

THE RADIO RECORD

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How to Become a Radio Reception "Prophet"

Forecasting Static With Three Simple Instruments

ACCORDING to Mr. Eugene Van Cleef in "Popular Radio" the possibilities of good or bad reception for the next twelve hours may be predicted with remarkable accuracy by means of three easily purchased and easily manipulated instruments. These are the hygrometer, by which the relativity of the atmosphere is determined; the ordinary outdoor thermometer; and the aneroid barometer which registers air pressure. Mr. Van Cleef claims that here is an eminently worth-while opportunity for investigation for both experimenter and "fan." Much entertainment, in any case, can be derived from tracing the periodic weather conditions that are held responsible for changes in radio reception.

THAT radio reception fluctuates in quality with the variations in our atmospheric conditions seems certain.

Some attribute to the weather too much influence on radio reception, and others now are ready to say that atmospheric conditions play no part. A number of persons have suggested a sun-spot influence, but, according to recent Press dispatches, those in charge of investigations of the sun spot relationships declare this theory exploded. In the face of these contradictory views, the writer is convinced, after a long period of observation, that the degree of static which interferes with our radio reception varies with atmospheric conditions—more particularly with pressure. Assurance of this relationship is based upon the correlation of reception conditions with the daily passing high and low pressure areas. The relationship is so clear-cut that definite statements may be set up which will serve as guides to those desirous of forecasting daily the probability of static. Before recording these conclusions we should first note the nature of Highs and Lows and some facts regarding their behaviour.

PRESSURE AREAS.

IF the reader will secure successive weather maps like the diagram, and watch a given high pressure area on successive days, he will note that it moves across the country normally at about the average speed of a passenger train, so that in the course of about four 24-hour days it travels from the Pacific coast to the Atlantic. Accompanying the High is a Low which travels at about the same rate. No two Highs nor two Lows occur next to each other. The Highs and Lows generally occur in pairs, a High following a Low, or a Low following a High.

These passing pressure areas, or "storms," indicate the nature of the weather which any locality is likely to have. Since they always travel in an easterly direction, and since their rate of motion is known, we can forecast the weather for a given locality if we know what the pressure and accompanying weather conditions are to the west, as shown by these areas. Space limitations do not permit of a detailed account of the

special problems associated with the fascinating field of weather forecasting, but enough perhaps has been said to direct attention to the occurrence of these pressure areas which seem to be so intimately associated with our static troubles.

THREE SIMPLE TOOLS.

SOME persons may already have acquired the impression that the situation here noted is too complicated for them, and consequently at this point are ready to give up the idea of forecasting for themselves. These fears, however, need not be further entertained, as the operation of forecasting may be reduced to fairly simple terms. One can accomplish much in this work with the aid of three simple instruments—the barometer, outdoor thermometer and hygrometer.

Just what is a barometer and what does it tell? We have learned by experiment that at sea level on a normal day, the atmosphere weighs 15 pounds to the square inch. This weight we call pressure. If a glass tube about 34 inches long were filled with mercury and the open end immersed in a cup of mercury, the mercury within the tube, under

the conditions just noted would fall to a height of 30 inches above the level of the cup basin. In other words, the weight of the column of mercury within the tube would equal the weight of the air pressing outside upon the mercury surface in the cup. This weight represents the air pressure and the length of the column is interpreted as the air pressure. An atmospheric pressure of 30 inches has been adopted as normal. If the height of the mercury column rises above 30 inches, the pressure is high; if it fall below 30 inches it is low. On the weather map the Highs and Lows to which we have referred mean exactly this.

THE ANEROID BAROMETER.

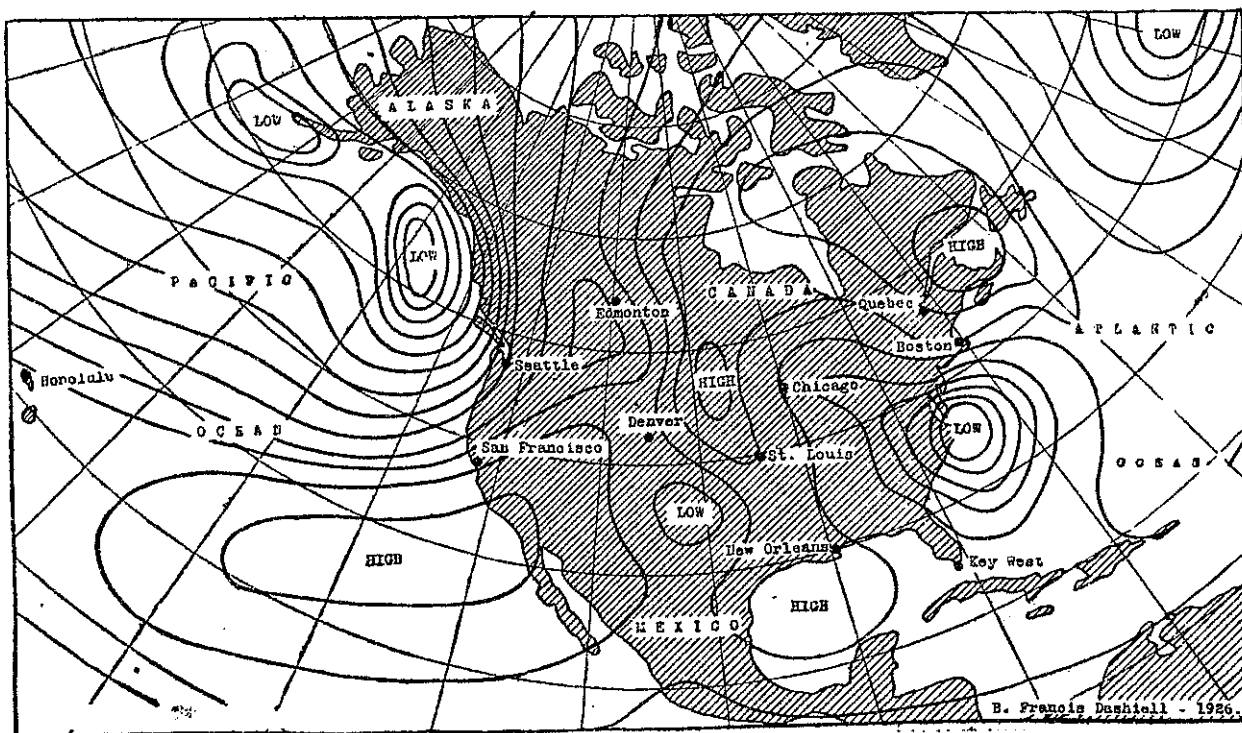
THE mercurial barometer is too expensive for most of us to possess, and, furthermore, is rather awkward for a novice to use. So in its place the compact and convenient aneroid barometer, in which air is utilised, is recommended. It is calibrated according to the reading of the mercurial barometer, and is so arranged that anyone can read it easily and note whether or not the pressure is rising or falling.

GENERALLY if the pressure reads above 30ins. static will be absent, and if below it will be present. If the barometer is just below 30ins. in the morning and has been rising all the preceding night, the prospect of no static for the evening is excellent. If, on the other hand, the reading is just above 30ins. and the pressure has been falling during the preceding twelve hours, then static is almost certain during the next twelve hours. That is simple enough; but exceptions creep in occasionally, and to make allowances for them the outdoor thermometer and hygrometer will assist us.

THE HYGROMETER.

EVERYONE is familiar with the use of the thermometer, but fewer persons have an acquaintance with a hygrometer. This instrument, which is made in numerous forms, responds to changes in the moisture content of the air. A good hygrometer furnishes accurate information, and gives us definite figures, usually in percentage, indicative of the amount of moisture the

—(Continued on p. 3.)



HOW GOOD AND BAD RECEPTION FOLLOW THE WEATHER.

In this weather map the solid lines, or isobars, connect places of equal air pressure, and indicate in this way the positions of high and low pressure areas for a given time. Note that severe storms, with accompanying static, are indicated by the very low pressure areas on the northwest and eastern coasts, while the central part of the country is enjoying the good reception that generally accompanies high-pressure areas.

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

THROUGH the courtesy of the General Electric Co., Ltd., Empire Chambers, Williston Street, Wellington, I have been able to put the Geophone gramophone electric pick-up through a series of tests. This is an English line retailed at only £3—a low price for this type of device. The pick-up is slipped on to the tone arm of the gramophone and an eleven-foot cord is plugged in to the detector valve socket. The radio loudspeaker is then plugged into the last stage of audio of the radio set in the ordinary way, so that the record is reproduced from the loudspeaker. The Geophone pick-up was put on test with various types of gramophone records and gave good volume without any tendency to chatter. It does not weigh so heavily on the records as some types of pick-ups. The design is neat and compact and the material is good.

STOCKS ARE SHORT.
OVER-CAUTIOUSNESS in buying is almost as unprofitable as recklessness; buying on the part of the radio importer. "Meter" has seen some admirable lines imported within the past few months which were cleared out immediately. These lines comprised only a few samples, and they came from manufacturers of high repute, and as the merit and prices of the lines were "right" according to information received prior to importation it shows over-cautiousness in sending for only a small initial supply of the lines. Anyone who has his finger on the pulse of the New Zealand trade knows immediately what will sell. Radio listeners are notoriously impatient, and if the line they want is not available they are easily diverted to something else. This means that what is one importer's loss is another's gain, but one, nevertheless, regrets that a market for better goods, which means greater satisfaction for the buyer and a better advertisement for broadcast listening, is sometimes lost through timidity on the part of an importer or his foreign buyer. "Meter" knows of lines which will sell promptly on sight, and is surprised to see only a small initial consignment arrive from the manufacturers, but he was not surprised to

NOT infrequently the excuse given by people with means for not possessing a receiving set is that they are "waiting for prices to drop, as they surely will in the near future," or words to that effect. If we are to be guided by the latest news from the United States prices for sets and components are not only unlikely to drop, but are on the up grade. As a matter of fact some of the makers of the best receiving sets in the United States increased their prices on February 20 of this year. Take the C. R. Lenz Co., Long Island City, New York, as an example. On February 20 that company increased the prices of their sets by 33 1-3 per cent., and the prices of their B and C eliminators by over 14 per cent. A number of other companies also announce increases all round. The new refinements in radio sets cost money and are not calculated to mean lower costs to the public. The indications are that prices will be steady for a while now, but there are no prospects of a reduction in the prices or the better class of sets.

THE CX-350, UX-270 is a new valve for use in the last stage of a transformer-coupled audio frequency amplifier. For the same filament current and plate voltage it has more than twice the undistorted power output of the 210 valve, which thus adapts it for use with loudspeakers to be used in large auditoriums. Due to its low plate impedance it must be used with an output transformer or choke coil and bypass condenser. Its filament current is 1.25 amperes at 7½ volts, the filament being of the coated ribbon type. It has a height of 6½in. and a diameter of 2 11-16in., fitting a large standard socket. Its characteristics at various plate voltages are as follow—

Plate voltage	250	300	350	400	450
Negative grid bias (volts)	45	54	63	70	84

Plate current (milliamperes)	25	35	45	55	55
Plate resistance (ohms)	2100	2900	1900	1800	1800
Mutual conductance (micromhos)	1800	1900	2000	2100	2100
Voltage amplification factor	3.8	3.8	3.8	3.8	3.8
Max. undistorted output (milli- watts)	900	1500	2350	3250	4650

The new valve's maximum output is about 84 times that of a UX-201A valve. This valve, which is for use with an A battery or eliminator, is not in New Zealand yet.

IN a very few weeks the cold crisp nights that every radio fan has been waiting for will be here. When this time arrives you want to have your set in the most efficient condition possible. Now is the time to overhaul your set so that when real DX weather arrives you will be able to pull in distant stations.

If you are building a new set take special precautions in the soldering of all joints, and be sure to clean off the surplus flux with an old tooth brush or a bit of cloth moistened in alcohol. Flux between two joints will allow the currents to leak across and lower the working ability of your receiver.

If your set is an old one the probabilities are that a number of connections are badly corroded or coated with dust. This may be due to a coating of excess flux that was left after the connection was soldered. Go over every connection as described above and your reception may be greatly increased.

If rosin flux was used there will be no need for the above cleaning process, because rosin is an insulator and will not cause this sort of trouble.

MOST favourable reports have been received from those who have installed the new shielded grid type of valves in their receivers, the valves, although more expensive than ordinary

valves, are well worth using. It is found that when they are employed as radio frequency amplifying valves, a degree of sensitivity seldom obtained with three ordinary radio frequency stages is easily obtained. Although the valve is remarkably stable and easily controlled, interference from atmospheric is said to be greatly reduced. Used in short-wave sets, the valves are giving striking results, and seem to make an ideal addition for the reception of short-wave overseas broadcasting. The sets are comparatively easily made, and ordinary circuits can be modified to receive them. It should be borne in mind, however, that careful shielding of the apparatus in the receiver is essential to successful operation. The screened grid valve must be shielded in a special metal case, and the radio frequency and detector tuning circuits should also be separately shielded for best results. With a little care, however, no difficulty will be experienced in carrying out the shielding work. An aluminium panel instead of an ebonite one will be found useful, and the remaining shields can be made from sheet aluminium or sheet copper. Copper will probably be found slightly easier to use than aluminium, as it can be soldered without difficulty. If aluminium is used, the pieces of the shields may be bolted together with small brass bolts of the kind widely used for wireless terminals.

SET builders will find that the simplest method of adjusting the grid-leak of the detector valve is to try successively grid leaks of different values until the one which gives the best result is found. Assuming the use of a .00025 microfarad fixed condenser as grid condenser, most of the detecting valves usually work most satisfactorily with a grid leak having a resistance of about two megohms. Occasionally, however, cases will be found in which this value is too light, and a tendency for the set to howl develops until a leak of lower resistance is used. It should be borne in mind that the position of the grid leak return on the filament is of as great importance on the detector valve as it is on an amplifier. It is usual now to connect the grid leak across the grid condenser. When this is done,

the second end of the tuning coil, which is connected to the grid condenser, becomes the return lead for the grid leak. This return should generally be connected to the positive side of the filament, but cases will be found in which it will give best results when connected to the negative side of the filament of the detecting valve. When making a new set, it is therefore wise to make this return connection of a temporary nature, until it can be ascertained by test whether it will give best results on the positive or the negative side of the detector. It should be borne in mind, also, that the value of the grid leak for the best operation of the set will depend, to a considerable extent, on the pressure used on the plate of the detecting valve. Adjustments to the plate pressure of the detector valve will often greatly improve both the quality of reproduction of a receiver, and also its sensitivity.

A NEW receiving valve just announced by a British manufacturer incorporates two useful features, which will appeal to many listeners. The main purpose in designing the valve was to have an instrument which would work from both a two-volt and a four-volt battery. Incidentally, the type of construction adopted virtually gives the valve two filaments, so that when one is burned out or broken, it can still be used for a time. Although not absolutely new, the internal construction is unusual. The valve really contains two filaments, two grids, and two plates. The two grids are connected, and so are the two plates, so that they really work as if they were only one large grid and one large plate. The two filaments are connected at one end, and the free end of each is brought through the glass in the form of a lead. A lead through the glass also provides connection to the ends of the filaments joined together. If it is desired to use the valve from a four-volt battery, the filaments are used connected in series. If only a two-volt battery is available, they can be connected in parallel. If one filament burns out, the other can still be used from a two-volt battery.

Few scientific secrets have been more carefully guarded in the last decade than those relating to the methods adopted in the television systems now undergoing trial. It is evident from the brief reports received from time to time that the problem of television has at last been solved. The success recently reported was one of the most striking yet achieved. A liner in mid-Atlantic, fitted with a television receiving

station, was able to "pick up" pictures broadcast from Great Britain, with such clearness at times those those on board declared that the images of friends ashore were practically faultless.

Efforts to develop a system of television have been made from time to time practically ever since the invention of the telephone. From the beginning, the general principle to be adopted was clearly understood. The difficulty experienced lay in the construction of apparatus to apply the principle. For the production of an effective

"moving" picture, about 16 successive "fixed" pictures must be produced, one after the other every second. If fewer pictures are produced, they do not blend together well, and the resulting moving picture is inclined to be jumpy. For the electrical transmission of a picture, the original must be analysed into a series of very small sections, which for effective transmission cannot be larger than small lots, such as make up the illustrations in "The Rad'd Record." Each one of these points must be transmitted separately from the sending to the receiving instrument, and at the receiver each section or dot must be placed in its correct position on the receiving screen. The actual transmission of the dot in its correct tone of light presents no difficulty. This can readily be accomplished by a photo-electric cell at the transmitter, which controls the intensity of light from a special lamp, and a sensitive photo-

best insulators available, and is especially valuable in the construction of radio equipment due to its low electrical losses. Glass does not absorb moisture or have the bad capacity effects that are inherent with some wood cabinets and panel materials.

With the proper degree of care, and a little patience, the task of drilling holes through a piece of plate-glass is not at all difficult.

Secure a piece of plate-glass cut to the size you wish your panel. There are two methods available for making the holes through the glass for the shafts of the instruments of your set, screw holes, etc. One method is to etch with hydrofluoric acid to eat a hole through the glass. The other method is to drill a hole through with carbide mudam and turpentine as a cutting fluid.

Spot the glass at the points where you wish to drill a hole. In case you

desire to use the acid method make a small mound of clay over the spot. Make a small opening through the clay with a lead pencil, the exact size you wish to have the hole through the glass.

Now pour a small quantity of the acid in the clay mould and allow it to stand. The length of time required for the acid to eat through will depend on the strength of the acid and the thickness of the panel.

Condenser-shaft holes could be bush-
ed with ebony tubing if desired.

WIRELESS as a link between those who live high in the mountains and their friends in the towns is the latest development of radio in Switzerland. For a few francs townspeople may go before the microphone and speak to friends in snow-bound villages in the mountains.



COLUMBIA Radio Batteries are made under direct supervision of one of the greatest research laboratories of the world. Only the highest quality materials are used. Every battery is thoroughly tested after every stage of manufacture. That is why Columbia Radio Batteries are the most dependable, the most satisfactory and give the longest service.

There is a Columbia Radio Battery for every type of set. All are of the same high standard. Always insist upon Columbia.

For sale everywhere.

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RADIO BATTERIES

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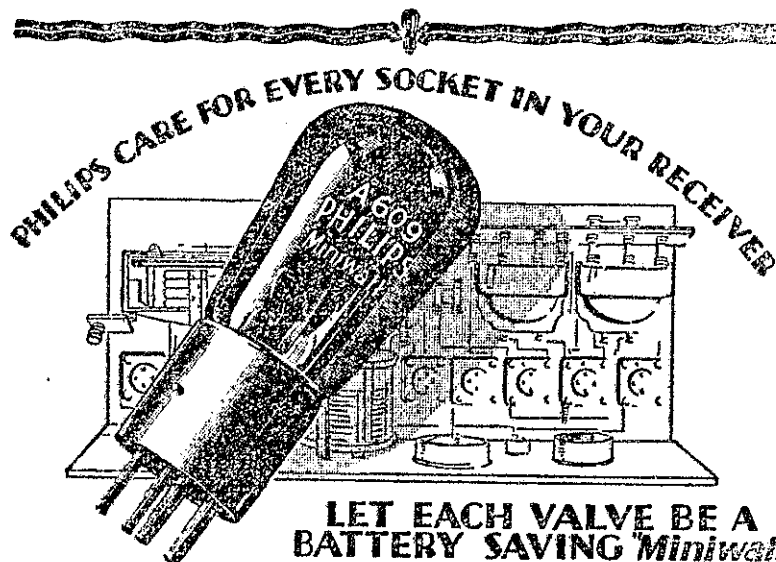
1706

There are a number of advantages to be obtained through the use of glass for panel and cabinet material. The principal one is, of course, that glass is transparent and will allow the apparatus and the wiring to be seen from four sides without raising the lid of the cabinet.

A direct advantage of this lies in the fact that such a cabinet will be more or less dust and trouble proof. When the lid of a cabinet is allowed to remain up for any length of time to observe the operation of the valves, or the functioning of the other parts, dust is sure to settle on the condenser tubes and other parts of the set. This will soon give your set a shop-worn appearance and reduce the efficiency of its operation.

If you are a careful workman and take pride in a good, neat job of wiring, a glass panel and cabinet will attest for the reason that your workmanship would always be in plain view.

Last but not least, glass is one of the



**LET EACH VALVE BE A
BATTERY SAVING "Miniwatt"**

Whether your accumulator supplies two, four or six volts to your radio—whether you want a valve for the H.F., Detector, Audio, Power or Resistance Capacity sockets—there is a Philips "Miniwatt" specially designed for your purpose.

SOLD BY EVERY RADIO DEALER.

FOR 1 ACCUMULATOR CELL		FOR 3 ACCUMULATOR CELLS	
12 VOLTS		12 VOLTS	
#209 1.08 AMP; GEN. PURPOSE ..	13/8	#808 1.08 AMP; GEN. PURPOSE ..	13/8
#208 1.10 AMP; AUDIO ..	13/8	#808 1.1 AMP; AUDIO & POWER ..	15/8
#207 1.10 AMP; POWER ..	15/8		
FOR 2 ACCUMULATOR CELLS		FOR RESISTANCE COUPLING	
14 VOLTS		12 VOLTS	
#408 1.08 AMP; GEN. PURPOSE ..	13/8	#255 1.08 AMP; TWO VOLT ..	13/8
#407 1.10 AMP; AUDIO ..	13/8	#252 1.08 AMP; FOUR VOLT ..	13/8
#403 1.10 AMP; POWER ..	15/8	#208 1.08 AMP; SIX VOLT ..	13/8
		#207 1.10 AMP; DIRECTOR ..	15/8
		#A10 1.08 AMP; THE FOUR-FIFTEEN 200	

PHILIPS

RADIO

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How to Become a Radio "Reception" Prophet

CONTINUED FROM FRONT PAGE

air contains, compared with what it could contain if saturated at the given moment. With the help of thermometer and hygrometer, we can forecast static still more effectively, with the aid of these pointers:

1. If the barometer reads above 30 inches and has been rising during the preceding twelve hours, and if the temperature and relative humidity are falling, static is not likely within the next twelve hours.

2. If the barometer reads below 30 inches and has been falling during the preceding twelve hours, and the temperature and relative humidity are rising, static will prevail during the next twelve hours.

3. If the barometer is constant while the relative humidity falls, static is likely to reduce in tensify if it has been current.

4. If the barometer is constant while the relative humidity rises, static may increase if it has been current.

5. If the relative humidity and temperature remain constant while the barometer rises or falls, a change

from the prevailing intensity of static will be effected less quickly than if the relative humidity and temperature changed as indicated in statements (1) and (2).

The reader is cautioned here not to take these statements too literally. They represent merely guides to probable occurrences, and will occasionally be found to be inaccurate, because quite exceptional atmospheric conditions happen from time to time. For example, there are times when the barometer is high, that is, above 30 inches, but begins to fall while the relative humidity rises. It may not yet have reached 30 inches when rain or snow begins, yet static will not make itself known. At all times pressure is the dominant influence, while temperature and relative humidity, if operating according to rules 1 to 2, merely help to strengthen the forecast which the pressure-change indicates.

