show of a sound training. The inner man reveals rare romantic depths." Of Miss Ava Symonds and Mr. George Ellwood the critics have been similarly laudatory, while of their united efforts on the concert platform it has been written: "The combination was ideal." Clearly, listeners to 2YA have reason to be particularly well pleased with the prospect, and few, if any, will fail to "tune in" on the evening of the 31st instant.

Great wealth of musical literature, streams of golden melody, will characterise the programmes of this brilliant combination for the week October 31 to November 5. The utter joyousness and strongly rhythmical character of much of it will make an immediate appeal to even the untrained listener. Trios by Arensky, Schubert, Mendelssohn, and Gade will be played—all works whose popularity increases with each year.

Anton Arensky (1861-1906) was one of the leading composers of Russia. Amongst many notable works he wrote two trios, both of exceeding beauty. The one to be played is that which is the better known to the public. It probably holds pride of place amongst the lovers of trio music by reason of its unusual wealth of melody, so lyric as to captivate the ear even of the un-musical. In it there is ample scope for each player to show his instrument to the best advantage, both from the standpoint of beauty of tone and brilliance of effect. Nothing can be more haunting than the sweetness of the first melody announced by the cello and

taken up by each instrument in turn. Then follow veritable cascades of sound, which cannot fail to bring purest joy to the listening ear.

The second movement is one of the most brilliant and effective numbers in the whole of trio literature. The piano part requires the most skilful technical treatment, and a fawny-like lightness of touch, to bring out its fancifulness.

The third movement is an elegy, and one of the most touching ever written. Some unusually subtle tonal effects occur between the violin and cello. This movement immediately captures the attentions of the listener. The last movement is a strongly rhythmical dance, and irresistibly sets feet and heads moving. It is interesting to note that this beautiful trio was written to the memory of a very great violoncellist, Charles Davidoff.

Schubert has been called the master of melodies, and in his lovely "Trio in B Flat," he has given strong evidence of his genius for beautiful melody. Utmost poetry could not daunt his spirit, blessed as it was with the sunshine of joyous melody, and he has left a wealth

of good cheer and optimism behind him. Although truly classical, this can be called popular music in a wide sense, for it will charm the ear of the man in the street through the sheer loveliness of its melody.

For popularity Mendelssohn's "Trio in D Minor" is a companion to the Schubert composition, and its clearness of form and directness of appeal have long established it as one of the greatest favourites amongst lovers of music. All its beauties are immediately apparent, and there is no doubt that it will make many friends amongst radio listeners. Only the first movement will be played during the Trio's first week at 2YA, the remaining movements being reserved for later programmes.

The trio in A minor, called the "Novelletten Trio," was written by Niels Gade (1817-1890), the greatest Danish composer. It is a beautiful example of light music, full of sweetness and sunshine. It is an extremely popular work amongst amateur players, and radiates good-will wherever it is played, its spirit being so infectious.

2YA FEATURES

SIR TRUBY KING.

On the evening of November 5, at 9 o'clock, listeners will have the privilege of hearing Sir Truby King speak on the subject of infant welfare. No man living has done more for the preservation of infant life, and in his splendidly successful efforts Sir Truby has won for New Zealand an enviable reputation throughout the civilised world.

Mr. S. E. Rodger, late baritone soloist with Florence Austral, will sing several ballads on Friday, in which his fine voice is sure to be heard to advantage. An experienced concert singer, Mr Rodger is a favourite with Wellington audiences.

Mrs. M. Thomas, elocutionist, will be heard in several humorous numbers. Mrs. Thomas's work is characterised by good style and diction.

Miss Reay Wrightson, a visitor to Wellington, is the possessor of a pleasing contralto voice. She will be heard for the first time from 2YA on Friday. She is well known on provincial concert platforms.

Miss Phyllis Bates, one of the city's foremost dancing teachers, will on the evening of November 5 give to listeners to 2YA a foxtrot lesson, which will include the walk and slow open turn.

A delightful children's hour is assured for the evening of November 5. Aunt Jane will have some very interesting stories to tell. Aunt Jane, by the way, has not met the young folk "on the air" before, but they will find her quite a dear. Associated with Aunt Jane for the evening will be a party of Mrs. Minard's pupils, who are to present quite a number of pleasing items—vocal, instrumental, and elocutionary. It is whispered that the programme will not lack an appropriate historical touch suggestive of crackers and bonfires.

NOTES FROM 3YA

Mr. Ivan Johnson, who has previously sung from 3YA, will be heard again on Monday evening. He has chosen songs to suit his fine baritone voice. One of them is the stirring "Border Ballad."

Miss Eileen Grennell, a young Maori singer gifted with a most beautiful voice, will make her first appearance at 3YA on Wednesday. One of her items will be a Maori slumber song composed by Princess Te Rangī Pahi.

Mr. W. Inkster, who won his 3YA radio spurs when he made his first appearance before the microphone a few weeks ago, will sing again on Wednesday. He has a splendid bass voice.

Two different types of humour will emanate from Mr. Alec Dey on Wednesday evening at 3YA. These will be another stage of Monte's meanderings among topics of interest, and some "English as she is spoke" in the back streets of Sydney, as told in the "Sentimental Bloke."

The interesting series of travelogues will be continued by Mr. Leo Hayward at 3YA on Wednesday evening. He will tell of his reminiscences of motor-tours.

A talk entitled "A Short History of Petroleum" will be given at 3YA on Friday evening by Mr. G. N. Valentine.



Crown Photo.

MR. LEONARD GRIFFITHS, F.R.H.S.
Mr. Leonard Griffiths, F.R.H.S., well-known as an expert on flowers and plants. His talk on "Flower Legends from Grecian History" on Thursday, October 27, will be quite as interesting and entertaining as his previous popular lectures.

and "March Clarion" at IYA on Friday. Listeners are assured of a musical treat.

The Auckland municipal organ recital will be broadcast from the Town Hall on Saturday, the organist being Mr. Maughan Barnett. These concerts are proving so wonderfully popular that listeners can always look forward to their Saturday evening entertainment. This recital will be followed by dance music from the Dixieland Cabaret, dispensed by "The Internationals" under Mr. Clyde Howley.

The Christchurch Broadcasting Vocal Quartet—Misses Hamerton and Renaud and Messrs. Sumner and T. D. Williams—will supply the major portion of the programme at 3YA on Thursday with solos, duets, and quartets. The instrumental part of the programme will be played by Mr. Harold Beck, Miss Irene Morris, and Miss Warren. The programme will be splendid.

On Thursday at 3YA, Mr. R. E. Alexander, principal of the Lincoln Agriculture College, will give an address on agricultural education.

Miss Alice Vinsen will be singing at 3YA on Friday. A gold medallist at competitions in both North and South Islands, Miss Vinsen has a particularly good radio contralto voice.



Reason Photo.

MR. ALFRED GRACIE.
Mr. Alfred Gracie, gifted violinist, whose ability as a performer has earned him a wide circle of friends among listeners. He performs regularly from IYA.

Mr. W. Bradshaw, from the Old Country, a splendid singer whose tenor voice "goes over" well, has chosen some favourite songs for his items at 3YA on Friday evening.

Some comic songs will figure on Friday's programme at 3YA. Mr. C. O'Connor will be responsible, and this young artist broadcasts well.

The Rev. J. Robertson will continue his series of lectures at 3YA on Friday concerning the discovery and exploration of Australia. Mr. Robertson, who is himself an Australian now resident in Christchurch, has made a study of early history and has also explored much of the beaten track in Australia.

The Christchurch Broadcasting Trio continues to receive high praise for its contributions to the programmes of 3YA. The items that are given are always worth while, and supply a sound foundation to an evening's entertainment.

Mr. T. Vernon Griffiths, M.A., will give another of his entertaining illustrated musical talks at 3YA on Thursday evening.

4YA NOTES

During the afternoon session on Tuesday Miss M. Puechegud will continue her talks on "Interior Decoration," and Mr. H. Greenwood, of the Athenaeum, will review the latest books.

Several popular and well-known performers will be heard at 4YA's concert on Tuesday, including Mr. R. B. Macdonald (baritone), Miss Roma Busa (mezzo-soprano), who was so very successful in the recent competitions. Mr. Allan Young will provide two recitations, and a collection of humorous stories. Miss Roberta Williams, well-known Dunedin elocutionist, will provide monologues and a recital. Mr. R. Wilson-Brown will entertain with some comic songs. Miss Eva Judd will again be heard to advantage with her violin, and Miss Muriel Caddie will play some classical pianoforte solos. There is something on this programme that should appeal to every taste. In addition, Pastor W. D. More has another very humorous address, entitled "Do You Like Cats?" This is sure to provide much merriment.

Thursday night's concert will be by the Brown Ewing Concert Party and orchestra. This is a full and varied programme, and will, no doubt, prove very attractive.

The studio concert on Friday evening will include Mr. J. Clark (baritone) in several solos, and Miss Myrtle Bill (soprano). Piano solos will be heard by Miss Rita Holmes, and violin solos by Mr. A. Roberts.

At 8.45 on Friday Mr. W. B. Steel, secretary of the Otago Expansion League, will be heard on his favourite subject, "Southern Tourist Resorts." It is, indeed, doubtful if any other man in Otago has the interest of his province more at heart, or possesses a greater knowledge of its attractions, than Mr. Steel.

Saturday night's programme at 4YA will be a varied type, in which will predominate instrumental music, mostly of the lighter type.

Miss Florence Sumner (mezzo-soprano) and Mr. A. McKinnon, will provide songs of the more serious nature, while Mr. Charles Rowand will sing some comic songs. Mr. J. B. McConnell will present some humorous recitations, and Mr. A. E. Wilson, manager of the Government Tourist Department in Dunedin, will deliver a talk on "Tourist Resorts in the South Island."

With the holiday season not far ahead, the two lectures by Messrs. Steel and Wilson on the beauties of Otago will prove interesting, no doubt, to many northern listeners.

At 8 o'clock on Sunday, providing the weather is suitable, listeners all over the Dominion will have the opportunity of hearing the first of a series of Sunday evening concerts by the popular St. Kilda Band, under the conductorship of Mr. James Dixon. Each Sunday following, if the weather permits, the band concerts will be regularly relayed by 4YA.

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From the Woman's Point of View.

By VERITY.

TO-DAY AND TO-MORROW

They Say:

That the breasts of two youthful and adventurous young New Zealanders swelled with pride after an unexpected motor drive. Dodging around one of the bays, prowling for pirates, the came upon a painter. Liking the look of their discovery, they tentatively drew near and examined the elusive and lovely tints caught upon the canvas. Gaining courage, they even chatted a little, and when a perfectly good motor-car happened along, which seemed to resemble the coach in which Cinderella travelled to the ball and lost her silver shoe, they accepted with rapture an invitation to get in. Gaily they bowled along, rejoicing in their luck; and it was not until an observant parent noticed their descent from the Vice-regal car that they were aware that the gracious lady who had won their hearts was Lady Alice herself!

That the Corinthian brings back to New Zealand one who has long sojourned in the world beyond Mrs. Elmore, after much travel in England and Europe, returns to the Dominion to visit her father, the Dean of Dunedin. She is a notable artist, whose pastel work in particular is exceptional for beauty of colouring and truthfulness of portraiture.

That Mr. Charles Wilson's lecture at the opening of the Etching Exhibition was genial and illuminative, as was to be expected from such a source. Mr. Hott, in his few words concerning the art of etching in general and his own valuable collection in particular (now on exhibition) was vastly appealing, he being obviously a lover of beauty for its own sake and unaffectedly desirous of generously sharing his appreciation and knowledge with his fellow creatures. Another exponent of the gentle art of etching is Dr. Carbery, that cultured citizen of the world, whose lurid and forceful comments on the method of creating those marvellous lights and shadows delighted several of his fortunate friends.



Photo, S. P. Andrew.
MISS DOROTHEA VAUTIER.

Miss Dorothea Vautier, a well-known personality in dramatic circles, having won championship medals at various centres throughout New Zealand, has been appointed organiser of children's sessions for 2YA, Wellington. Educated at Sonning Girls' College, Hamilton, and St. Cuthbert's College, Auckland, Miss Vautier in 1922 obtained honours in the Trinity College examination in elocution, and also won the Shakespearean test at Wellington last year against 29 competitors.

Charleston By Wireless.

A very young lady writes to "Dear Mrs. Radio" at 2YA in enthusiastic praise of the dancing lessons which are broadcast. She says that the house was full of visitors at the time, and that they all set about learning the Charleston. An Australian listener, in New South Wales, has written concerning Miss Bates: "We greatly appreciated the young lady's efforts at teaching the Charleston per wireless. Unfortunately we were too late tuning your station, until we were told to step forward with the right foot and place all our weight on it, and so missed the announcement of the young lady's name. I know you will convey to her our appreciation of her novel item. We have not much chance of learning the Charleston away here in the country, and I personally think this young lady's idea is clever."

RADIO RECIPES

FROM MISS NOBLE.

Nut Cutlets.

Ingredients: 1oz. flour, little grated or chopped onion, 1oz. butter, 1/2 teaspoonful ground mace, 1/2 pint milk, 1 teacupful grated nut, 1 tablespoonful lemon juice, 1 beaten egg, sufficient bread crumbs to make stiff, pepper and salt.
Method: Melt butter, add flour, and cook two together, add milk, stir till boiling, add nuts, lemon juice, mace, onion, egg, pepper and salt, and sufficient crumbs to stiffen. Make into cutlets, brush with beaten egg, toss in bread crumbs, and fry in hot fat. The cutlets are very nice served cold, with salad or tomatoes.

London Buns.

Ingredients: 1/2 lb. flour, grated rind of lemon, 2oz. butter, pinch salt, 1oz. candied peel, 2oz. sugar, 1 egg, 1/2 gill milk, 1 teaspoonful baking powder.
Method: Put flour, sugar, salt, and grated lemon rind into a bowl, rub in butter, add chopped candied peel and

Shakespeare and Broadcasting.

The technique of the broadcast play is not just a matter of writing dialogue and getting people with decent voices to speak it. It must in the absence of scenery convey a sense of both place and action in words that must have beauty of sound.

In this connection it is interesting to read in an English journal an appreciation of Shakespeare as the best broadcast dramatist, for the reason that he sets his scene in his words as he proceeds. Where could one get a finer picture of the setting than in, say, "The Merchant of Venice," with the love scene which begins: "How sweet the moonlight sleeps upon this bank—." One sees the dreaming garden, the brilliant sky above, "thick-inlaid with patines of fine gold," the breath of the warm night breeze is on our cheek, while the immortal lines sooth our ear. What a perfect thing to broadcast, if only we could get the actors who would do justice to them!

Shakespeare was a lover of nature, and could never keep out of his action a running commentary setting the stage as he progressed. This care was necessitated by practically the same set of circumstances as make a new technique necessary for radio drama. That is, the Elizabethan stage possessed no scenery, and no means for describing to the audience the locale of a drama, save by the crude method of displaying a placard. The skilful dramatist was forced, then, to make his dialogue do the job

FUTILITY

I cannot work to-night.
I see your face between
Me and the paper white—
I cannot work to-night.
I see your tranquil mien
Upon the pages bright—
I cannot read to-night.
I cannot play to-night.
You're mirrored on the keys,
The melody takes flight—
I cannot play to-night.
I cannot pray to-night.
Upon my bended knees;
You dim the altar light—
I cannot pray to-night.

MUSIC STOLE IN . . .

Music stole in; and all the idle chatter
Of gossip tongues was stilled; and for
An hour

Our hearts were held by the ethereal
power,
Forgetful of the long day's fret and
clatter.

No longer in a narrow track of duty
Each life moved dully in its little
round;
Released from servitude by magic
sound,
Our hearts were one with the eternal
beauty.

—Wilfrid Gibson.

TO-DAY AND TO-MORROW

Recherche Race Frocks.

Typical of one of the most important silhouettes of the new season, says Mrs. Thomas, of Kirks, is a delightful frock in daffodil georgette. The interest of this garment lies in the new tucking effect which commences from the slightly raised waist line to the hem in a vertical design—the shorter tucking giving extra fullness at the sides. The long sleeve is finished with tucking and a long frill. The collar is a long turn back with vest in front. An underslip of silk in the same shade goes with this frock. With this is worn a black picture hat of royal palm silk crinoline—short back and wide front brim. This hat is finished with black crane osprey and gold and silver buckle. Black chiffon hose and black patent pump shoes finish a most delightful race outfit.

A three piece gown of crane grey georgette is most becoming for matrons, race wear. This frock consists of wide panels from the yoke edged with a small scroll design in self material, and has the new full length sleeveless coat in crepe-de-chine cut on perfectly straight lines, the only finishing being the same scroll design. A chic model hat goes with this three piece in the same shade. It has the new droop brim and is of bakou straw, finished with band and flowers to tone.

The Children's Hour.

The organisation of the children's sessions is developing well, and at the beginning of next month will be in full swing at 1YA and 2YA. Mrs. Hall, the company's organiser, has been very successful in securing aunts and uncles for the work.

The children's sessions at Auckland will be under the control of Miss Ruby Palmer, of Mt. Eden, a teacher of elocution, and at Wellington Miss Vautier will be the organiser.

Except for the station's silent night, the children's session will be on the air every evening.

The uncles at 1YA will include the Rev. Lionel Fletcher, the Rev. Busfield Palmer, of Mt. Eden, and G. McB. Salt. At Wellington, during the children's hour, will be heard the Rev. Weeks, Mr. C. Drummond, Mr. Byron Brown, and Mrs. Chatfield.

It may be mentioned that the work of the uncles and aunts is entirely honorary.

There are some special "stunts" in view for the children, one being a "railway excursion" and the other a visit to Otaki, where Maori entertainments will be provided.

Young America.

There is a story told of a small boy in Milwaukee who ran away from home "to find Uncle Bob." He got a lift from a car-driver going towards Chicago by saying that he lived there. When he arrived, he wandered into the park and went to sleep. The police found him, and were puzzled when he told them the object of his visit. Who could Uncle Bob be? The nine-year-old boy scornfully asked them "where they lived, anyway," and explained. Before they sent him back to his parents, they kind-heartedly took him to the studio from which Uncle Bob broadcasts, so he went home quite happy.

The Letters of Annabel Lee

My Dear Elisabeth,—

By invitation of the Minister of Publicity I lately saw a private screening of a film of exclusively New Zealand scenery. The scenes screened were typical, admirably chosen, and beautifully photographed. Our towns are well enough in their way; but the lakes and mountains of these little islands are of miraculous beauty. We saw the aloof splendour of the glaciers of the Southern Alps; Rotorua, uncanonically bubbling and boiling, with its fascinating excursions, courteous Maori guides, and lure for the tourist from overseas; the Milford track in all its fairy-like beauty; Stewart Island, that "isle set in a silver sea," romantic, remote, with its rare beauty of bush and sea and sky. This picture, when shown abroad, should create a vivid interest in our little country. It certainly is calculated to bring a wistful nostalgia to those who, New Zealand born, will look at it in a foreign land. Some lines of a New Zealand poetess, whose verses I have just read and of whose work I hope to tell you anon, seem applicable here—

"Where English flowers are growing wild,
And English song-birds you are hearing,
Remember how our clematis
Shines in a white splash on the green—

The tree-ferns in the cool damp bush—
The long grass in the burnt-out clearing—

The bell-birds calling each to each
Across the gully in between."

It is pleasant to realise that people respond to a good cause, and, to use a good old gag, their hearts are in the right place. This was exemplified in the large audience that turned up at a benefit concert spontaneously given to Madame Gitta Alpars by our local musicians. It was a good programme. Mr. Bernard Page emerged from his aloofness to play, very beautifully, a Nocturne and Scherzo on the Town Hall organ; Mr. Harison Cook was dramatic and popular; and Madame Alpars herself, arch and gay and tragic by turn, captivated the quite large crowd who had come to wish her good luck in the name of camaraderie. For the rest, amongst much that was good and some not quite so good, Mrs. Wilfrid Andrews's contralto was beautiful in "Not Understood," and also in an encore

popular Scottish ballad concerning Angus who came home from the war. Mrs. Andrews's clear enunciation and attractive department—to use that delightful Victorian word and attribute—lent an added charm.

Richard, above all things a reader of books, somewhat frivolous, some obscure beyond belief, tells me of a remarkable novel he has come upon. Written by an author of the fearsome name of Lion Feuchtwanger, and translated very convincingly by Willa and Edwin Muir, "Jew Suss" created a remarkable sensation in London, when it appeared in 1926, and has now reached its thirteenth edition, a few advance copies having just reached this Dominion. Arnold Bennett, surely a judge of what's what in literature, writes of it with unmeasured admiration—"Jew Suss" is a splendid story, but it is also a complete picture of a complex social organism from top to bottom. It entertains, it enthral, and simultaneously it teaches." Also that unemotional journal, the "New Statesman," gives unstinted praise, saying this novel has no counterpart, being written as though it were sheer history, with a precision of fact and phrase which Gibbon at his most ironic rarely excelled. A high eulogy, isn't it, of this story of a young Jew of the eighteenth century, who set out to "cut himself an enormous slice of that cake, the world," and ended, as many another might do but for the grace of God, on the gallows; being buried with a small heap of earth from the land of Zion and "the words, "Vain and deceitful and fleeting as wind is the world." Not a cheery conclusion, but curiously as applicable here in New Zealand at this stage of the world's development as in that far-off century in the Duchy of Wurtemberg.

Richard, besides being a bibliomaniac, is fussy about pronunciation, so was greatly bucked recently to find coinciding with his own judgment of that august assembly of experts, the British Broadcasting Corporation's Advisory Committee on spoken English (no less!) which has published of the pronunciation to be adopted by broadcasters of certain doubtful words. Quite an imposing array of names is to be found in this little list of judges of English as she is to be spoken. The Poet Laureate, Mr. G. B. Shaw, Sir J. Forbes-Robertson, and others of equal note, pass judgment on the fitting emphasis of cer-

tain words in what is, alas, sometimes a slipshod vocabulary, and I commend the little list they have compiled to those, who, on "the air" and off, are doubtful of certain words that flutter on the borderland of correct and incorrect. I notice that in the word calibre, about which I have heard many a heated discussion, they give pride of place to the second syllable. It is good to realise that a standard of quite obvious educational value will be set to all and sundry through the pleasant and simple channel of broadcasting.

The private view of the Etching Exhibition, now on at the Art Gallery in Whitmore Street, was a quite delightful little function; a gleam and a glint, so to speak, in the drab and work-a-day world, and a fascinating record of artistic achievement reaching down through the centuries. Upon the walls hung marvellous and valuable examples of the work of Rembrandt, Rubens, Whistler, Brangwyn. Our little country was represented in the work of Mr. Linley Richardson, and Australia by pictures of the brilliant Lindsay brothers, Norman and Lionel, the former with some of his unmistakable nudes, wonderfully clever in drawing and design, but with a characteristic smear of lewdness. I hear that at an Australian exhibition his work was refused, so he held a show of his own next door, with the result that everyone deserted conventional art and rushed his wonderful drawings! Amongst the noticeably small crowd of visitors at the local show of etchings was a well-known woman artist, whose grey hair and graceful presence seem to "go" with those clever pictures of hers. Isn't it odd how personality sometimes matches performance, particularly with the passing of the years that take and give so much? The younger school of achievement was represented by a girl whose water-colour work is well known; the picturesque and gifted wife of the member for Otaki was wearing a beautiful colourful wrap, and a versatile actor, producer, and painter was there with his bride studying the pictures with absorbed interest. An unusual and enjoyable collection, and as I set my face homewards in the teeth of a wind of Wellington's worst, I smiled to think of the genius that may be imprisoned on a few inches of paper, and sighed to realise that even one of those inches was beyond my ken.—Your

ANNABEL LEE.



Photo, S. P. Andrew.
MISS RUBY PALMER,
Children's Organiser, 1YA.

Breakfast in Bed.

A crisp and tempting breakfast set to decorate the tray for the convalescent's first meal of the day is made from organdie muslin embroidered in bright wools. Consisting of four pieces, there is the tray-cloth, the napkin, the tea-cosy, and the egg-cosy, the latter being a quaint little square-shaped affair. The tray-cloth and the napkin are button-holed in pairs round the edge, and are ornamented with basket medallions in a medley of bright colours. The actual cosies are made of cotton wool with a covering of white satin.

Gingered Up!

An Englishman and a Scotsman were having drinks together. The former chose whisky, but the Scot, rather unusually, chose gin. After a few minutes the Englishman inquired anxiously: "Was your gin all right, Sandy?" "Aye," was the reply, "why do ye ask?" "Well, you see," explained the other, "I thought you might have been given petrol by mistake. You've said 'Hoots' several times within the last few minutes."

dates, and nuts. Mix fairly soft with milk and egg and bake in cake tin.

Breakfast Rolls.

Drop a couple of eggs into a bowl, and beat a short while. Add a good tablespoonful of sugar, and beat some more. Have nearly a 1/2 lb. of butter melted, and add next. Then about 1/2 a cup of milk. Start with two cups of flour to which has been added baking powder as for scones, and add gradually till of a consistency to handle lightly. Turn on to a board. Cut into about eight pieces. Take each piece in turn, knead lightly into a small roll, brush with milk, place on greased tin.

One Egg Sponge.

1 cup flour, 2 teaspoons baking powder, 1 tablespoon sugar, 1/2 teaspoon soda, 2 tablespoons golden syrup, 3 tablespoons milk, 1 egg, 1 tablespoon butter.

Mix dry ingredients together, mix golden syrup and milk together, and add. Mix in one egg not beaten, and lastly the tablespoon of melted butter.

baking powder, mix to a moist paste with the egg and milk, make into small cakes, and bake 20 minutes in a moderate oven.

Water Biscuits.

Ingredients: 1lb. flour, 1oz. butter, 1 teaspoonful salt, 2 teaspoonfuls baking powder, cold water to mix.

Method: Mix flour and salt in a bowl, rub in butter, add baking powder, and mix to a stiff paste with cold water. Roll out on board, and prick all over well. Bake very slowly about 10 minutes.

FROM MRS. SINCLAIR'S TALKS.

Sultana Scones.

Two cups flour, sifted with 2 teaspoonfuls of cream of tartar, 1 teaspoonful soda, a pinch of salt, 2 tablespoonfuls sugar.

Rub in 1oz. butter, add 1/2 lb. sultanas. Mix rather soft with 1 egg beaten in a cup of milk. Cut into squares and place on a greased and floured scone tray.

Chocolate Butter Sponge.

1/2 lb. butter, 1/2 lb. sugar, 1/2 lb. flour, 3 eggs, 2 teaspoonfuls cream of tartar, 1 teaspoonful soda, 1 tablespoonful co-

coa, dissolved in half a teacupful of boiling water. A little Vanilla essence.

Beat the butter and sugar add the eggs one by one, then the flour with the cream of tartar sifted. Beat in the cocoa dissolved in hot water. Lastly the soda dissolved in a 1/2 teacupful warm milk, with the Vanilla essence added. Place in sandwich tins. Bake for about 15 minutes.

Orange Cake.

Take 1/2 lb. butter, 6oz. sugar, 2 eggs, 6oz. flour, a level teaspoonful cream of tartar, and a level 1/2 teaspoonful soda; 1/2 cupful of milk. The grated rind and juice of one orange.

Beat the butter and sugar, add each egg separately, then the flour sifted with the cream of tartar; lastly, the soda dissolved in milk, also the rind and juice of the orange.

Pour the mixture into a floured and greased cake tin.

Ginger Biscuits.

1/2 lb. butter, 4oz. sugar, 1/2 lb. flour, 1 egg, 1 tablespoonful ground ginger.

Beat the butter and sugar, add the egg, then flour and ginger. Roll out, then cut with a pastry cutter. Slip the biscuits into the oven, and cook for about 20 minutes.

BY MRS. BARRINGTON.

Beans in Tomato Sauce.

Lima beans, butter, milk, tomato sauce. Wash beans well, put on to boil in plenty of water, with a little soda and salt. Simmer gently until quite soft, strain and turn into pie-dish. Mix butter with hot beans, add tomato sauce to taste. Fried dices of bacon may be added. Fill up with milk and place in oven for twenty minutes. One breakfastcup of beans will make three times the amount when cooked.

Whole-meal Bread.

1 1/2 cups of whole-meal, 2 teaspoons baking powder, 1/2 cup flour, salt, sugar to taste, 2oz. butter, dates and nuts, milk and egg.

Mix meal, flour, sugar, baking powder, and salt well, then add butter,

New Programme Policy Inaugurated at 2YA

Nucleus of Permanent Professional Talent

THE ORPHEUS QUARTET

The Orpheus Quartet, which will be heard from 2YA on Tuesday evenings, from November 1, consists of Mrs. Alice Harris (soprano), Miss Lily Mackie (contralto), Mr. Arthur Coe (tenor), and Mr. Len Barnes (baritone). This combination has been together for nearly three years, and their appearances have always been most successful, alike in solos, duets, and quartets. Mr. Len Barnes is responsible for the training of the other three members, and he will arrange the items the quartet are to perform. With his extensive experience as a singer in San Francisco, London and New Zealand, which included appearances in grand and comic opera, oratoria, recital and concert parties, listeners-in are assured of hearing splendid programmes of good variety. Mr. Barnes has sung all over New Zealand, and his singing has always been highly praised.

Mrs. Alice Harris has appeared as soloist with the Royal Wellington Choral Union, the Orpheus Musical Society, and the Commercial Travellers' Club Choir. The "Dominion," writing of her performances in "Paust," said:—"Mrs. Alice Harris is an example of most tasteful singing. Her delivery is good, and she has obviously been extremely well trained and knows how to apply her knowledge." Miss

Next week's programmes from 2YA will mark the inauguration of the new programme policy. In brief this is the engagement of a nucleus of permanent professional talent representing the best available in each field. Arrangements have been made for a number of high class quartets to be available. The already extensive repertoires possessed by these artists will be added to by new numbers and every encouragement given to that end. Four of these new quartets make their initial appearance next week. In addition the brilliant Symons, Ellwood and Short instrumental trio will make its initial permanent appearance.

Apart from these permanent stars the week will be made memorable by the performance of Madame Winnie Fraser, New Zealand's outstanding dramatic soprano, who will sing not only on Friday evening but also on the following Sunday, November 6.

Lily Mackie has appeared as soloist with the Orpheus Musical Society, the Hutt Valley Choral Society, and the Wellington Commercial Travellers' Choir. She has a sweet true toned contralto. Of her singing in "Merrie England," the local Press said that Miss Mackie achieved a triumph in her solos. The tenor of the party is Mr. Arthur Coe, who is very well known to Wellington audiences, both as soloist and as a member of the Aeolian Male Quartet. He has sung the tenor solos in the "Messiah," "Merrie England," and other works, and has appeared as soloist with the Harmonic Society and the Commercial Travellers' Choir. The Orpheus quartet has never failed to please the Press and public. These four singers have been heard several times on the air, both from the studio and the Terrace Congregational Church.

COMING STAR ITEM

MADAME WINNIE FRASER AT 2YA

In the musical world in New Zealand the name of Madame Winnie Fraser as a dramatic soprano is something to conjure with. Blessed with a wonderful stage presence, perfect enunciation, and a glorious, rich, mezzo-soprano voice of extraordinary range, she is particularly well known throughout New Zealand, having sung on all the leading concert platforms under engagement to all the principal musical organisations.

Madame Fraser has had a brilliant career as a vocalist abroad as well as in New Zealand. A native of Dunedin, she began her musical training under Mr. Laud, of Christchurch, and then



went home to pursue her studies. Under Sir Henry Wood her voice developed magnificently. She also studied extensively on the Continent, with striking success. In Vienna and in other cities she gave recitals, and caused quite a furore in musical circles. Her advent to radio will be looked forward to with the keenest anticipation. Madame Fraser will sing at 2YA on Friday, November 4, and everyone with a receiving set will tune in to hear some items from her long and varied repertoire. The items on Friday will be "Undying Love" (Brahms), "At the Mid Hour of Night" (Cowan), "The Vesper Hymn," as arranged by Flora Woodman, and "Lauretta's Aria" from Puccini. Madame Fraser will also be heard on the following Sunday evening in conjunction with the special Sunday evening concert by the Municipal Tramways Band, which will be broadcast by 2YA.



MISS MAIONA JURISS.

A popular 2YA elocutionist, also a prize-winner at the recent Christchurch and Ashburton competitions, and a runner-up for the Senior Elocution Scholarship at Christchurch.

THE LYRIC QUARTET

The Lyric Quartet will be heard on Thursday evenings (November 3 and 10), and later dates to be arranged.

The Lyric Quartet was formed in 1920 and has since performed continuously before the public.

The quartet has fulfilled engagements in all the principal picture theatres of Wellington in performing prologues to important pictures, and is regularly engaged at concerts given by the bands and by the Commercial Travellers' Male Voice Choir.

The quartet has been specially engaged by Messrs. Allen Wilkie and Dion Boucicault to supply the musical portion of their theatrical productions. They have also performed at concerts arranged by the Society of Musicians, and fulfilled engagements in provincial towns.

The individual members are well known soloists in Wellington.

Mr. Harry Phipps (tenor) has had experience both in England and in New Zealand. On one occasion he was champion vocalist at the Chester Eisteddfod and has won championships at Wellington, Wanganui, Napier and Christchurch. He has appeared as soloist for the Choral Union, and is one of the best known and most popular tenors in Wellington.

Mr. George Howe (tenor) is also well known, having had experience in both Auckland and Wellington. He, too, has carried off prizes at the Wellington competitions, and has appeared as soloist for the Harmonic Society and the Commercial Travellers' Male Voice Choir.

Mr. Will Goudie (baritone) is perhaps the best known of this talented combination. He is a product of the studio of Mrs. Ernest Queree. His engagements in Wellington and many provincial towns are too numerous to mention. Perhaps he is best known as the organiser of the excellent concerts held in Trentham and Featherston camps during the great war, when he arranged something like 400 concerts. He is always a very popular artist at all concerts at which he appears.

Mr. W. Binet Brown (bass) is also a product of the studio of Mrs. Ernest Queree. He has a good bass voice and has appeared as soloist on most of the concert platforms of Wellington.

THE WILLIAM RENSHAW QUARTET

In the William Renshaw quartet 2YA presents a combination of artists requiring neither commendation nor introduction. Miss Nora Greene (contralto) and Mr. William Renshaw (tenor) are established favourites, whose artistic capabilities are widely known and appreciated. Their delightful voices have been heard "over the air" in a wide range of always pleasing numbers, while their fine record as concert performers is as widely known as their talent is appreciated. If there is anything new to be said concerning them it is that these two popular and cultured singers have entered the ranks of

voice sounds to those who listen-in in New Zealand and Australia. Mr. Renshaw studied for many years with Mr. Herbert Oliver, the eminent composer, in London. Associated with Mr. Oliver in a tutorial capacity was the great English soprano Miss Carrie Tubb and Miss Edith Turmudge (contralto).

Mr. Thomas C. Wood, the bass baritone of the quartet, is a singer whose voice is familiar to concert patrons in many parts of New Zealand. In Wellington Mr. Wood is a soloist for various musical societies. Just now he is under engagement to sing "The King of Egypt" in Verdi's opera "Aida," which is to be produced by the Wellington Choral Union on November 5. Mr.



—S. P. Andrew, photo.

the teaching profession in Wellington. Miss Nora Greene has had considerable experience in England in broadcasting work, having been a favourite artiste at Bournemouth, Daventry, 2LO, etc. She has also sung with great success at Queen's Hall, Palladium, and various concert halls in London and the provinces, where her beautiful contralto voice never failed to delight, and where she was famed equally for her splendid diction as for her renditions. Miss Greene studied under Madame Agnes Locom (at the Royal Academy), than whom there is no greater teacher of voice production.

Mr. William Renshaw also has had considerable experience in England before coming to New Zealand. His appealing tenor voice was there heard to great advantage on the concert platform and in Oratorio music in London and the provinces. He, too, has made a special study of diction, and no further proof of that is needed when it is remembered how beautifully clear his

Wood, who is the fortunate possessor of a brilliant baritone voice of outstanding range and quality, has been the subject of many laudatory Press criticisms.

Mrs. Amy Dunn is a singer who has won popularity with a wide audience. Her fine dramatic soprano voice has delighted patrons of our largest theatres. She has been heard at Fullers (His Majesty's Theatre) and the De Luxe, and by the patrons of the Hutt Choral Society. Her solo work has invariably pleased the critics. Listeners to 2YA who have heard Mrs. Amy Dunn before will be pleased to learn that she is to sing to them again.

The William Renshaw quartet will offer musical entertainment from a copious repertoire. They will be heard in operatic works, in the sparkling gems of Sullivan, in old English folk songs, and popular melodies, thus presenting a variety which should make the most passionate appeal.

THE CELESTE QUARTET

The Celeste Quartet, of which Miss Mabel Dyer, Mr. Edgar Swain, Mr. William Boardman, and Miss Myra Sawyer are the greatly appreciated members, has been engaged by 2YA to give performances at frequent intervals.

Miss Dyer has been well-known for a number of years in the southern cities on concert platforms, at sanatoria, in hospitals, and churches, as a contralto to whom no appeal for help at various functions was made in vain. Miss Dyer studied under the well-known maestro, Roland Boot, of Christchurch, and in 1923 decided to go to America to further her studies under Andrew Begart, after which

Edgar Swain has a robust tenor voice of considerable range and power, and is at present studying under Caerylon Bennett, of Wellington.

Mr. William Boardman is a powerful basso, well-known in musical circles in Wellington. He has a voice of exceptional range and good quality, and has been studying with H. Temple White for a number of years past. Mr. Boardman was a favourite artist on station 2YK, a feature of his performance being his duets with Miss Myra Sawyer.

Miss Myra Sawyer is a coloratura soprano of great purity of tone, and excels in her artistic interpretation. This singer comes from a musical fam-



—S. P. Andrew, photo.

she took engagements throughout California. She appeared at San Francisco's greatest theatre, seating some 6000 people. Miss Dyer was also one of the soloists at the recital given for Senorita Emelia de Prato, acclaimed as one of America's coming sopranos. Returning to New Zealand, Miss Dyer sang at the Theatre Moderne, Tahiti, and, with her husband, Mr. Edgar Swain, is now studying under Caerylon Bennett, late of Milan, Italy.

Mr. Edgar Swain first became known to the public of Wellington at the annual festival of the Wellington Competitions Society. At this gathering the young singer won section after section, finally securing the championship medal for the year in competition with some of the best voices at the largest gathering the society has ever had. After this Mr. Swain began to come into the light as a concert singer, and soon was well-known in Wellington as a tenor soloist. Mr.

ily, and received her early training under the guidance of her father, and, at the age of fourteen, continued serious study under the capable tuition of Sister Ligouri, of the Hill Street Convent. Two years later Miss Sawyer made her debut before a Wellington audience at a notable concert held for the reception of overseas visitors. At this function the young singer had the honour of being presented with a bouquet by Lady Liverpool. From that occasion Miss Sawyer rose to prominence with unprecedented rapidity, and to-day is one of the most popular artists appearing before the public. For several years past Miss Sawyer has been receiving musical training and interpretation from H. Temple White, whose training and influence has been largely responsible for this singer's success in recent years. Miss Sawyer was a popular artist on 2YK, and has been heard at frequent intervals on station 2YA.

S. P. ANDREW,

Photographer,

QUEEN ST., AUCKLAND.

STEFFANO WEBB,

Photographer,

HIGH ST., CHRISTCHURCH.

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NEWS AND NOTES (By "Switch.")

In the case of most good loudspeakers you run a risk of burning out the fine wire coils within them if you employ more than 96 volts B battery, unless you use a loudspeaker output transformer or a choke-and-condenser unit. The siffron and similar devices will prevent damage to your loudspeaker and greatly improve the tone of it.

The first regular broadcasting accomplished in Australia stands to the credit of Mr. Charles MacLurean, of Sydney, who commenced at the beginning of 1921 to transmit on Sunday evenings on a wave-length of 1000 metres. It is truly amazing what has been accomplished in broadcasting during the last six years. Some of our old-timers have vivid recollections of the "sawmills" which used to puncture the ether in New Zealand a few short years ago, and they called it "broadcasting."

It is often desirable to have a number of wood screws with blue heads for use in mounting the front panel on a radio set. If the blue screws are not handy, they may be easily made by heating common iron screws of the proper size and screw head in an alcohol or gas flame until they have the proper colour. The flame must be one of intense heat and the screw must remain in the hottest part of the flame for some length of time so that the blue oxide may form. After the proper colour has appeared, the screw may be dropped in a container of water nearby so that it may be quickly cooled.

The "wonder" station KFON, Long Beach, California, which is heard all over New Zealand from about 5 p.m. till 7.30 p.m., every evening, employs a power of only 500 watts, and operates on a wave-length of 241.8 metres. This great little station is owned by Nichols and Warriner, 212 Jergins Trust Buildings, Long Beach, California. The station's slogan is "Where your ship comes in."

A spade terminal of a battery cord is rather apt to work loose from the binding post of the set if there is any vibration. A good plan is to bind one prong of the spade terminal forward and the other backward. This gives a spring-like effect which will grip the binding post more securely even if the thumb-screw top on the terminal works a little loose. Loose battery connections make crackling sounds in the loudspeaker and static is erroneously believed to be the cause.

Lack of sensitivity and volume in a receiving set can often be traced to poor contact between the socket contact springs and the prongs of the valve. The exceedingly feeble currents passing through the socket must meet with a minimum of resistance, and in this respect perfect contact between the prongs and socket is an absolute necessity. A liberal application of a fine grade of sand paper on the valve prongs will quickly remove any of the corrosion and bad spots which make for a poor contact. It is advisable to clean the prongs at regular intervals.

The Chicago committee of the Atwater Kent Foundation National Radio Audition has been perfected, and the late for receiving applications from those desiring to enter the national contest for "unknown radio voices" was extended from August 25 to September 1. The foundation is conducting a nationwide search for radio voices now unknown. The plan includes elimination contests in towns, states and districts, ending in a national final over Station WPAF and a national hookup in December.

Crackling and other extraneous noises in a radio receiver may often be traced to dirty contacts on jacks. Perfect contact by the various springs is an absolute necessity. Jacks should be given a periodical overhauling, and their contacts carefully cleaned, either by the use of a very fine file, such as is used for filing points in automobile timers, or a very fine grade of sand paper. Care should be taken in the use of the file or sand paper that only the corrosion is removed from the contacts. If too much of the material is removed, the various springs will not make the proper connection.

Often some "fan" is desirous of knowing which is the plus and minus of his loudspeaker cord tips. Everyone should know that if you connect the cord tips the wrong way round to your loudspeaker you are going to damage it by weakening the magnet within it. Some imported radio sets do not bear any indication as to which is the positive or negative of the loudspeaker connections. Here is a method of distinguishing which is which. Peel part of the skin off a raw potato. Connect up the batteries of your set, turn on all filaments, take the cord off your loudspeaker, and stick the tip of the cord into the potato. The positive tip will make a blue stain on the potato. Then connect that tip to the loudspeaker post marked with a cross or a red spot.

Three great inventions nowadays provide mass education without cost to the ratepayer. They are, in the order of their discovery and development: 1. The application of power to printing processes; 2. Kinematography; 3. Broadcasting. Each of these inventions, related to its fundamentals, to a scheme of magnification. Printing machinery enables millions of people to read the same story at the same time; Kinematography enables millions to see it; broadcasting enables millions to hear it.

Sunday, October 30th

1YA AUCKLAND (333 METRES)—SUNDAY, OCTOBER 30.

6.55 p.m.: Relay of church service from St. Mary's Cathedral. Preacher, Canon P. James. Organist, Mr. E. Randall.
8.30: Relay of municipal organ recital from Town Hall. Mr. Maughan Barnett, organist.
9.30: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, OCTOBER 30.

6 p.m.: Children's session, Rev. E. R. Weeks, in the studio.
6.55: Relay of evening service of The Terrace Congregational Church; preacher, Rev. Ernest R. Weeks; musical director, Mr. Len. Barnes; organist, Mr. H. Brusey.
8.15: Relay of Port Nicholson Silver Band Concert from the Grand Opera House; conductor, Mr. J. J. Drew.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, OCTOBER 30.

5.45 p.m.: Children's song session, by Uncle Sam.
6.30: Relay of special Sunday school anniversary service from East Belt Wesley Church.
8.30: Rebroadcast of 2YA, Wellington.
9.0: Close down.

4YA DUNEDIN (463 METRES)—SUNDAY, OCTOBER 30.

6.30 p.m.: Relay of service from First Church of Otago. Preacher, Dr. E. N. Merrington. Organist, Dr. V. E. Galway.
8.0: Studio concert.
9.0: Close down.

Monday, October 31st

1YA AUCKLAND.—SILENT.

2YA WELLINGTON (420 METRES)—MONDAY, OCTOBER 31.