A POPULAR FALLACY.

THESE last statements call attention to the popular misconception

that whenever it rains or snows static will be prevalent. This is not at all true. The writer has experienced some of the best reception during such storms, but in these instances atmospheric pressure was higher than is customary when rain or snow occurs. On the other hand, much static has been experienced on some clear nights under high pressure conditions, when on these occasions abnormally high relative humidity was accompanied by a sudden drop in temperature. Since these cases are exceptional, although not always rare, perhaps we should not allow them to impress us too strongly.

OPPORTUNITY FOR INVESTIGATION

WHILE we have attempted here to suggest a simple instrumental method enabling the average person to forecast for himself the probability of static, we refer again to the utilisation of the daily weather map by those desirous of making a detailed study of the whole problem.

The writer has found many relationships between the location of the receiving and sending stations with respect to the extent and intensity of a high or low pressure area, and the probability of static. The details cannot be presented here, but a few major conclusions may be noted. (By way of explanation of the term isobar, the reader is referred to the map on which he will see concentric lines outlining high and low pressure areas. If these are close together the pressure is intense or strong, but if far apart it is weak. If close together, the pressure area as a unit moves more rapidly than when the isobars are far apart. Any line drawn at right angles across a series of isobars indicates the isobaric gradient.)

Here are some conclusions drawn from a study of these maps:

1. If a line connecting the receiving station with the broadcasting station crosses the intervening isobars at right angles, reception is at its best.

2. The steeper the isobaric gradient (that is, the closer the isobars to each other), the stronger the reception.

3. The more nearly the transmitted waves approach parallelism with the isobars, the weaker the reception. Under these conditions fading occurs.

4. Reception is weaker when the transmitted waves cross from one pressure area into another than when they travel only within one area.

5. Reception is better in winter than in summer because the cyclones (Lows) and anti-cyclones (Highs) are more intense in the winter period.

6. Shallow or flat pressure areas favour much static.

We need more investigation in the field of the relationship of static to atmospheric conditions. Here is an opportunity eminently worth while for both the experimenter and fan.

AS an aid towards minimising "mike" fright, the British Broadcasting Company has tried converting its studio into a small theatre, complete with audience and spotlights. The system is said to be a success.

PHOTOGRAPHS BY TELEGRAPHY

A DREAM COME TRUE.

The "Daily Sketch" and its allied newspapers will shortly install between London and Manchester an apparatus for the transmission of photographs by telegraphy.

The plant and apparatus are now under construction, and in the near future the photograph of an interesting and important event in London will be available in Manchester in a few seconds, eliminating the time lost in railway transit and the limitations of aeroplane delivery, now frequently employed in order that the reader may have the latest news in pictures in the next issue of his paper.

Within almost an hour of an event occurring in London it will be possible to have a picture printing in the Northern editions of the "Daily Sketch" in Manchester, an achievement which has not yet been possible in this country.

Dream of Years.

The rapid transmission of photographs by telegraphy is an achievement of which scientists, engineers and newspaper producers have been dreaming for years, a feat on which they have been working as well as dreaming, and the fulfilment comes in an instrument which produces the most remarkably accurate results.

The "Daily Sketch" and its allied newspapers are installing this newest development of photo-telegraphy, and placing its work and possibilities at the service of its readers. Events the world over will be brought nearer in visualised form.

The Post Office have under consideration the institution of a photo-telegraphic service between London and the Continent, linking up with the system now working between Vienna and Berlin.

A Glimpse of the Future.

It is a reasonable possibility that within a few years it will be as easy to transmit a photograph by wire as it is to send a telegram between the capitals of the world.

Photo-telegraphy will be a valuable addition to the great news and picture collecting organisation at present used by the "Daily Sketch" and its allied journals. Between Manchester, London, Newcastle, Glasgow, and Sheffield, and other towns, there already exists an enormous network of special telephone and telegraph lines, the largest private organisation of its kind in any newspaper organisation in the country, linking up the industrial hub of the nation with almost every part of the country.

RADIO WET A BATTERIES

VOLTS AND AMPERES.

While there are exceptions, the standard type of "A" battery is that known as the "wet" or "storage" type. These vary little from those used as starting and lighting batteries in motor-cars, except, in general, the plates comprising them are not as thick or rugged as those designed for motor-cars.

Their voltage should never exceed 6.7 volts, and probably the most popular capacities are the 100 or 120 ampere-hour batteries. "A" batteries do not require a high voltage output, but do require a current (amperes) value capable of supplying around two to three amperes of current per hour for the operation of the receiver.

The 100 ampere hour size has thus become popular for multi-valve sets because it will supply that average radio receiver with current for a period of about two weeks before requiring recharging. This period is not definite, but rather an average, it being essential that until one has determined from frequent tests the approximate period when the "A" battery needs recharging, that a free use of a battery "hydrometer" be made.

MOVIE stars are great radio fans, it would appear from a check made of the Los Angeles "Evening Express" station, KNX, telephone calls. At least 25 per cent of the hundreds of calls that come in requesting favourite pieces are from motion picture actors and actresses.

IN spite of some opposition, the work houses, one by one, throughout England are being equipped with broadcast receivers. The latest is at Chesterfield, where the Guardians have decided to install apparatus in the infirmary and workhouse at an estimated cost of £200.

DID you know that though 1 metre has a frequency of 300,000 kilocycles, 30,000 metres has only a frequency of 10 kilocycles?

THE coupling condensers for resistance capacity or choke amplifiers should be of the mica type.

ELECTRICAL INTERFERENCE

X-RAY, VIOLET-RAY, MOTORS, ETC.

Broadcasting is being taken seriously in America. The latest evidence of this is the action taken by many of the municipal authorities in the United States of America to prevent interference with programmes by induction noises from electrical machinery. One town has just gone so far as to prohibit the use of electrical machinery likely to cause interference with wireless reception between 8 o'clock and 10 o'clock at night. The order has been made very comprehensive, and it provides, among other things, that hospitals must not use their X-ray plants between these hours except in cases of emergency.

Although listeners do not always realise it, electrical machinery causes a great deal of interference with broadcast reception. A simple proof of this can be obtained by turning on the electric light in a room in which a receiver is operating. As the switch is closed a loud click will almost invariably be heard in the loudspeaker.

Various Causes.

Electric motors, such as those used to drive electric fans, are great offenders, and produce a continuous noise in the speaker. This noise is seldom troublesome if one is receiving local stations, but it will often prevent long-distance reception. Violet-ray machines cause even more intense interference, and one of the worst offenders of all is the battery charger used by amateurs themselves. For this reason battery chargers, particularly those of the vibrating reed type, should be used as little as possible in broadcasting hours. There are other sources of electrical interference which can seldom be controlled. These are various forms of defects, usually leaks which develop in the insulating material, on the reticulation service itself. The only effective means of overcoming this interference appears to be to provide broadcasting stations so powerful that they will entirely drown the interference. This is quite possible over short distances, but impossible over long distances, and it seems that, for the time being at any rate, listeners must suffer a certain amount of interference from electrical services.

SOLDERING LITZ WIRE

REQUIRES MUCH SKILL.

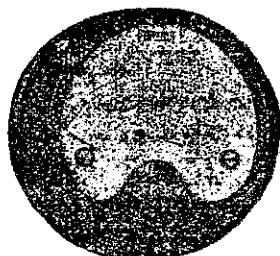
Litz wire, frequently employed for making indoor loop aerials, is very difficult to handle, and soldering it, in the hands of the average amateur, becomes an impossible task, unless considerable patience and a fair amount of skill is applied. This is the way this, or any other standard wire, should be dealt with.

For a half an inch or so from its end it should be carefully unravelled and each strand cleaned separately. Gently scrape with a sharp knife each tiny wire until it is clean. Do not use force or endeavour to hasten the operation, for if you do the wire will break. If the wires are enamelled the operation may be a long one, but if the job is to be satisfactory it will have to be carried through.

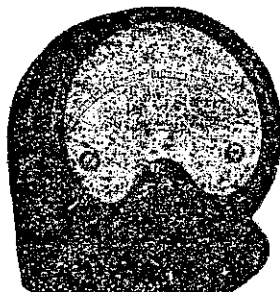
Care Needed.

Next cover each strand very carefully with flux. Having done this, gently twist the whole lot together again, taking care not to rub the flux off with the fingers. Twist them up very carefully, but tightly, together with a pair of pliers, the jaws of which have previously been cleaned. Next get the bit of the soldering iron well cleaned and tinned. On one face of the soldering-iron bit get a large head of molten solder, and in this place the end of the Litz wire. Hold it there for two or three moments and then withdraw it, and you will find that it is successfully welded together by means of a mass of permeating solder. You can now proceed to join it to a soldering tag or other such point in the usual way, confident that a strong connection will result.

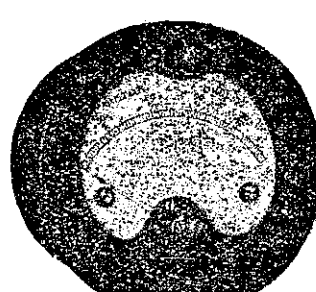
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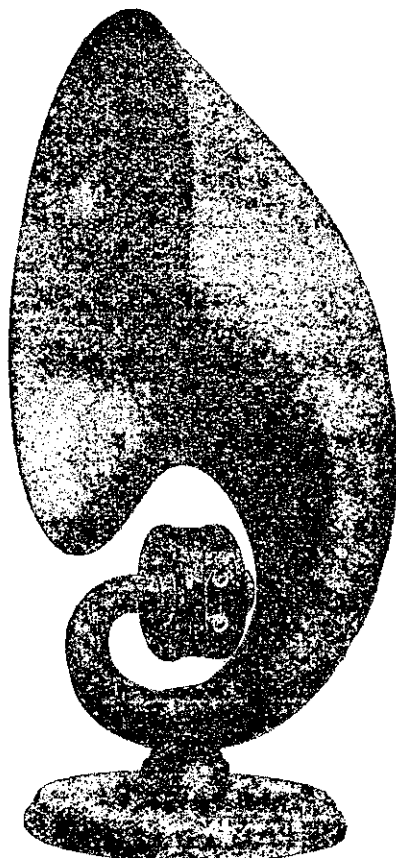
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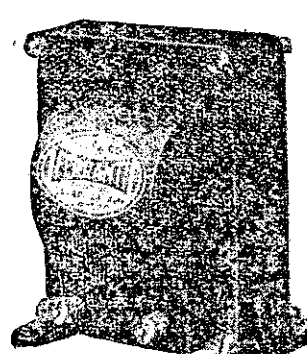
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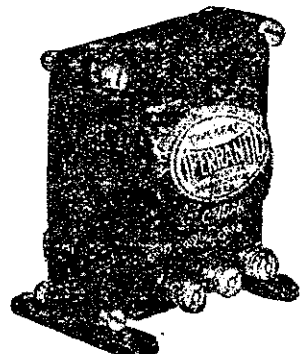
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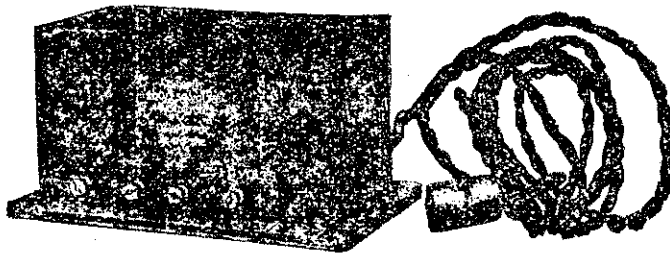
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A. J. HEIGHWAY,
Managing Editor,
"The N.Z. Radio Record,"
P.O. Box 1032,
Dominion Buildings, Mercer Street, Wellington.

WELLINGTON, FRIDAY, MAY 11, 1928.

A BIG ADVANCE.

None who has heard the 2YA Orchestra will deny that in it there has been created an instrument which will confer a benefit not only upon broadcasting in the Dominion, but upon the general musical standard of the community. The excellence of the combination places it immediately in the front rank as definitely the leading orchestra in the Dominion. The capacity of the artists is such that the whole range of orchestral work lies within their compass. There is no danger that their performances will drift away from the popular taste, for special measures are being taken to sound the public's wishes in respect of items to be played. The development of this orchestra simultaneously with the inception of musical committees at the different centres to establish relations between broadcasting and the organisations specially engaged in fostering musical and dramatic, give ground for hoping that a definite advance will steadily be made in the public appreciation of good music. Splendid work has been done, and is still being done, by all the musical organisations, and with the stimulus which will be given to the love of music by the finished performances of 2YA Orchestra, they should reap a richer reward in enlarged audiences, and greater public response to the fare provided. Visiting artists have often had occasion to complain of the Dominion's lack of artistic response. That reproach will be removed only by steady educational work, by broadcasting and other means, and the natural expansion of population.

THE UNSEEN AUDIENCE

A VOICE IN THE DARKNESS

(Contributed.)

OF all the most fascinating speculations in regard to Radio work is the question which every artist puts to himself, "I wonder how it has gone over?" A really natural question, as it is certain no one who makes public appearances can be quite truthful if they claim to be indifferent to the attitude of their audience. It is easy enough to gauge the feelings of an audience from the platform, when the atmosphere can be sensed, but when you can neither see nor hear those thousands who may be listening to an item, it is really a matter of intense interest to know how any number that you may have given has "gone over." For this reason it is always nice to know from 'phone calls, letters, etc., how any particular item strikes the individual fancy. One great difference in the question of putting the work over is that you have no

"mob" to which to work, and in certain classes of work this is of course a disadvantage. It therefore becomes more or less necessary to choose work in which the appeal can be made more to the individual rather than to the "mob." This applies to the general course of presenting radio work, but a new experience was added the other night when the light failed for some considerable time. During this period I have the pleasure of giving an item out of the regular course of the official programme just to keep the air open until such time as the break was rectified. The sensation was one of almost helplessness, it was most difficult to concentrate on the unseen audience. I suppose that this would be a matter of adjustment, but it "gave me to think." Why should it be easier to work in the light than in total darkness? I knew the piece equally well with my eyes closed as with them open, but still the fact was there; it was harder to put over. There was perhaps the sensation of almost certainties to contend with, and that might possibly have been the cause, but whatever it may have been, my feelings were one of thankfulness when light was once more restored and I could again visualise my unseen audience.

WHAT'S THE ANSWER—
PUZZLE FOR LISTENERS

HAIFA-GUINEA PRIZE.

A correspondent in Havelock North, Hawke's Bay, this week propounds a query which might well be put up to listeners for answer, with the bait of half-a-guinea prize attached. He writes:—

Stations 2YA and 1YA fade very badly here at night; the afternoon sessions are perfect. Can you explain the following? On Sunday, April 22, I tuned-in band programme from 2YA, and fading and mushiness was so bad. I gave it up and tuned-in 3YA, who were re-broadcasting 2YA. From that station the programme came in perfectly, with no sign of fading. I repeated the process continually, with the same result. What's the answer?

We could offer an answer, but it will be more interesting, we think, if we offer a prize of 10s. 6d. for the best answer or explanation to the question put, which, for exactness, we will state thus:—

What factors influence the following phenomena: "Perfect reception from 3YA of a re-broadcast by 2YA, when direct reception of 2YA is affected by fading... and mushiness."

Discussion of this problem will, we think, be of interest. Competition closes May 25, and winning paper will be published in issue of June 1. The right is reserved to make extracts from papers of others than the winner. Our decision final. Address entries: Editor, "Radio Record," P.O. Box 1032, Wellington.]

BOXING BROADCAST

CAPACITY HOUSE IN
DUNEDIN

APPRECIATION OF LISTENERS.

There were 5000 people present and the door-takings were £700 at the boxing match, Leckie v. Gillespie, in Dunedin on Saturday, April 28.

And a description of the match was being broadcast!

All the recent boxing matches in Dunedin have been put "on the air," and it is quite evident that broadcasting does not affect the door takings. The Dunedin Boxing Association has been very keen on broadcasting, being convinced that the sport would benefit.

Incidentally it may be mentioned that the Broadcasting Company has received letters from all over New Zealand, from as far as Warkworth, in North Auckland, expressing appreciation of the broadcasts. Boxing enthusiasts throughout the Dominion have appreciated the action of the Dunedin Boxing Association in permitting the broadcast of contests.

A Milton correspondent remarks in his letter: "In consequence of the two previous broadcasts of matches, a number of enthusiasts went to Dunedin from here to see the match."

SPORTING

NEXT WEEK'S RUGBY

Rugby Football—Eden Park, 1YA; Athletic Park, 2YA; Lancaster Park, 3YA; Carisbrook, 4YA.

AUCKLAND G.N. MEETING

PERMISSION TO BROADCAST

Permission has been granted by the Auckland Racing Club to the Broadcasting Company to relay a description of the events at the Grand National Meeting on June 2, 4 and 6.

3YA CHURCH SERVICE
COMMITTEESUNDAY MORNING
SERVICES

At a meeting of the 3YA Church Service Committee, there were present: The Revs. D. Gardner Miller (chairman), H. Earle, T. W. Armour, and Harold Sharp. Mr. L. Slade (station director of 3YA), and Mr. C. S. Booth, of the headquarters administrative staff.

Religious services in connection with the diamond jubilee celebrations were discussed, and the committee recommended that the following services should be broadcast on Sunday, May 27:—Morning, Congregational; afternoon, Anglican Cathedral; evening, St. Paul's Presbyterian.

The chairman gave notice of motion that the Broadcasting Company should be recommended to consider the broadcasting of morning services, once a month, by the Anglican and Presbyterian churches.

Prosecutions Instituted by Department

LISTENERS PENALISED FOR UNLICENSED RECEIVERS

The period of grace allowed having elapsed, listeners should note that the Post and Telegraph Department is already instituting prosecutions for those still in possession of and using unlicensed receiving apparatus. In Wellington in the past week two prosecutions were brought and resulted in each case in the Bench inflicting fines of £3, plus court costs of 10/- and solicitor's fees of 10/6 each. The delay in registration thus proved somewhat costly.

The regulations are strict, and require that any set not desired to be used shall be dismantled and put in such condition that it cannot readily be assembled for reception.



—Andrew, photo.
MR. A. H. F. WRIGHT.

Mr. A. H. F. Wright is solo clarinet and saxophone player of the new 2YA Orchestra. Mr. Wright, who was born in Surrey, England, has had considerable experience in theatre orchestral work. In Wellington his ability is familiar to patrons of most of the leading theatres—the King's, Queen's, Paramount, Arterial, and Opera House, and, until quite recently, the Regent. As a member of the band of the New Zealand Brigade, Mr. Wright gained very useful military band experience in England. During the past two months, Mr. Wright has afforded listeners-in to 2YA ample evidence as to his artistry as a solo player, his clarinette and saxophone contributions having been widely appreciated. His work is notable for a remarkable beauty of tone, artistic interpretation, and truly sympathetic treatment. Mr. Wright, it is confidently expected, will prove a brilliant unit in an outstanding organisation.

CHILDREN'S WORK AT
3YAADVISORY COMMITTEE SET
UP

An enthusiastic gathering of representatives of organisations interested in child welfare was held at the Radio Broadcasting Company's studio on Tuesday afternoon. A committee to be known as the 3YA Children's Sessions Advisory Committee was formed, and Mr. D. B. Parton was elected to the chair for the ensuing twelve months. Miss M. Hall, local organiser of the children's sessions at 3YA, was appointed secretary.

Those present were: Mrs. Norton Francis and Mrs. R. Wallwork, representing the Parents' National Educational Union; Miss Cardale, representing the Society for the Protection of Women and Children; Mrs. W. Machin, representing the National Council of Women; Major Ashworth, representing the Boy Scouts; Mr. Clarke, representing the Head Masters' Association; Brother Hendricke, representing the Marist Brothers; the Rev. Frederick Rule, representing the Presbyterian Orphanages; Mr. H. Bannehr, representing the Anglican Orphanages; Mr. G. D. Dickson, representing the Scottish Society; Uncle Sam, Uncle Jack, Chuckle, Big Brother, Aunt May, Mother Hubbard of 3YA; Mr. L. Slade, station director of 3YA; Mrs. A. R. Hall, Principal of the Children's Department of the Radio Broadcasting Company's administrative staff. Apologies were received from Miss A. M. Bentham of the Y.W.C.A., Mrs. W. G. Roberts of the Mothers' Union, Mrs. D. James of the Welsh Society, and Miss Lucy Cowan, elocution teacher.

WOOLSTON BAND

TO PLAY FOR 3YA

Station 3YA has been successful in making an engagement with the Woolston Band, the leading band in Christchurch and one of the finest in New Zealand, to play regularly at the studio.

3YA will now have four bands taking regular turns—the Band of the First Canterbury Regiment, Municipal Band, Derry's Military Band, and Woolston.

The Christchurch station cannot, therefore, do much more in regard to brass band music.

THE ALL BLACKS

RESULTS OF MATCHES

BROADCAST AT FIRST OPPORTUNITY.

M. B. Charteris, Greymouth: I had meant to write this letter before, but, as late as I am, time still permits to ask this question. I have not seen in your columns any arrangement whereby the All Blacks' fixtures, or most of them, will be broadcast by South African stations. I have been told in this town by several that some of the matches are to be broadcast, so I thought the only possible way would be to ask through your medium. Could you tell me whether the S.A. stations are broadcasting any of the All Blacks' engagements. Hoping to see where you say "yes."—[When the tour was first mentioned the Broadcasting Company fully investigated the position, both as regards broadcasting on the ordinary band and on short wave. Two factors are against either course being undertaken. First, the time the matches are played is about midnight, New Zealand, and, secondly, for some unknown reason South African transmissions are not well received in New Zealand. One theory is that the sound waves follow the shortest route, which is across the south magnetic pole, due to the curve of the earth, and reception here even of short-wave transmissions is quite exceptional. News of the matches will be called and the results broadcast from all stations at the first opportunity after receipt.—Ed.]

LUCKY CHILDREN OF
TO-DAY

A Christchurch listener writes to 2YA as follows:—"I am one who listens very often to your children's session, and I get much pleasure from same. My age is only 58, but don't tell anybody. You put on some really good, interesting items for old and young. Your stunt from Thorndon station in giving a send-off to Uncle Jasper was most enjoyable. I am sure many of your young radio friends must have felt very much downhearted and I know there must have been a lot of eyes that were dim with tears. You know some people cannot imagine the pleasure your children's sessions give, but I am always glad to hear them. My word, had such a thing been possible 50 years ago, what pleasure we would have had. I remember somewhere in the 'seventies, I used to think how wonderful it was with two cardboard boxes and a piece of string perhaps 20 or 30 yards long, to hear a whisper. Now here I get Sydney in great volume without even the string. Best of wishes to 2YA and its 'tiddies' sessions."