3 p.m.: Gramophone recital.
3.30: Sporting results to hand.
3.31: Lecture—Miss Mann, "Fashions."
3.46: Gramophone recital and relay of Manuel Hyman's Exhibition Band from the Adelphi Cabaret.
4.59: Sporting results to hand.
6.0: Children's session—Aunt Jo and party.
7.0: News session and market reports.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture.
8.5: Quartet—The Wm. Renshaw Quartet, "Hail, Orphans, Hail."
8.8: Cornet—Mr. W. J. Kay, "Zelda," Code (Allen and Co.).
8.13: Elocution—Mr. Stanley Warwick, (a) "Bredon Hill," Shortlands; (b) "Opening the Sardines," Roberts (Reynolds-French).
8.20: Instrumental—Symons-Ellwood-Short Trio, "Allegro Moderato" (First Movement, Trio in D Minor), Arensky (Augener).
8.32: Soprano—Mrs. Amy Dunn, "Aria, Com' e Cello" (Lucrezia Borgia), Donizetti (Boosey and Co.).
8.37: Violin—Miss Ava Symons, "Tempo de Minuetto," Pugnani-Kreisler.
8.42: Baritone—Mr. T. C. Wood, "The Volga Boatman," Koeneman (Chester).
8.46: Flute—Mr. Claude Tucker, "Polonaise," Buse (Ricordi).
8.51: Contralto—Miss Nora Greene, (a) "Restless Love," Schubert; (b) "The Forge," Brahms (Augener-Simrock).
8.56: Tenor—Mr. Wm. Renshaw, "O, Vision Entrancing" (Esmerelda), Goring Thomas (Boosey and Co.).

9.1: Weather report.
9.2: Lecture—Mr. Hugh C. Jenkins, "The Lighter Side of Law."
9.14: Quartet—The Wm. Renshaw Quartet, "Good Night, Beloved," Balfe (Boosey and Co.).
9.18: Cornet—Mr. W. J. Kay, "Sea Flower," Rollinson (Carl Fischer).
9.32: Elocution—Mr. Stanley Warwick, (a) "The Student's Story," anon.; (b) "His Epitaph," Will Ogilvie.
9.30: Instrumental—Symons-Ellwood-Short Trio, "Elegie" (Third Movement, D Minor, Trio), Arensky (Augener).
9.38: Soprano—Mrs. Amy Dunn, (a) "Arrogant Poppies," Armstrong Gibbs; (b) "Sing, Joyous Bird," Phillips (Curwen-Chappell).
9.43: Violin—Miss Ava Symons, "Melodie," Gluck-Kreisler.
9.48: Baritone—Mr. T. C. Wood, "The Pretty Creature," Lane Wilson (Boosey and Co.).
9.52: Flute—Mr. Claude Tucker, "Serenade," Tittl (Ricordi and Co.).
9.56: Vocal duet—Mr. T. C. Wood and Miss Nora Greene, "The Voyagers," Sanderson (Boosey and Co.).

3YA CHRISTCHURCH (306 metres), MONDAY, OCTOBER 31.

3 p.m.: Afternoon concert session.
6.0: Children's session, by Uncle Jack.
7.15: News and reports.
Studio concert by Christchurch Municipal Band, under conductorship of Mr A. J. Schnack, and assisting 3YA artists.
8.0: Chimes. Relay of orchestral selections from Strand Picture Theatre Quartet, under conductorship of Mr. Harry Ellwood.
8.10: March—Band, "Land-Half," Morrison.
8.16: Mezzo-soprano solo—Miss Elsie Keen, "Sympathy," Marshall.
8.20: Selection—Band, "Spring's Awakening."

8.30: Baritone solo—Mr. Ivan Johnson, "Border Ballad," Cowan.
8.34: Cornet solo—Mr. Fred. Fox, selected.
8.39: Mezzo-contralto solo—Mrs. G. L. Drewett, "Sweet and Low," Wallace.
8.43: Selection—Band, "Something to Adore," Boosey.
8.49: Mezzo-soprano solo—Miss Elsie Keen, "I Heard You Singing," Coates.
8.53: Hymn—Band, "Bradford."
9.0: Relay from Strand Picture Theatre.
9.10: March—Band, "On Tour," White.
9.18: Baritone solo—Mr. Ivan Johnson, "Come, Sing to Me," Thompson.
9.22: Waltz—Band, "Victory," Baynes.
9.32: Mezzo-contralto solo—Mrs. G. L. Drewett, "The Sweetest Flower That Blows," Hawley.
9.36: Fantasia—Band, "Uncle Rastus's Skating Party."
9.46: Mezzo-soprano solo—Miss Elsie Keen, "The Magic Month of May," Newton.
9.50: Selection—Band, "Normanhurst," Greenwood.
10.2: Baritone solo—Mr. Ivan Johnson, "Out on the Deep," Lohr.
10.6: Mezzo-contralto solo—Mrs. G. L. Drewett, "Tatters," Lane.
10.10: March—Band, "Steadfast and True," Ticke.
10.18: God Save the King. Close down.

4YA DUNEDIN—SILENT.

Tuesday, November 1st

1YA, AUCKLAND (333 metres), TUESDAY, NOVEMBER 1.

3 to 4.30 p.m.: Afternoon session—Selected Studio items.
6.30: Children's session.
7.15 to 7.45: News and information.
8.0: Chimes.
8.1: Relay of orchestral overture from Majestic Theatre. Mr. J. Whiteford Waugh, conductor.
8.12: Contralto solo—Miss Ina Thomson, "In Questa Tomba," Beethoven.
8.17: Violin solos—Mr. Martin Richardson, (a) "Air on G String," Bach; (b) "Spanish Serenade," Burleigh.
8.25: Baritone solo—Mr. Hatley Warburton, "Questa o Quella" from "Rigoletto," Verdi.
8.31: Soprano solos—Miss Ida Armstrong, (a) "If My Songs were Only Winged," Hahn; (b) "A Song of Life," Del Riego.
8.39: Flute solos—Mr. Vic. Bedford, (a) "Scottish Airs," Pratten; (b) selected.
8.48: Vocal and instrumental—Nell the Bohemian and her guitar, Maori folk songs.
8.53: Elocutionary item—Miss Winifred Crosher, "Lynette," Maud Peacocke.
8.58: Relay of music interlude from Majestic Theatre.
9.8: Weather report.
9.9: Contralto solos—Miss I. Thomson, (a) "My Prayer," Squire; (b) "O'er the Moor," arr. Lawson.
9.18: Violin solo—Mr. M. Richardson, "Canzonetta," Ambrosio.
9.23: Baritone solo—Mr. H. Warburton, (a) "A Bachelor Gay," Tate; (b) "Off to Philadelphia," Haynes.
9.32: Soprano solo—Miss I. Armstrong, "Sing, Break Into Song," Mallinson.
9.37: Relay of musical extracts from Majestic Theatre.
9.46: Flute solo—Mr. V. Bedford, "Song Without Words," Clinton.
9.51: Vocal and instrumental—Nell the Bohemian, "Maori Folk Songs."
9.56: Elocutionary items—Miss W. Crosher, (a) "My Will," Benson; (b) "The Dingle Dongle Dell."

10.4: A thought.
10.5: Close down.

2YA WELLINGTON (420 METRES)—TUESDAY, NOVEMBER 1.

3 p.m.: Gramophone recital.
3.30: Sporting results to hand.
3.31: Lecture—Madame Barrington, "Electric Cooking."
3.46: Gramophone recital and relay of Manuel Hyman's Exhibition Band from the Adelphi Cabaret.
4.15: Lecture—Dr. L. A. Line, "First Aid."
4.25: Gramophone recital and relay of Manuel Hyman's Exhibition Band from the Adelphi Cabaret.
4.59: Sporting results to hand.
6.0: Children's hour—All aboard. Mr. Stewart starts the Radio Express from Wellington, away over the Rimutakas to Napier; express stops at Lower Hutt, Cross Creek, Masterton, Woodville, Dannevirke, Waipapa. Y.M.C.A. Boy Scouts, with kettledrums, discovered on board; a Boy Scout sings "The Vicar of Bray." Uncle Jasper tells stories; and other Scouts recite and sing.
7.0: News session and market reports.
7.40: Lecture—Mr. E. A. Bradshaw, "The Mining and the Transportation of Petroleum."
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture.
8.5: Vocal Quintet—Mrs. Alice Harris, Miss Lily Mackie, Mr. Arthur Coe, Mr. Len. Barnes, Mr. H. C. Trim, "Love Is Meant to Make Us Glad" (Merrie England), German (Chappell).
8.9: Clarinet—Mr. A. A. Crump, "First Clarinet Concerto," Weber.
8.14: Elocution—Miss Violet Wilson, "Packing Up."

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Week - All Stations - to Nov. 7

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- 8.19: Instrumental—Symons-Ellwood-Short Trio, "Scherzo and Finale" (Trio in D Minor), Arensky (Augener).
- 8.28: Soprano—Mrs. Alice Harris, "She Had a Letter" (Merrie England), German (Chappell).
- 8.32: Cello—Mr. George Ellwood, "Arlequin," Popper (Hamelle).
- 8.37: Baritone—Mr. Len. Barnes, "The Yeoman of England," German (Chappell).
- 8.41: Cornet—Mr. E. Ormrod, "Facilita," Hartman (Wright and Round).
- 8.46: Contralto—Miss Lily Mackie, "O, Peaceful England," German (Chappell).
- 8.51: Tenor—Mr. Arthur Coe, "That Every Jack," German (Chappell).
- 8.55: Lecturette—Mr. H. C. South, "Books: Grave and Gay."
- 9.10: Quartet—The Orpheus Quartet, "The Month of May," German (Chappell).
- 9.15: Clarinet—Mr. A. A. Crump, "Adelaide," Beethoven.
- 9.20: Elocution—Miss Violet Wilson, "If Life Were a Play."
- 9.24: Instrumental—Symons-Ellwood-Short Trio, "Allegro" (First Movement, B Flat, Trio), Schubert (Peters).
- 9.35: Vocal duet—Mr. Arthur Coe and Mrs. Alice Harris, "Come to Arcadie," German (Chappell).
- 9.39: Cello—Mr. George Ellwood, "Slavonic Fantasy," Dvorak-Kreisler (Simrock).
- 9.44: Vocal duet—Mr. Len. Barnes and Miss Lily Mackie, "It Is the Merry Month of May," German (Chappell).
- 9.49: Cornet—Mr. E. Ormrod, "Serenade," Schubert (Boosey and Co.).
- 9.53: Quartet—The Orpheus Quartet—"Finale" from "Merrie England," German (Chappell).

3YA CHRISTCHURCH—SILENT.

4YA DUNEDIN (463 METRES)—TUESDAY, NOVEMBER 1.

- 3 p.m.: Town Hall chimes.
- 3.1: His Master's Voice recital.
- 3.16: Address, by Miss M. Puechegud on "Interior Decoration."
- 3.30: Studio music.
- 4.0: Book reviews by Mr. H. Greenwood, Librarian of Dunedin Athenaeum.
- 4.15: His Master's Voice recital.
- 4.30: Close down.
- 7 p.m.: Town Hall chimes.
- 7.1: Children's session—Big Brother Bill.
- 8.0: Town Hall chimes.
- 8.1: Orchestral selections from the Octagon Theatre, under the conductorship of Mr. L. D. Austen.
- 8.10: Baritone solos—Mr. R. B. Macdonald, (a) "The Last Call," Sanderson; (b) "Song of the Sword," Clough-Leigher.
- 8.16: Recital—Mr. Allan Young, selected.
- 8.21: Pianoforte solo—Miss Muriel Caddie, selected.
- 8.25: Mezzo-soprano solos—Miss Roma Buss, (a) "Queen of the Philippine Islands"; (b) "The Star," Roger.
- 8.31: Violin solo—Miss Eva Judd, "Liebeslied," Wagner.
- 8.38: Monologue—Miss Roberta Williams, "Knitting."
- 8.41: Light vocal—Mr. R. Wilson-Brown, (a) "Signora"; (b) "I Want a Cup of Coffee."
- 8.47: Address—Pastor W. D. More, "Do You Like Cats?"
- 9.2: Pianoforte solo—Miss Muriel Caddie, selected.
- 9.6: Baritone solos—Mr. R. B. Macdonald, (a) "Mending Roadways"; "Coal-ing."
- 9.12: Humorous stories—Mr. Allan Young.
- 9.18: Violin solo—Miss Eva Judd, "Chant San Paroles," Tschaiowsky.
- 9.21: Mezzo-soprano—Miss Roma Buss, (a) "Damon"; (b) "Sunshine," Cohen.
- 9.27: Monologue—Miss Roberta Williams, "Having it Out."
- 9.32: Pianoforte solo—Miss Muriel Caddie, selected.
- 9.36: Light vocal—Mr. R. Wilson-Brown, selected.
- 9.42: Recital—Mr. Allan Young, selected.
- 9.48: Violin solo—Miss Eva Judd, "Chansonetta," Drdla.
- 9.53: Monologue—Miss Roberta Williams, selected.
- 10.0: Close down.

Wednesday, November 2nd

1YA, AUCKLAND (333 metres), WEDNESDAY, NOVEMBER 2.

- 3 to 4.30 p.m.: Afternoon session—Selections from Studio.
- 7.15 to 7.45: News and reports.
- 8.0: Chimes.
- 8.1: Relay of orchestral overture from Prince Edward Theatre. Mr. Geo. Poore, conductor.
- 8.11: Contralto solos—Miss Mollie Green, (a) "Slave Song," Del Riego; (b) "Song of the Little Folk," Coates.
- 8.19: Baritone solo—Mr. Clinton Williams, "Harvest Song," Batten.
- 8.33: Soprano solos—Mrs. Nodder, (a) "An Emblem," Thompson; (b) selected.
- 8.31: Tenor solos—Mr. G. Barnes, (a) "The Last Muster," Pontet; (b) selected.
- 8.39: A talk on "Shakespeare's Comedies," by Mr. Cutford Bell.
- 8.54: Duet—Miss M. Green and Mrs. Nodder, "Sainted Mother" from "Mariana," Wallace.
- 8.58: Tenor solo—Mr. Geo. Barnes, "In Sympathy," Leoni.
- 9.2: Weather report.
- 9.3: Organ and vocal—Mr. Arthur E. Wilson and assisting artist (Mr. Clinton Williams), organ recital and vocal selections.
- Programme: No. 2, Corcell's "Elegie," Sheppard; "Swedish Wedding," march, Sodermen; solo, Mr. Clinton Williams; Minuetto (from Organ Concerto), Handel; Fantasia on "O Sanctissima Lux," Handle; solo, Mr. Clinton Williams; "Gavoette in C Minor," Saint Saens; "Romance Sans Paroles," Deshayes; march.
- 10.0: A thought. 10.1: Close down.

2YA WELLINGTON—SILENT.

3YA, CHRISTCHURCH (306 metres), WEDNESDAY, NOVEMBER 2.

- 3 p.m.: Afternoon concert session.
- 6.0: Children's session, by Uncle Sam.
- 7.15: Addington stock market reports.
- 7.30: News.
- 8.0: Chimes. Relay of orchestral selections from Crystal Palace Picture Theatre Orchestra, under conductorship of Mr. A. J. Bunz. from "Abraham," Molique.

- 8.15: Bass solo—Mr. W. Inkster, "Invictus," Kubn.
- 8.19: Soprano solo—Miss Eileen Grennell, "A Heart that's Free," Robyn.
- 8.23: Violin solos—Miss Irene Morris, (a) "Poeme," Fibich; (b) "Schon Rosmarin," Kreisler.
- 8.30: Mr. Alec Dey will tickle you with a few doses of humour—"Monty, on Hints on Health," Hayes.
- 8.36: Bass solo—Mr. W. Inkster, "Until," Sanderson.
- 8.40: Soprano solo—Miss Eileen Grennell, a Maori slumber song, "Hine e Hine," Te Ranghi Pai.
- 8.44: Instrumental trios—Christchurch Broadcasting Trio, (a) "Valse Russe," Bridge; (b) "Hornpipe," Bridge; (c) "March Militaire," Bridge.
- 8.56: Bass solo—Mr. W. Inkster, "Friend o' Mine," Sanderson.
- 9.0: Relay from Crystal Palace Picture Theatre.
- 9.15: Talk—Mr. Leo Hayward, "Reminiscences of Motor Tours."
- 9.30: Violin solo—Miss Irene Morris, "Chanson Meditation," Cottenet.
- 9.36: Soprano solo—Miss Eileen Grennell, "Fiddler, Come, Play For Me," Dunbar.
- 9.40: Mr. Alec Dey will give us some Sydney East End lingo in poem form, "The Intro" from "The Sentimental Bloke," Dennis.
- 9.48: Instrumental trios—Christchurch Broadcasting Trio, (a) "Barcarolle," Offenbach; (b) "Valse Song" from "Faust," Gounod.
- 10.0: Bass solo—Mr. W. Inkster, "Asleep in the Deep," Petrie.
- 10.4: Rebroadcast 2YA, Wellington (circumstances permitting). Close down.

4YA DUNEDIN—SILENT.

Thursday, November 3rd

3YA, CHRISTCHURCH (306 metres), THURSDAY, NOVEMBER 3.

- 3 to 4.30 p.m.: Afternoon session—Selected Studio items.
- 7.15 to 7.45: News and reports.
- 8.0: Chimes.
- 8.1: Relay of orchestral overture from Rialto Theatre.
- 8.10: Baritone solo—Mr. Stan. Pritchard, "The Lute Player," Allitsen.
- 8.14: Elocutionary item—Thomas Harris, "The Hellgate of Soissons," Kaufman.
- 8.19: Piano solos—Miss Maida Hooker, (a) "Intermezzo," Brahms; (b) "Waltz, Op. 42," Chopin.
- 8.27: Soprano solos—Miss Berta Carr, (a) "Lullaby," Scott; (b) "Russian Folk Song," Aliabyer.
- 8.35: Baritone solos—Mr. S. Pritchard, (a) "Sea Fever," Ireland; (b) "The Moon Drops Low," Cadman.
- 8.43: Piano solo—Miss M. Eooker, "Rhapsodie," Dohnanyi.
- 8.48: Elocutionary—Mr. T. Harris, (a) "I Forget," Hennequin; (b) "The Plaintiff of the Tram Conductor," anon.
- 8.56: Soprano solo—Miss B. Carr, "In the Silent Night," Rachmaninoff.
- 9.0: Weather report.
- 9.1: Instrumental and vocal—Walter Smith's Radio Band, novelty orchestral and vocal selections.
- 10.0: A thought.
- 10.1: Close down.

2YA WELLINGTON (420 METRES)—THURSDAY, NOVEMBER 3.

- 3 p.m.: Gramophone recital.
- 3.30: Sporting results to hand.
- 3.31: Lecturette—Madame Britten, "Fashions."
- 3.46: Gramophone recital and relay of Manuel Hyman's Exhibition Band from the Adelphi Cabaret.
- 4.20: Lecturette—Miss McKeowen, of Mrs. Rolleston, Ltd, "Care of the Hair."
- 4.35: Gramophone recital and relay of Manuel Hyman's Exhibition Band from the Adelphi Cabaret.
- 4.59: Sporting results to hand.
- 6.0: Children's hour—Uncle Sandy and the Clyde Quay School. "Huntsman's Chorus"; piano solo; story time, by Uncle Sandy; chorus, "My Country, 'Tis of Thee"; followed by recitations and songs.
- 7.0: News session and market reports.
- 7.40: Lecturette—Mr. W. King, "Esperanto" (lesson 14).
- 8.0: Chimes of the General Post Office clock, Wellington.
- 8.1: Band—Wellington Municipal Tramways Band, march: "Ravenswood," Rimmer (T. Haigh).
- 8.6: Vocal quartet—The Lyric Quartet, "In Absence," Buck (Allan and Co.).
- 8.10: Band—Wellington Municipal Tramways Band, "Tambauser," Wagner ("Champion Journal").
- 8.22: Tenor—Mr. Harry Phipps, "Bells of Youth," Fletcher (Chappell and Co.).
- 8.26: Band—Wellington Municipal Tramways Band, "Der Freischutz," Weber ("Champion Journal").
- 8.37: Vocal quartet—The Lyric Quartet, (a) "Fishing," Parks; (b) "The Tack," Parks (Parks-Parks).
- 8.41: Band—Wellington Municipal Tramways Band, overture: "Zampa," Herold ("Champion Journal").
- 8.48: Baritone—Mr. Will Goudie, "Arguing Wife."
- 8.52: Band—Wellington Municipal Tramways Band, fantasia: "A Drumhead Church Service," Ord Hume (Boosey and Co.).
- 9.2: Weather report.
- 9.3: Lecturette—Mr. F. W. Vosseler, "Whaling in Cook Strait."
- 9.15: Band—Wellington Municipal Tramways Band, plantation episode: "Cows in the Cotton," Hall (John Church).

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TE ARO BOOK DEPOT

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The use of a pair of pliers or a knife in skinning a length of silk-covered copper wire often results in the free end of the wire being cut off. This often necessitates rewinding of a coil. The best procedure for skinning silk or cotton-covered wire is to double over a piece of No. 00 sand paper and draw the wire between the folds. The fineness of the sand paper is just right to grasp the tiny fibres of the insulating material and will effectively remove the covering. A distinct advantage in using this system is that the sand paper also polishes the wire, which allows it to be easily soldered.

Home-builders or buyers of "cheap and nasty" receiving sets should beware of cheap variable condensers. A condenser of an inferior quality cannot give good results. A radio authority says: "The losses in a cheap condenser may be summarised as follow:—(1) Dielectric leakage; (2) dielectric hysteresis; (3) insulation leakage; (4) direct-current resistance in plates; (5) stray field capacity; (6) insulation hysteresis. These losses in a good condenser are reduced to such a point that the most sensitive instruments devised to measure resistances cannot accurately indicate or check any losses whatever. This is not an exaggeration. It does not mean, however, that there are no losses, but that the losses are so small that it is impossible with unusually delicate equipment to determine them."

The little C battery (grid-bias battery) which is now in general favour for applying to the grids of all audio-frequency amplifying valves, not only removes any harshness in tone, but means a saving of about 70 per cent. in B battery consumption. The positive of a C battery is connected to the negative of the A battery, and the negative of the C battery is connected to the filament connections of the secondaries of the audio transformers. The necessary voltage of the C battery to be used varies according to the voltage of the B battery on the audio valves. Each make of valve is generally accompanied with instructions as to the amount of C battery voltage required.

Owing to the natural characteristics of the last audio valve in a multivalve set not "nicking" with the characteristics of the loudspeaker the tone of the latter is sometimes impaired. The tone quality of the loudspeaker can often be improved by connecting a .005 mfd to a .02 mfd fixed condenser across the loudspeaker cord tips at the end nearer the receiving set. A second condenser of a similar type can also be placed across the loudspeaker terminals.

New Zealand short-wave broadcast listeners who find that there is much interference when listening to 2XAF, Schenectady, U.S.A., on 32.77 metres, will be interested in the report of a Melbourne amateur transmitter. He says: "There is now such terrific interference on the 32 to 33 metre wave band that quite a number of amateur stations are moving up again slightly, so as to be able to work without interfering with the numerous 'phone and commercial stations that are working there."