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Enthusiastic Praise for 2YA Orchestra

General Appreciation of Players and Selections

APPRECIATIVE comment has been evoked on all sides by the first week's performances of the 2YA orchestra, and it is already plain that the engagement of such a talented group of performers will be not only an outstanding event in broadcasting but an event of first-class importance in influencing musical taste throughout the country. It is a definite policy that the orchestra shall cater for the popular taste, and the steps being taken through our columns to secure public judgment will afford a very reliable index to that taste, provided adequate use is made of the opportunity, as we believe will be the case. The initial concert from 2YA was re-broadcast by 3YA very successfully. This is likely to be done frequently so that 2YA's orchestra will mean almost as much to the other centres as to Wellington itself.

THE 2YA orchestra sprang into popular favour with its initial concert of Tuesday, May 1. Opinions heard on all sides indicate that expectations were exceeded by the very finished performances given by all performers of the popularly selected music calculated to make an appeal to every possible taste. The evening's performance served to demonstrate conclusively that with an orchestra of this calibre the whole gamut of orchestral composition was available, thus assuring a variety not otherwise possible.

The initial number of the orchestra was "Poet and Peasant." This is always a popular number and was undoubtedly brilliantly played. The mastery of instruments and precision of attack on the part of the orchestra left nothing to be desired. Mr. Geo. Ellwood's solo was the outstanding feature of this particular number.

The spirit of "The Answer" was sympathetically given. As music-lovers know "The Request" and "The Answer" interpret the query and answer of a blind organist as to the reason for his affliction. In "The Answer" there is conveyed a heavenly inspiration which soothes the wounded spirit and converts despairing ravings into content and happiness. The sympathy so necessary to this work was ably attained. In "Romanza Andaluza" opportunity was afforded Miss Ava Symons to display her brilliance and artistry. The final number of this bracket was the ever popular Toreador song played as a trombone solo by Mr. S. J. Forrest.

A musicianly interpretation of "Peer Gynt" proved very satisfying to classically-minded listeners. In the setting of "At Evening" Mr. H. Berry distinguished himself by the fine tone of his cornet solo and "La Paloma," which followed, delighted many. It may prove to be the popular choice for the repeat number.

Devotees of the fox trot were delighted by the versatility displayed by the orchestra in turning to fox trot numbers and waltzes. The final number, "Slavonic Rhapsody," was characterised by the brilliant work of Mr. A. H. F. Wright with the clarinet. In this he displayed brilliant technique and finished tone.

And so ended the opening concert with the reputation of the combination definitely made.

CHRISTCHURCH crystal set users have heard the new orchestra. To say that it has been enjoyed is to

express the sentiments of listeners very mildly. By the process of re-broadcasting through 3YA, the orchestra means almost as much to the crystal set users of Christchurch as to the crystal set users of Wellington. Though Tuesday is 3YA's silent day, the station went on the air and re-broadcast the Wellington concert for the special benefit of Christchurch crystal set users, an action on the part of the Broadcasting Company which was widely appreciated.

Many congratulatory messages have been received. One correspondent who is well-known to the correspondence branch at the headquarters of the Broadcasting Company for his candour in criticising or praising the Company as he thinks the occasion warrants, sums up the advent of the orchestra in these words:

Wonderful orchestra at 2YA. Expected something "extra special," and it was a triumph to all concerned. The R.B.C. forges ahead steadily. Congrat's.

MUSIC LOVERS' APPRECIATION

THE formation of the 2YA studio orchestra marks a distinct step forward in broadcasting in New Zealand. The Broadcasting Company has done the thing very handsomely, and the combination of ten such talented performers comes as a welcome surprise. Listeners to Wellington's giant station are now able to hear what, to music-lovers, is one of the most enjoyable forms of entertainment. The scope of the orchestra is almost unlimited, embracing, as it does, opera, cantata, sonata, symphony, overture (ancient and modern), suite, fantasia, rhapsody, symphonic poem, march, all forms of dance music, song-setting, etc.

The 2YA studio orchestra has immediately scored a decided "hit," and has already proved itself perfect in combination and balance, and completely artistic in interpretation, in each form of musical expression so far put on the air. Each player, however, is recognised as a "top-notch" in Wellington musical circles, and all that was required for complete success was combination which, as experienced musicians, was easily acquired in a few preliminary practices together before their inaugural broadcast. Tribute may well be paid to Mr. Bellingham, not only for the wisdom which guided his selection of the members of the orchestra, but also for the diversity of the class of music already performed, for it must be remembered that the thousands of listeners to 2YA, Wellington, are widely varied in their tastes. Concessions have been discreetly made to each section so that each evening there will be orchestral numbers that will please everyone in turn. This is a requisite in broadcasting.

Of the lighter music there is an infinite variety to choose from, and new compositions are coming out all the time. Among the heavier compositions which are calculated to please not only the "high brows" but also a large section of listeners who lay claim to no special musical culture, are the "overtures" and other works of the great masters.

Here are a few items I would suggest as suitable for a wide circle of listeners: Overtures to "Rienzi," "The Flying Dutchman," and "Die Walkure" (Wagner). Prelude to "Lohengrin" (Wagner). "Midnight at Sedan" orchestral fantasia (Zollner). "Invitation to the Dance" (Weber). Overture "Di Ballo" (Sullivan). Overture fantasia "Romeo and Juliet" (Tchaikowsky). Symphonic poem "The Wood Dove" (Dvorak). Rhapsody "Espana" (Chabrier). Tone poem "Taormina" (Boeche). Little suite "Children's Games" (Bizet). Prelude to "The Ruby" (d'Albert). Fantasia "The Mystic Trumpeter" (Converse). Suite "Impressions of Italy" (Chapientier). Ballet music from "Fera-mors" (Rubinstein). Suite "Schererzade" (Rimsky-Korsakov).

One of the most effective works of the above rough list is the prelude to "Die Walkure," although somewhat brief. It is descriptive of the rising and subsidence of a furious storm. It is mainly constructed on a simple subject, repeated and varied, and leads to the scene where Siegmund suddenly appears in Hunding's hut. I would like first to hear this item tried out on the great listening public, but I have no misgivings as to how it would be received.

LETTERS OF APPRECIATION

A.C.M., Wellington: "The programme was a pleasure to listen to after what we have had to listen to. It is the best programme we have had since the Maori entertainment, broadcast by the Wanganui Maoris, which was the best programme ever broadcast in New Zealand. The items rendered by the orchestra were beautifully played, especially "That Saxophone Waltz," and "The Doll Dance." I must praise the orchestra highly for their fine efforts and also give great credit to the conductor. Hoping we shall have the pleasure of hearing plenty more of such music."

S.M.K., Wellington: "I would like to congratulate you on obtaining such a first-class orchestra as you have. I have just been listening in this evening, the initial appearance of the orchestra, and I must say that their items were a real treat and very much appreciated indeed. Good luck and best wishes, 2YA."

W.E.B., Featherston: "I must congratulate you and the members of your orchestra on the very fine concert you have given listeners in tonight. It was undoubtedly one of the best I have heard in New Zealand—and will no doubt do a lot of good for wireless in New Zealand."

J.B.D., Ohau: "Speaking of the orchestra I may state that we here are thrilled with it, and I honestly consider it the best combination I've ever listened to, and I only hope it will have a long life in 2YA's studio."

PRESS COMMENT

THE reception given by Wellington listeners to the new orchestra arranged for 2YA has been most satisfactory and pleasing. Writing in "The Dominion," "Aerial" says: "The orchestra comprises an array of talent it would be difficult to equal in any other portion of New Zealand. Each of the performers has a well-established reputation in musical circles, and Mr. Bellingham is to be complimented on his choice in selecting the orchestra. If there has been one weakness in the programmes of 2YA it has been the absence of an orchestra, and this circumstance has been frequently referred to in these columns. One must confess, however, that although there was every reason to believe that an orchestra would eventually be engaged for 2YA, it was not

anticipated that the performers would comprise such distinguished members of the musical profession. Musical people are, of course, aware that an orchestra is more capable, as a combination of players, of interpreting most massed instrumental music than a band. The 2YA orchestra is well balanced, the instruments being selected upon the most approved basis."

Describing the initial performance, "The Dominion" said: "The items given ranged from classical compositions to dance music, and listeners report excellent reception, and the tone melodious. Mr. Bellingham was the recipient of many congratulations on the excellence of the orchestra."

RADIO LICENSES IN BRITAIN

2,583,726 ON JANUARY 1.

The latest figures to hand show that the total number of listening-in licenses in Britain on January 1 last was 2,583,726, plus roughly 11,000 free licenses given to blind and other listeners. The license fee in Britain is 10s. per annum.

MUSICAL AND DRAMATIC CONFERENCE AT 2YA

MEETING OF PROVISIONAL COMMITTEE

Following the recent conference of representatives of the musical and dramatic organisations at Wellington, the meeting of the Provisional Committee was held on Wednesday afternoon at 2YA Studio. There was a large and representative attendance. Mr. R. Palmer was voted to the chair, and after the minutes of the previous conference were read and confirmed, and the purpose of the proposed committee further explained by representatives of the company, Mr. A. Stanley Warwick moved and Mr. Harrison Cook seconded:

That this provisional committee approve the Radio Broadcasting Company's proposal for the formation of a 2YA musical and dramatic committee for the purpose of stimulating interest in musical and dramatic arts, and that those present agree to constitute themselves such a committee, subject to the ratification of the respective societies.

This was carried unanimously. The constitution and rules to govern the activities of the committee were considered, and, with minor amendments, adopted.

Selecting Items for 2YA's Orchestra

HEAVY RESPONSE BY THE PUBLIC

A HEAVY response has been made by the public to the opportunity given of expressing their wishes, through our voting coupons, and it is plain that this method makes a popular appeal. Experience throughout the first week shows the need of some adjustments to facilitate ease in working. We are therefore dividing the coupon into two—one for request items and the other for "repeats." In the case of requests, it is deemed advisable to make selection at least three clear days ahead to permit of the operative score being procured, should the number chosen be a little out of the ordinary. For convenience in administration the Broadcasting Company is co-ordinating a full musical library in Christchurch, upon which 2YA will need to draw undoubtedly from time to time. Those making "requests" will therefore please note this time requirement, and also that their nominations are not ignored because they may not be complied with at first. Great value is attached to the requests coming forward, and all will be recorded and used as a basis in the compilation of the ordinary programme of the orchestra, apart from the request number itself. In this way the assurance may almost be given that any item desired will be played sooner or later.

In the case of "repeats," the coupon is designed to permit voting on all four evenings. Selection in this case is made at noon of the day concerned, and votes are receivable up till then. Distant listeners may send their votes forward for the early part of the week in order to have a share in the voting, and follow later with their wishes for the latter part of the week. Ordinary correspondence may be sent apart from the coupon, which is merely offered for convenience. To distinguish voting correspondence readily from our ordinary business mail would listeners please use the symbols, 2YA/0 Radio Record, P.O. Box 1032, Wellington.

Request Item Coupon

For Evening of
(Fill in day and Date.)
Address: 2YA/0, Radio Record, P.O. Box 1032, Wellington.

I would like to hear
played by 2YA's Orchestra.

Signed

NOTE:—Request coupons should reach us three clear days before date of request, to give time, if necessary, for provision of music in orchestral score. Only items which are prepared for orchestral work should be nominated. Selection is made in accordance with majority wishes, but careful record will be kept of all nominations, and the effort made to comply sooner or later in the compilation of programmes.

'Repeat' Coupon

Address: 2YA/0, Radio Record, P.O. Box 1032, Wellington.

I desire to nominate the following items for "repeats" next week:—

Monday (Classic)

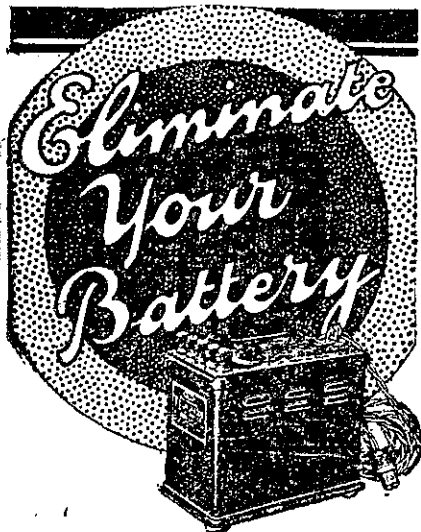
Tuesday (Operatic)

Friday (Popular)

Saturday (Vaudeville)

Signed

Votes may be recorded for one or for all of the nights mentioned. This selection is made at mid-day for the evening affected. Voting papers receivable till noon. Distant listeners may send forward their Monday's and Tuesday's votes if desired, in order to be in time, and follow later with Friday's and Saturday's wishes. The coupon is inserted for convenience, and may be supplemented in writing.



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79 Kent Terrace, WELLINGTON.

From the Woman's Point of View.

By VERITY.

TO-DAY AND TO-MORROW

Miss Belle Renaut.

Miss Belle Renaut, the clever and popular young singer who appears regularly at 3YA as a member of Miss Frances Hamerton's Melodious Four, has gained her L.A.B. and won the prize of £25 given by the Associated Board of the Royal Academy and Royal College, for the South Island students. Miss Renaut has received all her training in singing from Miss Marian Woodhouse, L.R.A.M. (also a 3YA artist), studying theory and ear-training under Miss J. Black, Mus.Bac. She has been studying for only three years, and is to be congratulated on attaining such remarkable proficiency in a comparatively short space of time.

Spiritual Snobbery.

Once, in discussing some scandal in the Church of England with a Quaker friend, he said to me, "I do not know how you tolerate such people inside the Church. The Society of Friends would have found means of freezing them out long ago." With joy I realised that no one is ever frozen out of the Church of England: no one—or hardly any one—excommunicated from her altars. At her most sacred service, the Holy Communion, saint and sinner kneel together; the sweating employer and the slum landlord with their victims; the profligate with the virtuous. This scandalises the virtuous sometimes. I do not know why, for nothing seems more certain than that we are quite incapable of judging who are the virtuous and who not. For my part, the social snobbery of the Church of England is less odious than the spiritual snobbery which is the besetting sin of more exclusive societies.

We shall never all worship in the same way, but I think we shall some day recognise that all who love Christ are of one communion, and we shall unchurch nobody. In the meantime, I cannot wish that differences of temperament and genius that exist among us should be ironed out into a flat monotony when we approach God in public worship, or even wish that we were all alike. I feel at home in a Church of England service; I do not desire all men to feel as I do, and I respect and even like the differences which I must believe not offensive to God, who made us all individual and different.—A. Maude Royden in "I Believe in God."



MISS BELLE RENAUT.

—Webb, photo.

Poverty No Bar.

At one time to be well dressed meant to be rich. To-day poverty is no bar to elegance. It is, indeed, a social revolution, because as the standard of dress rises, so the standard of conduct rises also. That is why manufacturers have presented a new fabric to civilisation.—Mr. H. G. Williams, Parliamentary Secretary to the British Board of Trade.

Season's New Colour.

At the third exhibition of British artificial silk goods opened recently at Holland Park Hall, London, there was the new colour—mavis, the hue of a thrush's egg; the mannequin parade, in which the new afternoon frock, with its drooping hem, stood halfway

Films for Children.

between the short business frock and the long evening dresses; the intriguing new long trousers for women tennis players, both charming and utilitarian, and the weatherproof evening wraps, beautiful and fragile in appearance, yet rendering the wearer superior to a shower.

Every scrap of artificial silk in the exhibition is all-British, and it has been used in every form for which real silk has hitherto been utilised.

In 1927 the production of artificial silk yarn in England was half as much again as it was in 1925. To-day the output of artificial silk is three times that of the old form of silk.

The Cape Jumper Suit.

Among the most noticeable things in the women's wear is the new cape jumper suits. This cape is going to replace the sleeveless coat. It is made in several styles, but the most popular seems to be tied loosely about the neck and to reach a little below the waist. It is being used on long coats, too, but here it is made in "spiral" fashion, which gives a double effect, like one cape placed above another at the back but single at the sides. These coats, which are sleeveless, have long scarf collars, and are being made for both day and evening wear.

Colour in Sport.

The sports girl is to be gayer than ever. Joseph's coat could have been nothing to the new sports coat. Foundations of, say, white flannel, are covered in wool embroidery or crochet, which embraces all the colours of the rainbow in, probably, some dozens of shades. Sometimes silk and wool are used together, and here and there applique work is introduced as well.

"THE BETTER WAY"

A COMPETITION FOR HOME-MAKERS.

MONTHLY PRIZES.

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

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

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

"VERITY,"
C/o "Radio Record,"
Box 1082, Wellington.

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

The Letters of Annabel Lee

My dear Elisabeth:

A gay and glad crowd gathered at the opening of the Rev Fielden Taylor's Fair at the Town Hall, on behalf of the Mission so dear to his heart and ennobling to his name. Fruit and flowers, sugar and spice, and all that's nice, much fine needlework, the latest diablerie in dolls, great courtesy on the part of willing helpers, combine to make this show of an attractiveness unique; and one carries away, along with smug satisfaction in spending many shekels in a good cause, an impression of blithe boys and merrie maidens, mothers and fathers who brought chuckling babelets, and a general warm feeling of camaraderie and kindness. The Nursery Rhyme march past was delightful; each individual or group being announced with a clarity of articulation and a resonance of tone worthy of the British Broadcasting Association itself. We made wise purchases to the gay strains of a band, myself laying in a stock of household requisite sufficient to keep the wolf from the door for at least another week. "Little Boy Blue" was very sweet and gallant in velvet suit, his wide hat adorned with yellow-brown plumes; dear "Mary, Mary, Quite Contrary" sidled past; there were two altogether sweet Lavender Ladies; Josephine de Beauharnais was tall and stately for our delectation; "One, Two, Buckle My Shoe" looked regal and handsome in draperies of green and necklace of jade! and presided over by the well-loved rade, in ermine-trimmed robes, very boyish and happy amid his great flock. Mrs. Frieda Shaw, clad in sylvan green, was a graceful exponent of physical culture, illustrating the contortions a highly-trained, youthful body can achieve;

while a bevy of scantily-clad, dimple-kneed Amazons gave lithe exercises of an interest intriguing.

The Repertory Society would appear at last to have come into its own, and for the past week our slogan has been "The Play's the thing." Charming, gowned, mostly with male escort, feminine intelligentsia flocked to see "Hay Fever," that most diverting play, reminiscent of various odds and ends of Bohemian families and artistic temperament that we've all come across. This beguiling skit on modern men and manners was exceedingly capably put on, being entirely free from that raggedness which is apt to be a feature of non-professional performances. No weak spot was there in the long cast, Mrs. J. Hannah's conception and portrayal of Judith Bliss, that humbug incarnate, being very able and delightful, and a proof of an extreme versatility when her memorable "Maurice" is brought to mind, than which nothing could be further removed from the Noel Coward comedy. Mr. Pope was admirable as a nice young man; Mr. Wauchop, it goes without saying, gave effective rendering of the son of the amusing couple; while Miss Helen Thompson was attractively silly and particularly pretty as a flapper, wearing charming frocks with so appealing a grace that one didn't at all wonder at Simon's temporary infatuation. Miss Stocker's worldling was cleverly conceived and beautifully dressed; and, in the opinion of many, Mr. Gillespie, as the irritable, untidy, very human novel-writing husband of Judith Bliss, gave the best performance in an exceedingly fine production. On the concluding night many beautiful flowers were received, Mr. W. M. Page made a short speech,

outlining the Society's history during its two years of existence, and the producer, Mr. Harrison Cook, received plaudits.

Ornaments of silver and much fine gold are worn in London, so it behoves us to look out those ancient heirlooms, heavy chains and bracelets, linked in sweetness long drawn out, that have descended from Aunt Julia and Cousin Kate. Especially admirable are necklaces that closely clasp the lean throat of the mondaine, somewhat resembling the once-upon-a-time dog-collar; and old and lavish pendants might fittingly be fashioned into a clasp to confine draperies on hip, or, still more of the moment, in front of some silken sartorial success. Enormous bouquets are replacing the demure, highly finished nosegays, of such infinite variety, in which we have rejoiced for so long. A cabbage-like choux is the last cry—the bigger the better; and so bedizened, with her velvet frock of the lightest and slightest variety, slit to the waist at the back, and well cut out around her pretty shoulder blades, the 1928 Venus captures her world. However valiant, none can stand against the march of the Mode; slavishly, coyly, or sheepishly, according to her fashion, woman follows the light. Success lies in adapting to one's own style; and that is just where Evangeline scores. Her clothes float and cling to that graceful slimness as though they had grown there; and, with miraculous aptitude for colour values, she is inclined to make others look ordinary, a quality that, however endearing to mere man, makes her unpopular with the feline sex.

Your,

ANNABEL LEE.

Chestnut and Tomato Pie.

Rough puff pastry (about 8oz.), 1lb. chestnuts, 1lb. tomatoes, 1 fried onion, pepper and salt, 1 pint stock or water, 1oz. butter, 2 hard-boiled eggs. Method: Boil chestnuts for 20 minutes, and remove outer and inner skins. Melt the butter, fry the onion, then cook skinned tomatoes. Add stock, and, when boiling, add chestnuts, cook till they are tender, season, and put into pie-dish with sliced egg. When cold, cover with pastry. Bake 30 minutes.—Miss Marion Christian, 2YA.

Women are always asking questions and men are always inventing answers—and women are none the wiser.—Thackeray.

are out this season, one being a combination fireside and smoker's set, very neat, and takes up a minimum of room. Fireside companion sets, fitted with call and coal hammer, are among the new ideas that have come to stay. An item highly recommended for use and decorative effect is the combination fire screen. This screen, made of antique brass and copper, and fitted with fine wire mesh, will stop the smallest spark, the movable back can be adjusted for the daytime without the slightest trouble, and can be made in any size.—Mrs M. Thomas, 2YA.

I have never known a woman yet who could not keep a secret.—H.V.

TO-DAY AND TO-MORROW

Asking too Much!

A certain American millionaire had long wished to possess a really well-bred collie. When he was in the Highlands he saw a splendid specimen which would just suit him, and he asked the owner what he would take for the dog. "Ah, but you'll be taking him back to America?" cautiously asked the canny Scot. "Certainly, that is my intention, if you'll sell him to me," was the reply. "I no could part wi' Bob," answered the dog's owner emphatically, "I'm muckle fond like o' him," and even the very liberal offer made by the millionaire proved no inducement. However, greatly to the surprise of the American, he later on saw the dog sold to a drover for half the amount he had offered for him, and naturally asked for an explanation. "You told me you could not sell the dog," he said. "I said I could not part wi' him," was the reply. "Rob'll be home in two or three days from uoo, but I couldna ask him to swim across the ocean; na, that would be too muckle to ask."

Room Booked for a Marmoset.

The Savoy Hotel, London, has just received what one of their directors described as "the strangest telegram ever received."

It is in Italian and comes from Tito Schipa, the lyric tenor, from the Chicago Opera House, and it begs that in addition to a suite for himself a room may be reserved for his pet marmoset Toto.

This animal accompanies him everywhere, even on to the concert platform, and is said to be a great gourmet, with a preference for a dish composed of bananas, peanuts, and whipped cream. A room (with bath) has been duly reserved for Toto.

Baby Fashions.

Princess Elizabeth follows in her charming mother's footsteps by leading the fashion for her contemporaries. She has revived the long robes and flannels that for a time were replaced by much shorter garments which, although they were supposed to be more hygienic, allowed the tiny wearer's toes to get cold.

Exquisite Embroidery.

In the layettes all the robes were of old-fashioned length. They were hand embroidered, tucked, and buttonhole stitched so exquisitely that they looked as if hands had never touched them. All the trimming appears at each side instead of the front, so that when the baby is in his nurse's arms, the beauty of his apparel is not hidden against her dress. Muslin and lawn is used, of course; it launders so well; but richly embroidered pink and blue crepe de chine is made up for ceremonial occasions.



MISS ROMA BUSS.

Whose charming soprano voice contributes to 4YA's programme.
—Photo, Artile.

Eccles Cakes.

Half a pound rough puff or puff pastry, 2oz. candied peel, 4oz. currants, 2oz. brown sugar, 1oz. butter, 1 whole egg, a little nutmeg or mixed spice. Method: Roll out the pastry to a quarter of an inch in thickness, and cut into rounds with a plain cutter. Put the cleaned currants, chopped candied peel, sugar, and butter into a pan, and stir over the fire or stove until the butter melts. Allow the mixture to cool, and put a little upon each round of pastry. Fold over, and roll into a flat cake. Brush with egg, and bake quickly for 20 minutes.—Miss Marion Christian, 2YA.

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Some Features of Next Week's Programmes

"MIGNON" AT 1YA

For next week's operatic production at 1YA Madame Irene Ainsley has chosen the charming and graceful "Mignon." The melodies, composed by Thomas, will ever haunt the ear. The opera is based on Goethe's "Wilhelm Meister." It concerns a young girl, a long-lost daughter, who falls into the hands of gypsies. Madame Ainsley will take this part. The girl's father, Lethario, an itinerant harpist, really a count, will be acted by Mr. Walter Brough. Miss Airini Rogers will take the part of Bilina, an actress, and Mr. Robert Peter will be Wilhelm, a poet.

The operatic portion of the programme will occupy the second half of the concert session. The first portion will comprise an excellent concert to which the members of Madame Ainsley's Quartet, the Studio Trio, Mr. Eustace Fregilgas (cornet), and Mr. A. B. Chappell (lecturer on "Old New Zealand") will contribute.

The ever-popular Municipal Band concerts, which take place on Wednesday evenings will again be looked forward to next week. The band's programmes are always very enjoyable. From the studio vocal items will be given by the Hazell-Sutherland Duo.

Varied and popular will be the programme for Thursday at 1YA, comprising as it will songs by Mr. Barry Coney's Quartet, items by the Studio Trio, humorous sketches by Mr. T. T. Garland, elocutionary items by Mr. Fred Barker, and vocal items by the Snappy Three.

Mr. George Campbell will give one of his talks on "Motoring" on Friday evening.

Madame Mary Towsey's Quartet will supply the vocal portion of the concert on Friday. The items will comprise solos, duets and quartets. Some great favourites will be sung—"Carry Me Back to Old Virginia," "Come Into the Garden, Maud," "O That We Two Were Maying," "Love's Old Sweet Song," "Larboard Watch," "Eileen Alannah," and "Ye Banks and Braes."

Much humour will be introduced into Friday's concert, the artists being Mr. Tom Harris and The Hebrew Two. Popular music will be supplied by the Internationals, both vocal and instrumental.

An excellent programme is scheduled for Saturday evening, preceding the two hours' relay of dance music from Dixieland. The Lyric Quartet will be the vocalists, and they will sing a number of popular old songs. Mr. Allan McElwain will radiate humour, and mandolin items will be played by Mr. J. O'Kane.

The preacher for Sunday evening will be the Rev. Lionel Fletcher. After the church service there will be an organ recital by Mr. Maughan Barnett.

OPERATIC EVENING AT 2YA

On Monday next at 2YA the Ariel Singers will present a programme composed entirely of operatic music. Realising that piano accompaniments were not intended by operatic composers, they have chosen nearly all well-known items that by their sheer popularity may over-ride their lack of orchestral colour. Extracts from the following operas will be heard:—British: "The Immortal Hour" (Rutland Boughton, 1914), "Merrie England" (Edward German, 1902), "The Lily of Killarney" (Julius Benedict, 1862), "Ivanhoe" (Sir Arthur Sullivan, 1891), "The Bohemian Girl" (Michael Balfe, 1843). French: "L'Enfant Prodigue" (Claude Achille

On May 15 the Orpheus Quartet will sing "Hunting Chorus," from "Dorothy," "Good-night, Pretty Stars," and the dainty gavotte, "Queen of France." Mrs. Alice Harris will sing the wonderful waltz song from Gounod's opera, "Romeo and Juliet." Hugo Wolf's song, "Through the Night," will be given by Arthur Coe; while Miss Lily Mackie will sing "The Bitterness of Love," and, with the quartet, "Far, Far Away." Mr. Len Barnes has again chosen four very fine songs, "Thou Art Repose," by Schubert, "The Sea Hath its Pearls," by Franz, "The Monotone," by Cornelius, and "The Two Grenadiers," by Wagner. Cornelius was very devoted to his mother, whom he lost. At the funeral he imagined this single tone

the Celeste Quartet will be heard in a programme of miscellaneous numbers. Two quartets will be presented, the first of which is an exceedingly bright and spirited number, "A Paradox for Lovers," from Edward German's celebrated opera "Tora Jones," while the second, in milt contrast, is a delightful part-song, "O Happy Eyes," by Edward Elgar. This item has a legato movement requiring highly artistic treatment, and in the hands of the Celeste Quartet will possibly be one of the gems of the evening.

Of the selection of solos and duets to be presented, an outstanding item will be the duet "Necturne," by Denza, to be sung by Miss Myra

NOTES FROM 3YA

A combination bearing the name of the Four White Crows cannot fail to be very entertaining. This will be proved on Monday evening, when these four male voices will be heard for the first time at 3YA in company with the Band of the First Canterbury Regiment, Miss Lucy Cowan, Mrs. P. S. Lawrence, and Mr. J. P. Connell (elocutionist). Band nights at 3YA are always very popular, and next Monday, with the promise of such a variety of items, should be no exception. The Four White Crows will be Messrs. Charles

Excerpts from the comic opera "Dorothy" will comprise the vocal Mr. H. Instone.

Items to be sung by the Melodious Four on Friday evening, when an entertainment of the popular type will be given at 3YA. The items to be rendered will consist of solos and choruses. Other artists for this evening will be the Studio Trio, Theo. and Frances Gunther (concertina duets), Mr. George Bennett (accordion), Mr. Ivan Perrin (piano novelties), and Miss Malona Juriss (elocutionist).

The Avonian Minstrels head a fine array of artists of a varied and vaudeville type for Saturday evening at 3YA. Besides the minstrels, whose items will comprise solo and concerted efforts, and will include some plantation melodies, Misses Muriel Johns and Edna Johnson, Miss Elaine Moody's Hawaiian Trio, Mr. A. Ellwood (mouth organ), and Mr. J. Ellwood will also be on the programme.

NOTES FROM 4YA

On Sunday evening listeners will be able to hear the service from the Hanover Street Baptist Church. The preacher on this occasion will be the Rev. E. S. Tuckwell. At the close of the service a studio concert will be broadcast.

A magnificent programme has been arranged by the Kaikora Band for Tuesday evening. No less than four of the big popular works will be heard, including the "Poet and Peasant" overture, a selection from "Marta," the beautiful waltz, "Unrequited Love," and the "William Tell" overture. Another pleasing number will be the rendering of the intermezzo, "The Way to the Heart." Two popular marches, "The Three D. G.'s" and "On Tour" are also on the programme to be given by the band.

In addition to the band selections, a first-class programme of vocal and elocutionary items will be heard. Miss Winnie McPeak will present the charming little song, "Ships of Aready," and other numbers. Mr. E. G. Bond will render a group of bass solos, amongst which will be the old-time favourite, "The Diver."

Humorous elocutionary numbers will be rendered by Miss Madge Yates and Mr. Eric Hedden, and as a special feature during the evening a very humorous sketch will be presented by these two artists, entitled "A Film Scenario," being an adaptation of a "John Henry and Blossom" episode.

Thursday evening's programme will be of a humorous type. Several numbers from musical comedy will be presented by Miss Roma Buss—"Tact" from "Floradora," and the captivating little melody, "The Love Nest," from "Mary." Mr. Percy James will be heard in a comic song, "They Wouldn't Do it for Me," and one of the most tuneful of the newest fox-trots, "Ipsilante." Miss Billie Lorraine, the popular young comedienne, will be heard in the very latest popular songs. Mr. Billy Gay will present some humorous and popular songs. Major F. H. Lampen, one of the best known entertainers in Dunedin, will present a series of humorous interludes, and novelty piano numbers will be played by Mr. T. V. Anson.

An entertaining programme will be heard on Friday evening. Mr. Bert Rawlinson will sing a group of Scottish numbers; Mrs. D. Cartwright will sing "In an Old-Fashioned Town" and other old favourites. Mr. Neil Black,

(Continued on Page 14.)



Y.M.C.A. BOY SCOUTS WHO ARE HEARD FROM 2YA.

—Photo Crown Studio.

coming from the casket, and he wrote both the beautiful words and the music. Wagner has given us a fine setting of Heine's great poem. These songs were to be sung by Mr. Len Barnes on April 24, but he was unable to appear.

Mr. Douglas Stark's humorous items and Mr. C. Brazier with his banjo will contribute to the night's entertainment.

After an absence of some months, the Lyric Quartet will again be on the air on Thursday, May 17.

The concerted work will consist of those two beautifully-harmonised numbers, "Calm is the Sea" and "Every Rustling Tree," while the light character of their work will be well demonstrated by the humorous story of the "Boy and the Tack," and the old nursery rhyme of "Simple Simon." Will Goudie's rich baritone voice is well suited to the story of "The Mistress of the Master," and Charles Williams's beautiful tenor voice should be heard to advantage in "Thou Art Risen, My Beloved." The roving sea song, "The Salamander," will be sung by W. Binet Brown, and the duet,

Sawyer and Mr. William Boardman. These singers attain an artistic delivery to be envied.

Miss Myra Sawyer's magnificent soprano will be specially suited to the exacting requirements of the dainty bird song "The Wren," by Iza Lehmann. This singer is an established favourite with listeners, and will undoubtedly add to her laurels in this number.

Mr. Boardman's solo "The Trumpeter" needs no introduction, and this singer's resonant bass, together with his masterly interpretation, will do full justice to this popular number.

A bracket of two songs, "Smiling Thro'" and "That's All," will be rendered by Miss Mabel Dyer, contralto, who can be relied on for a finished performance. In association with Mr. Edgar Swain, Miss Dyer will be heard in the duet "Caro mio Ben." Mr. Swain's tenor voice should be well suited to the popular song "Lolita." Miss Mildred Kenny's steel guitar trio will be heard in sparkling numbers, and will give pleasure and variety to an attractive programme.

The concerted numbers which will be presented by the Melodie Four on Saturday, May 19, will be the beautiful "Spin Spin," and in response to numerous requests, "Drifting and Dreaming." This is an original arrangement by the Melodie Four, and when sung on a previous occasion proved immensely popular. On the lighter side the quartet will be heard in "Baby feet go pit-a-pat across the floor." The solo items are well chosen, and include "The Admiral's Broom," "Lack-a-Day," "The Postillion," and "Bird Songs at Eventide." "Robert" will tell in his inimitable style of "How Captain Cook Discovered New Zealand." Mr. Titchener will provide the humorous element, and Mr. Lad Haywood will contribute mandolin items.

Mr. Henry Mount, who is known to many listeners as the organist of St. Gerard's Church, where music is of so high a standard and is so greatly appreciated, will be heard as a soloist this week. He received lessons on the organ at the famous Italian Church, Hatton Garden, London, and for a short period was under Mons. Weilaert at Brussels. He frequently deputised at the Roman Catholic Cathedral, Northampton, and also at St. Peter and St. Paul, Ilford, finally becoming organist of the Church of the Holy Redeemer at Plymouth. His playing at St. Gerard's is greatly admired, and one prominent musician of Napier, who recently heard him on the air, expressed the opinion that he was the finest organist he had heard.

Lawrence and Maurice Lawrence, Les Stewart, and Pat Burns.

Vocal and instrumental items illustrative of the music of various nations will be rendered at 3YA on Wednesday evening. The vocalists will be Mr. A. G. Thompson's Dulcet Quartet, whose contributions towards the evening's entertainment will consist of samples of national songs. Instrumental items will be played by the Studio Trio, Mr. S. N. Crisp (euphonium), and Mr. Jack Marshall (banjo). English, Scottish, Welsh, Irish, Hungarian, French, and German compositions will be rendered. Elocutionary items will be given by

This week the Madame Gower-Burns' Grand Opera Quartet treated listeners to a night with French composers. Next week, on Thursday evening, Italian composers will be featured. Songs that are well known, such as "Funiculi Funicula" and Tosti's "Good-bye," will be sung, but a number will be new to listeners.

Miss Myra Edmonds will be heard again on Thursday evening in a humorous recitation, "Packing," and in "Orange Blossoms." The Studio Trio and Mr. R. Ohlson (cornet) will contribute instrumental items.



Mr. A. R. Watson, a talented and accomplished violinist, whose performances give much pleasure to listeners to 4YA.

Debussy, 1864). Italian: "Il Trovatore" (Giusseppe Verdi, 1859), "Norma" (Vincenzo Bellini, 1832). German: "Preciosa" (Carl Maria von Weber, 1822), "The Marriage of Figaro" (Wolfgang Amadeus Mozart, 1786). Another programme (miscellaneous) by the Ariel Singers will be heard from 2YA next Monday, May 21.

"Under the Desert Star," will also be given. Miss Esme Crow will be heard in humorous elocutionary items, and Mr. Johannes Andersen will deliver another of his entertaining talks on "Native Birds." The instrumental portion of the programme will be provided by the Central Mission Band. On Friday evening, the 18th instant,

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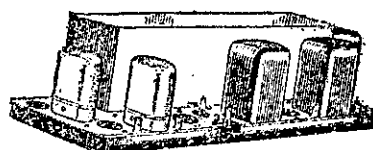
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NOTES AND COMMENTS

(By "Switch.")

THE A.C. shielded-grid valve has arrived. The New York "Popular Radio," of March, says:—"In the February number of 'Popular Radio' the editor suggested that the next logical development in radio would take the form of A.C. shielded-grid valves. Before the ink was dry on that paragraph, one of our genial friends popped into the office and proudly exhibited the finished article. Suggestions to-day, realities to-morrow!"

CANADA has sixty actual transmitters but more than that number of stations, because several stations are dividing the use of a single transmitter.

"A Russian Lullaby" is well known to New Zealand listeners. The charge that one of Irving Berlin's outstanding song successes had been "pirated" from manuscript submitted to Mr. Berlin's musical publishing house was contained in an action filed recently in the New York Supreme Court. Ira B. Arnstein, a composer, said that he privately exhibited a song entitled "Alone" to the Berlin firm and that shortly after, in April, 1927, "A Russian Lullaby," by Mr. Berlin, appeared. The music was plainly that of his song, which has never been published or copyrighted, Mr. Arnstein asserts. He adds that he has common-law rights in the music which he wants enforced. His action seeks an accounting for the profits from "A Russian Lullaby," by Mr. Berlin and his firm, and asks an injunction prohibiting further sale of the song until the action is settled. The publishing house demands a bill of particulars of Arnstein's claims.

WITH the help of radio photography the long arm of the law reached across the Atlantic recently to capture a criminal in London who was wanted in Chicago. An exchange of fingerprints between Scotland Yard and Chicago, by means of radio, identified the fugitive, and the British authorities returned him to America to stand trial.

A correspondent recently wrote to the Melbourne "Listener-In":—"Please explain the following: When I disconnect the aerial from the set and hold it near the aerial terminal screw, about three inches away, the waves will jump the gap and still get into the set. Why doesn't the same thing happen in a lightning arrester where the gap is tiny? H.D. (Horsham, Vic.). The Editor replied: The waves do not jump the gap, but reach the set through the ground. The wiring and coils in the set also pick up some energy, just like an aerial, and that is why some receivers will operate without aerial and ground connections. The incoming radio impulses are very weak compared with the static charges, which are powerful enough to jump the air gap in the arrester.

WHAT is an electric receiver? Although this should be a simple question to answer, there seems to be a great deal of confusion in drawing conclusions. The New York "Popular Radio" holds that any receiver drawing its source of supply, both "A," "B" and "C," from the lighting mains through "A," "B" and "C" power devices without the use of batteries of any type, may be called an electric receiver. It would seem superficial to use this term only in connection with sets employing AC valves. After all, the term "electric set" is more or less ambiguous, for all radios are certainly electric. Perhaps the term "batteryless receiver" would be more correct, although it is a negative term.

A convincing foretaste of future business hustle is provided by the news that an eight million pounds prospectus of the issue of the Province of Buenos Aires 6 per cent. Bonds was recently sent from New York to London by photo-radio-telegraphy for publication in French newspapers. The reproduction of the prospectus in a Paris paper—nearly a page—was so clear that it did not need to be re-set in type, but was just photographed and printed.

A writer in London "Popular Wireless" says:—"The little lyre-bird whispers that the listener in Andorra (kindly look at the map of Spain to find this independent municipality) has failed to pay his license fee for 1928, and as he still insists upon listening, because he is the mayor, has been fined a couple of goats or fourteen strings of onions, payable by instalments. Talking of 'pirates' it is said that India is in a bad way through lack of license fees. But our Eric Dunstan is putting up a good fight. I am not a wet blanket, but I know a little of India, and in these 'Notes' I predicted wholesale piracy a long time ago.

Sunday, May 13

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

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

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

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

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

5.30 p.m.: Children's song service, conducted by Uncle Sam.
6.30: Relay of evening service from St. Michael and All Angels Church of England. Preacher, Rev. Charles Perry, M.A. Organist and choirmaster, Mr. T. Vernon Griffiths, M.A., Mus.Bac.
7.45: Musical interlude from 3YA Studio.
8.15: Rebroadcast of Station 2YA, Wellington (concert by the Port Nicholson Band, from Grand Opera House, Wellington).
God Save the King.

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

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

Monday, May 14

1YA AUCKLAND (333 METRES)—MONDAY, MAY 14.

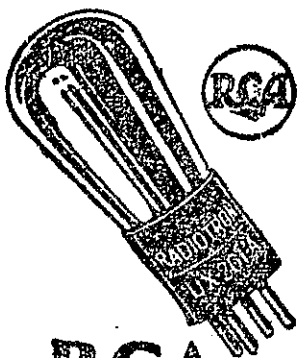
SILENT DAY.

2YA WELLINGTON (420 METRES)—MONDAY, MAY 14.

3 p.m.: Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
4.30: Sporting results to hand.
4.35: Selected gramophone items.
4.55: Sporting results to hand.
5.0: Close down.
6.0: Children's hour—Uncle Jeff and Auntie Gwen.
7.0: News session, market reports and sports results.
7.40: Lecturette—Rev. J. R. Blanchard, B.A., "Spanning a Continent."
8.0: Chimes of the G.P.O. clock, Wellington.
8.1: Overture—The orchestra, "Stradella" (Flotow).
8.9: Quartet—Ariel Singers, "The Stars That are Shining," from "Pascia" (Weber).
8.13: Tenor—Mr. C. A. Williams, "The English Rose," from "Merrie England" (German).
8.17: The orchestra—(a) "Caprice Viennois" (Kreisler); (b) "Spanish Dance" (Sarasa).
8.25: Duet—Misses J. Briggs and N. Coster "Hear Me, Norma," from the opera "Norma" (Bellini).
8.29: Humour—Mr. E. A. Sargent, "When I Was a Boy at School" (Spurr); "Under the Circumstances" (Spurr).
8.34: Mezzo-contralto—Miss Ngairi Coster, "Voi che Sapete," from "The Marriage of Figaro" (Mozart).
8.38: Trio—Symons-Elwood-Short Trio, "Lament and Finale" (Saint-Saens).
8.48: Elocution—Mr. Stanley Warwick, "The Rose Out of Reach" (Ogilvie).
8.53: The orchestra, "Unfinished Symphony" (Schnbert).
9.3: Weather report.
9.5: Duet—Miss Jeanette Briggs and Mr. C. A. Williams, "The Miserere," from "Il Trovatore" (Verdi).
9.9: Bass—Mr. J. M. Caldwell, (a) "Ho, Jolly Jenkin," from "Ivanhoe" (Sullivan); (b) "The Old Bard's Song," from "The Immortal Hour" (Boughton).
9.15: Piano—Mr. Gordon Short, "Ballade in A Flat" (Chopin).
9.23: Humour—Mr. E. A. Sargent, "House Hunting" (Squires).
9.28: Quartet—Ariel Singers, "The Gipsy Chorus," from "The Bohemian Girl" (Balfe).

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9.32: The orchestra, "Ballet Music" from "Faust" (Gounod).
9.42: Sketch (for two characters)—Mr. Stanley Warwick, "Which Is It?"
9.57: Soprano—Miss Jeanette Briggs, "Lia's Aria," from "L'Enfant Prodiges" (Debussy).
10.1: Duet—Messrs. C. A. Williams and J. M. Caldwell, "The Moon Hath Raised Her Lamp," from "The Lily of Killarney" (Benedict).
10.5: The orchestra, request numbers.

3YA CHRISTCHURCH (306 METRES)—MONDAY, MAY 14.

3 p.m.: Afternoon concert session—Selected studio items.
4.25: Sports results.
6.0: Children's hour—Uncle Jack.
7.15: News session.
8.0: Chimes. Relay of orchestral selections from Strand Picture Theatre Orchestra, under the conductorship of Mr. Harry Elwood. Studio concert by Band of 1st Canterbury Regiment Infantry (conductor, Lieut. C. H. Hoskin).
8.10: Harmony Quartet—The Four White Crows, "Ukulele Dream Girl" (Low).
8.14: March—The band, "Port Lincoln" (Hume).
8.18: Baritone solo—Mr. Les. Stewart, "Ten Thousand Years From Now" (Ball).
8.22: Fantasia—The band, "Carnival of Flowers" (Le Due).
8.30: Soprano solo—Mrs. P. S. Lawrence, "Pining Just For You" (Vandersloot).
8.34: Male Harmony duet—Messrs. Charles and Maurice Lawrence, "Kalua" (Kern).
8.38: March—The band, "North Star" (Turner).
8.42: Recitations—Miss Lucy Cowan, (a) "I Wouldn't" (Herbert); (b) "Publishing the Banns" (Herbert).
8.48: Baritone solo—Mr. Pat Burns, "Everybody Happy" (Lawrence).
8.51: Selection—The band, "La Sonnambula" (Bellini).
9.1: Harmony Quartet—The Four White Crows, "Lucky Day" (De Sylva).
9.4: Weather report and forecast.
9.5: Talk—Mr. D. E. Parton (under auspices of Christchurch Public Utilities Committee), "Tree Trimming" (Introductory).
9.20: Popular song—Mr. Maurice Lawrence, "Fancy Nancy Clancy."
9.24: March—The band, "New Colonial" (Hall).
9.28: Baritone solo—Mr. Charles Lawrence, "I'm Ticked to Death I'm Single" (Regan).
9.33: Fantasia—The band, "Golden Valley" (Hawkins).
9.40: Soprano solos—Mrs. P. S. Lawrence, (a) "Springtime"; (b) "You" (Bushway).
9.46: Humorous sketch—Miss Lucy Cowan and Mr. J. F. Cannell, "Talking Again."
9.50: Male Harmony duet—Messrs. Charles and Maurice Lawrence, "Hop, Skip and Jump" (Courtney).
9.59: Humoresque—The band, "Ding Dong Bell" (Trentlark).
10.3: Vocal Harmony Quartet—The Four White Crows, "Tears of an Irish Mother" (Nicholls).
10.7: March—The band, "Lights Out" (Shelley).
God Save the King.