Cord tips are sometimes subject to a fraying in which the fabric around the tinsel works out from within the cord tip. Since this braided covering acts as a strengthening device in respect to the conductor, the cord tip soon breaks loose from the wire if the end of the fabric becomes frayed. If a short length of fine black or brown silk thread is "whipped" around the frayed portion of the cord and securely held in place while a liberal coat of flexible collodion is applied, a permanent repair will be made. In fact, such a repair will withstand continuous abuse for a much longer period than the original type of construction.



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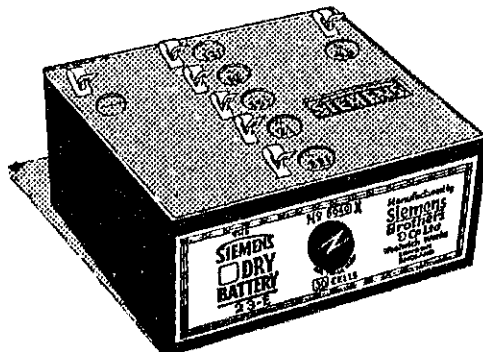
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Programmes Continued

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- 9.22: Quartet—The Lyric Quartet, (a) "Alexander," Brewer; (b) "Go, Ask Papa," Parks (Novello-Parks).
 9.27: Band—Wellington Municipal Tramways Band, waltz: "Donnawellen," Ivanorice (Ed. Lyons).
 9.33: Tenor—Mr. Geo. Howe, "The Bassoon," Ashlyn (Reynolds and Co.).
 9.37: Band—Wellington Municipal Tramways Band, American fantasia: "A Darkey's Dreamland," Bidgood (Hawkes and Son).
 9.44: Bass—Mr. W. Binet Brown, "Chip of the Old Block," Squire (Chappell and Co.).
 9.48: Quartet—The Lyric Quartet, "Sally in Our Alley," Carey (Parks).
 9.53: Band—Wellington Municipal Tramways Band, "Queen of the North," Lithgow (Commonwealth Band Music).

3YA CHRISTCHURCH (306 METRES)—THURSDAY, NOVEMBER 3.

- 3 p.m.: Afternoon concert session.
 6.0: Children's session, by Uncle Jack.
 7.15: News and reports.
 7.30: Talk—Mr. R. E. Alexander, "Agricultural Education."
 8.0: Chimes. Relay of orchestral selections from Everybody's Picture Theatre Orchestra, under conductorship of Mr. Albert Bidgood.
 8.15: Baritone solo and chorus—Mr. T. D. Williams and chorus, "I Be Going to Tell the Ladies," German.
 8.19: Pianoforte solo—Miss Aileen Warren, Irish tune from "County Derry," Grainger.
 8.23: Contralto solo—Miss Belle Renault, "Indian Squaw's Song," Morgan.
 8.27: Tenor solo—Mr. Russell Sumner, "The Wind is Whispering Low," Heidlinger.
 8.31: Instrumental trio—Christchurch Broadcasting Trio, "Allegro, First Movement from Trio, Op. 352," Bohm.
 8.35: Tenor and bass duet—Mr. Russell Sumner and Mr. T. D. Williams, "The Moon Hath Raised Her Lamp Above," Benedict.
 8.39: Soprano solo—Miss Frances Hamerton, "Her Song and His Violin" (violin obbligato by Miss Irene Morris), Busch.
 8.43: Bass solo—Mr. T. D. Williams, "Green Valley of Antrim," Langdale.
 8.47: Tenor solo and chorus—Mr. Russell Sumner and chorus, "Sing Us a Song," German.
 8.50: Pianoforte solo—Miss Aileen Warren, "Running," Godard.
 8.54: Trio (soprano, contralto, and bass)—Misses Hamerton and Renault and Mr. Williams, "Wisdom Says 'Festina Lente,'" German.
 9.0: Relay from Everybody's Picture Theatre.
 9.15: Madrigal—Vocal Quartet, "I Am In No Haste to Find the Light," German.
 9.19: Soprano solo—Miss Frances Hamerton, "Oh! What is the Use of Wondering?" German.
 9.23: Instrumental trio—Christchurch Broadcasting Trio, "Melody in F," Rubenstein.
 9.29: Contralto solo—Miss Belle Renault, "As the Barber Looks at Me," German.
 9.33: Soprano and tenor duet—Miss Hamerton and Mr. Sumner, "Then Whisper Them," German.
 9.37: Trio (contralto, tenor, and baritone)—Miss Renault and Messrs. Sumner, and T. Williams, "Yes! I Begin to See It Now," German.
 9.41: Instrumental trios—Christchurch Broadcasting Trio, (a) "Waltz," Scott; (b) "Hungarian Dance, No. 6," Brahms.
 9.55: Musical talk (illustrated)—Mr. T. Vernon Griffiths, M.A., Mus.Bac (Cantab.), L.Mus. (T.C.L.).
 Close down.

4YA DUNEDIN (463 METRES)—THURSDAY, NOVEMBER 3.

- 7 p.m.: Town Hall chimes.
 7.1: Request gramophone recital.
 8.0: Town Hall chimes.
 Studio concert by Brown-Ewing's Concert Party and Orchestra.
 8.1: March—The Orchestra, selected.
 8.5: Vocal solo—Miss E. Harvey, "Sanctuary," Hewitt.
 8.12: Vocal solo—Mr. B. Sullivan, "Harlequin," Sanderson.
 8.12: Vocal solo—Mr. B. Sullivan, "Harlequin," Sanderson.
 8.16: Vocal solo—Miss D. Elvide, "When the Swallows Homeward Fly," Valerie-White.
 8.20: Overture—The Orchestra, selected.
 8.26: Recital—Miss D. Harvey, selected.
 8.30: Vocal solo—Mr. L. Johnston, "Lorraine," Sanderson.
 8.33: Vocal solo—Miss K. Tipping, "Until," Sanderson.
 8.37: Cornet solo—Mr. Robinson, selected.
 8.41: Vocal solo—Mr. R. Irvine, selected.
 8.44: Vocal solo—Miss G. Johnson, "The First Spring Day," Drummond.

MR. AMERY ON THE AIR

OUR DISTINGUISHED VISITOR.

The Queen's Hall at Federal Parliament House, Canberra, N.S.W., will be the scene of a Parliamentary dinner to Mr. Amery, the Secretary for the Dominions, on October 31, and 3LO, Melbourne, is making arrangements to broadcast the speeches. The occasion should be full of interest, for Mr Amery is a man of great influence and insight, and what he says about migration on that occasion will really be the utterance of the British Cabinet. It is possible, too, that 3LO will be able to induce the statesman to deliver a special message over the air from the studio.

Mr. Amery is to visit New Zealand later, and it is probable he will be heard over the air from one of the Dominion broadcast stations.

FADING OF 3LO

A DIFFICULT PROBLEM.

"Fading" is probably more intense in Victoria than in New Zealand. The Melbourne "Herald" says: "We know that signals from the Melbourne station, 3LO, have been heard in Canada and America, and even in Japan, but this is 'peak' reception. We also know that at times in the western district of Victoria it is impossible to receive intelligibly, even a portion of the Melbourne programme. In certain parts of Gippsland (Victoria) it seems impossible to receive 3LO at all at times, and in some northern parts of the State inter-State programmes furnish most of the entertainment."

New Zealanders who grumble at fading of 2YA, Wellington, in certain districts of the Dominion, should by now realise that this unbearable broadcast reception is a serious problem in all parts of the world.

BRITISH DEVELOPMENTS

RECEIVING SET IMPROVEMENTS.

The fact that the United States has practically captured the New Zealand market for broadcast receiving sets has been regretted by those interested in the welfare of Empire trade. It is remarkable how few British-made receiving sets are on sale in New Zealand. The English manufacturer has apparently not catered extensively for the peculiar requirements of New Zealand listeners.

To Supersede Batteries.

Writing of the approaching National Radio Exhibition to be held in London, the Editor of the London "Wireless Export Trader" says—

"Few revolutionary developments in the way of design are announced by the British manufacturers, but to our certain knowledge many striking refinements have been made in both complete receiving outfits and individual components, as will be seen from the contents of this issue."

"Evidence of this fact is provided by the increasing number of manufacturers who are incorporating a mains unit in their receivers, thus reducing reception to a matter of plugging into an ordinary electric light socket and tuning in the station desired. Others who do not incorporate units in the sets themselves are designing models specially for use with their instruments and thus, in common with those who build unit and receiver together ensure that the apparatus works in practically ideal conditions, i.e., with the makers' specified voltages for each valve."

Valves for Mains.

"In addition to the above, further refinements have been made in the direction of receivers designed to work straight off A.C. supply. These incorporate valves constructed to use alternating current for filament heating purposes, and thus dispense entirely with I.T. ('A') batteries. Mention must also be made of the ever-increasing popularity of the so-called portable receiver in this country, which now promises to be an even better selling line for indoor use that it has been for outdoor use during the summer. Loud-speakers, generally of the ubiquitous cone-type, are also being incorporated in a large majority of receivers."

Short-Wave Sets.

"Component design, too, has made great strides, and accessories for the construction of short-wave and screened H.F. sets are to be found bearing the names of some of the best manufacturers in the country. Resistance capacity coupling devices are also finding favour with the home constructor, while choke condenser output is being widely used."

"In conclusion, many healthy price reductions are announced; and readers may be sure that the expense of a visit to the show, should they undertake such a proposition, will more than justify itself."

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- 8.47: Recital—Mr. J. Benfell, "The Amateur Rider," Paterson.
 8.52: Vocal solo—Miss E. Harvey, "You've Got Your Mother's Eyes," Drummond.
 8.55: Vocal solo—Mr. B. Sullivan, "Till I Wake," Woodforde-Finden.
 9.0: Chimes and weather forecast.
 9.1: Monologue—Mr. H. Bain, "The Green Eye of the Little Yellow God."
 9.7: Vocal solo—Mr. L. Johnston, "Morning," Speaks.
 9.13: Vocal solo—Miss D. Elvide, selected.
 9.17: Instrumental solo—Selected.
 9.21: Vocal solo—Miss K. Tipping, "I'm Lonely, That's All."
 9.29: Vocal solo—Miss G. Johnson, "Summer Begins," Drummond.
 9.33: Vocal solo—Mr. R. Irvine, selected.
 9.37: Instrumental—Selected.
 9.42: Recital—Mr. H. Bain, selected.
 9.46: Orchestral selections, under the conductorship of Mr. Chas. Parnell, relayed from the Empire Theatre.
 10.0: Close down.

Friday, November 4th

1YA, AUCKLAND (333 metres), FRIDAY, NOVEMBER 4.

- 3 to 4.30 p.m.: Afternoon session—Selected Studio items.
 6.30: Children's session.
 7.15: News and information.
 7.30 to 7.45: Talk on "Motoring," by Mr. Geo. Campbell.
 8.0: Chimes.
 8.1: Relay of overture from Strand Theatre—Eye Bentley, conducting.
 8.13: Vocal—The Asquiths, thirty minutes' drawing-room entertainment.
 8.43: Flute solos—Mr. Les Rainger, (a) selection of Gilbert and Sullivan airs; (b) "Serenade," "Le Millions d'Harlequin," Drigo.
 8.52: Vocal—Mr. Culford Bell, literary selections.
 8.58: Baritone solo—Mr. James Hutton, "The Fishermen of England," Phillips.
 9.4: Weather report.
 9.5: Soprano solos—Miss Ida Holmes, (a) "If We Sailed Away," Phillip; (b) "Waves," Phillip.
 9.13: Orchestral selections—St. Andrew's Society Orchestra, (a) "March," Clarion, Fulton; (b) "Southern Melodies," Bowman.
 9.28: Flute solo—Mr. L. Rainger, "Graceful Dance," Lemmone.
 9.33: Baritone solos—Mr. J. Hutton, (a) "The Lark in the Clear Air," Lehmann; (b) "Arise, O Sun," Day.
 9.41: Soprano solo—Miss I. Holmes, "Nightfall at Sea," Phillips.
 9.45: Orchestral selections—St. Andrew's Society Orchestra, (a) "Dainty Princess' Court Dance," Fulton; (b) "Gems of Erin," Bowman.
 10.0: A thought.
 10.1: Close down.

2YA WELLINGTON (420 METRES)—FRIDAY, NOVEMBER 4.

- 3 p.m.: Gramophone recital.
 3.30: Sporting results to hand.
 3.31: Lecture—Miss Marion Christian, "Gas Cooking."
 3.46: Gramophone recital and relay of Manuel Hymn's Exhibition Band from the Adelphi Cabaret.
 4.59: Sporting results to hand.
 6.0: Children's hour—Uncle Ernest and pupils of Berhampore School. Two part-songs, "A Lullaby," "Oh, Blessed Night"; songs by school children, "Lullaby," "Down the Hillside, Softly Stealing"; followed by piano solo, stories, recitations, and choruses.
 7.0: News session and market reports.
 8.0: Chimes of the General Post Office clock, Wellington.
 8.1: Overture.
 8.6: Quartet—The Celeste Quartet, "Light as Air" (Faust), Gounod (Boosey).
 8.10: Cornet—Mr. N. Pez, "Star of England," Farrell (Boosey).
 8.15: Elocution—Miss Edna Purdie, "Laughs."
 8.19: Instrumental—Symons-Ellwood-Short Trio, "Molto Allegro" (First Movement, D Minor, Trio), Mendelssohn (Litolf).
 8.28: Dramatic soprano—Madame Winnie Fraser, (a) "Undying Love" (Brahms); (b) "At the Mid Hour of Night" (Cowen).
 8.32: Piano—Mr. Gordon Short, "Ballade," Reinecke (Senff).
 8.40: Baritone—Mr. Wm. Boardman, "In Rushy Beds of Silver Nile," Balfe (Boosey).
 8.44: Flute—Mr. W. J. Tasker, (a) "Scesa Dal Ciel," Donizetti-Clinton; (b) "Love's Dream After the Ball," Czibulka (Wagner).
 8.49: Contralto—Miss Mabel Dyer, "The Sweetest Flower that Blows," Hawley (John Church).
 8.53: Vocal duet—Mr. W. Boardman and Miss Myra Sawyer, "A Paradise for Two" (Maid of the Mountains).
 8.57: Weather report.
 8.58: Lecture—Editor-Announcer, "Imperial Affairs."
 9.13: Tenor—Mr. Edgar Swain, "La Donna I Mobile," Verdi (Ricordi and Co.).
 9.17: Quartet—The Celeste Quartet, "As Torrents in Summer," Elgar (Novello).
 9.21: Cornet—Mr. N. Pez, "My Task," Ashford (Fred. Harris).
 9.25: Elocution—Miss Edna Purdie, "Listening In," Rutherford.
 9.29: Instrumental—Symons-Ellwood-Short Trio, "Andante," Schubert.
 9.38: Dramatic soprano—Madame Winnie Fraser, (a) "The Vesper Hymn" (Flora Woodman); (b) "Lauretta's Aria" (Puccini).
 9.42: Piano—Mr. Gordon Short, "Gavotte," d'Albert (Bote and Bock).
 9.47: Baritone—Mr. Wm. Boardman, "A Jovial Monk, Am I," Audrian.
 9.51: Flute—Mr. W. J. Tasker, "Dream of the Tyrolean," Labitzky (Wagner).

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Programmes Continued

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- 9.56: Tenor—Mr. Edgar Swain, "Tis the Day," Leoncavallo (Ricordi).
10.0: Quartet—The Celeste Quartet, "Dame Durden," Harrington (Chappell).
3YA, CHRISTCHURCH (306 metres), FRIDAY, NOVEMBER 4.
3 p.m.: Afternoon concert session.
7.15: News and reports.
7.30: Talk—Mr. G. N. Valentine, "Short History of Petroleum."
7.45: Cup prospects.
8.0: Chimes. Relay of orchestral selections from Grand Picture Theatre Orchestra, under conductorship of Mrs. Black.
8.15: Contralto solo—Miss Alice Vinsen, "My Dear Soul," Sanderson.
8.19: Tenor solo—Mr. W. Bradshaw, "The Irish Emigrant," Barker.
8.23: Cello solos—Mr. Harold Beck, (a) "Barcarolle," Sitt; (b) "Russian Dance," traditional.
8.31: Comic solo—Mr. C. O'Connor, "Looking at the World Through Rose-Coloured Glasses," Steiger.
8.36: Contralto solo—Miss Alice Vinsen, "Till I Awake," Finden.
8.40: Tenor solo—Mr. W. Bradshaw, "Ever of Thee I'm Fondly Dreaming," Hall.
8.44: Instrumental trio—Christchurch Broadcasting Trio, "Andante and March Alla Turca" from Trio, Op. 352 (Bohm).
8.52: Comic solo—Mr. C. O'Connor, "When the Red, Red Robin," Woods.
8.56: Contralto solo—Miss Alice Vinsen, "Harbour Night Song," Sanderson.
9.0: Relay from Grand Picture Theatre.
9.15: Talk—Rev. J. Robertson, B.A., "Romance of Australian Explorations."
9.35: Tenor solo—Mr. W. Bradshaw, "Ailsa Mine," Newton.
9.40: Cello solo—Mr. Harold Beck, "La Danza," Rossini.
9.46: Comic solo—Mr. C. O'Connor, "Bye, Bye, Blackbird," Henderson.
9.48: Instrumental trio—Christchurch Broadcasting Trio, "O, Star of Eve," Wagner.
9.53: Contralto solo—Miss Alice Vinsen, "Caller Herrin'," Sloper.
9.57: Tenor solo—Mr. W. Bradshaw, "Roses," Adams.
10.1: Comic solo—Mr. C. O'Connor, "To-night's My Night With Baby," Butterworth.
10.5: Instrumental trios—Christchurch Broadcasting Trio, (a) "To a Fairy Boat," Hope; (b) "Humoresque," Widor.
10.15: Close down.

4YA, DUNEDIN (463 metres), FRIDAY, NOVEMBER 4.

- 3 p.m.: Town Hall chimes.
3.1: His Master's Voice recital.
3.16: Afternoon tea music, relay from the Savoy.
3.31: Studio music.
4.0: Music from the Savoy.
4.15: His Master's Voice recital.
4.30: Close down.
7 p.m.: Town Hall chimes.
7.1: Children's session—Big Brother Bill.
7.45: News and market reports.
8.0: Town Hall chimes.
8.1: Baritone solos—Mr. J. Clarke, (a) "Myself When Young," Lehmann; (b) "The Pirate King," Sullivan.
8.8: Pianoforte solo—Miss Rita Holmes, selected.
8.12: Soprano solos—Miss Myrtle Bills, (a) "The Silver King," Chaminade; (b) "I Came to Your Garden," Kent.
8.19: Violin solo—Mr. A. Roberts, "Cavatina," Raff.
8.23: Pianoforte solos—Mr. J. Clarke, (a) "When the Sergeant-Major's on Parade"; (b) selected.
8.30: Pianoforte solo—Miss Rita Holmes, selected.
8.35: Soprano solos—Miss Myrtle Bills, (a) "A Bowl of Roses," Clarke; (b) "My Heart is Sair for Somebody."
8.42: Violin solo—Mr. A. Roberts, selected.
8.45: Address: Mr. W. B. Steel, secretary, Otago Expansion League, "Southern Tourist Resorts."
9.0: Dance music, relayed from the Savoy.
10.0: Close down.

Saturday November 5th

1YA, AUCKLAND (333 metres), SATURDAY, NOVEMBER 5.

- 3 to 4.30 p.m.: Afternoon session—Selected Studio items.
7.15: News and sports results.
7.30 to 7.45: Talk on "Oil Pumping," by "Gargoyle."
8.0: Chimes.
8.1: Relay of municipal organ recital from Town Hall. Mr. Maughan Barnett, city organist.
9.30: Relay of dance music from Dixieland Cabaret by The Internationals, under Mr. Clyde Howley.
11.0: Close down.

2YA WELLINGTON (420 METRES)—SATURDAY, NOVEMBER 5.

- 3 p.m.: Gramophone recital.
3.30: Sporting results to hand.
3.31: Gramophone recital and relay of Manuel Hyman's Exhibition Band from the Adelphi Cabaret.
4.59: Sporting results to hand.
5.0: Close down.
6.0: Aunt Jane and Mrs. Menard's party, songs, dialogues, recitations, and chat by Aunt Jane.
7.0: News session and market reports.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture.
8.5: Soprano—Miss Ada Rubensohn, "Advice," Carew (Chappell).
8.9: Elocution—Mrs. M. Thomas, "Idyll of Battle Hollow," Bret Harte.
8.13: Instrumental—Symons-Ellwood-Short Trio, "Allegro, Andantino, Novelliten," Gade (Peters).
8.23: Baritone—Mr. S. E. Rodger, selected.
8.27: Lecturette—Mr. T. K. Sidey, "The Summer Time Bill."
8.41: Violin and piano—Miss Ava Symons and Mr. Gordon Short, "Sonatine," Dvorak (Simrock).
8.51: Contralto—Miss Reay Wrightson, "The Glory of the Sea," Sanderson (Boosey).
8.55: Elocution (humorous)—Mrs. M. Thomas, (a) "Baby Ribbons," Johnson; (b) "Kisses," Longstaffe (Reynolds).
8.59: Weather report.
9.0: Lecturette—Sir Truby King, "Infant Welfare."
9.15: Instrumental—Symons-Ellwood-Short Trio, "Moderato, Larghetto, Finale, Novelliten," Gade (Peters).
9.25: Soprano—Miss Ada Rubensohn, "A Heart that's Free," Robyn (Allan).
9.29: Lecturette—Miss Phyllis Bates, "A Fox Trot Lesson."
9.40: Relay of Charles Dalton's Columbian Solo Six Dance Orchestra from the Columbian Cabaret, Kilbirnie.

4YA DUNEDIN (463 METRES)—SATURDAY, NOVEMBER 5.

- 11.30: Relay—Description Canterbury Jockey Club's Cup race meeting.
6.0: Children's session, by Uncle Sam.
7.15: News and reports.
7.30: Sporting and racing review.
8.0: Chimes. Relay of orchestral selections from Liberty Picture Theatre Orchestra, under direction of Mr. Ernest Jamieson.
8.15: Zither-banjo solo—Mr. Jack Oxley, "Merriment," Morley.
8.19: A few moments at the piano—Mr. Ivan Perrin, (a) "Butterfly Prelude," Chopin; (b) "Musical Jig-Saw," M.S.

HEAVY FINES IMPOSED

FOR NOT REGISTERING.

Another batch of radio listeners in who had failed to obtain their wireless licenses appeared before Mr. J. H. Salmon, S.M., in the Magistrate's Court, Wellington, last week, and were heavily fined in some cases.