4YA DUNEDIN (463 METRES)—MONDAY, MAY 14.

SILENT DAY.

Tuesday, May 15

1YA AUCKLAND (333 METRES)—TUESDAY, MAY 15.

3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the announcer.
4.8: Further gramophone items.
4.25: Sports results.
4.30: Close down.
6.0: Children's hour, conducted by Uncle George.
7.0: Close down.
7.15: News and market reports.
8.0: Chimes.
8.1: Relay of overture from Majestic Theatre New Orchestra.
8.6: Baritone solo—Mr. Walter Brough, "A Border Ballad" (Cowan).
8.10: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio in D Minor, Finale" (Arensky).
8.19: Contralto solos—Madame Irene Ainsley, (a) "In Questa Tomba" (Beethoven); (b) "Si Mes Vers Avalent Des Ailes" (Lahn).
8.26: Cornet solo—Mr. Eustace Tregilgas, "Nereid" (Clarke).
8.31: Tenor solo—Mr. Robert Peter, "The Woodland Flower" (Thomas).
8.35: Violin solo—Miss Ina Bosworth, "Valse Bluettes" (Auer).
8.39: Soprano solo—Miss Ailini Rogers, "You in a Gondola" (Clarke).
8.42: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Autumn and Winter" (Glazounov).
8.51: Relay of vocal interlude from Majestic Theatre.
8.56: Talk on Old New Zealand—Mr. A. B. Chappell, M.A., (9) "The People of Marion."
9.8: Weather report and forecast.
9.9: Cornet solos—Mr. E. Tregilgas, (a) "Click Clack Polka" (Rimmer); (b) "Within Your Eyes" (Lincke).
9.17: Excerpts from "Mignon" by Thomas, produced under the direction of Madame Irene Ainsley.
"Mignon" owes its popularity to grace and charm and delicacy. The refined hand of Thomas created melodies for this opera which ever haunt the ear with their peculiar personality.
Cast.
Mignon: Madame Irene Ainsley.
Filina: Miss Ailini Rogers.
Wilhelm: Mr. Robert Peter.
Lothario: Mr. Walter Brough.
Filina, Wilhelm and Lothario: "O What Beauty."
Mignon: "Knowest Thou the Land."
Mignon and Lothario: "Duet of the Swallows."
Mignon: "Spreme."
Filina, Mignon and Wilhelm: "No More, Mignon."
Wilhelm: "Farewell, Mignon."
Mignon: "Gavotte."
Lothario: "Berceuse."
Mignon and Lothario: "Hast Thou Suffered."
Finale: "Hymn and Trio."
God Save the King.

2YA WELLINGTON (420 METRES)—TUESDAY, MAY 15.

3 p.m.: Chimes of the G.P.O. clock, Wellington.
3.1: Selected gramophone items.
4.30: Sporting results to hand.
4.35: Selected gramophone items.
4.55: Sporting results to hand.
5.0: Close down.
6.0: Children's hour—Big Brother and cousins.
7.0: News session, market reports, and sports results.
7.40: Lecturette—Representative of Department of Agriculture, "For the Man on the Land."
8.0: Chimes of the G.P.O. clock, Wellington.
8.1: The Orchestra—"Finlandia" (Sibelius).
8.10: Quartet—Orpheus, "Lamenting Chorus" (Cellier).
8.14: Contralto—Miss Lily Mackie, "Bitterness of Love" (Dunn).

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Week - All Stations - to May 20

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- 8.18: The orchestra—"Suite le Cid" (Massenet).
 8.28: Baritone—Mr. Len. Barnes, (a) "Thou Art Repose" (Schubert); (b) "The Sea Hath Its Pearls" (Franz).
 8.34: Humour—Mr. Douglas Stark, "The Quack" (Hilton).
 8.39: The orchestra—Cello solo with orchestral accompaniment—"Prelude and Clair de Lune" (Massenet). Soloist: Mr. George Ellwood.
 8.45: Quartet—Orpheus, "Good-night, Pretty Stars" (Johnston).
 8.49: Soprano—Mrs. Alice Harris, "Waltz Song" from "Romeo and Juliet" (Gounod).
 8.53: The orchestra—"Four Indian Love Lyrics" Woodforde-Finden).
 9.3: Weather report and announcements.
 9.5: Tenor—Mr. Arthur Coe, "Through the Night" (Wolf).
 9.8: Relay of organ solos by Mr. Henry Mount—(a) "Offertoire in F" (Hartwell); (b) "Hymn to St. Cecilia" (Gounod); (c) "Marche Militaire" (Schubert).
 9.20: Baritone—Mr. Len. Barnes, (a) "Monotone" (Cornelius); (b) "Two Grenadiers" (Wagner).
 9.26: Contralto solo, with quartet—Miss Lily Mackie and Orpheus, "Far, Far Away" (Scott Gatty).
 9.30: Humorous character sketch—Mr. Doug. Stark, "Postie" (Anderson).
 9.36: The orchestra—Request numbers.
 9.44: Quartet—Orpheus, "Queen of France" (Schartan).
 9.48: Sketch—Messrs. Doug. Stark and Len. Barnes, "History" (original).
 9.53: The orchestra—Popular fox-trot and waltz numbers.

3YA CHRISTCHURCH (306 METRES)—TUESDAY, MAY 15.
SILENT DAY.

4YA DUNEDIN (463 METRES)—TUESDAY, MAY 15.

- 3 p.m.: Town Hall chimes.
 3.1: His Master's Voice recital.
 3.30: Social notes.
 3.40: Studio music.
 4.0: Mr. G. J. Butcher, of Turnbull and Jones, Ltd., will speak on "The Domestic Uses of Electricity."
 4.15: His Master's Voice recital.
 4.25: Sports results.
 4.30: Close down.
 6.0: Town Hall chimes.
 6.1: Children's hour, conducted by Big Brother Bill. Happy Folk's Anthem. Chorus, Boys' Brigade, "Brigade Boys." Recitation, "Bud Dis-courses on Cleanliness." Chickabiddies' story-time. Chorus, Boys' Brigade. Song and chorus, Davy McMorland, "Pack Up Your Troubles." Letters, birthdays and the radio postman. Haka and song, Brigade Boys, "It's an Emblem Fair." Story-time, Big Brother Bill, "Boys Who Played the Game." Brigade chorus.
 7.15: News session.
 7.30: An address.
 8.0: Town Hall chimes. Concert by the Kaikorai Band, under the conductorship of Mr. E. Franklin, and items by assisting artists.
 8.1: March—Kaikorai Band, "Three D G's."
 8.5: Contralto solos—Miss Winnie McPeak, (a) "Sigh No More, Ladies" (Keel); (b) "The Ships of Arcady" (Head).
 8.10: Humorous recital—Mr. Eric Hebden, "Dad's Bath."
 8.15: Overture—Kaikorai Band, "Poet and Peasant" (Suppe).
 8.25: Bass solo—Mr. E. G. Bond, "The Diver" (Loder).
 8.28: Humorous sketch—Miss Madge Yates and Mr. Eric Hebden, "A Film Scenario."
 8.36: Tenor solos—Mr. Chas. Edwards, (a) "Values"; (b) "The Night Has a Thousand Eyes" (Lambert).
 8.42: Intermezzo—Kaikorai Band, "The Way to the Heart" (Ansell).
 8.48: Humorous address—Pastor W. D. More.
 9.3: Weather report and forecast.
 9.6: Baritone solos—Mr. R. B. Macdonald, (a) "The Call of the Wind" (McGeoch); (b) "A Banjo Song" (Homer).
 9.11: Selection—Kaikorai Band, "Bohemian Girl" (Balle).
 9.28: Vocal duet—Messrs. Chas. Edwards and R. B. Macdonald, "Arise, O Sun" (Day).
 9.29: Recitation—Miss Madge Yates, "The Rose and the Wind."
 9.34: Waltz—Kaikorai Band, "Unrequited Love" (Lehar).
 9.42: Contralto solo—Miss Winnie McPeak, "Nay Though My Heart Should Break."
 9.45: Humorous recital—Mr. Eric Hebden, "The Washing" (Milne).
 9.49: Overture—Kaikorai Band, "William Tell."
 10.4: Bass solos—Mr. E. G. Bond, (a) "Harlequin" (Sanderson); (b) "Farmer's Pride" (Russell).
 10.9: March—Kaikorai Band, "On Tour" (White).
 10.12: Tenor solo—Mr. Chas. Edwards, "When Shadows Gather" (Marshall).
 10.15: God Save the King.

Wednesday, May 16

1YA AUCKLAND (333 METRES)—WEDNESDAY, MAY 16.

- 3 p.m.: Afternoon session—Selected gramophone items.
 4.0: Literary selection by the announcer.
 4.8: Selected gramophone items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour, conducted by Uncle Tom.
 7.15: News and market reports.
 8.0: Chimes.
 8.1: Relay of concert programme by the Auckland Municipal Band, under Mr. Christopher Smith.
 Assisted by the Hazell-Sutherland Duo, who will perform the following items from the studio:—
 Contralto solos—Miss Phyllis Hazell, (a) "For Your Dear Sake" (Trotter); (b) "Down Here" (Brace).
 Baritone solos—Mr. Frank Sutherland, (a) "One Fleeting Hour" (Lee); (b) "The Wheel-tapper's Song" (Wolseley).
 Duets—The Hazell-Sutherland Duo, (a) "Garden of Happiness" (Daniel Wood); (b) "The Golden Song," from "Lilac Time" (Schubert).
 10.0: God Save the King.

2YA WELLINGTON (420 METRES)—WEDNESDAY, MAY 16.
SILENT DAY.

3YA CHRISTCHURCH (306 METRES)—WEDNESDAY, MAY 16.

- 3 p.m.: Afternoon concert session—Selected studio items.
 4.0: Talk—Miss Henderson, "Electrical Cooking."
 4.25: Sports results.
 6.0: Children's hour—Uncle Peter and Mother Hubbard.
 7.15: Addington Stock Market reports.
 7.30: News session.
 8.0: Chimes and overture.
 8.5: Baritone solo—Mr. A. G. Thompson, "Had a Horse" (Korby).
 8.9: Euphonium solo—Mr. S. N. Crisp, "Eidelweiss" (Round).
 8.14: Soprano solo—Miss Mary Shaw, "Chanson du Tambourineur."
 8.18: Cello solo—Mr. Harold Beck, "Melodie" (Purcell).
 8.23: Tenor solo—Mr. T. G. Rogers, "Land of My Fathers" (James).
 8.27: Instrumental trio—Christchurch Broadcasting Trio, "Romance Inter-mezzo and Salterello" (Bridge).
 8.39: Contralto solos—Miss Nellie Lowe, (a) "Less Than the Dust" (Woodforde-Finden); (b) "The Temple Bells" (Woodforde-Finden).

- 8.45: Recitation—Mr. H. Instone, "The Veteran's Story."
 8.51: Banjo solo—Mr. Jack Marshall, (a) "Teatime To-morrow" (Long); (b) "To-night's My Night With Baby" (Meyer).
 8.56: Vocal quartet—The Dulcet Quartet, "Where My Caravan Has Rested" (Lohr).
 8.59: Weather report and forecast.
 9.0: Overture.
 9.5: Baritone solos—Mr. A. G. Thompson, (a) "List to Me Rosebud" (Korby); (b) "Shepherd, See Thy Horse's Foaming Mane" (Korby).
 9.11: Euphonium solo—Mr. S. N. Crisp, "Annie Laurie" (Round).
 9.16: Soprano solos—Miss Mary Shaw, (a) "Les Quinze Ans De Rosette"; (b) "Mes Mentous."
 9.22: Cello solo—Mr. Harold Beck, "Minuetto" (Becker).
 9.27: Tenor solos—Mr. T. G. Rogers, (a) "O That Summer Smiles For Aye" With the Rose," from "In a Persian Garden" (Lehmann).
 9.34: Instrumental trios—Christchurch Broadcasting Trio, (a) "Cantabile" (Widor); (b) "La Coquette" (Translatenr).
 9.43: Contralto solo—Miss Nellie Lowe, "Pale Hands I Love" (Woodforde-Finden).
 9.46: Humorous recitation—Mr. H. Instone, "How McDougall Topped the Score."
 9.51: Soprano and tenor duet—Mrs. Claris Shaw and Mr. T. G. Rogers, "Howell, Howell, Dost Thou Loiter" (Parry).
 9.54: Banjo solo—Mr. Jack Marshall, (a) "Sunny Swannee" (Tabbush); (b) "Me and My Shadow" (Jolson).
 9.59: Vocal quartet—The Dulcet Quartet, "Alas, That Spring Should Vanish With the Rose," from "In a Persian Garden" (Lehmann).
 God Save the King.

4YA DUNEDIN (463 METRES)—WEDNESDAY, MAY 16.
SILENT DAY.

Thursday May 17

1YA AUCKLAND (333 METRES)—THURSDAY, MAY 17.

- 3 p.m.: Afternoon session—Selected studio items.
 3.30: Lecturette—Representative of Auckland Gas Company, "Gas Cook-ing."
 4.0: Literary selection by the Announcer.
 4.8: Further gramophone items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour, conducted by Peter Pan.
 7.15: News and market reports. Book review.
 8.0: Chimes.
 8.1: Relay of overture from Rialto Theatre Orchestra, under the direction of Harry C. Engel.
 8.11: Vocal quartet—Mr. Barry Coney's Quartet, "Who Shall Win My Lady Fair?" (Pearsall).
 8.15: Humorous sketch—Mr. T. T. Garland, "A Presentation" (Jackson).
 8.20: Baritone solo—Mr. Barry Coney, "Marishka! Marishka" (Korby).
 8.24: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio in E Minor" (Saint-Saens).
 8.34: Soprano solo—Miss Dorothy Yould, "Boy Johnny" (Cundell).
 8.38: Novelty—Mr. Fred. Barker, "A Wayside Philosopher to His Friend—Acquiring a Pleasing Voice."
 8.48: Tenor solo—Mr. George Barnes, "An Evening Song" (Blumenthal).
 8.52: Vocal trio—The Snappy Three, (a) "The Song of the Wanderer" (Moret); (b) "My Annabelle Lee" (Garber).
 9.0: Weather report and forecast.
 9.1: Relay of entr'acte from Rialto Theatre Orchestra.
 9.11: Contralto solos—Miss Martha Williamson, (a) "My Ain Wee Hoose" (Munro); (b) "My Dear Soul" (Sanderson).
 9.19: Musical sketch—Mr. T. T. Garland, "Adv. rts." (Craigton).
 9.24: Instrumental trio—Bosworth-Hemus-Towsey Trio, "L'Arlesienne" (Bizet).
 9.34: Baritone solo—Mr. Barry Coney, "A Yeoman's Yarn" (Gheel).
 9.38: Vocal trio—The Snappy Three, (a) "My Heart Stood Still" (Rodgers); (b) "Piano Jazz"; (c) "Just Imagine It" (Kellen).
 9.47: Elocutionary—Mr. Fred. Barker, "Henry V Before Harfleur" (Shakespeare).
 9.52: Soprano solo—Miss D. Yould, "There's Love for us To-day" (Prent).
 9.56: Pianoforte solo—Mr. Cyril Towsey, "Fantasia Impromptu" (Chopin).
 10.0: Tenor solo—Mr. George Barnes, "E Lucevan le Stelle" (Puccini).
 10.4: Vocal quartet—Mr. Barry Coney's Quartet, "The Cuckoo Sings in the Poplar Tree" (Macfarren).
 10.8: God Save the King.

2YA WELLINGTON (420 METRES)—THURSDAY, MAY 17.

- 3 p.m.: Chimes of the G.P.O. clock, Wellington.
 3.1: Selected gramophone items.
 4.30: Sporting results to hand.
 4.35: Selected gramophone items.
 4.55: Sporting results to hand.
 5.0: Close down.
 6.0: Children's hour—Uncle Sandy and Mrs. Menard's pupils.
 7.0: News session, market reports, and sports results.
 8.0: Chimes of the G.P.O. clock, Wellington.
 Studio concert by the Central Mission Band, under the conductorship of Mr. H. Baker, assisted by 2YA artists.

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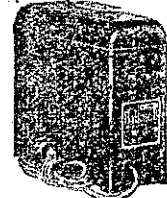
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—a saving of, say, a week's time. Marconi has predicted the abolition of Morse, and it now seems that, for business purposes, he has the right idea.

SINCE the inception of radio communication, engineers have accepted the theory that static interference is a phenomenon associated with the atmosphere and that the visitations of static impulses is the direct result of exposing parts of our receiving apparatus to the air. It has been insistently imagined that these rebellious gushes of static strike our aerials and rush pell mell through our receivers to the ground. How shocking it would be if we had to revise this conventional notion and picture static as a ground phenomenon, with terra firma as its abode in place of the sky. Such is the astounding theory of Dr. Richard Hamer, of the Pittsburgh University, U.S.A., whose researches have supplied what would seem to be sound verification for this amazing conclusion. Many scientists, however, will have their doubts, notwithstanding Dr. Hamer's deductions.

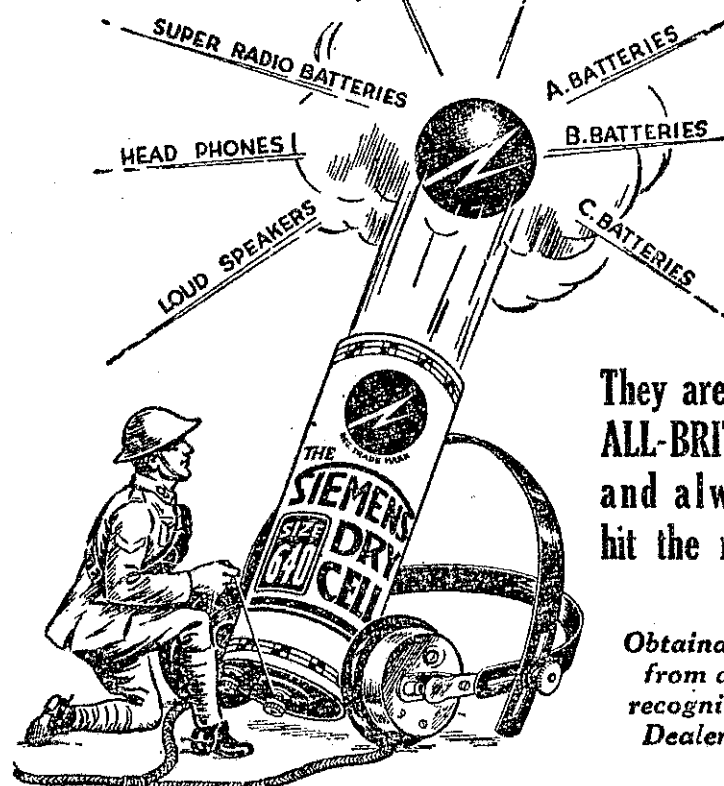
A London writer says:—The great Galli-Curci has at last sung before the microphone; she was the last of the die-hards in the top-notch singing line. When asked why she hung on so long, she said that she was waiting for radio to be perfected. Gentlemen, radio is now perfected, but what a pity some of them did not wait till the gramophone was—er—had reached its present degree of goodness.

FACILITIES for radiotelephone service from ship to shore will soon be offered to all passengers aboard the Hamburg-American liner "Columbus," according to "Radio-welt," a German radio magazine. The new service, which is announced to begin in May, will enable those aboard the ship to sit in the comfort of their cabins and converse with parties in New York or Berlin, as easily as one converses over an ordinary telephone. Only first-class cabins will be equipped with private connections; second and third-class passengers must use the radio room or telephone booths which are provided on the ship. People on shore will also be able to talk to passengers aboard the vessel. A friend in Berlin picks up his telephone and says: "Please connect me with Mr. X, aboard the s.s. 'Columbus.'" A while later Mr. X is called from the dining-room to the telephone and hears: "Achtung, Berlin kommt" (Berlin on the wire), and the conversation from ship to shore begins.

WORLD-WIDE tax information indicates that radio is classified in almost every nation on the earth as a necessity, and not as a luxury. France and Spain alone classify radio as a luxury in their taxation programmes; France levies a 12 per cent. tax on more expensive sets, and a 2 per cent. tax on cheaper products, while Spain has a 5 per cent. ad valorem rate. About a dozen countries levy a sales, or excise, tax, imposed generally on almost all products, including radio.

MR. Max Howden, the well-known Melbourne amateur transmitter, reports:—On the 20 metre band the most interesting listening is perhaps to the broadcasting programme from 2XAF, the G.E. Co.'s short-wave station, that works on 21.4 metres. This station is very easy to pick up at about 9 a.m. (10.30 a.m. New Zealand time), when every word is clear, except when fading is particularly bad. There are several other broadcasting stations using waves fairly close to this, but they do not work so regularly.

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Programmes Continued

— Copyright —

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- 8.1: March—Central Mission Band—"Powerful" (Carter).
 8.7: Quartet—The Lyric, "Calm is the Sea" (Pfeil).
 8.11: Cornet—Bandman McPherson, "The Lost Chord" (Sullivan).
 8.16: Tenor—Mr. Chas. Williams, "Thou Art Risen, My Beloved" (Coleridge-Taylor).
 8.20: Selection—Central Mission Band, "Giraffa" (Adam).
 8.32: Humour—Miss Esme Crow, (a) "Miss Bu"; (b) "You Know What I Mean" (Hayes).
 8.39: March—Central Mission Band, "Capisculus" (Pette).
 8.45: Quartet—The Lyric, "Simple Simon" (Macy).
 8.49: Euphonium—Bandman Baker, "Land of Hope and Glory" (Elgar).
 8.54: Bass—Mr. W. Binet Brown, "Gallant Salamander" (Burnard).
 8.58: Weather report.
 9.0: Lecturette—Mr. Johannes Andersen, "Native Birds."
 9.15: Selection—Central Mission Band, "Folk Song" (Newton).
 9.27: Duet—Messrs. Chas. Williams and Will Goulds, "Under the Desert Star" (Temple).
 9.31: Humour—Miss Esme Crow, "Telephone Conversation" (Anon).
 9.35: Waltz—Central Mission Band, "Felicity" (Greenwood).
 9.39: Quartet—The Lyric Quartet, "Catastrophe" (Sprague).
 9.43: Anthem—Central Mission Band, "Who is the King of Glory" (Ord Hume).
 9.47: Baritone—Mr. Will Goulds, "Mistress of the Master" (Phillips).
 9.51: Quartet—The Lyric Quartet, "Every Rustling Tree" (Kabian).
 9.55: March—Central Mission Band, "Delmonico" (Shipley Douglas).

3YA CHRISTCHURCH (306 METRES)—THURSDAY, MAY 17.

- 3 p.m.: Afternoon concert session—Selected studio items.
 4.25: Sports results.
 6.0: Children's hour—Chuckle and Aunt Pat.
 7.15: News and reports.
 7.30: Talk—Mr. G. H. Reece (under auspices of Canterbury Progress League), "The Arboretum and Why."
 8.0: Chimes and overture.
 Madame Gower-Burns's Grand Opera Quartet, in programme of Italian composers.
 8.5: Soprano and contralto duets—Madame Gower-Burns and Mrs. Ann Harper, (a) "From Far Away" (Caracciolo); (b) "A Steamboat Full of Flowers" (Caracciolo).
 8.11: Cornet solo—Mr. R. Olson, "Sylvian Melodies" (Hock).
 8.16: Tenor solo—Mr. Harold Prescott, "Gloria" (Buzzi-Peccia).
 8.20: Pianoforte solo—Miss Aileen Warren, "Waltz in A" (Levitzi).
 8.24: Baritone solo—Mr. Bernard Rennell, "Serenata" (Toselli).
 8.28: Instrumental trio—Christchurch Broadcasting Trio, "Allegro Maestoso" (Lalo).
 8.38: Soprano solos—Madame Gower-Burns, (a) "Vivie Moine" (Tosli); (b) "Ti Rapier" (Tosli).
 8.44: Humorous recitation—Miss Myra Edmonds, "Packing" (Carter).
 8.49: Contralto solo—Mrs. Ann Harper, "La Serenata" (Braga).
 8.53: Soprano solo and vocal quartet—Madame Gower-Burns (solo) and Grand Opera Quartet, "La Carita" (Rossini).
 8.58: Weather report and forecast.
 9.0: Overture.
 9.5: Baritone solo—Mr. Bernard Rennell, "Come Ragazzo Del Sol" (Caldard).
 9.9: Cornet solo—Mr. R. Olson, "Alpine Flowers" (Hock).
 9.11: Soprano solos—Madame Gower-Burns, (a) "Mia Picci Rella" (Gomes); (b) "Good-bye" (Tosli).
 9.18: Pianoforte solo—Miss A. Warren, "Tristesse" (Claude).
 9.22: Contralto solo—Mrs. Ann Harper, "Unliss" (Caracciolo).
 9.26: Instrumental trios—Christchurch Broadcasting Trio, (a) "Gavotte" (Hock); (b) "Andante" (Papini); (c) "Polacca" (Thomas).
 9.38: Tenor solos—Mr. Harold Prescott, (a) "Serenata" (Tosli); (b) "Tis the Day" (Leoncavallo).
 9.46: Recitation—Miss Myra Edmonds, "Orange Blossoms" (Rohmer).
 9.50: Soprano and contralto duets—Madame Gower-Burns and Mrs. Ann Harper, (a) "A Flight of Clouds" (Caracciolo); (b) "Nearest and Dearest" (Caracciolo).
 9.56: Vocal quartet—Grand Opera Quartet, "Funiculi Funicula" (Denza).
 God Save the King.

4YA DUNEDIN (463 METRES)—THURSDAY, MAY 17.

- 7 p.m.: Town Hall chimes.
 7.1: Request gramophone concert.
 7.40: News session.
 8.0: Town Hall chimes.
 8.1: Relay of orchestral music from the Octagon Theatre, under the direction of Mons. de Rose.
 8.11: Light soprano solos—Miss Roma Buss, (a) "Tact" from "Floradora" (Stuart); (b) "The Love Nest" from "Mary" (Misch).
 8.18: Novelty piano number—Mr. T. V. Anson.
 8.22: Light baritone solo—Mr. Percy James, "They Wouldn't Do For Me" (Shand).
 8.27: Humorous sketch—The Two Blue Ducks.
 8.37: Popular songs—Miss Billie Lorraine, (a) "I've Got the Boy"; (b) "Here Comes the Springtime" (O'Hagen).
 8.44: Humorous interlude—Major P. H. Lampen.
 8.52: Humorous song—Mr. Billy Gay, "How's Your Poor Old Feet?" (Wise).
 8.57: Weather report and forecast.
 9.0: Relay of orchestral music from the Octagon Theatre.
 9.10: Light soprano solo—Miss Roma Buss, "The Lilac Domino" (Curillier).
 9.14: Novelty piano numbers—Mr. T. V. Anson.
 9.20: Light baritone solo—Mr. Percy James, "Ipsilante" (Stampa).
 9.25: Humorous sketch—The Two Blue Ducks.
 9.30: Popular song—Miss Billie Lorraine, "Yale Blues" (Mills).
 9.34: Humorous interlude—Major P. H. Lampen.
 9.39: Humorous songs—Mr. Billy Gay, (a) "This Time Next Year" (David); (b) "And Then I Forgot."
 9.45: Sketch and popular numbers—Miss Lorraine and Mr. James, "My Wedding Day" (Clarke).
 9.52: Relay of orchestral music from the Octagon Theatre.
 10.0: God Save the King.

Friday, May 18

1YA AUCKLAND (333 METRES)—FRIDAY, MAY 18.

- 3 p.m.: Afternoon session—Selected studio items.
 4.0: Literary selection by the Announcer.
 4.8: Further gramophone items.
 4.25: Sports results.

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WITH seventeen out of every twenty-six homes in the United States wired for electric lights, the future of the all-electric sets in that country looks rosy in the extreme. The seventy-five million people whom these homes represent are a market that has barely been touched by the newly-developed all-electric receivers and other power devices that operate from the lighting lines. And since the number of electrically wired houses is increasing yearly (the increase in 1927 was 71 per cent.), it can be seen that socket operation for radio receivers is in for a long and happy period of prosperity.

It is purposed to erect several intermediate radio transmission stations in Ireland, in addition to those already existing at Dublin and Cork. The number of licensed receivers now exceeds 9,000.

IN the United States, radio's total volume of business last year was \$57,000,000 (110 million pounds), ranking it sixth among the industries of the country. This astounding total has been reached in a seven-year boom from the 2,000,000 dollar (£100,000) business of 1921—the most phenomenal industrial growth in history. In 1921 the business consisted largely in crystal sets and three-circuit tuners. In 1922 came the portable receiver, using four and five valves, raising the business to a \$60,000,000 (£12,000,000) level. In 1923 the total was \$50,000,000 (£10,000,000), in 1924 \$50,000,000 (£10,000,000), and in 1925 \$50,000,000 (£10,000,000). In 1926 the manufacture of six, seven, and eight-valve receivers brought the total to almost the half-billion mark, and 1927 took the total well above that level. During 1927 six-valve receivers proved to be the best sellers.

IN the future the frantic calls of distressed ships cannot fall on the "dead ears" of nearby vessels, provided they are equipped with the new radio danger signal device recently invented by the Marconi Co. In the past, distress signals were not always intercepted by the ships nearest to the one in trouble. This was due to the fact that all vessels cannot carry a full radio watch. As a consequence, the SOS signal of the distressed boat could easily be missed if the radio operator was off duty. After many years' experimenting, the Marconi Co. have finally perfected a device, which goes on duty when the operator goes off. This device has only to be switched on to the ship's aerial. Twelve three-second wireless dashes with a one-second rest interval between each dash is the prearranged signal. After the third dash of this signal is received by the Marconi device, it immediately calls the radio operator back to his post by ringing a series of ship's bells.

THIS most prevalent form of man-made interference as distinct from natural interference, such as atmospheric, etc., is that caused by electric machinery or supply systems. It is possible, of course, to obtain perfect reception near electric systems, but if they are not designed or maintained with any consideration of their influence as generators of radio interference, the listeners within the sphere of influence have a bad time. Some country residents know too well how suddenly and completely their enjoyment of broadcasting ceases for the night immediately a picture show opens up; while others know that every night is spoiled for reception when a medical man with his electrotherapy apparatus starts his high frequencies oscillating. There are towns where the supply system is the cause of continual "static" as it is frequently called locally, and listeners efforts at obtaining satisfaction from their sets are practically nil.

AUSTRALIA has had a plethora of notabilities lately, all of whom have been captured and brought face to face with the microphone. Hinkler, perhaps, holds the record for being the most broadcast man of the year. Beginning with his arrival at Darwin, he has continuously held the chief place in radio transmission, either getting or receiving long-distance messages while Australia either looked on or listened in.

2FC, Sydney, which, owing to its stupendous income, is putting on the air some wonderful programmes, is, of course, not free from criticism. One Sydney growler writes to the Press as follows:—A couple of nights back I heard "Mike" (the young rascal) skitting about the good programmes that 2FC puts on the air. Well, they do, but I must say that a lot of it is "high-brow" and passes over the heads of "us way-backs" and "cow robbers." For instance! Mr. Cochrane (may his elbow never weaken) says that Professor So and So will now play "Allegro toute Suite in a B flat," and some bloke sits down (or I suppose he does), and drags out some notes at the rate of about 60 hours a mile, and as my crystal set can only get 2FC (when it is on the air the others are drowned out), I have to listen in or wait for the next item.

- 4.30: Close down.
 6.0: Children's hour, conducted by Peter Pan.
 7.15: Lecturette, by Mr. Geo. Campbell on "Motoring."
 7.30: News and market reports.
 8.0: Chimes.
 8.1: Relay of overture from Strand Theatre Orchestra, under the direction of Eve Bentley.
 8.11: Vocal quartet—Madame Mary Towsey's Quartet, "Carry Me Back to Old Virginia" (Black).
 8.15: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio in A Major."
 8.25: Baritone solo—Mr. John Bree, "To Anthea" (Hatton).
 8.29: Humour—Mr. Thomas Harris, "The Street Watchman's Story" (Levine).
 8.34: Soprano solo—Madame Mary Towsey, "Long Ago" (Bayly).
 8.38: Vocal and instrumental—The Internationals, (a) "Shanghai Dream Man" (Davis); (b) "Street of Phantoms."
 8.47: Tenor solo—Mr. Reginald Newberry, "Come into the Garden, Maud" (Bulfe).
 8.52: Duet—Madame Mary Towsey and Mr. J. Bree, "O, That We Two Were Maying" (Smith).
 9.7: Weather report and forecast.
 9.9: Contralto solo—Miss Gwendith Evans, "Love's Old Sweet Song" (Molloy).
 9.13: Cello solo—Miss Lalla Hemus, selected.
 9.18: Humour—The Hebrew Two, "Dismal Ike and Happy Abe."
 9.28: Instrumental trio—Bosworth-Hemus-Towsey Trio, selection, Old English airs, "The Rose" (Middleton).
 9.38: Vocal duet—Messrs. J. Bree and R. Newberry, "Larboard Watch" (Williams).
 9.43: Mezzo-soprano solo—Miss Mollie Atkinson, "Eileen Allannah" (Thomas).
 9.47: Vocal and instrumental—The Internationals, (a) "Dainty Miss" (Barnes); (b) "Rigoletto"; (c) "Since You Whispered I Love You" (Mills).
 9.57: Quartet—Madame Mary Towsey's Quartet, "Ye Banks and Braes" (Birch).
 10.1: God Save the King.

2YA WELLINGTON (420 METRES)—FRIDAY, MAY 18.

- 3.0: Chimes of the G.P.O. clock, Wellington.
 3.1: Selected gramophone items.
 3.30: Sporting results to hand.
 4.35: Selected gramophone items.
 4.55: Sporting results to hand.
 5.0: Close down.
 6.0: Children's hour—Uncle Ernest.
 7.0: News session—Market reports and sports results.
 7.40: Talk on to-morrow's football games.
 8.0: Chimes of the G.P.O. clock, Wellington.
 8.1: Overture—The orchestra, "Pique Dame" (Suppe).
 8.9: Quartet—The Celeste Quartet, "A Paradox for Lovers" (German).
 8.13: Bass—Mr. Wm. Boardman, "The Trumpeter" (Dix).
 8.17: The orchestra—"Voice of the Bells" (Thurban).

Synopsis:

The sun is slowly rising behind the mountain tops: it is the dawn of another day in the Alps. The monks of St. Bernard assemble for their morning prayer. "The Voice of the Bells" is heard far and near. A storm creeps up—then breaks with sudden fury. The monks in haste leave the monastery to succour the victims of the storm, which rapidly increases in intensity. "The Voice of the Bells" is heard in warning—"Try Not the Pass." The wind howls and the snow eddies around the monks as they beat their way through the storm, battling with the elements. At last they reach the poor, half-frozen wayfarer—"Excelsior." They lift the sufferer upon their shoulders and prepare to carry him to a safe haven. The wind increases—the storm becomes more terrific in its intensity and snowdrifts cover the path. Alas! the monks fear that they and their burden are lost. They pause and pray for guidance. They listen! Their prayer is answered—they hear again in the distance "The Voice of the Bells." Hark! 'Tis "The Voice of the Bells" calling them to home and safety.

- 8.25: Duet—Miss Mabel Dyer and Mr. Edgar Swain, "Caro Mio Ben" (Giordani).
 8.29: Humorous sketch—Miss Gwen Shepherd and Mr. Will McKeon, "Storm Clouds" (Doyle).
 8.36: Steel guitar trio—Mrs. Mildred Kenny's Trio, (a) "Then You'll Remember Me" (Balfe); (b) "Kalinka March" (Smith).
 8.43: Soprano—Miss Myra Sawyer, "The Wren" (Schumann).
 8.46: Trio—Symons-Ellwood-Short Trio, (a) "Serenade Espagnole" (Gla-zounow); (b) "Gypsy Rondo" (Haydn).
 8.56: Tenor—Mr. Edgar Swain, "Lolita" (Buzzi-Peccia).
 9.0: Weather report.
 9.2: Lecturette—Editor-Announcer, "Imperial Affairs."
 9.17: The orchestra, (a) "Open Thy Blue Eyes" (Massenet), (soloist, Mr. A. H. Wright; clarinet solo with orchestral accompaniment); (b) "Roberto tu che Adoro" (Meyerbeer), (soloist, Mr. H. Berry; cornet solo with orchestral accompaniment).
 9.22: Duet—Miss Myra Sawyer and Mr. Wm. Boardman, "Nocturne" (Denza).
 9.26: Contralto—Miss Mabel Dyer, (a) "Smiling Through" (Penn); (b) "That's All" (Brahm).
 9.30: The orchestra—Request numbers.
 9.38: Drawing-room entertainers—Miss Gwen Shepherd and Mr. Will McKeon, "Nutshell Novels" (Harridon); "The Liverwing Presentation" (Spurr).
 9.45: Steel guitar trio—Mrs. Mildred Kenny's Trio, (a) "O Sole Mio" (Di Capua); (b) "Then I'll be Happy" (Friend).
 9.52: Quartet—The Celeste Quartet, "O Happy Eyes" (Elgar).
 9.56: The orchestra—Popular fox-trot and waltz novelties.

3YA CHRISTCHURCH (306 METRES)—FRIDAY, MAY 18.

- 3 p.m.: Afternoon concert session—Selected studio items.
 4.25: Sports results.
 6.0: Children's hour—Big Brother.
 7.15: News session.
 8.0: Chimes and overture.
 8.5: Chorus and solos—The Melodious Four, "Lads and Lassies" (Cellier).
 8.9: Violin solos—Miss Irene Morris, (a) "Valse Triste" (Sibelius); (b) "Souvenir" (Drdla).
 8.18: Soprano solo and trio—Miss Frances Hamerton and Quartet, "Be Wise in Time" (Cellier).
 8.22: Accordion solo—Mr. George Bennett, popular melodies.
 8.29: Tenor solo—Mr. Russell Sumner, "With Such a Dainty Maid" (Cellier).
 Vocal quartet—The Melodious Four, "You Swear to be Good and True" (Cellier).
 8.37: Instrumental trio—Christchurch Broadcasting Trio, "Scherzo and Andante, Trio in F" (Reisigler).
 8.47: Bass solo—Mr. T. D. Williams, "With a Welcome for All" (Cellier).
 8.51: Recitation—Miss Maiona Juriss, "My Old Hot-water Bottle" (Herbert).
 8.56: Weather report and forecast.
 8.57: Talk—Mr. James Young, curator, Christchurch Domain (under auspices of Christchurch Utilities' Committee), "Tree Planting and Tree Trimming."
 9.12: Overture.
 9.17: Chorus and tenor solo—The Melodious Four, "Under the Pump" (Cellier).
 9.20: Pianoforte novelties—Mr. Ivan Perrin, "Improvisations on Popular Music."
 9.26: Tenor solo—Mr. Russell Sumner, "Though Born a Man of High Degree" (Cellier).
 9.29: Accordion solo—Mr. George Bennett, popular melodies.
 9.33: Bass solo—Mr. T. D. Williams, "Queen of My Heart" (Cellier).
 9.37: Instrumental trios—Christchurch Broadcasting Trio, (a) "Reverie Du Soir" (Saint-Saens); (b) "Humoresque" (Widor).
 9.47: Contralto solo—Miss Belle Renaut, "The Time Has Come" (Cellier).
 9.51: Humorous recitation—Miss Maiona Juriss, "Laugh and be Merry" (Masefield).
 9.56: Vocal chorus—The Melodious Four, "What Joy Untold" (Cellier).
 10.0: Pianoforte novelties—Mr. Ivan Perrin, "Extemporations on Popular Music."
 10.7: Finale—The Melodious Four, "You Swear to be Good and True" (Cellier).
 God Save the King.

Programmes Continued

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4YA DUNEDIN (463 METRES)—FRIDAY, MAY 18.

- 3 p.m.: Town Hall chimes.
3.1: His Master's Voice recital.
3.15: A representative of the D.I.C. will give a "Fashion Talk."
3.30: Afternoon tea music from the Savoy.
3.45: Studio music.
4.0: Music from the Savoy.
4.15: His Master's Voice recital.
4.25: Sports results.
4.30: Close down.
6.0: Children's hour, conducted by Auntie Sheila and Big Brother Bill. Happy Folks' Anthem. Greetings to the Radio Family. Mouth-organ selection. Chickabiddies' story-time, Aunt Sheila. Mouth-organ solo, Arthur Peate. Recitation, B. More, "Disobedience" (Milne). Letters, birthdays, and the Radio Postman. Mouth-organ selection. Recitation, K. More, "The Four Friends" (Milne). Story-time, Aunt Sheila. Mouth-organ selection. (The mouth-organ selections will be provided by the winners of mouth-organ sections in the Competitions.)
7.15: News session.
7.30: An address.
8.0: Town Hall chimes.
8.1: Orchestral selection.
8.5: Baritone solos—Mr. Bert Rawlinson, (a) "Sound the Perbroch"; (b) "Scottish Emigrant."
8.12: Flute solo—Mr. Chas. E. Gibbons, "Prince Methusalem" (Strauss).
8.18: Soprano solo—Mrs. D. Carty, "Silver Threads Amongst the Gold" (Danks).
8.21: Pianoforte solo—Miss Alice Wilson, F.T.C.L., "Ballade in G Minor" (Chopin).
8.31: Vocal duet—Mrs. D. Carty and Mr. Bert Rawlinson, "O Wert Thou in the Cold Blast."
8.35: Bass solos—Mr. Neil Black, (a) "The Grey North Sea" (Hewitt); (b) "She Is Far From the Land" (Lambert).
8.42: Pianoforte solo—Miss Alice Wilson, "To the Spring" (Grieg).
8.47: Baritone solo—Mr. Bert Rawlinson, Gaelic song, "Ho, Ro Mo Nightean Down Pholdeach."
8.51: Orchestral selection.
8.55: Soprano solo—Mrs. D. Carty, "In An Old-fashioned Town" (Harris).
8.59: Weather report and forecast.
9.1: Flute solos—Mr. Chas. E. Gibbons, (a) "Love's Request" (Reichardt); (b) "Mignon" (Thomas).
9.15: Bass solo—Mr. Neil Black, "Parted" (Tosti).
9.18: Relay of dance music from the Savoy by Alf Carey and his Dance Orchestra.
10.0: God Save the King.

Saturday, May 19

1YA AUCKLAND (333 METRES)—SATURDAY, MAY 19

- 2.45 p.m.: Relay of Rugby football from Eden Park.
6.0: Children's hour, conducted by Cinderella.
7.15: News and market reports, sports results.
8.0: Chimes.
8.1: Relay of overture from Prince Edward Theatre Orchestra, under Ern Beachem.
8.10: Vocal quartet—The Lyric Quartet, "Dance of the Gnomes" (McDowell).
8.14: Tenor solo—Mr. Herbert Richards, "The Gentle Maiden" (Sommerville).
8.18: Mandolin solo—Mr. J. O'Kane, "Overture Raymond" (Thomas).
8.23: Bass solo—Mr. Ernest Thomas, "The Floral Dance" (Moss).
8.28: Humour—Mr. Allan McElwain, "Some Humour."
8.33: Relay of entracte from Prince Edward Theatre.
8.43: Vocal quartet—The Lyric Quartet, "A Night of Love" (Spire).
8.47: Tenor solo—Mr. Arthur Dibley, "Tom Bowling" (Old English).
8.51: Vocal duet—Messrs. H. Richards and E. Thomas, "Song of the Sword" (Alyward).
8.56: Mandolin solos—Mr. J. O'Kane, (a) "Maytime" (Whider); (b) "Chorus From Faust" (Gounod).
9.4: Weather report and forecast.
9.5: Quartet—The Lyric Quartet, (a) "Two Flies" (Parkes); (b) "A Catastrophe" (Parkes).
9.13: Relay of dance music by the Internationals from Dixieland Cabaret, under Mr. Clyde Howley.
11.0: God Save the King.

2YA WELLINGTON (420 METRES)—SATURDAY, MAY 19.

- 3 p.m.: Chimes of the G.P.O. clock, Wellington.
3.1: Relay description of Rugby football match from Athletic Park, Mr. Chas. Lambert announcing.
6.0: Children's hour—Auntie Dot and U. de Toby.
7.0: News session—Market reports and sports results.
7.40: Lecturette—Mr. H. T. M. Fathers, "A Royal Hobby."
8.0: Chimes of the G.P.O. clock, Wellington.
8.1: Overture—The orchestra, (a) "Ole South" (Zamecnik); (b) "The Skater's Waltz" (Waldteufel).
8.10: Quartet—Melodie Four, "Spin Spin" (Jungst).
8.14: Humour—Mr. R. Walpole, "Egbert on How Captain Cook Discovered New Zealand" (original).
8.19: The orchestra, "In a Monastery Garden" (Ketelby).