Mr. J. M. Tudhope, Assistant-Crown Solicitor, who prosecuted for the Post and Telegraph Department, said that the offence of failing to obtain licenses was becoming altogether too common. "It is very difficult to detect these offenders," he said, "and, that being so, the Department may in future make them forfeit their sets, as it has full power to do so under the Act. In order to warn those who have not yet obtained their licenses," he added, "I would like to say that at the present moment the Department is instituting a vigorous campaign against them, and will leave no stone unturned to have their whereabouts discovered."

The following were fined the amounts stated—Sydney Roland Ellison, £1; Jack Cantwell, Henry William Freed, John Baptist Moore, Norman Sander, Bernard True, and Joseph Llewellyn Evans, £2; Stanley Bruce Young, £1.

Robertson McGregor Stewart, Carl Eversleigh, Mrs. Marion Hand, Mrs. Alice Lander, and John Vincent Williams were each convicted, and ordered to pay costs.

The cases in which F. J. W. Fear and Company and Harrington's (N.Z.), Ltd., are charged with failing to keep records of radio sales were adjourned.

There can be no doubt that heavier fines will be inflicted, shortly, by New Zealand Magistrates when owners of unlicensed receiving sets are convicted.

In Germany people who use unlicensed wireless sets are known as "black listeners." Judging from a recent report the number of offenders would appear to be increasing, 558 having been summoned during three months of the present year as against 468 in the corresponding quarter of 1926. As a result of their increase the authorities have made it known that in future they will press for the infliction of the more severe punishment provided for in the regulations, which includes not only the confiscation of illegally-used instruments, but also three weeks' imprisonment for offenders.

BOOSTING SHOWS

BROADCASTS AN ADVERTISEMENT.

Some theatrical directors affect to believe, and in a few instances really believe, that broadcasting any portion of their shows is likely to mean a loss in patronage. As a matter of fact the broadcasting of portions of theatrical or even sporting events has proved a great advertisement.

The management of broadcasting station 2FC, Sydney, tried an interesting experiment recently on these lines. As a contribution to the Sydney University appeal, 2FC engaged the Conservatorium orchestra and some noted solo artists to give a popular concert in the Sydney Town Hall. The event was made known as widely as possible, and particular emphasis was laid on the fact that it would be broadcast, the object being to find out whether people would pay 3s., 2s. and 1s. to attend a concert when they could sit comfortably at home and hear the whole thing without any charge.

The hall was packed, and the explanation is that (quite apart from the people who have no radio set and, therefore, have to go to concerts for their entertainment), so many listeners have enjoyed Stella Wilson, Alfred O'Shea, and the Conservatorium orchestra over the air that they went to the Town Hall to see, as well as hear, them. The orchestra sounded well to listeners-in, too.

A licence has been issued to a company known as the British East African Broadcasting Company for the purpose of wireless broadcasting in Kenya and the erection of a short-wave station at Nairobi. The company is also using the Empire radio service for a direct commercial telegraphic service to London.

With the title La Ligue Francaise de la Radiophonie Scolaire, a new association has lately been formed in Paris to organise a broadcasting service during evening hours, with a programme specially intended for the benefit of school children.

The German Wireless Exhibition, which was held in Berlin from September 2 to 11, was the largest and most important display of the kind so far held in Germany. Among the new features was a special "Week-End Wireless" section which was devoted to displays of instruments specially intended for open air use by picnic parties and week-end holiday makers; the daily display of a cinematograph film of wireless interest; and demonstrations of the wireless transmission of pictures and photographs.

- 8.25: Baritone solo—Mr. E. E. Dowell, "A Dream," Bartlett.
8.29: Instrumental trios—Christchurch Broadcasting Trio, (a) "Ecstasy," Ganne; (b) "Russian Mazurka," Glinka.
8.38: Meanderings of Monty—Mr. J. J. Flewellyn, "The Near East and All That Sort of Thing," M.S.
8.43: Zither-banjo solo—Mr. Jack Oxley, "When the Red, Red Robin Comes Bob, Bob, Bobbin' Along," Woods.
8.47: Further moments at the piano—Mr. Ivan Perrin, extemporising on popular melodies and songs, M.S.
8.57: Baritone solo—Mr. A. E. Dowell, "The Hymns of the Old Church Choir," Solman.
9.2: Relay from Liberty Picture Theatre.
9.12: Meanderings of Monty—Mr. J. J. Flewellyn, "The Empire Spirit," M.S.
9.18: Instrumental trios—Christchurch Broadcasting Trio, (a) "Cherry Blossom," Marling; (b) "Polka Characteristique," Bendel.
9.26: Zither-banjo solo—Mr. Jack Oxley, "Mary Lou," Waggner-Robinson.
9.30: Baritone solo—Mr. A. E. Dowell, "The Paradise in Mother's Eyes," Sheard.
9.34: Meanderings of Monty—Mr. J. J. Flewellyn, "The Sad Story of Mrs. Pabblewick," M.S.
Relay from Olympia Show.
Rebroadcast 2YA, Wellington.
Relay of dance music by Dixieland Cabaret Orchestra, under conductorship of Mr. Les Marsden.
Close down.

4YA, DUNEDIN (463 metres), SATURDAY, NOVEMBER 5.

- 7.15 p.m.: News session.
8.0: Town Hall chimes.
8.1: Baritone solos—Mr. A. McKinnon, (a) "Battle of Stirling"; (b) "Standard on the Braes o' Mar."
8.8: Instrumental trios—Messrs. W. Wragg (banjo), W. Banwell (banjo-mandolin), and C. Ruff (piano), (a) "Just a Bird's-Eye View; (b) "Fire."
8.15: Recital—Mr. J. B. McConnell, "A Dog's Life."
8.20: Mezzo-soprano solos—Miss Florence Sumner, (a) "Bird of Blue," German; (b) "Marie," Franz.
8.26: Pianoforte solo—Miss Gertrude Crossley, "Capriccio," Scarlatti.
8.30: Hawaiian guitar duet—Messrs. Sheehy and Campbell, selected.
8.34: Light vocal—Mr. Chas. Rowand, (a) "Wach Fol the De!"; (b) "The Mice Have Been at it Again."
8.40: Instrumental trio (as above)—Selected.
8.45: Address by Mr. A. E. Wilson, of the Government Tourist Department, "Tourist Resorts in the South Island."
9.0: Baritone solos—Mr. A. McKinnon, (a) "Bonnie Mary of Argyle"; (b) "The Piper Came to Our Town."
9.7: Recital—Mr. J. B. McConnell, "Jimmy's Boots."
9.12: Pianoforte solo—Miss Gertrude Crossley, "Butterfly Etude," Chopin.
9.17: Mezzo-soprano solos—Miss Florence Sumner, (a) "Sigh No More, Ladies," Keel; (b) selected.
9.23: Hawaiian guitar duet—Messrs. Sheehy and Campbell, selected.
9.29: Pianoforte solo—Miss Gertrude Crossley, "Valse Alsacienne," Holbrooke.
9.34: Recital—Mr. J. B. McConnell, selected.
9.40: Selections by the Instrumental Trio.
10.0: Close down.

Sunday, November 6th

1YA, AUCKLAND (333 metres), SUNDAY, NOVEMBER 6.

- 6.55 p.m.: Relay of church service from St. Andrew's Church. Preacher, Rev. Lamb-Harvey. Organist, Dr. Neil McDougall.
8.30: Relay of municipal band concert from Town Hall. Bandmaster, Mr. Christopher Smith.
9.30: Close down.

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

- 6.15 p.m.: Relay of evening service of the Vivian Street Baptist Church. Preacher, Rev. F. E. Harry; choirmaster, Mr. A. R. Don; organist, Mr. C. Collins.
8.15: Relay of band concert of the Wellington Municipal Tramways Band from His Majesty's Theatre.

3YA, CHRISTCHURCH (306 metres), SUNDAY, NOVEMBER 6.

- 5.45 p.m.: Children's song service, by Uncle Sam, from 3YA Studio.
7.0: Relay from Richmond Methodist Church of Sunday school anniversary evening services. Preacher, Rev. Harold Sharp; organist, Miss L. Straw; pianist, Miss A. Kearney; choirmaster, Mr. J. C. Quane.
8.15: Rebroadcast 2YA, Wellington.
Close down.

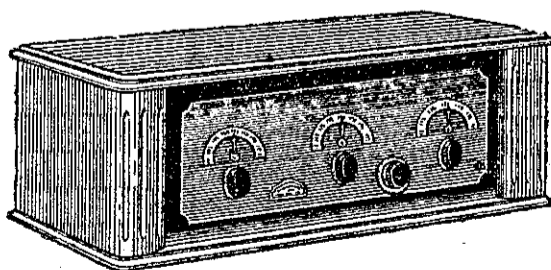
4YA, DUNEDIN (463 metres), SUNDAY, NOVEMBER 6.

- 6.30 p.m.: Relay of service from Methodist Central Mission. Preacher, Rev. W. Walker; organist, Mr. Chas. A. Martin.
8.0: Relay from St. Kilda (weather permitting) of concert by the St. Kilda Band, under the conductorship of Mr. James Dixon.
9.15: Close down.

When reporting in Parliament upon postal and telegraph communication on the Gold Coast, Mr. Ormsby-Gore, British Parliamentary Under-Secretary for the Colonies, recently drew attention to the value of the establishment of a wireless broadcasting station at Accra in order that the Daventry programme from England might be made available to Europeans and others living an isolated life in Africa.

On the Warsaw-Zyrdow railway, fresh experiments have just been made with the wireless apparatus specially constructed by M. Downmunt for reception on trains in motion. The aerial was installed on the roof of the carriage. After a few alterations the apparatus will be installed on a long-distance train and its future use will depend on the results obtained.

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Further Analysis of Fading

In this further analysis of the fading reports "Megohm" gives some interesting material, and states that city listeners average more fades than country listeners. The question of land absorption is also dealt with.

PRELIMINARY REMARKS.

Numerous explanations have been given in the "Record" of the manner in which the modulated carrier wave is sent out from a broadcast station. Such a modulated high-frequency wave, analysed into its elements and studied in detail, is revealed as an intricate fabric of elemental waves, so interwoven with each other that none of them can be disturbed without changing in some degree the complexion of the whole. For perfect results the whole band must arrive at the receiver with an amplitude continuously proportional to that leaving the transmitter, or the expression of speech and music will not be correctly reproduced. All the component frequencies within the band must be unchanged in their relative amplitudes, lest the character of the sounds be altered. Even the relative phase relations of the various frequencies must be preserved, for it can be shown that otherwise the intersection of the two side bands in the receiving detector will result in the partial loss of some of the frequency components.

Put into simple language, this means that the complex broadcast wave must, in its passage to the receiver, meet with no influences that will change its shape or frequencies in the slightest degree, if reception is to be as nearly perfect as is possible. If the ether, the existence of which is presumed, was not contaminated by the presence in it of other matter of a denser type, the problem of undistorted transmission might be a much easier one. The ether, as supposed to exist, is a thing apart, yet pervades everything, and is a medium for the transmission of heat, light, electro-magnetic, and other vibrations not only around this earth, but from sun to planet, and planet to planet.

The electro-magnetic broadcast waves in their passage from transmitter to receiver have to encounter many influences not of the ether itself, and these obstacles may take the form of gaseous ions, a stratum of which forms the Heaviside layer, at a varying height from the earth, or it may be that varying composition or form of the earth itself has a detrimental influence, and there are others between these two extremes. It has been found in research connected with the Transatlantic radio telephone, that the earth's magnetic field, which is ever varying, has a considerable effect upon radio transmission, a magnetic disturbance tending to weaken night signals, and to slightly strengthen daylight reception. The actual effect of daylight upon very distant reception is too well known to need more than mention.

EFFECTS OF MAGNETIC DISTURBANCE.

The writer remembers during the transmissions from VLDN at the Dunedin Exhibition, reception in Wellington was normally fairly good, but one evening a group of friends were listening for a particular item to be presented about the middle of the programme. As the

concert proceeded, a mysterious blurring came over reception, at times quite blotting out intelligibility. As the expected item approached, the distortion and fading became more intense, and apart from a snatch of the announcement very little of the solo came through, and the same trouble continued through succeeding items with more or less improvement. So mysterious and unusual was the trouble that the receiving set came under grave suspicion, but everything appeared to be in order. The newspapers next morning threw a light upon the mystery, announcing that on the evening in question a severe magnetic storm accompanied by a vivid display of the aurora australis, had raged in the south, being so severe as to put several land telegraph lines out of commission for the time. This happening is pointed out because it appears quite possible that such magnetic influences of lesser intensity may frequently be having some effect upon radio reception, although not making themselves manifest in other ways.

But there are other still more subtle and evasive influences at work, chiefly during night transmission, and it is around these that a great amount of speculation and experiment is centred. The theory of reflection of waves from an ionised gaseous surface known as the Heaviside layer, situated at about fifty miles above the surface of the earth, appears to be borne out by many experimenters, some of whom have been able to actually measure the strength of the reflected waves, which at night is added to the volume from those that travel at all times near to or through the earth. Another theory adds that the surface of this reflecting layer is in a constant state of undulation, an idea that appears quite feasible, and one that would make it impossible for a transmission to be received in exactly the same way at any two distant points, that is, both with regard to both the time of happening, duration, and intensity of fading or blurring, supposing it to be caused by a non-agreement in timing between the reflected wave and the earth wave. A great deal more might be said on the subject, but the chief matter now is to see what can be learnt from the reports that have been sent in.

FADING EXPRESSED IN FIGURES.

It is desired now to give a numerical expression of the amount of fading experienced in different parts, such numbers to be the direct result of the records on the charts. It is quite evident from the number of slight fades on some of the charts, and from the written supplementary reports accompanying very many of them, that in some cases the slightest detectable weakening of signals has been recorded. This is shown by the fact that a few reports mentioned that it was difficult at times to distinguish between fading and intentional soft passages in songs. It is thus seen that fading that may be classed as very slight and perhaps in long-distance reception quite noticeable, depends very much

upon the human factor. It was quite good for these findings to be recorded, however, as they are helpful in conjunction with other reports.

Now when we come to consider the fading where volume decreases below half the normal, there is room for very little doubt or uncertainty, so it will be seen that on the whole the intense fading, more decided, but not so frequent in occurrence, will form a safe basis on which to build the decision now sought.

The total number of intense fades on each chart for September 26 have been counted in groups and the average for that group calculated, the result being the average number of intense fades per report. The list shows as follows, the average distance from 2YA being shown in parentheses:—

AVERAGE INTENSE FADES PER REPORT.

North Island.	
North Auckland (360 m.)	4.4
Auckland City (300 m.)	10
Country, including South Auckland, Waikato, King Country, Rotorua, Thames, Coromandel, Te Awha (200 to 250 m.)	7.4
Taranaki (excluding New Plymouth) (125 m.)	5
New Plymouth (150 m.)	12
East Coast (Bay of Plenty, etc.) (250 m.)	3.2
Hawke's Bay (excluding Napier) (4.3)	4.3
Napier	13
South Island.	
Marlborough (50 m.)	Nil
Havelock, Rai Valley, Pelorus Sound only (50 m.)	7.5
Nelson district (100 m.)	11
Christchurch City (190 m.)	2.7
Canterbury (excluding Christchurch) (250 m.)	6
Westland (200 m.)	10
Dunedin (375 m.)	5
Otago (350 m.)	6.5
Timaru (270 m.)	7
Southland (450 m.)	4.7

From the above it will be noticed that, on the whole, receivers situated in the country get less fading than those in thickly populated areas. But notable exceptions are Christchurch and Dunedin, which both receive the wave from 2YA direct over water, the most favourable path.

Reports from Marlborough state that no fading is experienced there either night or day, but three separate reports from distinct parts of Marlborough-Havelock, Rai Valley, and Pelorus Sound show a considerable amount of fading, averaging 7.5 intense, but only three fades are shown on the Havelock report, so most are on the other two. As these places are all situated within sixty miles of 2YA, or not further away than is Shannon, they appear to be worth special attention. On looking at the map we find that the Pelorus Sound receiver is an air-line distance of 47 miles, and following this line from Wellington, it strikes land to the north of Tory Channel entrance, encounters the summit of Arapawa, 1593 feet, and further on, peaks of 978, 1531, and 1795 feet, all within about a mile of the line.

In the case of Rai Valley, which shows the most fades, there are peaks of 1762, 2095, 3185, 2283, and 2367 feet close on the air-line. This receiver is 63 miles from 2YA. A good detailed report was sent in, and has been compared with a similar one from Russell, North Auckland. There is agreement between the two in regard to the priority of fades and increase of volume, but the southern one also shows several intense fades that were not noticed even as faint ones at Russell, and some that were faint at Russell are reported from Rai Valley as "faded right out." It is quite clear that most of the fades were noted at both places simultaneously, but with different intensities. Apart from the peaks mentioned, the country traversed by the wave to reach this receiver is mountainous and irregular in the extreme. At Shannon, an equal distance from 2YA, in a northward direction, no fading is experienced, but a small amount of distortion is reported. Daylight reception is not mentioned in the above report, but at Pelorus Sound is quite good. Mountains appear to have some influence upon night transmission, and if there were any upon daytime reception it must be of a different kind, or lessened intensity.

MANAWATU CONDITIONS.

Reception must be satisfactory at Palmerston North, for there are no complaints from that quarter, but, strange to say, from Feilding, only a few miles further, there are several complaints of distortion and mushiness, accompanied by intense fading. This appears to point to local conditions of some kind, either geographical or otherwise. As very few reports came from here, it is quite possible that most Feilding listeners are getting good reception, which is quite presumable, as Marton, a few miles further away, unanimously reports all well.

NELSON DISTRICT.

In the track of the wave from 2YA to Nelson City, there are peaks of 1762, 2095, 3185, 2283, 2367, 3220, 3076 feet, all within four miles of the air-line, so that so far as mountains are concerned, Nelson and the district to the west of it are well screened. This fact appears to be well borne out by the reports, which shows a larger number of intense fades than are experienced in other country districts. The average distance of this district from 2YA is 100 miles, Nelson being 60. Woodville,

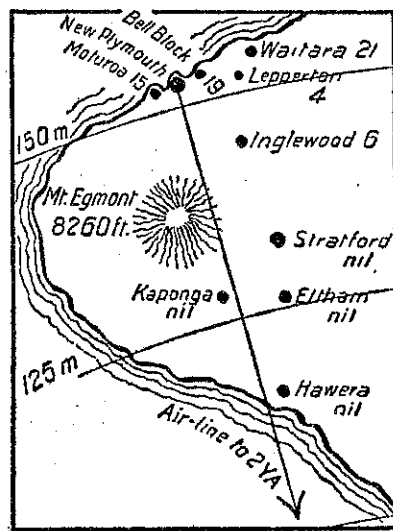
Hunterville, Wanganui, and Patea are about the same distance, and only from those places where transmission travels overland, that is, Feilding, Pahiatua, and Woodville, have there been reports of fading.

THE CASE OF NEW PLYMOUTH.

Authorities have placed the maximum distance for perfect and uninterrupted broadcast reception at from thirty to fifty miles from the transmitting station. This may be quite an accurate estimate based on careful experiment, taking the power of the station into account. It is found in practice, however, that passably good reception can be obtained at much greater distances than those mentioned, and upon a commercial basis a much larger distance must be covered by practically all broadcast stations at the present time, particularly in New Zealand, where a comparatively small revenue is called upon to provide four separate transmitting centres. When distance from the transmitter is accentuated by geographical conditions that weaken the signals received, it certainly becomes somewhat of a hardship, although natural conditions of many kinds must have to be suffered in many countries.

New Plymouth has been a source of insistent complaints regarding fading of transmission from 2YA, and an attempt is now to be made to show approximately the conditions of reception there.

The small plan herewith shows that New Plymouth is about 160 miles from 2YA, whilst Mount Egmont, frequently capped by an enveloping bank of



heavy clouds, lies almost directly in the air-line from 2YA.

It has been shown already in the case of Nelson district that a great amount of fading is experienced there, presumably on account of the mountain ranges over which the 2YA wave must travel. And Nelson district averages fifty miles nearer to 2YA than is New Plymouth. Looking through the reports for the two districts they seem in a general way to show a similar amount of slight fading. On reference to the plan it will be seen that practically no fading is experienced until the influence of Mount Egmont is added to overland distance. At Inglewood this effect begins to show, six fades being reported, Lepperton four, Waitara 21, and an isolated set at Bell Block 19. In New Plymouth town the average number is 12 intense fades per listener, whilst a single report from Moturoa, rather more in the radio shadow of Egmont, shows 15 intense fades.

A complaint from Hamilton which has been referred to "Megohm" suggests that the fading trouble is caused by the station itself. Perusal of a very interesting report of proceedings of the Institute of Radio Engineers of America shows results of experiments carried out in connection with fading. Station variation does not enter into the question at all for it is shown that definite but irregular areas at a given distance from the transmitter are

SCRATCHING NOISES

TO FIND THE CAUSE.

Scratching noises in a radio receiver seem to be the noises that are prevalent in most sets that are noisy. These noises may be due to one or more of several causes. Those fans having sets that are scratchy will do well to read over the following list and then look over their sets for the points mentioned.

The first place to look for trouble is the aerial and earth. If there is any corrosion in any of the joints they should be taken apart and cleaned. Then resoldered. Any joint that is lousy will cause any amount of scratchy noises in the phones.

Clean Valve Prongs.

The next place to look for trouble in this line is on the valve prongs. If there is any corrosion here it should be filed off and the prong preferably given a coating of solder. Use rosin as a flux in this case.

The binding posts on the sockets, rheostats, and other parts of the set, if loose, will cause scratchy noises. All nuts should be tightened with a pair of pliers to eliminate any chance of overlooking one nut.

Loose soldered connections in any of the leads in the set will cause scratchy noises and also clicks that are easily traced by touching the wires when the phones are in the circuit and the tubes lit.

Pigtails for Condensers.

Any friction bearings on variable condensers, variometers or vario couplers will cause any amount of scratchy noises. It would be better to put pigtail connections on all the equipment that now have this type of bearing and forego the necessity of cleaning the shafts and rods every time the set becomes noisy.

Scratchy noises are often due to loose phone connections. This is easily traced by shaking the phone cord while the phones are connected to the set with the tubes turned on.

CORRECT WIRING METHODS

There is all the difference between success and failure in the lay-out and position of the wiring of a set. Home-builders have even condemned the famous Browning-Drake circuit because they have not observed due precaution in the method of laying out the wiring.