Synopsis:

The first theme represents a poet's reverie in the quietude of the monastery garden amidst beatific surroundings—the calm serene atmosphere, the leafy trees, and the singing birds. The second theme in the minor expresses the more "personal" note of sadness, of appeal and contrition. Presently the monks are heard chanting the "Kyrie Eleison" (which should be sung by the orchestra) and the organ playing and the chapel-bell ringing. The first theme is now heard in a quieter manner as if it had become more ethereal and distant; the singing of the monks is again heard—it becomes louder and more insistent, bringing the piece to a conclusion in a glow of exaltation.

- 8.25: Soprano—Miss Nita Hopkins, "A Summer Night" (Goring Thomas).
8.29: Bass—Mr. W. W. Marshall, "The Admiral's Broom" (Kimball).
8.33: Italian mandolin—Mr. Lad Haywood, (a) "C'est Vous" (Richman); (b) "One Summer Night" (Spier).
8.39: Humour—Mr. Geo. Titchener, "Water Scenes" (Weston and Lee).
8.45: Jazz piano solos—(a) "Breeze"; (b) "Missouri Waltz."
8.53: Tenor—Mr. Sam Duncan, (a) "Lack a Day" (Crampton); (b) "Bird Songs at Eventide" (Coates).
8.59: Quartet—Melodie Four, "Drifting and Dreaming."
9.3: Weather report.
9.5: Selection—The orchestra, "The Cabaret Girl" (Kern).
9.14: Humour—Mr. R. Walpole, "Further Outpourings by Egbert" (original).
9.19: Italian mandolin—Mr. Lad Haywood, (a) "Just Like a Butterfly" (Woods); (b) "Yale Blues" (Jillis).
9.25: The orchestra—"Lightning Switch" (Alford).
9.33: Soprano—Miss Nita Hopkins, (a) "My Violet" (Thompson); (b) "The Wind" (Spross).
9.38: Baritone—Mr. R. S. Aliwright, "The Postillion" (Molloy).
9.42: Humour—Mr. Geo. Titchener, "In That Happy Land."
9.48: The orchestra—Request numbers.
9.56: Quartet—Melodie Four, "Baby Feet Go Pitter Patter" (Kahn).
10.0: Dance programme.

3YA CHRISTCHURCH (306 METRES)—SATURDAY, MAY 19.

- 2.45 p.m.: Relay description of Rugby football from Lancaster Park.
6.0: Children's hour, conducted by Uncle Sam and Aunt May.
7.15: Sports session.
7.30: News session.
8.0: Chimes and overture.
8.5: Negro plantation chorus—Avonian Minstrels, "De Ring-Tailed Coon" (Scott Gatty).
8.9: Mouth organ solo—Mr. Arthur Elwood, "Pasadena."
8.14: Humorous recitation—Mr. J. J. Flewellyn, "The General Situation" from "Monty."
8.19: Hawaiian steel guitar and ukulele trios—Miss Elaine Moody's Trio, (a) "My Dorothy Waltz"; (b) "Broken Hearted Melody."
8.25: Popular song—Mr. Ernest Rogers, "A Little Love, a Little Kiss" (Slesu).

RUSSIA has 45 broadcasting stations ranging in power from 20 watts to 40,000, and in wavelength from 150 to 1117 metres.

MUCH radio trouble can be traced to particles of dust getting between the condenser plates. The moral is—keep your condensers clear. A pipe cleaner is a very handy article for cleaning between the plates, as it is unnecessary to take the condenser apart.

JOSEPH HENRY, the American scientist, was the first man to point out that the charge of a condenser is oscillatory. This was in 1840.

THE ability of an aerial to collect energy depends directly on its height. Thus, for a crystal receiver, which should have as much energy from the aerial as possible, no pains should be spared to make it as high as possible, and as far above and away from trees and buildings as the resources of the listener will permit. If a valve set is used, an excessively long aerial is sometimes an embarrassment rather than a help. There are two main reasons for this. In the first place a very long aerial will collect a great deal of static, and reception will be marred. This effect is not so pronounced on a crystal receiver. The second objection to a long aerial for valve reception is that it tends to broaden tuning, and a weak station is difficult to pick up without interference while a powerful one is working. A crystal receiver is inherently broad in tuning, and this effect of a long aerial therefore is of little importance.

THE most reliable method of determining the degree of charge received by an accumulator (wet battery) is by means of a hydrometer. This consists of a glass float in a glass tube. There is a scale upon the upper portion of the float which rises or falls according to the density of the liquid in which it is floating, thus indicating the condition of the liquid. When the accumulator is fully charged its electrolyte will have a specific gravity of approximately 1.250. It is not advisable to allow the electrolyte to fall below a specific gravity of 1.166. When this figure is approached, the accumulator should be recharged as soon as possible to prevent possible damage to the cells.

THE Japanese Government has decided to revoke its previous decision to prohibit the operation of radio apparatus by amateurs. The result is that a large number of the Japs. are already in operation under new call signs of four letters, and the need for secrecy is happily passed.

THE old-fashioned plan of reversing audio transformer connections is often very effective in reducing the hum due to a B battery eliminator or a mains unit.

MARCONI first went to England in 1896, and his first experiments in that country were carried out at Westbourne Park, London, W.

SET-BUILDERS should note that sometimes the binding posts on transformers have the end of the winding soldered to the bottom end, and you can easily break the connection with the small wire by turning the whole binding post. After the binding post cap has been firmly tightened and you continue to turn up the cap the whole binding post will rotate.

THE Radio Corporation of America has applied for two exclusive short wavelengths, for use in exchanging programmes with Britain.

THERE was a dramatic interruption at 4.03, Brisbane, during the time Bert Hinkler was speaking some few nights ago. A moth attracted by the bright valves crossed a safety gap and short-circuited the high-tension supply. The station was off the air for a few moments, and the director of the station explained to Mr. Hinkler what had happened. When the station was started up again the microphone was switched on, Hinkler remarked that he did not intend to say much about that moth, but could not help remarking that an Avro Avian had much better habits, and would not have done a thing like that. The secret of the joke lies of course in the fact that the "moth" is another type of light aeroplane, a contemporary of the Avro Avian.

IN the Orange Mountains, 22 miles from New York city, is the Bell Telephone Laboratories experimental broadcast station, 3XN, which operates with an aerial power of 50,000 watts, requiring 200,000 watts input. It is on the air from midnight on Thursday till 4 a.m., New York time.

A RATHER interesting design of valve, for heating directly from the A.C. mains, is due to another French inventor, Monsieur Havardier. In this valve two filaments are used, connected together in parallel, but the leads to the one are the opposite way from those to the other, so that the current passes through the two filaments (which are placed close together, side by side) in opposite directions. In consequence of this, the general distorting effects of the current in the two filaments balance each other. The filaments are designed to emit at a very low temperature, and the valve has given very good results in actual practice.

- 8.29: Instrumental trios—Christchurch Broadcasting Trio, (a) "Andante Pathetique" (Tchaikowsky); (b) "Vivace, Trio in F" (Godard).
8.39: Musical monologue—Mr. Frank Olds, "The Girl on the Stairs" (Hanray).
8.43: Part song—The Avonian Minstrels, "Courting Mary Jane" (Housely).
8.47: Happy songs at piano with ukulele obbligato—Misses Muriel Johns (piano) and Edna Johnson (ukulele), "Popular Songs and Medleys."
8.53: Popular song and chorus—Mr. Douglas Clapperton and Avonian Minstrels, "Wandering Time."
8.57: Weather report and late news.
9.0: Overture.
9.5: Bass solo—Mr. J. Filer, "In Sheltered Vale" (d'Alquen).
9.9: Mouth organ solo—Mr. Arthur Elwood, "Silver Threads Among the Gold."
9.14: Chorus—The Avonian Minstrels, "The Old Folks at Home" (Foster).
9.18: Humorous recitation—Mr. J. J. Flewellyn, "No Noos."
9.23: Popular song—Mr. Frank Olds, "Hats Off to the Stoker" (Arundel).
9.27: Instrumental trios—Christchurch Broadcasting Trio, (a) "Melodie in F" (Rubenstein); (b) "Scherzo" (Reissiger).
9.37: Tenor and bass duet—Messrs. Ernest Rogers and J. Filer, "Flow Gently Deva" (Parry).
9.41: Hawaiian steel guitar and ukulele trios—Miss Elaine Moody's Trio, (a) "Hilo March"; (b) "Lament"; (c) "All Because of You."
9.49: Happy songs at piano with ukulele—Misses Muriel Johns (piano) and Edna Johnson (ukulele), "Popular Songs and Medleys."
9.56: Negro plantation chorus—The Avonian Minstrels, "Click, Clack, Clatter Go De Clogs" (Scott Gatty).
Dance music until 11 p.m.
God Save the King.

4YA DUNEDIN (463 METRES)—SATURDAY, MAY 19.

- 2.45 p.m.: Relay description of Rugby football from Carisbrook ground.
7.15: News session.
7.30: An address—"The Next Step in National Education," by Dr. Lawson, of Otago University.
8.0: Town Hall chimes.
8.1: Relay of orchestral music from the Empire Theatre.
8.10: Bass solos—Mr. Tom Cooper, (a) "Asleep 'Neath the Dark Blue Wave" (Leigh); (b) "The Ringers" (Lohr).
8.20: Pianoforte solo—Miss Muriel Caddie, "Prelude" (Rachmaninoff).
8.25: Instrumental trio (violin, cello and piano)—"Melodie" (Moskowsky).
8.30: Soprano solos—Miss Agnes Guy, (a) "A May Morning" (Denza); (b) "Tired Hands" (Sanderson).
8.36: Violin solos—Miss Eva Judd, (a) "Slavonic Dance No. 1 in G Minor" (Kreisler); (b) "Morris Dance From Henry 8th" (German).
8.44: Baritone solo—Mr. Arthur Langley, "What Am I Love Without Thee" (Schafer); (b) "Romance" (Rubenstein).
8.47: Cello solo—Mr. P. J. Palmer, "Allegro Appassionato" (Saint-Saens).
8.52: Relay of orchestral music from the Empire Theatre.
9.2: Weather report and forecast.
9.5: Contralto solo—Miss Irene Hornblow, "The Last Rose of Summer" (Moore).
9.8: Pianoforte solos—Miss Muriel Caddie, (a) "Birds in the Trees" (Schafer); (b) "Romance" (Rubenstein).
9.16: Bass solo—Mr. Tom Cooper, "Hats Off to the Stoker" (Arundel).
9.21: Instrumental trios—(a) "Husarenritt" (Spindler); (b) "Souvenir de Sorrento" (Severne).
9.32: Soprano solo—Miss Agnes Guy, "Give Me Youth and a Day" (Drummond).
9.34: Violin solo—Miss Eva Judd, "Mennett" (Dussek, arr. Burmester).
9.40: Baritone solos—Mr. Arthur Langley, (a) "To Anthea" (Santley); (b) "Sleep and the Roses" (Bowles).
9.45: Cello solo—Mr. P. J. Palmer, "Largo" (Handel).
9.50: Contralto solos—Miss Irene Hornblow, (a) "The Heart Bowed Down" (Old English); (b) "The Oak and the Ash" (Old English).
9.56: Relay of orchestral music from the Empire Theatre.
10.2: God Save the King.

Sunday, May 20

1YA AUCKLAND (333 METRES)—SUNDAY, MAY 20.

- 3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the announcer.
4.8: Further studio items.
4.30: Close down.
6.0: Children's hour, conducted by Uncle Leo.
6.55: Relay of evening service from Beresford St. Congregational Church, Preacher, Rev. Lionel Fletcher. Choirmaster, Mr. W. Gemmell.
8.30: Relay of organ recital by Mr. Maughan, Barnett, city organist.
9.30: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, MAY 20.

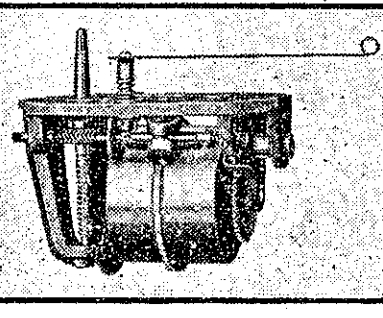
- 3 p.m. to 4.30 p.m.: Afternoon session.
6.55: Relay of evening service from The Terrace Congregational Church, Preacher, Rev. E. Weeks. Musical Director, Mr. Len. Barnes.
8.15 (approx.): Relay of band concert of the Wellington Municipal Tramways Band from His Majesty's Theatre.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, MAY 20.

- 5.30 p.m.: Children's song service, conducted by Uncle Sam.
6.30: Relay of evening service from St. Alban's Methodist Church, Rugby Street (Anniversary Service). Preacher, Rev. L. B. Neale. Conductor, Mr. W. S. Simpson. Organist, Miss Eleanor Neville-Smith.
8.15 (approx.): Rebroadcast of 2YA, Wellington (Municipal Tramway Band concert from His Majesty's Theatre, Wellington).
God Save the King.

4YA DUNEDIN (463 METRES)—SUNDAY, MAY 20.

- 5.30 p.m.: Children's song service, conducted by Big Brother Bill, assisted by Y.W.C.A. Girl Citizens' Club, under Miss Jones, secretary and leader.
6.30: Relay from St. Andrew Street Church of Christ. Preacher, Pastor W. D. More. Choirmaster, Mr. H. Hickey.
8.0: Studio concert.
9.15: God Save the King.



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Mainly about Construction

A Super-Regenerative Circuit

FOR LOOP OPERATION ONLY

THIS type of circuit is particularly adapted for loop operation, being one that was awarded first prize in a "Radio News" constructional contest, for which it was entered as a two-valve portable set contained in a carrying-case 10 by 11 by 5 3-8 inches, loop, batteries and 'phones being also contained in the case.

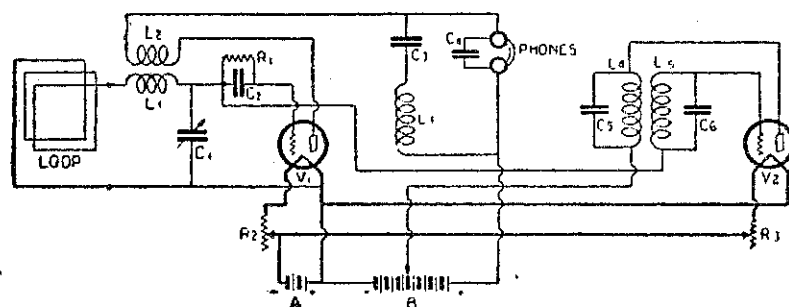
This is not given as a tested circuit, but as one from which experimenters can get good results with a certain amount of patience. A great point about the circuit is that there is absolutely no hand-capacity, an unusual point in super-regenerative receivers. Although the description embodies points for portability, the circuit may be used effectively on a larger indoor loop than would be employed in a portable set.

THE ends of the loop aerial connect to the single tuning condenser, C1, through the coil, L1; this

In the plate circuit of the detector tube is included the pair of headphones (each phone of 2,000 ohms resistance), shunted by a .002-mf. condenser. The 'phones themselves are shunted by a filtering system, composed of the coil L3, of 100,000 microhenries, and the condenser C3, of .007-mf.

From the grid-condenser connection of the detector tube a wire runs to the inductor, L5, in the grid circuit of the low-frequency oscillator, V2. This coil is in inductive relation to another of identical size (L4, 180,000 microhenries) which is in the plate circuit. Each is bridged by a fixed condenser of .002-mf. Coil L4 obviously is a straight tickler coil, reacting on L5 to produce oscillations, the frequency of which is determined by the electrical dimensions of the coils and condensers.

No filament switch is provided, nor is one necessary. The tubes are



tuning circuit being bridged across the grid of the detector tube, V1. The usual grid condenser and grid leak, C2 and R1, are used; the former has a capacity of .0001-mf. and the latter a resistance of 3 megohms. The tuning condenser is of the standard .0005-mf. size.

The coils, L1 and L2, provide the regenerative effect, being connected in a regular series-tickler manner. Coil L1 has an inductance value of 65 microhenries, and L2 of 180 microhenries.

Separate rheostats are used for the two tubes. The detector, V1, is a Philips valve, type B.406. Its filament is rated at 3.5 to 4 volts and 30 milliamperes, and requires a 15-ohm rheostat. The low-frequency oscillator, V2, is a Vicco tube, with filament rating of 2.5 to 4 volts, .06 amperes; filament rheostat 30 ohms. The "A" and "B" current is furnished by heavy-duty flashlight batteries contained in a compartment in the set case, as shown in the illustrations.

turned on and off by means of their individual rheostats, which must be adjusted carefully in order to make the tubes oscillate properly.

THE LOOP AERIAL.

The loop aerial is of the flat variety, with one turn inside another on a simple X-shaped frame. The two ends of the cross bars that fit in the bottom edges of the cover are fastened by hinges to the latter, so that some adjustment of its position is possible. Of course, its directional effect is marked, and the set must be swung around so that the loop points in the direction of the station to be received. The whole loop fits snugly inside the shallow top of the carrying case.

INTERCHANGEABLE COILS.

The tops of the case swings upward, the right side swings outward and the front folds down. The tuning condenser and the filament rheostat are mounted on a small panel, (Concluded at foot of next column).

ELIMINATORS FOR SMALL SETS

A FEW HINTS

AN eliminator for a two-valve set will not be called upon to give any very high plate voltage, and probably 100 to 135 will be the maximum required for the amplifier valve. It requires a considerable amount of resistance in the circuit to cut down the mains voltage, and in the case of the eliminator working with a bell-ringing transformer, it is necessary to either add resistance to the "high" output lead, or else take the plate current from the "low" terminal only. In order to reduce the maximum output, one of the fixed resistances of 100,000 ohms may be placed in the output lead by cutting the latter in front of its connection to the first resistance and connecting instead to the brass clip which connects the two resistances. A variable resistance may then be included in the high output circuit, and placed upon the panel.

THE above remark apply to 230-volt supplies, as where the voltage is only 110, no resistance will be necessary in the high output lead, as the voltage available will be reduced to 80 or 90 by the resistance of the valve used for rectifying.

Nothing is gained by placing too high a voltage upon the plates of any valve, and it will often be found that maximum results are obtained at a figure considerably below the maximum actually recommended by the makers.

UNDULY high B voltage shortens the life of a valve, so it pays to ascertain from the leaflets enclosed in the packing the maximum voltage recommended, and for economy, keep under rather than above that figure.

INSULATING LAYERS.

NO attempt should be made to wind one layer of wire upon another without a layer of paper in between when putting the windings upon transformers. The care with which the ends of the layers are treated has much to do with the lasting qualities of the transformer. The best way of ensuring a fit for the paper used between layers is to have the strips cut by a printer, all an equal width, and then by using the width of these strips as a gauge, make the spool the exact width inside. By this means there will be practically no space through which the 36's wire can sink down to the layer below, but it is still necessary to use great vigilance so that not a single turn goes astray, and the safest way to ensure this is to leave a space of say one-sixteenth inch at each end of a layer.

NO doubt some readers interested in this subject would notice last week a paragraph stating that an article had been "held over until next week." That paragraph was written to appear on March 16, and along with several others had been held over by the printers, and these have recently appeared, though out of date. It is hoped at an early date to present another type of simple eliminator of easy

which forms the cover of a box containing the various fixed condensers and the coils L3, L4 and L5. Coils, L1 and L2, are not fixed permanently in place, but fit between clips on the right end of the instrument box. The earphones are not clamped in the usual U-shaped headband; instead, each is fitted with a half-moon clip which hangs over the ear and thus space is saved.

As a guide to the number of turns on coils, 65 microhenries would represent, approximately, a coil of 36 turns, 24's wire, and 180 microhenries, 56 similar turns. The equivalent of 180,000 microhenries would be a 1,500-turn coil.

construction and lower cost than those already given.

Resistance for Battery Charging

A HANDY UNIT FOR EXPERIMENTERS

HERE is a handy regulating resistance to use in conjunction with the A battery charger described on March 2. This resistance is kept connected up to the charger, and by means of the switch, all resistance may be cut out, or a suitable amount may be put into the circuit for

of two pieces of 3-8-in. wood, 4 1/2 by 2 1/2 and 4 1/2 by 1 1/2 respectively. The narrow strip is screwed to the back of baseboard and to the front edge of it the panel is secured by screws. Two terminals are placed in the front of the base. A couple of strips may be placed underneath at the sides, and two holes should be provided in the base so that the whole may be fastened to shelf or table by means of screws.

THE RESISTANCES.

THE resistance is provided by 28's s.w.g. nichrome resistance wire. A size either way will serve if 28's is unobtainable. The wire is made into coils to be as compact as possible, by winding round a piece of 1-8-in. brass rod to make a close spiral. A convenient number of contacts is nine, the one on the left being an "all out" position. The spiral may be stretched out more or less to determine the amount of resistance between any adjacent two stops. It is a good plan to stretch out well for the first two, so that a small amount of resistance can be put in, and allow the spiral turns to be closer on the succeeding spans, and very close on the last one. This will give a good range to suit most cases.

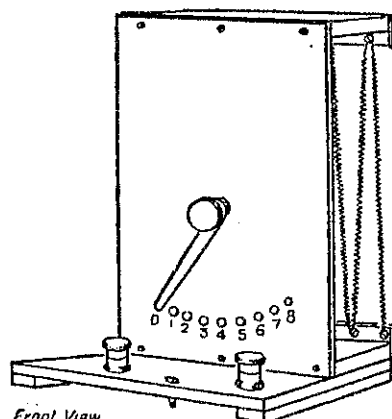
GENERAL INSTRUCTIONS.

TO the top of the panel is screwed a strip of wood projecting back an amount equal to the portion on the base. A narrow strip of fibre is secured to the back edge of each of the strips, and through holes in the base are soldered to the resistance wire when in place, the resistance wire being well cleaned where the joint is to be made.

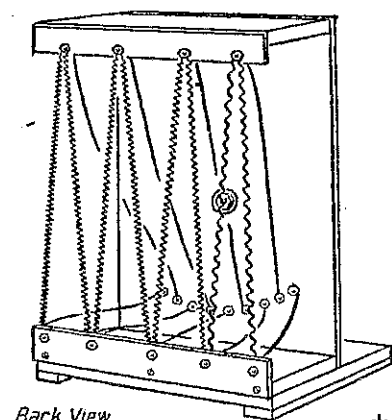
The switch contacts should be numbered, so that once the suitable position for any given purpose has been found, it can be used again without any uncertainty. Further explanation should be unnecessary, as details may be seen in the diagrams.

A light type of switch arm will serve to carry 1.3 ampere, but for larger currents the switch must be of suitable heavy pattern to prevent heating. A heavier gauge of resistance wire would also be necessary to carry several amperes without undue heating.