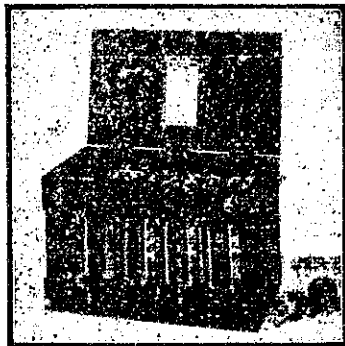
The success or failure of a particular receiver usually lies in the radio-frequency part of the circuit and not as a rule in the audio-frequency end. Therefore, the home constructor should be extremely careful, in building any of the various Browning-Drake sets, to have the wires from the plate of the radio-frequency valve kept well separated from all other wires. This same statement applies to the connection to and from the balancing circuits and to and from the grids of the radio-frequency and detector valves.

troubled with fading and distortion much more than other areas at the same distance. That fading can be caused apart from any possible variation at the station is made quite evident by the test now being investigated, there being frequent cases where one receiver registers a fade whilst another gets no variation worth noting. Putting the blame upon the station is quite a natural move for those who have not made a study of the question, and whilst it would perhaps be going too far to expect infallibility from any station, a great amount of fading or interference with the transmitted wave occurs during its passage through space.



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RADIO ENTHUSIASTS!

The most dependable Battery money can buy is the

EXIDE

As installed at the 2YA Station, Wellington, the most powerful

Station South of the Line.

Our Mail Bag

The "Record" Crystal Set.

A. V. Pierce (Pencarrow Head Lighthouse) writes that he has constructed the efficient crystal set as in the "Record" of August 12. "I made a couple of these sets in the manner described in your paper with great ease, using ordinary nails in place of brass screws. The only articles I purchased were the 20-gauge wire and the crystal detector (carborundum cartridge type), and with a pair of 'phones and also the loudspeaker connected together the tone clarity and volume is unsurpassed and surprising to me. I tune in 2YA to be easily and plainly heard some 12 feet from the speaker with 'phones attached, but, better still, without the 'phones, and 3YA on 'phones alone. I think this set a marvel to work a loudspeaker. The height of my aerial is about 30 feet, and using Electron wire 125 feet in length, the earth being 18-gauge plain wire soldered to a kerolene tin buried just under the surface and filled with ashes and soil.

Church of England Services Wanted.

P. Williamson (Whangamata): There seems to be a certain amount of discussion going on at present regarding the broadcasting of church services. I do not profess to be a religious being by any means, but I do think that more Church of England services should be broadcast. After all, the Church of England is the national church, and has an individuality of its own that appeals to all Anglicans. For the last three weeks, with four New Zealand stations operating, there has not been one Church of England service relayed. By all means try and study the different denominations, but surely a service from the church of our own country, the Church of England, should be available from at least one station every Sunday.

F. H. Garner (Tinakihama): Relays of the Anglican services from the four broadcasting stations have been few and far between as compared with those of other denominations. I think I am safe in saying that at least half or even more of the total number of listeners-in are members of the Church of England, yet the minority are better treated, especially in the case of one church which enjoys the privilege of practically a weekly broadcast. About once a month either Christchurch or Auckland oblige, but what about 2YA? In the last instance two churches hold the monopoly. Why? As for the weekly programmes and after-church relays they are generally very good. All lectures, even from the editor-announcer, should be before 8 p.m.

[It is wrong to assume that the comparative absence of Anglican services is due to the Broadcasting Company. A more satisfactory roster is in the process of being evolved.—Ed.]

Views on Programmes.

K.E.P. (Murchison): I read the "Record" with great interest, and have lately noticed in letters to the Editor the varied programmes desired by listeners-in. It would be impossible to please everybody, but I think the great majority can be pleased. One cannot expect very much entertainment for 80s. a year. It is well understood that the broadcasting management do the best they can as things

LECTURE ON STAMPS.

The first lecture on stamps will be broadcast from 3YA on November 24, the speaker being Mr. L. E. Vernazoni, a past president of the Christchurch Philatelic Society. Subsequent speakers will be Mr. Collins (president of the Society, representative in New Zealand for the Royal Philatelic Society of London, and the author of several books), Mr. Chapman (president of the Christchurch Society for four years), and Mr. Peers, the secretary of the society.

are. Let me suggest that in place of paying 80s. a year, listeners-in should pay what ever it costs for a good programme. By the way, I know a lot of respectable people (this word being used by "Listener") who can and do enjoy noisy concerts, good songs and humour of the Mr. R. Walpole "Monty on Health" variety on weekdays, Saturdays and Sundays, and find it very uplifting indeed. Some listeners like the church services; they are getting them. No one as yet has made any suggestions to stop them. Now let me suggest to "Miramar" and "Listener" that they switch off when the church service is over. Then they will not have any noisy concerts mixed up with the items they prefer. Then myself and others can tune in and receive the items we prefer. We may even induce the Broadcasting Company to extend the programme a little. I have

paid particular attention to the popularity of the concerts held in Wellington and Christchurch on Sundays, in many cases artists singing comical songs or humorous recitations have been called back three times and the audience still calling for more. I would hate to think that all those people are not respectable because they like concerts on Sundays. It would be great if all we listeners paid some good artists overtime to sing and play for us on Sunday, this being the only day the average person in the country has the time to listen in. However, some like church, some don't. We must have it for those who do. Most love sport; we've got to have it for the majority. More humour would be much appreciated any day. To discard some of the "I love you and my heart is breaking" variety of songs would please more than it would disappoint. And to put on more like the Petone Black and White artists would suit the majority. I for one am willing to pay more for better items.

Calls them "Cry-Babies."

"Well Satisfied" (Wellington)—I should like to say a few words in praise of the efforts of staff and entertainers of 2YA to please Mr and Mrs Radio-Pan and family. I have, like hundreds of other members of the general public, near and far, enjoyed very much these nightly programmes. I think the majority of listeners-in will agree that for all round entertainment, not forgetting the educational aspect as well, 2YA is well worth the small expenditure of 7½d. per week, cost of privilege to listen-in. Where else will one obtain so much amusement and instruction in return for such a trivial outlay? It is absolutely astonishing how some people will moan and groan when certain items don't quite meet with their approval. Surely one does not expect every entertainer to be a world's star. Are these cry-babies stars themselves, perhaps only in the ability to grumble. In my humble opinion, 2YA gets a good share of some very fine artists. I contend that 2YA, being only a few months old, as it were, the general tone of its performances compare very favourably with other stations old enough to be its grandfather. For a small city such as Wellington to be able to produce such a variety of real good talent night after night speaks volumes for the culture and ability of its entertainers. Credit is also due to the two announcers at 2YA, far superior to quite a good few I have heard from other stations, inside and outside of the Dominion. To other listeners-in I respectfully submit that Wellington may be justly proud of its powerful broadcasting station. For the huge sum of 1½d. per day, we get from five to six hours daily, enough entertainment that not so very long ago would have cost us pounds. Now, thanks to wireless, we can enjoy these musical treats in the comfort and privacy of our own homes. If there are any broadcasting defects, well, then, it must only be a matter of a short while when these things, whatever they are, will be rectified, and young and vigorous 2YA will be able to toe the line on a level with broadcasting stations overseas. May I make two suggestions? The first is that the Barnard piano player be used a little more instead of gramophone records. Piano music, whether by hand or mechanically played, sounds very pleasing on the head-phones or loudspeaker; also I really think that the organ in the studio should be made more use of, especially in the latter part of the evening. It certainly possesses a very soothing effect before going to bed, apart from its artistic value. The second suggestion is in reference to long distance crystal sets. There must be very many people residing within a radius of, say, one hundred miles of 2YA who cannot afford the necessary equipment to bring in long distance on a crystal set. Therefore, not being able to afford even a one-valve amplifier, they abandon the whole thing. In other countries they have pure and simple crystal set circuits that bring in 5000 watt stations with ease, from a distance of 100 miles or thereabouts, at an outlay of only a few shillings more than the initial cost of a good crystal set. What I respectfully suggest is that there be published in the "Radio Record" a suitable crystal circuit, easily understandable, that will meet the particular requirements just referred to. It would not only bring pleasure to people away in small country places, backblocks, etc., but would add a substantial number of delighted fans to the radio list.

[Our crystal long distance competition, of which the awards were made last week, showed regular crystal reception of 2YA up to a distance of 875 miles. Auckland and Christchurch both got Wellington on crystals regularly. Many country folk might advantageously be in on crystal, particularly the young folk.—Ed.]

Good Two-valve Work.

Polar Twin (Palmerston)—Being a humble beginner with a "tolerated rather than approved" two-valve set, I hesitate to challenge the statement of "M.I.R.E." in this week's "Record" that "less than three valves is definitely

useful only for headphone reception." Maybe I am, as he says, "in an extremely sensitive spot," but I do get "programmes" (not "merely signals") not only from 1YA, 2YA, and 3YA, but also from at least four Australian stations very frequently on my loudspeaker. Moreover, I get 2YA consistently from 3 p.m. onwards on the loudspeaker, and the reception of the North v. South and Possibles v. Probables Rugby matches was perfect and much appreciated. Of course my speaker is a small one, and the volume is likewise small, but this has the advantage that the objectionable noises heard on larger speakers are likewise small. However, it is quite loud enough for any of the four rooms in which I have earth wires!

Of the Australian stations I usually tune in to 2FC and 2BL, which frequently come through quite as loudly as 2YA. I have also had 3LO and 4QG, and (I hope "M.I.R.E." won't doubt my word!) about a fortnight ago I had 2UE, Sydney, for quite a time perfectly on the loudspeaker. Incidentally, 3YA comes in as loudly as 2YA, with 1YA close up, but 4YA is a washout (and nearly as bad on the 'phones).

So much for the loudspeaker reception.

On the 'phones I get all the principal N.Z. stations (bar 4YA) perfectly, practically all the time. I also got a station at Auckland on Monday (I think) 2ZB (?), very clearly. Of the Australian stations I get about eight or ten fairly consistently, the reception being very good. A small station I hear very frequently is 2KV, Sydney, which comes in at 13 on the dial. I can honestly say

ALL ABOARD THE RADIO EXPRESS

On Tuesday, November 1, Uncle Jasper's night—the kiddies are to be taken for a special railway excursion on the Radio Express. The express will depart from the studio station (2YA) sharp at 6 o'clock, and will take all the youngsters who can possibly "listen in" for a really glorious run right over the Rimutakas and up to Napier! Geel! Won't it be fine? You'll hear the big engine—whistle, pull-puff, and all—the guard's whistle, and even the loud complaints of the old lady who just manages to get aboard. And while you're riding along and learning all about the scenery, Uncle Jasper will tell you stories, and send out his birthday greetings, and the Y.M.C.A. Boy Scouts—who are going to man the train—will keep you amused. Be sure and listen for their kettle drum!

the headphone reception of 15 odd Aussie and N.Z. stations is perfect. I use dull emitter valve with three volts (two dry cells) for the A battery. The outfit cost me less than £13, and I can assure "M.I.R.E." I'm getting my money's worth. As regards three-valve sets, I heard perfect reception recently from four or five Aussie stations on a large-size speaker and the set is still going strong.

Regarding the controversy on the programme from 2YA, seeing that you have to cater for all and sundry, I think the programme pretty good, my only "grouch" being that your announcer gives us stale news from the morning papers between 7 and 8 p.m. I might add that I have noticed very little fading of late—the reception on the whole being fairly good.

In conclusion (for "M.I.R.E.'s" benefit), I don't annoy my neighbours and my set doesn't squeal every time I tune in a fresh station.

Programmes Appreciated.

Radio (Picton)—I must once again write you a few lines of appreciation for the very excellent items being broadcast from the New Zealand stations, the general working of them, and the excellent manner in which the "Record" is being conducted. I have noticed a considerable improvement in the tone of the three main stations, and the volume from 1YA and 3YA has increased immensely, no alterations being made to the aerial. The two cornet solos from 2YA and the band concert from 3YA last night came through absolutely wonderful, the immense volume and perfect clarity from the latter were astounding.

The final cornet solo from 2YA, "The Holy City," was a revelation. Why can't we have more of that class of item, and also more of the old songs? I am sure more than half the listeners prefer the old songs to the new ones. Even the National Anthem is an interesting item on its own if played right through; many of us here join in, but it is not long enough to enjoy properly. Could we not have it played right through, sir, from at least one station each night? I'm sure it could take the place of an item at any time.

And as for the old songs, I don't think we get half enough of them. Take, for instance, the Irish night at 1YA recently. Nothing could have been more beautiful. Again allow me to thank the B.C. for the very great pleasure their really fine programmes afford me.

St. Gerard's Broadcast.

C.R.L. (Kamo)—My husband and I feel we really must congratulate the Broadcasting Company on the broadcasting of St Gerard's Church last night. Reception was excellent, fading very slight. We sincerely hope the Catholic Church will be on the air more frequently now in New Zealand, as Australian church services are so late for New Zealand.

Our set is a four-valve, and we find New Zealand broadcasting most satisfactory. We have listened-in to football matches and races with great success. While on the subject I might mention that we thoroughly enjoy the Sunday night concerts, and hope they will be continued.

LEARNING TO DANCE BY RADIO

DANCE FEATURE FROM 3YA

Much interest and anticipation has been aroused by the announcement that 3YA has engaged Mr. Cyril Poulton, the well-known and successful Christchurch teacher and exhibition dancer, to broadcast lessons in modern ballroom dancing. Mr. Poulton's method of broadcasting lessons, as explained to us, is simple, yet surprisingly effective. It entails a considerable amount of preliminary work, but the result as heard "on the air" is, from the listeners' point of view, remarkable for its clarity and completeness.

Mr. Poulton will not only earn the thanks of those listeners desiring to learn to dance correctly, but also the thanks and confidence of parents, whose idea of what constitutes good dancing has, until now, been somewhat hazy, in consequence of which they have been rather disinclined to allow their children to learn the so-called jazz.

Mr. Poulton's first lecture on the evening of Thursday, October 27, will trace briefly the trend of modern dancing from its commencement until the present day. He will also deal very fully with the most common faults to be found in our present-day ballrooms, explaining how these faults tend to, and do, make for poor dancers, and consequently poor dancing.

In an interview Mr. Poulton was most emphatic as to the essential points which must be observed and practised by those wishing to be called good dancers that is judging by the English standard of what is considered good ballroom dancing, and the English dancers are recognised the world over as supreme.

"I shall, during my broadcasting, have occasion to refer to these essentials frequently," said Mr. Poulton, "as they are of paramount importance and cannot be given too much time and practice. It is only by the English ballroom dancers' strict observance of them that they have attained their high degree of proficiency."

"In brief," continued Mr. Poulton, "my first lecture will embrace the correct placing of the feet in the slow foxtrot, quick-time foxtrot, and blues, and the correct way of holding a partner, balance, and deportment in those dances."

"Listeners should follow the complete series of eight lessons as each succeeding lesson will be controlled from the previous one, as this is the only method by which a complete knowledge can be obtained of all the dances in their entirety," concluded Mr. Poulton.

A summary of each lesson will first be published in the "Radio Record." Mr. Poulton will only be too pleased to answer any questions which listeners may desire to ask, such letters to be addressed either to station 3YA, Christchurch, or to the Cyril Poulton Studios of Stage and Ballroom Dancing, 411 Wilson's Road, Linwood, Christchurch. The envelopes of these letters must be marked "Questions on Dancing."

THE 99 VALVE

Many of the best imported broadcast receiving sets are now constructed for using 199 type valves. The 199 is a 3-volt valve and requires .06 amperes, which is less than one-fourth the current consumption of the 5-volt type, which requires .25 amperes. It is fully as rugged in construction and as well able to withstand overload as the larger valve. Its failure is usually due to over-voltage supply, being normally operated from three dry cells in series. Their combined 4½ volts should be reduced to 3 volts by a rheostat, but this is often neglected. Consequently it is subjected to 50 per cent. overload, whereas a 5-volt valve or a 6-volt storage battery has only 20 per cent. overload.

ELLERSLIE RACES BROADCAST.

"We heard everything spoken, and also the band music, just as if we were on the course. And what was so interesting to me also was that I have a son who, on Saturday, rode his first race on the track, and scored second place in the last race—Henderson Handicap. Through your broadcast I was able to listen to my son's whole performance, from the commencement of the race to the last, when his horse, "Nucleus," scored a second place."—Extract from a letter.

A receiver using 3-volt valves should always be equipped with a high resistance voltmeter which is in circuit at all times so as to show the voltage at which the valves are operating. The valve should never be driven above 3.2 volts when the "D" battery is connected. If the set does not then give proper volume, either it or the valves are defective.

ESPERANTO

In continuance of our course of lessons in the international language, Lesson XIV is now presented to readers. The instructor invites inquiries regarding Esperanto, and students should not hesitate to avail themselves of the invitation. Accompanied by a stamped addressed envelope, communications should be forwarded to "The Esperanto Instructor," N.Z. Broadcasting Co., Wellington, or care of this journal. Students and others desirous of obtaining an Esperanto text-book can procure a reliable and complete edition from the instructor for 1s. 6d. post free.

It will no doubt be a matter of interest for students to learn that the famous Dutch station, PCJJ, is broadcasting in Esperanto. This is certainly a step in the right direction towards solving the greatest problem connected with international broadcasting—that of language.

LESSON XIV.

(To be broadcast from 2YA on November 3, from 7.20 to 7.54 p.m.)
Sinjorinoj kaj Sinjoroj, Bonan Vesperon!

CORRELATIVE WORDS. — These words, 45 in number, are usually published in tabular form, but owing to limited space this is not possible. Students may, however, tabulate the words by (a) writing the first nine words (described as "endings") vertically with the meanings under each; and (b) by writing to the right of these the words shown as "beginnings."

Endings: -A (adjectival): relating to quality or kind; -AL (adverbial): motive or reason; -AM (adverbial): time; -E (adverbial): place; -EL (adverbial): manner; -ES (pronominal): possession; -O (substantival or pronominal): a thing; -OM (adverbial): quantity; and -U (pronominal): persons or things specified.

Beginnings: I (indefinite): conveys the idea of "some" or "any"; T (demonstrative); that (thing); C (distributive or collective): every, each; K (interrogative, relative): which, what; NEN (negative): no, none (not with "U" added for euphony).

Formation of Correlatives: A series (quality, kind of): ia, some (any) kind of; cia, every kind of; kia, what kind of, what a . . . ! nenia, no kind of; tia, such a . . . that kind of.

AL series (motive, reason for): ial, for some (any) reason; cial, for every reason; kial, for what reason, why; nenial, for no reason; tial, for that reason, therefore, so.

AM series (time): iam, at some (any) time, ever; ciam, at every time, always; kiam, at what time, when; neniam, at no time, never; tiam, at that time, then.

E series (place): ie, in some (any) place, somewhere; cie, in every place, everywhere; kie, in what place, where; nenie, in no place, nowhere; tie, in that place, there.

EL series (manner): let, in some (any) manner, somehow; c'iel, in every manner; kiel, in what manner, how, as; neniel, in no manner, anyhow; tiel, in that manner, thus, so, as.

ES series (possession): ies, somebody's, anybody's; c'ies, everyone's, each one's; kies, which one's, whose; nenies, nobody's, no one's; ties, that one's.

O series (thing, not specified): io, something, anything; c'io, everything, all; kio, what thing, what; nenio, nothing; tio, that thing, that.

OM series (quantity): iom, some quantity, somewhat; c'iom, every quantity, the whole, all; kiom, how much, how many; neniom, no quantity, none; tiam, that quantity, so (as) much, so (as) many.

U series (persons or specified things): iu, someone, anyone; c'iu, everyone, each one, each; kiu, which one, who; neniu, no one, nobody; tiu, that one (person or thing).

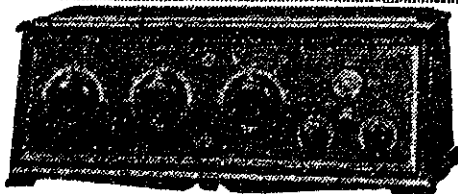
Words commencing with T may be changed from "that" to "this" by prefixing or adding the word "c'io, that thing; tio c'io, or c'tio, this thing. Words ending in a vowel may take the accusative ending (mi havas nenion), and those ending in A or U may take the plural; tiuj, those. The nine words commencing with K may be followed by AJN (English "ever"), as Kial ajn, why ever; kiam ajn, when ever.

Bonan nokton al c'iu!

In conducting its world-wide broadcasting experiments, PCJJ, at Eindhoven, uses many languages, and listeners have been surprised at the facility with which announcers change from one language to another. English, French, and German are used with equal fluency to the native Dutch and Flemish.

The Wellington Esperanto Club has received word that Professor P. A. Schendler, official representative of the Esperanto movement in Eindhoven, will now broadcast in the international language.

Preliminary announcements concerning these transmissions will be made from the station, and New Zealand listeners are asked to forward any helpful information to Mr. Bertram Potts, secretary of the Wellington Esperanto Club, Oddfellows' Building, 19 Tory Street, Wellington.



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When your Crystal Set ceases to satisfy you, and you wish to "reach out," instal a "POLAR TWIN." With this little 2-valve set you can tune in on 2FC, 2BL (Sydney), 3LO (Melbourne), or 4QG (Brisbane). Economical to run.

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Mainly about Construction

BY "MEGOHM"

A FULL-WAVE B BATTERY ELIMINATOR FOR HOME CONSTRUCTION

A CONSTANT AND PLENTIFUL SUPPLY OF HIGH TENSION AT LOW RUNNING COST

(Third Instalment.)

This is the third instalment of the B eliminator construction article. At the commencement it was stated that the eliminator would run a five or six-valve set, but this statement was too conservative, for it will run an eight-valve super-het., and probably a ten-valve set, as the double-wave gives a good supply of current. In case of running a large set it might be necessary to add an extra 2mfds condenser each side of the choke. It is always good to have plenty of reserve of smoothing power, then all chance of hum is cut out. The condenser holder was originally designed to hold seven fixed condensers of 2mfds. each, and it will work well with these on a four or five-valve set, but the extra condenser was added between the transformer L.T. centre tap and H.T. negative lead in order to ensure an overplus of smoothing capacity. That this capacity is provided is shown by the fact that the set will continue working for a second or so after the 230-volt switch is cut off.

The cost of parts and materials required will total £7 odd, according to how the parts are purchased. This cost is not great for a double-wave eliminator, as nearly twice the price is asked for the factory-made article.

The valves used are two single Clear-ton rectrons, costing 12s. 6d. each, and with the two working together on

THE SMOOTHING CONDENSERS.

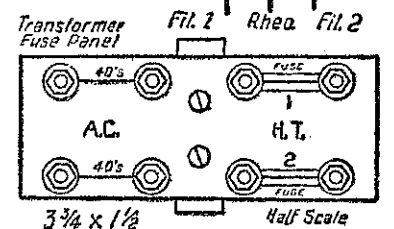
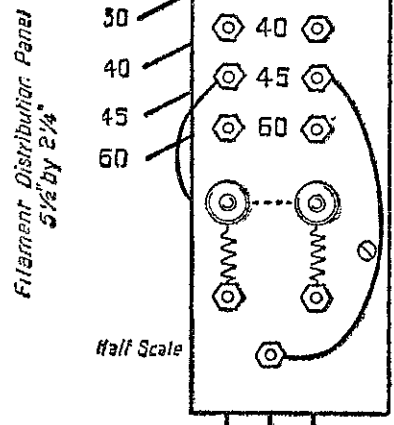
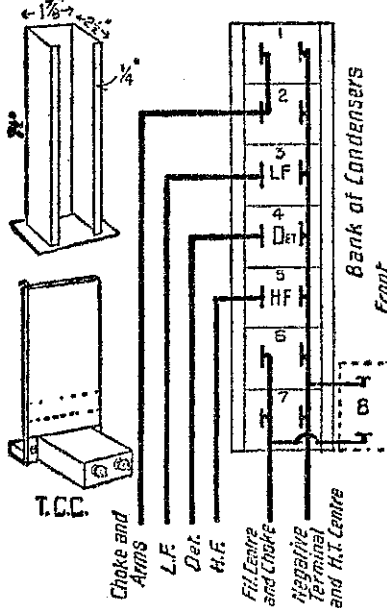
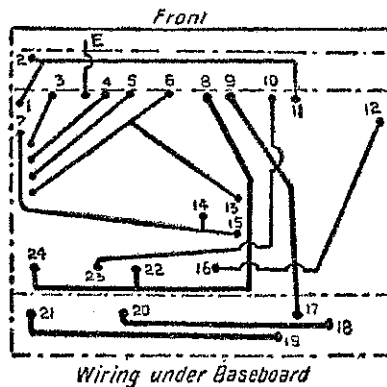
The seven fixed condensers of 2 mfds. capacity each are held in an upright receptacle made of tin, as shown, the outside finished with black cycle enamel, as used for the outside case. It is as well to include the extra condenser and place it at the outside of the case, where it will be held by the connecting wires. Of course, the 4 and 6 mfds. may each be bought in one unit of that value if preferred. Connections of the condensers are shown in the diagram. One side of every condenser is connected to the high tension negative, and other sides as shown.

The holder shown above is to take the Dubilier make of condenser, but if the T.C.C. type is to be used, a different method of holding will be necessary. A strip of thin board 7in. long by 2 1/2in. wide can be fastened in an upright position and the T.C.C. condensers can then be screwed to it, one above the other. These condensers are exactly the same thickness as the Dubilier, so they will occupy the same space as regards height.

Connections to the bank of condensers are clearly shown in the diagram. The one marked "Choke and arms" goes to one end of the main choke, and also to the arms of resistances, all three of which are connected together.

THE FILAMENT PANEL.

The small panel to which the filament taps of the transformer are attached is shown. The taps run



straight from the end of the transformer to the respective bolts in the panel. To make connection easier, it is as well to solder a connecting tag to each tap, and through the hole in this the panel bolt will pass. Near the centre of this panel there are two terminals, below which are two bolts. These are provided so that a short piece of resistance wire may be included in each filament circuit to suit the current as exactly as possible to each valve so that the one rheostat will give an equal control of each valve. The two terminals are connected together behind the panel, and the 18's wire is continued round to the front, where it is attached to the left-hand bolt giving the required voltage. The corresponding bolt on the right-hand is connected by a piece of 18's to the single bolt at bottom of panel, and from the back of this a wire runs to the rheostat. The two bolts to which the lower ends of the resistance wires are attached are connected to a fila-

THE 112-VOLT B ACCUMULATOR

ALTERNATIVE TIPS FROM A CONSTRUCTOR

The following letter was addressed to "Megohm" by a Wanganui constructor, who appears to have tackled the B accumulator with a determination to make a thoroughly lasting and serviceable battery. The letter speaks for itself, and as it contains an alternative method of construction, it is printed in full. Letters such as this and others that have been received from constructors are appreciated, as they show that the page is appreciated and helpful. The letter reads as follows:—

You have expressed a wish in the "Record" to hear the results obtained by your readers in carrying out the ideas and suggestions which you publish, so I am writing to let you know that the B battery which I have constructed more than fulfils the claims which you made in your descriptive article. In the first place I wish to thank you for your previous reply to my queries re the battery. I made a few variations, which were as follow:

(1) Instead of making a grid work of battens to support the tubes I bored the necessary number of holes in a piece of three-ply which just fits inside the case; to steady the bottom of the tubes I burnt seats with a red hot piece of iron, one inch diameter, and rounded, to correspond with the shape of the end of a test-tube. This makes a neat job, and a good deal less trouble than the battens. I have made the case, etc., suitable for 140 volts, but so far as my set only requires 90 volts I have made the battery up to 98 volts. The punching of the plates was a tedious job, but was facilitated somewhat by a punch which made five holes at a time; 60 holes were made in each positive and negative plate, holes varying from 1-16in. to 1/4in. in diameter.

(2) Instead of using wires for connecting up each 14v. section of the battery I burned on lead bridges.

(3) I inserted 1 1/2in. wide strips of celluloid between each 14-volt section; then made a sort of inner lid of celluloid which sits right down on these strips. Where necessary I burned on lead strips to stand vertically and cut the lid to allow about 1/4 inch to come through. I don't think I will bother about the front panel and plugs, the inner celluloid gives a fair amount of protection to the battery, and the usual spring clip can tap the battery at 24, 26, 28, 30, 42, 52, 56, 70, 84, 90, and 98 volts.

(4) To grease the top of the tubes and the lead connection I melted motor gear grease in a tobacco tin and then dipped the ends of the tubes etc., to a depth of 1/2in.

(5) Peroxide of lead was not available, so ordinary red lead was used for the positive plates and litharge for the negatives. This pasting was tedious, but seems well worth while.

For mixing I used a strength recommended by you, 1170 sp. gr.

For charging I used an A and B charger, and gave a continuous charge of about 100 milliamps for about 70 hours, by which time the positives had assumed the characteristic deep chocolate colour, the specific gravity had risen to 1.230, the tubes were gassing freely, and the voltage was right up. On connecting up to my set I was pleased to find that it worked with a trick and a zip which had been absent for some time owing to the gradual decline of my dry batteries, which were down to about 67 volts. Since using the new battery I have pulled in sev-

eral stations, including 2UE and KPON, which I had not had previously. I gave the battery about 15 hours' use on the set, and then put it on charge again, as I thought it better not to try and get too much out of it for a start. It apparently still had plenty of kick at the end of the first 15 hours' use, voltage right up, and positive plates still deep chocolate, but for a while I intend to use it and charge it on the principle of a little in and a little out.

The battery has cost: Test tubes, 18s. 1d.; lead, 13s. 9d.; litharge and red lead, 1s. 6d.; sulphuric acid, 2s.; brass screws, 6d.; three-ply, 1s., a total of £1 16s. 10d.

The case was made from benzine-box wood, which was dressed, stained and polished. These materials, as well as solder and grease, I had, so the trifling these were worth would still keep the total cost of the battery under £2. It, of course, remains to be seen whether the paste will hold inside the folded plates, but with a low charging rate and not over-discharging I do not anticipate much trouble, and I must say that at present I feel very pleased with the result.—Yours in Radio, "Positive"

(Provided that the plates have been closed at the bottom as directed, and not too great a charging rate is adopted, no trouble is to be anticipated.—"Megohm.")

SEEKING PURE REPRODUCTION

A FEW NOTES ON THE LOUD-SPEAKER

In selecting a loudspeaker of either type, there is no method equal to that of hearing several demonstrated at the dealer's, and taking home the two you fancy best to try on your own set under actual conditions under which the speaker is to be used. There are a number of makes of good cone speakers, but for a set giving liberal volume, a speaker that will carry plenty of volume, without overloading, is essential, and in such a case a small speaker will do scant justice to your set. Very often the set gets the blame for trouble that is solely due to the loudspeaker.

AN INTERESTING EXPERIMENT.

Readers having a horn speaker already on hand can try an interesting experiment if they care to go to a little trouble. From thin cardboard, stiff brown paper, or the large manila sheets used to make office folders, an experimental horn can be made, the thin end just a fit for the aperture when the ordinary horn is removed, and the wide end eighteen inches in diameter, the total length of the horn being four feet six inches. The speaker unit can be placed on the floor with the horn standing upright and pinned to the wall. The use of this should prove to be a pleasant surprise, as the lower or bass frequencies will be heard as they never were before from the same unit. The only thing that could prevent these low notes from being heard would be faulty audio transformers, incapable of reproducing and passing on such frequencies. A convenient and quick method of securing the lower half of the horn when rolled up is to wind round twine in a spiral direction, securing it as soon as possible with glue. The top portion is easily secured by paper fasteners passed through at suitable points. The sheets of paper must first be glued together on the flat, to form a large triangle of suitable dimensions, the wide part sixty-four inches across.

This experiment shows that length is the essential to good reproduction from a horn speaker, and the increased length also gives extra volume. As most horn speakers have not more than a two-foot horn at the most, and many are much shorter than that, it is a wonder that they are as good as they are, but careful design is made to compensate to some extent for the lack of length.

CONE SPEAKERS.

Cone speakers are improving rapidly, great attention being centred upon the driving mechanism, in the direction of securing volume approximating that from a horn type under the same conditions. Many cone speakers are efficient on low notes, but discriminate badly against high tones. For the lower

frequencies, at any rate, they are mostly less directional than the horn-type, and for ordinary rooms and moderate volume a cone is excellent. It is quite likely that before very long a cone type will be produced that will actually respond to as low as 50 cycles, and equally to all intermediate audio frequencies up to 7000. Such a speaker would cover the whole range of musical sounds.

There are in use in America at the present time orthophonic horns 40 feet in length, yet mathematically designed, with a correctness that allows equal response to the lowest bass notes and also to the high C of the soprano.

Experimental cones up to ten feet in diameter have been built in a factory laboratory, and though only driven by an ordinary small unit, the voices of singers are reproduced with great faithfulness, and most wonderful musical reproductions.

When rewinding old transformers for choke-coupling for the loudspeaker, if it is possible, the laminated core should be reassembled so that all the joints come together at the one place, and in the space where the two outside lots meet, a square of thick paper should be inserted, the whole pushed together tight, and clamps screwed on. This gives a core with gaps, which is the correct thing for a low-frequency choke.

ANSWERS TO CORRESPONDENTS

From Matakoha a Browning-Drake constructor sends the following letter:—"I wish to thank you for your kind reply to my inquiry. I have the set going, and am getting power and to spare on all the New Zealand three main stations, but have not yet tried it out on any of the lesser stations. I am very pleased with the clear way you have of explaining things, and although very much a beginner have managed to build quite an efficient set. There is no sign of Farmer's or 2BI when I am listening to Wellington or Auckland, or vice versa."—Pleased to hear of your success—you will soon be raking-in the "lesser ones."

An interesting letter and photograph from a lighthouse-keeper will be dealt with next week.

"Rongotai" (Wellington) asks if there is any method of charging a B accumulator with an ordinary A accumulator charger. Such a method was fully described in Nos. 11 and 12 of the "Record." The only proviso is that the B battery must be divided into sections each of several volts below the voltage given by the charger. This system works best with a charger giving a voltage between 16 to 24 volts.

Converting Set to Browning-Drake.

"Inquirer" (Otago) wishes to know if he can convert a Roberts reflex three-valve set into a four-valve Browning-Drake as described in recent issues. Certainly this could be done, especially as panel and baseboard are the correct size. Follow the published instructions, using any existing gear that you can. The .0005 variable condensers will necessitate fewer turns on the secondary coil. If your aerial and R.F. transformer coils are both space-wound, use them as they are. Pickler of 20 turns will be right, but connections may have to be reversed. Connections to variable condensers, etc., should be made as in article, otherwise you will be troubled with hand-capacity. Probably your Kellor 44 to 1 audio transformer will do well for first stage and the Ferranti A73 for second stage, as you suggest, will give excellent results.

Fixed condensers across primary first audio transformer, and a small valve across plate and grid terminals of same, but not across secondary. Another of good capacity across speaker and phone output, although this is not shown in diagram.

Considerable interest is being taken in the article recently published on the oscillating crystal, and readers are inquiring as to where a suitable crystal can be obtained. If any dealer has good specimens of zincite in stock, "Megohm" would be glad to be advised accordingly, so that inquirers can be put in touch.

UPKEEP EXPENSE

Every Radio owner wants to cut it to the bone. That is why you should insist upon having the opportunity to exercise your own preference by choosing Vesta Batteries.

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Vesta "A" and "B" Batteries are selected to replace original equipment in very much the same way a "Cord" tyre is bought to replace a "fabric." The Vesta "Costs less per month of service."

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IGRANIC COMPONENTS
RADION PANNELLING

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ment terminal of each valve respectively.

The panel is drilled for two screws at the right-hand side, and is screwed to a narrow strip of wood, which is first screwed to the partition.

This eliminator was designed by "Megohm" for experimental work, and for that purpose this panel was included, as voltage can be obtained for any filament likely to be used. The eliminator will work just as well without the panel, but there is some satisfaction in turning out a well-finished piece of apparatus that is convenient to use.

A half-scale drawing of the transformer fuse panel is also shown.

The wiring under the baseboard is given, but will be described later. When taking this wiring from the eliminator it was necessary to refer to the published circuit diagram, and it was found not to agree with the actual article. The discovery was then made that the original diagram made twelve months ago before the construction of the eliminator had been used from which to make the drawing. The actual circuit was taken from a well-known English radio paper, and before commencing the construction it was found that there was an error in the English diagram, and this was altered on another working drawing that had been prepared. The incorrect diagram appeared superficially to be correct and was used, and in the hurry for publication got by unnoticed. Next week we shall publish the corrected circuit, and meanwhile ask readers to take no notice of the one already published.

THE LOOP AERIAL

THEORY OF OPERATION

CORRECT DESIGNING.

The loop aerial is a very interesting device. It is quite different in its method of operation from the outdoor aerial. The outdoor aerial is in effect nothing more nor less than a condenser. It is a very large condenser, to be sure, so far as its physical dimensions are concerned, but electrically it is a relatively small condenser. The loop, on the other hand, is an inductance. This fundamental difference between the two is the reason why it is necessary to use different methods of tuning in the two cases.

There is a very close parallel between the ordinary direct current generator or dynamo and the loop aerial exposed to passing radio waves. In the dynamo a number of coils corresponding to the loop aerial are rotated in a powerful magnetic field. The purpose of rotating them is in order that they may move with respect to the field and thus have a voltage generated in them.

LOOP ACTS AS COIL.

In the radio case the loop, acting as a coil, stands still, but the field moves swiftly past the coil, thus accomplishing the same result. The speed at which the field moves cannot, of course, be varied and is always the speed of light; that is, 186,000 miles per second.

Let us see now what form of loop would have the greatest voltage generated in it by a passing radio wave. Let us think of this radio wave as very much like great smooth waves on the ocean, which move forward with a very definite velocity. The turns of wire on our loop aerial are necessarily in series with each other; that is to say, they form a continuous winding. If the maximum voltage is to be generated in any one turn of the loop then the voltage generated in the two sides of this turn should be in opposite directions, so that they may add and not oppose each other.

If the voltage generated in both sides of the loop were in the upward direction in any one instance then these two voltages would cancel each other, but if the voltage on one side of the turn was up and on the other side of turn it was down then they would add, and if the loop were connected to a receiver a current would flow around the turns of the loop.

A QUESTION OF SIZE.

Now, in order to have the voltage generated on one side of the loop in the opposite direction to that generated on the other side of the loop the loop would have to be one-half a wave length long; that is to say, it would have to be long enough in the horizontal direction so that one side was in the crest of the wave when the other side was in the trough of the wave. Since the distance between the crest of the wave is the wave length itself, then the distances from the crest to the trough is one-half the wave length.

The higher the sides of the loop are, that is, the longer the vertical wires are, the greater will be the voltage generated, and of course the voltage generated in each turn is added to the voltage generated in all the other turns.

HOW LOOP FUNCTIONS.

But a loop one-half a wave length long is quite out of the question. It would be as long as a steamship and almost as difficult to handle. The loops which we are using every day are of quite reasonable dimensions. They are only a few thousandths of a wave length long. How do they function? In order to answer this question let us ask ourselves how we would build a coil of wire in order that absolutely no voltage should be generated in it by the passing wave.

The only way in which this could be accomplished would be to so build the coil that the same voltage would be generated in both sides of it and that the voltage generated in the two sides would be opposed to each other. This would give a complete cancellation and no voltage at all at the terminals of the loop or coil.

It is obvious that the only way in which this could be done would be by so arranging the loop that it had no length at all. That is to say, arranging it so that the two sides were exactly in the same position in space. This would mean that the horizontal wires across the top and bottom of the loop would cease to exist and the loop would become nothing but a wire laced up and down between pegs on the plain surface of a board.

TO OBTAIN VOLTAGE.

If there is any distance at all between the two sides of the loop then there will be some difference, not in the amount of voltage generated in the two sides, but in the time at which this voltage is generated, and there will consequently be some voltage at the terminals of the loop, since complete cancellation of voltages cannot occur.

If the loop is rotated so that its horizontal wires are at right angles to the direction in which the signal is coming then the loop has no length so far as these signals are concerned. The passing wave strikes both sides of each turn in the loop at exactly the same instant and the voltages generated are therefore equal and opposed, and there is no terminal voltage. This is of course the fact which gives the loop antenna its very useful directional property.

In applying the loop aerial to an actual radio receiver it is necessary that provision be made to tune it to resonance with the desired signal. This is accomplished by means of a variable air condenser, and since this condenser has a very definite maximum capacity the amount of inductance which the loop can have is also limited.

BEST TYPE OF LOOP.

The specification for the best loop aerial, therefore, is that it shall have just as many turns as possible, each

LISTENING-IN ON TRAINS

CANADA'S RADIO ENTERPRISE

ENTERTAINMENT FOR PASSENGERS.

Despite the fact that the train was speeding along at more than forty miles an hour on its way from Boston to Montreal, regardless of daylight and the hilly country through which the road lay, passengers in the parlour car were being entertained in a most novel fashion. From the loud-speaker at the end of the car issued forth music from New York and Schenectady with a volume which was easily heard by the passengers in the rear-most seat. And if at any time any passenger wished to listen more closely to the concert, he had but to put on the earphones which hung beside his seat.

As nightfall gathered and the music became even louder, reception improving with a resultant greater choice of stations, a feeling of admiration and awe pervaded the train. To pick up entertainment such as this, with as good a quality of tone and as small an amount of interference as one has in one's parlour at home, seemed incredible. The most sceptical on the subject of radio on moving trains would have been entirely convinced.

The Government-owned railway of Canada operates on its runs from coast to coast 76 trains equipped with receiving apparatus. Practically any of the longer trips in Canada may now be made more pleasant with the entertainment afforded by the radio.

BOX AERIAL USED.

A box aerial extending the length of the car and about seven inches above the metal roof, is used. The aerial is supported on glass insulators above the roof of the car, which is used as the earth for the receiver, thus allowing but a very short distance between aerial and earth. At the place nearest the position of the radio receiver the aerial is tapped and a lead-in brought to the set.

The receiver is housed in an upright cabinet, being a separate unit loosely placed in the container. Above and below the place for the receiver there is room for batteries and accessory apparatus, while on top of the cabinet is the cone loudspeaker.

As mentioned before, there is a pair of earphones plugged in at each seat, the fittings for these plugs being specially built into the car, and the wiring to the receiver is behind the panels. The number of phones used varies as to the number of seats, from 38 to 40 being used. These are connected to the receiver in sets of five, each five phones being hooked up in series, and each set in parallel. A special transformer on the output terminals of the set leads to these phones.

In most of the cars the receiver used is a four-valve reflex, doing the duty of a six-valve set, and fitted with a three-stage power amplifier for use with the loudspeaker. This receiver is specially made for the railway company, and is not found on the market, although at one time it was among the sets on sale to the public. The choice of this set and the five-valve neutrodyne of the same make on the newer cars, such as the Boston-Montreal, was only made after exhaustive tests had been conducted with a great variety of receivers.

SUPER-HETS. USELESS.

Loop aerials and super-heterodynes were found to be useless on moving trains, especially on the steel cars which make up the majority of those on the Canadian lines. There are still sets being tried out for new cars, and all the cars being built as parlour cars are now wired for radio while under construction.

To ensure the passengers' good reception, a radio operator is carried on each radio-equipped car. These operators are, in the main, young men, specially trained to use the radio receivers on the trains, and know to a nicety what to expect on a run, and where to find stations quickly without picking up too much interference from telegraph and power lines.

TUNNELS CAUSE FADING.

It is interesting to listen critically to the concerts when going through cuttings, tunnels, and over steel bridges. Each of these structures has a tendency to blot the music out, sometimes noticeably, and at other times barely perceptible. Power lines also cause some trouble, and at some stations it is necessary to turn the set off on account of interference caused by the telegraph instruments.

Although a few railroads in the United States also carry radio-equipped cars, none of the companies have gone into the system, in the same manner as the Canadian National Railways. Trains operating into the United States from Canada are now being equipped.

turn being just as long as possible and just as high as possible and still have no more than the required maximum inductance. The higher the loop is the greater will be the voltage generated in each side of each turn, and the longer it is the greater will be the difference in time at which these voltages are generated in the two sides of the loop, and consequently the greater will be the voltage at the terminals, but it must not have an inductance value greater than that required for tuning.

In order to get the maximum number of turns for a given inductance which is what our loop requires, the turns should be wound just as far apart as possible. It is found that this spacing is best accomplished by winding the loop on a frame which has the form of a vertical cylinder.

The Children's Corner

By "ARIEL"

Dear Radio Children.—I am keeping Our Zoo open for another week to allow belated "Surprises" to come straggling in! So many animals arrive just as the door is shut. The "Squealer" we have in our Corner this week, drawn by Ronald Sutton, was a "late bird," but I thought you would all like to see him. He is really perched on the top of a very, very, long aerial pole, but we had to cut a lot of it off to get him in! I think he is rather a dear little chap in spite of the horrible din he is capable of producing? Have you all been having a shot at Big Brother Bill's Limerick Competition? It is great fun to hear them over the air, isn't it?

Our Poem Prize has been won by Eileen Hurrell of 134, Fisher Street, Beckenham, who has written about her little dog "Spot."

I have been so interested in the snaps some of my Radio Children have sent me. One day I must make a picture gallery of them for Our Corner.—Love to everyone,

ARIEL.

A Radio Ryme

HUSHEEN.

*Oh! who is this that softly lies
At my heart's door with drowsy eyes,
While shadows o'er the sunset skies
Steal silently and soon, O!*

*"Husheen, Husheo,
Hush and lullalo,
Husheen, Husheo,
Hush go ciuin go lo!"*

*It is my treasure noon and night,
It is my heart's love at first sight;
Oh, joy! to press that cheek so light,
And to my wee one croon, O!*

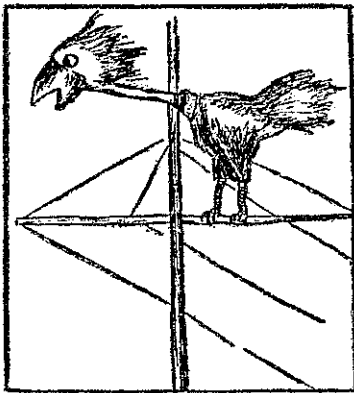
*Husheen, Husheo,
Hush and lullalo,
Husheen, Husheo,
Hush go ciuin go lo!"*

*Now the dusky night creeps down
O'er sleepy stream and heather brown,
High above the dreamy town
There floats the silver moon, O!*

*Husheen, Husheo,
Hush and lullalo,
Husheen, Husheo,
Hush go ciuin go lo!"*

—Francis A. Fahy.

"Hush softly till dawn," pronounced "Hush guc kyune gul lo."
Pronounced "Hush-eeen."



THE SQUEALER

The "Squealer" sits on the aerial tops,
Squealing until he nearly drops,
When someone tunes his set in wrong,
Old "Squealer" is sure to come trotting along.

—Ronald Sutton, Invercargill.

THE PRIZE POEM

"SPOT."

*He was just a little doggy, with a
wriggling, stumpy tail,
But if you were to call him, to come,
he wouldn't fail;
I loved this little doggy, stumpy tail or
not,
And half of my affections were given
to our Spot.
He never could agree with our fluffy
Persian cat,
But, as he was a dog, it can't be won-
dered at!
He would chase her down the garden
and then she'd climb a tree,
Looking very disgusted he would then
return to me.
I'd take him to the river and let him
have a swim,
I remember well how eagerly he'd take
a big dive in;
Then I would take him in a punt for
a jolly river ride,
For he always was so happy when
nestling by my side.
His dear big doggy eyes would look so
tenderly at mine,
And from their great brown depths pure
faithfulness would shine,
Sometimes he'd catch a rabbit, and,
looking up at me,
The expression on his face would say,
"Here! Take this for your tea."
He lived to quite a ripe old age, and
when he died at last
I thought my heart was breaking, my
tears fell thick and fast;
And now out in the garden is a little
flower-grown plot,
With a stone on which is written, "Here
lies our doggy—Spot."
—Eileen Hurrell (aged 14 years).*

THE DISHONEST DAIRYMAN

Can you make sense of the following
by inserting the letter "I", repeated
as often as you like:—
F T H N M L K B R N G S L L C
T T N, T H N K L L S K M T,
M X T, T L L T S T H N.
This is not nearly so hard as it
looks. Start off with an "I" before
the first "F," and make the word
"H." Then just put in "I's" where
you find they will make words.

A BEDTIME STORY

Elizabeth was a most industrious girl. She could sew frills on her aprons, plait her own hair neatly over her ears, and she always dressed her children beautifully and made all their clothes herself.

There were four of them: Golliwog, Peg, Meg, and the Midget. Golliwog always wore a tidy red coat and blue trousers; Peg had a beautiful tartan silk dress; Meg wore white, because Elizabeth thought it suited her round rosy face; and the Midget wore nothing at all because he was Elizabeth's new baby, and she had no time to make him any clothes till she had finished the scarf that she was knitting for her Grandpapa.

"Two plain, one purrl. I really must get it done."

The garden looked very, very tempting through the open window, but Elizabeth kept on patiently knitting. The children were sitting at her feet as good as gold, and Elizabeth was amazed to see Golliwog suddenly get up, pull at her skirt, and say: "Elizabeth, that's such a dull song you're singing—Two plain, one purrl! Let's go into the garden and dance."

And then Peg rose up and said: "No, let's skip," and she tried to snatch Elizabeth's wool for a skipping-ropes; and Meg, smiling sweetly, began to make a cat's cradle with the wool on the floor; and the Midget got up and played football with the ball. And the odd part of it was that Elizabeth couldn't answer, because her head felt top-heavy, and then began to nod in the silliest way, and she felt quite sure somebody was sitting on her eyes.

She knew nothing else until a fly tickled her nose and she saw the room again.

The children were all sitting at her feet as good as gold. Golliwog looked solemn, Peg prim, Meg amiable, and the Midget so small that it seemed impossible to believe he had ever shot a football into goal.

But something so annoying had happened that Elizabeth clasped her hands in dismay, and cried:

"Oh dear! I shall have to do it all over again!"

The knitting needles still lay in her lap, but every stitch of knitting had been undone as well as the ball of wool, and it was all twisted round the legs of the chairs and tables.

Then Janet came in with tea, and cried: "Well, I never! What a mess! Who did that, I'd like to know?"

"The dolls," declared Elizabeth. Janet said Elizabeth was talking nonsense. The dolls said nothing at all, and the people next door said: "Oh, Micky, where have you been?" when their black kitten came home to tea, very tired.

BRUIN GOES SHOPPING.

A bear got loose from the Zoo, and, strolling along a street in the town, he wandered into a draper's shop, to the great alarm of the assistants, who were too frightened to guess what he'd come for. What Bruin really wanted was muslin (muzzling)!

THE LARK AND THE CAT.

"When is a lark like a cat?"
"When it purrs, of course."
"Does it ever purr?"
"Surely you have heard of the lark-spur!"

HARRY'S RESCUE

This is a little story written by Peggy Farquhar, Mt. Hutt, about the little Fijian boy seen in the advertisement for Ryland's Wire.

Once upon a time, in Fiji, there lived a poor native boy called Harry. His clothes were in rags and his feet were bare. He did not mind this, because it was so hot there.

He was an orphan, and he thought nobody cared for him.

One day, while he was walking along a street in one of the popular towns of Fiji, he saw a little girl rush out into the street. In a flash he was after her and just had enough time to carry her safely to the pavement at the other side of the street before a speeding motor passed by. Thus this ignorant little child would have been run over had not this clever native boy saved her.

Soon, beside him stood the thankful mother. She asked him where he lived. His reply was: "I have no 'ome, no money, and I am only a miserable little orphan." Harry soon found himself being taken home with the child and her mother.

They arrived at the house, and the father, hearing of the rescue, offered Harry the job of helping him to sell wire.

If he did this, the father said, he would give him food, clothing, and a good and comfortable home.

Harry, thankful of food, without clothing and a good home, thanked the kind father so much that tears came into his eyes, and he now began to feel the loss of his own dear father and mother.

"THE CONVERT"

A story written by Bruce Jones, Musselburgh, Dunedin, about one of the series of advertisements of "Three Castles Cigarettes."

There was once a lady who wore an old fashioned dress—a crinoline. She was shocked and very indignant about the present habits and fashions, especially the short dresses and cigarette smoking by the young ladies of the present day. There was a vast difference between the crinoline and the present day dress, as anyone will see if they study the old photographs. This old lady, who, by the way, was called Panny, was offered a cigarette by one of the young ladies. She felt so hurt by this insult that she cracked her on the head with her parasol. The cigarette was knocked out of the young girl's mouth, then she ran away. The old lady picked up the cigarette, and for curiosity, had a puff. She found the smoke very nice, and continued to smoke the cigarette. She was so pleased with it, that she noted the name—"Three Castles Yellow." It is safe to say that this lady was a convert to cigarette smoking.

LETTERS

Dear Ariel,—It is a wet day and I did not know what to do with myself, so I decided to write to you for the third time. We have been having summer weather here; is it fine in Wellington? On Thursday night we had a friend who wanted to hear a lecture from 2YA, but, sad to say, there was static. Later, we turned on Auckland, but there was still static. I then went to the door and saw not a star in the sky. Our friend was disappointed, and so were we. Have you ever spoken on wireless yet? I am looking forward to the results of the story competition, and also to see the squealer. I am very sorry that cricket has come in, as I prefer football to any other game, but when the summer comes I shall go to camp with the Boy Scouts, as I left the Cubs and was promoted yesterday week. One of the Scouts told me we are going to the White Cliffs, a distance of 18 miles. We are holding an entertainment on Thursday night, about which I shall tell you in my next letter.—GEORGE BEST.

Dear Ariel,—I suppose the "wireless zoo" is getting nearly finished by now. I like all the animals, which have been drawn for our corner. I am sending you my painting and some Limericks. I do wish we could have a cross-word puzzle. I am sure everybody likes them. Love to "Our Corner" and best of wishes.—A loving reader.—NANCY MCNIE.

P.S.—Many thanks for publishing my Limericks in the "Radio."

Dear Ariel,—I was so pleased to know I won the painting prize, and I hope that some of the others will have a chance of winning a prize another time. This is the first time I have won a prize, and I just love painting. I am sending you a picture of myself, and if you like you may put this picture in the Children's Corner of the "Record." I have a cat called Tinker, and she is a dear. Thank you so much for the book.—HAZEL HOWARD.

Dear Ariel,—Thank you very much for the prize awarded me for the "Fadout." I regret that I have been so long in acknowledging it. I am going to learn boxing for a quarter. I think it is grand exercise. I am in standard VI, and I go to the North Invercargill School. My teacher, whose name is Mr. Charles Blake, used to live in Wellington. His chief hobby is painting.—RONALD SUTTON.

LIMERICKS

There was once a young man out at Kew,
Whose aerial got somehow askew,
He climbed up the mast,
To make the end fast,
And that is the last that he knew!

There was once a young man at Broad Bay,
Who "listened in" day after day;
When he heard Brother Bill,
He took suddenly ill,
Since then he has shunned 4YA.

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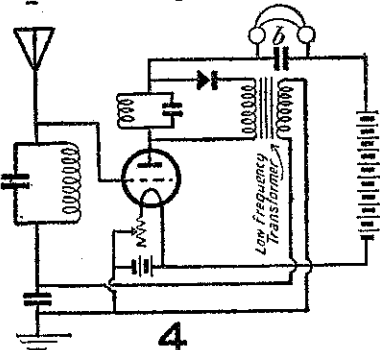
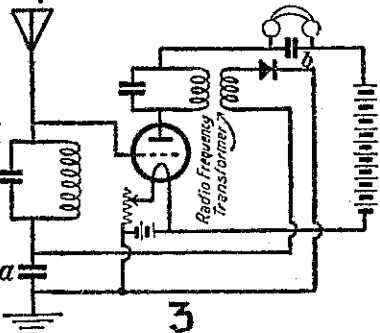
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DUAL AMPLIFICATION. PART VIII.

In last week's notes reference was made to a reflex set capable of producing great amplification for a single valve. The method of achieving the results indicated is shown in the following diagrams which were omitted from last week's article which should be read in conjunction with these illustrations.



DOUBLE GRID VALVES.

Now that receiving sets have been raised to such a degree of perfection and "foolproofness" the trend of progress has been to make the set independent of too many batteries. As has been stated the "A" battery can be kept in a state of independence from dealers by means of the battery charger. The "B" battery can be eliminated entirely by another form of Fleming valve designed to give a higher voltage and smaller current, but the expense of this has led to the development of special valves in which the B battery only requires to have a pressure of from 2 to 25 volts, the last being suitable for last stage amplification, that is, what an ordinary power valve would require 90 to 100 volts to do.

The main characteristic of these valves is that they have two grids, the new one being placed between the first and the filament. The reason for this is that the electrons are very dense round the filament, and much less dense as they travel towards the plate. The large pressure of the normal valve's plate is necessary to attract the electrons towards it, but the electrons in the neighbourhood of the filament only get a small proportion of this force. It is something similar to a crowd of people leaving a theatre. The desire to get out and on a tram is great with everyone, but the people in the vestibule cannot get out because of the people loitering about the entrance. If now some means were available to

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(By "Electron.")

force these people away from the entrance as soon as they got to it there would be a much easier and quicker flow from the hall. Similarly with the valve. If we place a small positive pressure close to the filament this will be used up in speeding the electrons through the space and the second grid will behave as before. Figure 1 shows a double grid valve or tetrode as it is called, connected for use as a detector with reaction. A strange thing about these tetrodes is that the first grid and the plate may be at the same voltage, the first grid apparently giving the electron such a speed that they can get to the plate without any further incentive. These valves are becoming very popular in Europe, and should before long displace the triode. The external appearance of these valves is exactly the same as the triode or single grid valve with the exception that the inner grid is connected to the metal ring of the cap to which is fixed a screw. These valves therefore can be used in an existing set without altering any of the wiring. A valve of this type with a dull emitter filament has the following astounding properties:—Filament voltage 2.0 volts, filament current .06 amp, plate voltage 2 to 20 volts! Surely this is going a long way to solve the upkeep cost of broadcasting!

VALVE TRANSMISSION.

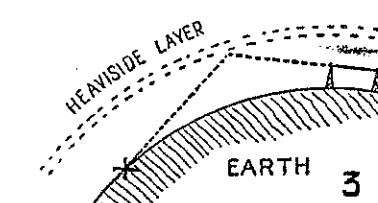
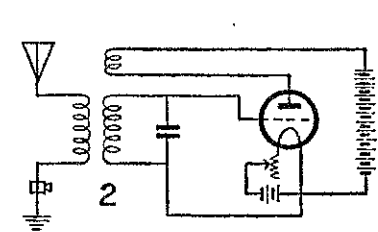
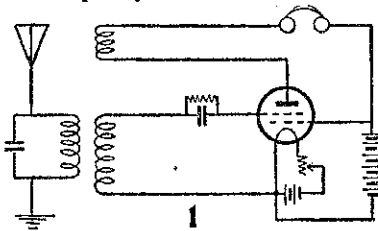
It may be as well at this stage to give an idea of how wireless telephony may be broadcast. It should be clearly understood this is not the way that a modern broadcasting transmitter operates, but it will give the average reader an insight into methods of producing modulated carrier waves, and it may serve to reduce the feeling of hopeless wonder with which most people seem to regard such a station. First of all we have to produce a carrier wave and that may be done as has been explained under the heading of reaction and oscillation. The high frequency currents thus generated are induced into a neighbouring coil connected to the transmitting aerial, figure 2. In this aerial circuit is placed a microphone, which, as has been explained before, increases or decreases in resistance as the diaphragm moves outwards or inwards. This will obviously decrease or increase the current in the aerial and we will therefore obtain the modulated wave which is required.

OTHER USES OF THE THREE ELECTRODE TUBE.

It may be thought that the various uses already detailed would be enough, but the triode has been of such wonderful use in wireless work that it has been adopted for various other uses. Truly the lamp of Aladdin could hard-

ly have been more wonderful than this.

The first application is the so-called wire-wireless or the sending of wireless messages along a wire. This sounds strange, but what is meant is that a telephone wire instead of carrying the usual low-frequency currents straight from the microphone is made to carry these currents after they have been transformed into a high frequency modulated currents. The advantage of this is that instead of one wire carrying one conversation as it does in ordinary commercial telephones, it can carry as many of these carrier waves (all at different frequencies of course) as may be desired. Twenty or thirty conversations all going on at one time will not cause any confusion since each of the conversations is timed at each end for its own frequency. There is one of these



systems operating between Melbourne and Sydney at present with every success. What is more these wires can be used for post office telegraphs at the same time without causing any interference, so that the cost of the copper wires is quite small and long distance telephone calls will thus be made cheaper if the demand warrants the installation of a carrier wave telephone service.

Another use of the amplifying valve is in the sister industry of the gramophone. Up until not so long ago the recording for gramophone records had to be done in a specially constructed studio, because of the bulky and delicately constructed recording appara-

tus. These studios had to be carefully made sound tight, and were always padded to prevent echoes from confusing the recorded sound. The result, although clear and clean cut was somewhat "dead" because of the lack of "atmosphere." When we listen to a band or orchestra in a hall, the echoes are mingled with the music and give a pleasing effect. These echoes cannot be satisfactorily produced in a small studio, and hence had to be removed entirely. Also instruments which are not portable, for example a pipe organ, could not be recorded at all. But with the advent of the amplifying valve, it became possible to place a microphone anywhere, bring the telephone wires into the studio, amplify the sounds till they were able to operate the instruments of the gramophone recorder, and thus give us the "electrically recorded" pieces which are in such demand because they capture all the "atmosphere" of the concert room.

Still other important uses of the valve which cannot be fully explained at present are radio television, the talking kinematograph or phonofilm and the public address system in which a speaker addressing a large crowd has a microphone in front of him, which when amplified is fed to loudspeakers distributed among the crowd. This was largely used at Wembley, when the crowds at all parts of the grounds heard the speeches of the King and other speakers.

ECHOES.

Reference has already been made to echoes in the transmitting studio. If the studio, as in the case of 2YA, is a large one, a certain amount of echo may be retained, as it gives a feeling of naturalness to the sound as broadcast, but if the studio is small it is advisable to damp out echoes completely, as the result is displeasing. Even in the case of 2YA's grand studio a certain amount of padding of felt, etc., is essential to take the place of the clothing of the audience in a well-filled hall. Everyone knows the "empty" sound of speaking in an empty house, and the different sound when it has been furnished, and in the same way an empty studio without padded walls or heavily draped curtains would produce an effect far from pleasing.

Some people might think there is no echo in 2YA's studio, but if one listens intelligently many little points will be noticed, especially when people speak from some distance from the microphone, when, of course, the echoes are magnified as well as the voice, which is now weaker. This frequently takes place during the children's hour, when "Uncles" are saying goodbye from a

distance, the echo, as if uncle were speaking through a corridor, is quite distinct.

FADING.

When reception is obtained from a distance two difficulties are met with in fairly considerable proportions—fading and static. The former is a peculiar weakening and strengthening of the received signals without any interference or alteration on the part of either transmitter or receiver. Several suggestions have been put forward to explain this phenomenon, but one of the most feasible is one suggested by Oliver Heaviside, of England. Ordinary air under normal conditions is practically a perfect insulator, and electricity cannot flow through it. If, however, the air is reduced in pressure, that is, if it is exhausted gradually from a glass vessel by means of an air pump, it will be found that after a certain degree of vacuum has been reached the air becomes a pretty fair conductor. Most people know that the pressure of the atmosphere becomes less and less as we climb, and, as a matter of fact, it was this rarifying of the air at extreme altitudes which caused the failure of the Mount Everest expedition. At even higher altitudes the air pressure becomes so small that it becomes conducting. This layer of conducting air surrounding the earth several miles up is called the Heaviside layer, and when wireless waves strike it electric currents are induced in it. These electric currents have a magnetic effect which acts like a choking coil—the waves are unable to penetrate the layer—and if they hit the layer at an angle they will glance off it, that is, they will be reflected. This state of affairs is shown in fig. 3, when the path of a wireless wave is shown leaving the broadcasting station, striking the Heaviside layer, and being reflected to a receiving set at X.

Wireless waves always travel in straight lines like light, and since the surface of the earth is round, it is clear that the only way in which a distant station can receive signals is by means of one (or more) reflections from the Heaviside Layer.

This is quite straightforward if the lay is smooth and even, but if there is a "swell" on the surface it will mean that the reflection will be broken up. This gives a pretty fair explanation of fading of both kinds, as the trouble may take more than one form. We may have the "regular" fading, in which the signals rise and fall in strength regularly, either every few seconds, or at intervals of half an hour or so. Then there is the kind when the strength of signals varies in a most erratic way, due probably to a storm instead of a heavy swell.

The Heaviside layer can also explain the existence of "blind spots," that is, areas where a particular station is practically inaudible even with the best sets, while other stations come in with ease. The explanation of this, however, necessitates a knowledge of the "interference" phenomenon of light, which is beyond the scope of these notes.

AERIAL INSULATION

The outdoor aerial has to be suitably supported in the open air from supports like masts, buildings, or trees, according to the facilities locally available. These supports being conductors connected to the earth, we have to interpose an insulator between these supports and the aerial proper of copper wires, so that electrical energy of the aerial may not leak away to earth except through the receiving instruments. Since all insulators are in practice conductors of high resistance the current lost by leakage through them is expressed by Ohm's law, which states that

$$I \text{ (electromotive force)}$$

$$C \text{ (current) equals } \frac{E}{R C \text{ (resistance)}}$$

Hence, whether the aerial be a transmitting or a receiving one, the percentage of energy lost through bad insulation remains the same, and as such both require as perfect an insulation as

can be given them. In fact, with the receiving aeriels where the available energy is so very small, no insulation can be considered too good for the purpose.

The efficiency of aerial insulators is dependent on the following three principal factors. Firstly, the material of which it is made must have a high specific resistance, so that the current lost by conduction through its body may be negligible. In fact, all the usual materials—ebonite, porcelain and glass—are suitable from this standpoint.

Secondly, the insulator must have a high resistance along its surface, even when exposed to the action of the elements in the open air. This is a very difficult criterion to be satisfied, since the deposits of dust, smoke, and films of water forming over the insulators are highly conducting surfaces.

The usual types of ebonite and composition insulators are especially unsatisfactory in this respect, since their comparatively rough surface assists in the formation of such deposits which do not get washed away in rain. Even

in porcelain insulators the deposit is considerable, and the loss of signal strength is easily noticeable after they have been in use for a month or two.

Thirdly, the insulator must have a minimum of capacity between the copper wire and the (earth connected) rope attached to it, so that the loss of high-frequency energy to earth through this capacity may be negligible. In this respect the usual type of reel, egg, or shell type of porcelain insulators are very inefficient. In these the aerial wire and the supporting rope pass within a half-inch of each other in the insulator, thus forming a small condenser between the earth and the aerial. The ebonite and composition insulators, too, suffer from this defect, especially in service, when their surface gets coated easily with a conducting deposit or their surface insulation deteriorates by exposure to light. Hence these insulators, if used for an outdoor aerial, become efficient only when a large number of them are used in series at either end of the aerial, and even then periodically taken down and kept clean.

In addition to satisfying the electrical conditions, a satisfactory aerial insulator must have the requisite tensile strength in ability to stand the maximum strains coming over the aerial on which it is to be used.

These have been calculated out, and found to be well below 100lb. for the average amateur aerial. All these insulators are capable of standing a strain of well over 500lb., and as such are suitable enough for aerial insulation if they would maintain the requisite aerial insulation under service conditions in the open air.

For the latter purpose, which is the chief aim of an aerial insulator, the glass insulator is undoubtedly the best. Standing a strain of over 500lb. without any leakage or capacity losses, it maintains almost perfect insulation even at the very highest potentials used in wireless work.

It is a well-known fact that daylight reduces the range of a station over what this same station can do at night. Why the sunlight direct from the sun will first reduce signal strength and

then this same light reflected from the moon will increase it is a difficult problem. It may be that gravitational or electronic lines of force from the earth to the sun, the earth to the moon, and the sun to the moon set up certain interference bands which improve or lower the resistance of radio transmission. If these same interference bands vary we have a simple explanation of fading.

On the other hand the action may not be due to lines of force at all. A possible theory might be evolved in connection with the difference between the direct sunlight, with its ionising properties, against the reflected light which has had these characteristics removed in the process of reflection.

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