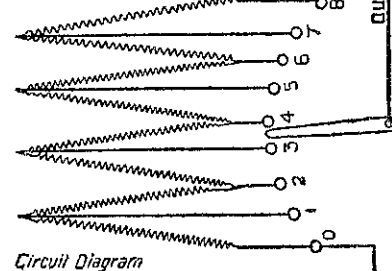
An ammeter could be conveniently mounted on the panel in the space above the switch. It must be remembered that the introduction of resistance into a charging circuit cuts down both voltage and amperes, so that only sufficient resistance can be introduced that will still leave the voltage higher than that of the cells to be charged.



Front View



Back View



Circuit Diagram

charging small cells or B battery cells in series-parallel, as described on April 13.

The panel measures 7 1/2 by 4 1/2 inches, and may be of fibre or ebonite. A switch arm and nine contacts will be required, and the panel is drilled to take these in the position shown. The base is constructed drilled in these brass bolts are placed



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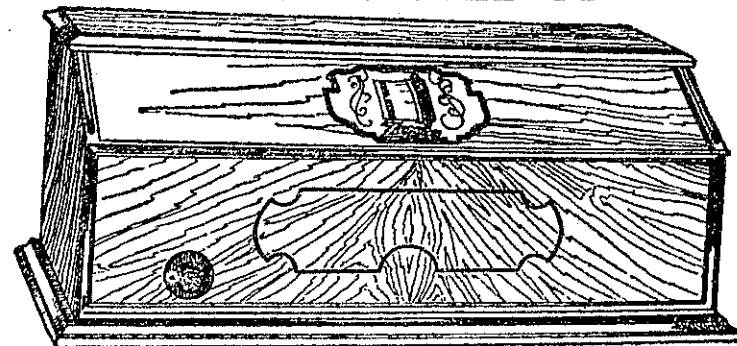
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Construction Continued

THE LIFE OF THE B BATTERY

SOME INTERESTING FIGURES

A RECENT article dealt with the cost of running B batteries, demonstrating the advantage of using the larger or "super" sizes rather than the small or "standard" sized cells where the load is more than 5 milliamperes, or a three-valve set. Claims are sometimes made that these small cells will stand up to a heavier drain, but they cannot be substantiated.

A British radio journal gives further light on the subject. A test was made of a "standard" dry B battery upon the label of which it was stated that the normal discharge rate was 10 milliamperes. Run for three hours a day upon week-days only and kept at a constant temperature of 62 degrees Fahrenheit, this battery proved to have a useful life of just under eleven days, or 82½ hours of service, and this, with an initial drain of 10 milliamperes, which, as the voltage fell, was reduced to 7 milliamperes.

THE average potential drop of this battery during its daily three hours' run was nearly 12 volts. The actual rate at which the voltage drop occurs during a three hours' run is also a matter of considerable importance. It might be thought that it would take place quite regularly, but this is not the case. During its period of rest the battery recuperates the potential rising to a reading much above that obtained at the end of the previous working period.

GRID-BIAS ADJUSTMENT.

AS soon as the battery is placed under load again a rapid falling off is seen owing to rising internal resistance. The current declines in proportion, and when a point is reached at which the discharge rate is such that the battery can cope with it fairly well the reduction of potential becomes much more gradual.

Records of curves from readings taken every quarter-hour show that a heavy fall in voltage is to be expected during the first hour, a smaller one during the second, and a still smaller one during the third. When, therefore, small batteries are used under a fairly heavy load, a reduction of the grid bias may be desirable at the end of the first and second hours of each run. It should, however, be remembered that any such reduction will mean an increase in the current and, therefore, a still more rapid fall in the voltage.

ANOTHER point worth attention is the amount of recuperation shown by the battery. On some days, in the case of the one whose history is plotted in Fig. 1, this was as much as 12 volts, or rather more. Now, rapid recuperation, especially if it means a quick fall in the voltage at the beginning of the next working period, is not altogether a virtue; in fact, one would much prefer a battery which showed a smaller temporary recovery, and a subsequent voltage drop of less amount.

Another point which emerges from a study of Fig. 1 is that voltage readings taken after a rest period, and before the battery is placed under load, may be entirely misleading. On the eleventh day, for example, a reading taken prior to the working period would have shown a voltage of 84.2; one might, in fact, have thought that the battery was by no means in bad condition.

At the end of the first hour, however, the voltage was 72.8 and at the end of the second, 70.4. A reading should never be taken until they have been for at least an hour under their normal working load.

BATTERIES OF LARGER TYPE.

IN addition to the standard capacity battery two other sizes are upon the market. These are the "large capacity," made up of cells 1½ in. in diameter by 2½ in. in height, and the "super capacity," whose cells measure on the average 1½ in. in diameter by rather less than 3½ in. in height. What performances are to be expected from these under a load of 10 milliamperes? The life history of a good quality large-capacity battery (by no means the best of those tested) over a period of eighteen weeks, the conditions of the test being the same as those previously described, shows a discharge at the rate

of 10 milliamperes for three hours daily on week-days.

HEAVY INITIAL DROP.

THIS curve is most instructive. It shows that, as might be expected, a fairly heavy fall takes place during the first week, after which the battery settles down and maintains a comparatively steady E.M.F., with a very gradual falling off. The point at which it begins to steady down is approximately 93 volts, thus showing that about 9 milliamperes is a load with which it is well able to deal.

On a conservative basis their average useful life may be estimated as at least six months. This means that two renewals will be required in the course of a year at a cost of roughly fourpence per volt. The annual cost thus works out for 100 volts at £3 6s. 8d., or 8 penny per hour for 1000 working hours.

AN IMPORTANT POINT.

A VERY important point to notice about the life curves of the large-capacity battery is the small fall in E.M.F. which takes place during a working period. On the last day of the first week, for example, the average fall during the three hours' run was just over 8 volts out of the 100, and matters were very little worse after eighteen weeks.

It follows that no noticeable distortion is likely to occur during an evening's reception if the low-frequency valves are properly biased at the beginning; it will be seen that there is very little need to bother about the grid bias, provided that it is correctly adjusted at the end of the first ten days or so. The life of the average small grid-bias battery is about nine months, and its own fall in E.M.F. will be almost sufficient to allow for that which takes place in the high-tension battery.

THE "SUPER" CLASS.

WE come next to the super battery, usually made up in nominal 45- or 50-volt units weighing from eleven to twenty pounds apiece. The actual weight depends largely upon the nature and amount of solid insulating material used. These batteries entail rather a large initial outlay, but experience shows that whenever the average load is 10 milliamperes or more they are well worth the extra money.

They will stand a drain of 25 to 30 milliamperes for long periods, and one of their great virtues is that they very seldom become noisy even when their voltage has fallen to something very low indeed.

The provision of super batteries represents an initial cost of about sixpence per volt. Under a 10-milliamperes load at least a year's working on an average of three hours a day is to be expected. The annual cost for 100 volts, therefore, works out at £2 10s., or 6 pence an hour for a thousand hours of work.

It will be realised that the life of any size of battery depends (provided that it is of reasonably good quality and is kept in a suitable place) mainly upon the number of hours per week that it is run and the average load imposed upon it.

USING TWO B BATTERIES.

THE use of two separate B batteries is then discussed, showing that a small battery may be used for all but the power tube, and for that a medium or large sized battery supplied the current.

Should the first low-frequency valve, either of the "first stage L.F." or of the "R.C." type, be resistance-coupled, it may also be served by the small battery, for the total load for the whole of this portion of the set is in this case not likely to exceed 3 or 4 milliamperes. The valve in the last stage may then be provided with a battery of its own of the medium capacity type if it is of the small power kind, or of the largest type if it is a super-power valve.

Besides leading to economy in working, the use of a separate battery for the last low-frequency valve has other advantages, which cannot be dealt with here. Let us take a concrete example of the saving produced by using separate batteries. On measuring the total current taken by a three-valve set we find that the amount is, say, 10 milliamperes. On switching off the last valve, however, the current falls to 3. The high-frequency and rectifying valves are thus passing 3 milliamperes and the power valve in the last stage 7.

ANNUAL COSTS.

REFERENCE to the life curves in Fig. 6 shows that under a 3-milliamperes load about half a year's working may be expected from the small battery, whilst at 7 milliamperes one of medium capacity should last for some thirty-five weeks. The small battery will thus have to be replaced twice a year, the annual cost being thus about £1 for H.F. and rectifier H.T. supply. The medium-capacity battery will need renewal about once every nine months. If, therefore, 100 volts are used, the annual cost will be about £2.

We thus get a total outlay of £3 per 100 volts, which for a thousand hours works out at 72 pence per hour. Now, if a common battery of the medium capacity size were used to supply the 10 milliamperes needed for the set, its useful life, as the curves show, would be about half a year. The annual ex-

TIPS AND JOTTINGS

A CONSTRUCTOR at Spreydon, Christchurch, writes as follows: "I have just completed the construction of the full-wave B battery eliminator that you gave in the 'Radio Record' some time back. Although I have been some time building this eliminator on account of delays in procuring parts, I must say I have been amply rewarded for the trouble, or, I should say, the pleasure it has given me in the making. The eliminator has proved a great success. I have not been able to detect any hum, and have far better results than formerly. Words cannot express my appreciation of this design, and many others that you print in the 'Radio Record.'"

Short-wave Adapter.

SO long as only limited wave-band of reception is satisfactory to the listener, one set of fixed coils is quite a good idea, but to be able to cover the entire range the plug-in coils are worth while. A .00025 variable condenser answers quite well for secondary control, but the use of a condenser of smaller capacity makes the necessary fine tuning much easier, and is invaluable in a receiver that may at any time be required to get down below twenty metres, where the frequencies are tremendously high, and tuning consequently more difficult.

Neutralising the Browning-Drake.

SEVERAL inquiries have come to hand regarding neutralisation. The early part of the instructions in recent specifications was rendered ambiguous owing to the printers misplacing a line, so we give the instructions here. "Tune in a loud station near centre of broadcast waveband, 1YA or 3YA, maximum volume being carefully obtained without oscillation, reaction being turned well down. Next turn out the filament of R.F. valve, then with the neutralising stick turn neutralising condenser until signals are inaudible or at minimum strength, then turn on filament of R.F. valve, and the station should

QUERIES BY CORRESPONDENCE.

1. Every communication enclosing queries is to be addressed to "Megohm," Box 1032, Wellington, and must be accompanied by a stamped addressed envelope for reply by post.

2. Questions must be written so that a space is left in which the reply may be added.

3. No charge is made for replies.

come through well. Now see that the variable condensers are both at maximum tuning; if not, they must be altered to get the best tuning, and the process of neutralisation is gone through again. The second attempt is practically certain to be correct. If neutralisation cannot be obtained, reverse the connections to the R.F. primary and try again. If it cannot be obtained either way, it may be an indication that the capacity of the neutralising condenser is too great or too small. In either case the correct value must be substituted.

Rectifier Tubes.

TWO new Radiotron rectifier tubes are the UX280 (full wave) and UX281 (half wave). These contain a new type of oxide coated ribbon filament giving high emission with low power input. The filament of the former takes 5 volts at 2 amps, and the maximum output is 125 milliamperes at 300 volts. The half-wave tube requires 7.5 volts at 1.25 amps on the filament, and passes 110 milliamperes at 750 volts.

Alternating Current Receivers.

QUITE a large number of these receivers has now been installed in listeners' homes in New Zealand. The distributors state there has been for less trouble in every way with these receivers than with the average battery set, and that all are working satisfactorily.

Be Careful of UX222.

CARE must be taken that when in action the UX222 does not receive a shock, which may cause the filament to touch the control grid and burn out. Purchasers of these valves should test them with a 6-volt battery, one pole being connected to a filament pin, and the other touched on each of the pins in turn. The filament should only light when battery leads are both on the filament pins. If there is a circuit in any other way, the valve is defective. Test also for connection between inner screen and control grid, and between plate and screen.

Big B Batteries Pay.

IT pays best to purchase the large sizes of B batteries, where several valves are in use, for as a rule the battery of double milliamperes capacity will last more than twice the time of the smaller one on the same work, as the larger the battery the less will the strain of a given demand be felt.

The Browning-Drake Primary.

In constructing the R.F. transformer for the Browning-Drake, care should be taken to provide good insulation between the primary and secondary coils, owing to the high potential difference across them. In no case should the insulated wires of one be allowed to come into contact with those of the other, but the insertion of a strip of stout paper between the two will remove any chance of a "short."

penditure would thus be, roughly, £4, or .96 pence per hour for a thousand hours.

There is thus a very distinct economy in such a case in using two batteries.

(End of Construction.)

AUCKLAND DIRECTORY

What to Buy and Where

ATWATER-KENT RADIO	Frank Wiseman, Ltd. 170-172 Queen Street.
ALTONA & HAMMERLUND RADIO SETS.	Johns, Ltd. Chancery Street.
AMPLION LOUDSPEAKERS	All Radio Dealers.
BREMER-TULLY RADIO	Superadio, Ltd., 147 Queen Street.
BURGESS RADIO BATTERIES,	All Radio Dealers.
CE-CO VALVES	All Radio Dealers.
CROSLEY RADIO	Lew's Eady, Ltd., 190 Queen Street.
FADA RADIO	Radio Supplies, 251 Symonds Street.
FEDERAL, MOHAWK, GLOBE	Federal Radio House, 8 Darby Street.
GILFILLAN AND KELLOGG	Harrington's, Ltd., 138-140 Queen Street.
GREBE RADIO	Howie's, Dilworth Building, Custom St. E.
MARCONI ECONOMY VALVES	All Radio Dealers.
MULLARD VALVES	All Radio Dealers.
RADIOLA RECEIVERS	Farmers' Trading Co., Ltd., Hobson Street.
RADIOTRON VALVES	All Radio Dealers.
RELIANCE BATTERIES	Reliance Battery Mfg. Co., Ltd., 90 Albert Street.
PHILIPS VALVES AND APPARATUS	All Good Radio Dealers.

A RADIO FURNACE

NEW ELECTRICAL MARVEL.

The secrets of the mysterious forces of electricity are now being applied in many ways, especially in the world of industry, and equally as marvellous. The magicians of science recently perfected a method of melting steel to a glowing red-white and molten state within a wooden box with radio.

Scientists to whom this achievement is due are satisfied that the powers and wonders of electricity are only beginning to be understood. They visualise the time when great power plants in different parts of the country will radiate their power by wireless to be picked up in shops, factories and houses, wherever it is wanted, and they believe that this will be realized within a few years.

The method of melting steel by radio was discovered in a workshop in Sheffield, England.

For more than two centuries iron and steel have been melted in pots called "crucibles" by heating them in coal, coke and gas furnaces. It has been a hot, hard and long job, taking three, four and five hours to melt a pot containing sixty pounds of metal. The metal in its making, has picked up many impurities from the coke and gas, and the steel has never been perfect. Electricity has solved the problem.

Quick and Simple Method.

The wireless furnace consists of a wooden box, standing on a tilting frame in a clean, cool room. Inside the mystery box is a pot that holds four hundred and fifty pounds of steel. The pot is surrounded by an inch or two of sand, outside this sand is a brass or copper coil of piping, with water running through it, and the whole is enclosed in a wooden frame which makes the box about four feet square.

Electricity is switched on to the coil, then a sharp staccato crackling starts within the pot, and the steel, although there is no connection between it and the coil, becomes a faint red, then white, and slowly turns, within half an hour, to liquid. In another twenty minutes it is in a white-hot molten state, ready to be poured into ingot moulds. One great advantage is that the metal is free from sulphur and phosphorus.

BROADCASTING "FINANCE"

NEW YORK SHAREBROKING.

The first Wall Street (New York) investment house to broadcast radio programmes was to "go on the air" on April 5, it was announced recently. The firm is Halsey, Stuart & Co., which will broadcast weekly through the thirty-two stations of the Red Network operated by the National Broadcasting Company. Music and information for investors will comprise the programmes. In announcing the enterprise, Halsey, Stuart & Co., said: "Officials of the National Broadcasting Company came to us and pointed out the need for a clearer conception of investment information among the countless thousands who, during the recent years of prosperity, have, perhaps for the first time, been confronted with the problem of investing surplus funds. They asked us whether we would assume the job. Our own observation over a considerable period brought home to us the existence of the need, and, seeing in the radio an added channel for what we are already doing in educational advertising, we told them we would."

Music as a Supplement.

"The educational feature of our programmes will be supplemented by musical features of the highest order. It also is planned to have as speakers leaders in industry, banking and business, who will contribute from their own experience toward the better understanding of investing that will be the sole object of the programmes. Halsey, Stuart & Co. will appear in programmes only incidentally. Our effort will be directed towards the promotion of the listener's interest by telling him in an interesting way some of the steps necessary toward safeguarding his funds.

"If the work succeeds, as we have every reason to believe it will, we believe that bond distributors everywhere will benefit from it quite as much as ourselves. The broader the understanding of investments, naturally the greater the market for sound securities, and, that being true, dealers everywhere, no less than the investing public, should be interested in the undertaking."



Call and hear the latest model SONORA. Unequalled for quality of tone. Buy a SONORA and you will really enjoy Radio!

Arrange for a demonstration TO-DAY

F.J. PINNY Ltd. 58 Willis Street, WELLINGTON.

WHAT'S RIGHT IN RADIO?

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'Phone 23-147.

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BRITISH RADIO GOODS

A bit better quality;
A bit cheaper;
In short "a job!"
You get them from:

HARTLE & GRAY,
CUSTOMS ST., AUCKLAND.

Our Short Wave Corner

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

MR. SELLENS, Northland, writes: With the advent of "daylight saving" in the Eastern States of U.S.A. we shall miss the best hour for short wave reception, but probably the days getting shorter on this side will help to even it up to some extent. 5SW is very weak at 11 p.m., not worth listening to. The advantage of summer time is noticed in the morning, as it is possible to hear more of the programme before it gets too weak. There are not so many short wave stations "coming over" just now, at least that is my experience.

Saturday, April 28.

5SW was listened to for a short time before breakfast. From 2.30 p.m. till 2.30 p.m., when they signed off. 2XAD was received at good strength. The last item by the "Palmdive Party" was a melody, "Southern Cross," sung by the full party.

Before closing down, WGY announced that they would be on the air at 8 a.m. to-morrow to broadcast the Bremen flyers proceeding to Arlington National Cemetery to place a wreath on the grave of Floyd Bennett (the pilot with Byrd on his North Pole flight). It was also stated that this would be broadcast through as many associated stations as possible.

Thinking this event might be also put on the short wave, I tried each station, but did not hear a sign of either. 2XG was heard testing with his usual "Write down —" RFM was weak.

Sunday, April 29.

Did not do any good—set out of order.

Monday, April 30.

Managed to get 3LO, but set not going right, so did not bother with listening.

2FO through 2MIO were broadcasting on 28.5 metres, as well as their regular wavelength.

At 10.30 p.m. the University War Memorial Carillon came through very well, as did the rest of the programme. (The trouble in the set was discovered and put right earlier in the evening.)

At 11 p.m. 5SW was tuned in, but was very weak. RFM was also heard.

Tuesday, May 1.

5SW was just concluding a talk when picked up at 5.45 a.m. This was followed by some songs.

At 7 a.m. what appeared to be a lesson in French was given, a few words first in English, and then repeated in French.

The musical programme commenced at 7.15 a.m. with a pianoforte item, followed by a violin solo. Reception was quite good.

2BO (Wellington) was picked up just before 8 p.m., and proved to be quite an artist on the mouth organ.

RFM put on some good orchestral numbers, which were well received, but not up to its old-time volume.

At 11 p.m. 5SW was tried. The first item was a woman singing. Reception was very weak.

The surging that is so often noticed from short-wave stations was more pronounced with the weak signal strength.

Wednesday, May 2.

PCJJ was very good, but not quite as loud as usual.

5SW was also good; just before leaving home at 7.25 a.m. an orchestral item was coming through splendidly. During the evening 2RT, Goulburn, N.S.W., was testing; was relaying the carillon, which was quite good. RFM was talking as usual; it is supposed to be his off-night, but he was on the job.

Thursday, May 3.

Big Ben was heard at 5.30 a.m. through 5SW. A talk and then music followed. 6 a.m., a lecture, entitled "Air and the Elements," was given.

6.15 a.m. "All stations will now continue with their programmes as advertised" was heard, so evidently "all stations" had been receiving the London programme. Orchestral items followed—a relay, as clapping could be heard after each item. The announcement prior to this was not heard. Later a voice said, "Hullo, everybody." "A new song entitled 'That's That,' a comic song following."

2H, Sydney, and RFM were heard during the evening.

5SW was very weak at 11 p.m. A piano item was first heard and later a man singing.

Friday, May 4.

PCJJ was spoilt when first tuned-in by another listener using a little too much regenerator. It was not a howl, but enough to make the station mushy. After a short time, when the other early riser left PCJJ, the volume jumped up at once and was also much more clear.

5SW this morning was very good. Big Ben and the opening announcement was not clear, but a talk about recent novels and music that followed was very clear and strong.

At 6.30 a.m. the orchestra could be heard all over the house—not loud, but enough so to recognise the tune. This is the first time I have found 5SW stronger than PCJJ at about the same time.

5 Don X, South Australia, was heard chatting to 3AR, New Zealand. This Aussie comes through quite well.

2BL was strong on about 42 metres. If it was a harmonic it was very loud for one, but somewhat mushy.

The carrier of 5SW was fairly strong at 11 p.m., but could not clear up any talk or music.

LETTER FROM 2NM.

Mr. Charles Gowland, Pehiri Station, Gisborne, who is keenly interested in short-wave work, sometime back wrote Mr. Gerald Marcuse (2NM), the prominent experimenter, and forwarded him copies of the "Radio Record" bearing on his transmissions. Acknowledgement from Mr. Gerald Marcuse has now been received, stating he had read the "Record" with great interest. The letter went on to say that he (Mr. Marcuse) knew Mr. James Blair (mentioned by Mr. Gowland) very well, and in fact travelled to the city in the same train each day. He had been most interested to hear in this way from Mr. Gowland. Mr. Marcuse also promised to call on a brother-in-law in a nearby neighbourhood at first opportunity.

The letter illustrates the rather wonderful bond of unity being established by wireless in various parts of the world.

2FC'S NEW S.W. STATION

Mr. S. Saunders's report states:—Friday, April 27.—WGY, 2XAF, picked up at 3 p.m. Wurliizer organ items from "Estimina" Theatre, Albany, N.Y.; organist, J. Nolan. Song by G. Walker, composed by Mr. Howey Peer; orchestral items; closed down 4.42 p.m. S.E.T., 12.5 p.m.

Saturday, May 28.—5SW, London, was on the air at 1.25 p.m. Got PCJJ at end of programme; closed down 1.35 p.m. This station puts over a three-hour programme on Saturdays from 10.30 a.m. to 1.30 p.m. 2XAD at 2.15 p.m. on the weak side, but improved as afternoon advanced. Union Province: A lot of announcing and Wurliizer organ items and orchestra, song with organ, vocal trio, lady (soprano) and gentleman (operatic piece); guitars, Hawaiian steel

guitars; Palm Olive Company's programme closed down; WGY, WEAF, 3.30 p.m., S.E.T., 11.24. Got another American station, about 40 metres. Band, dance orchestra, saxophones, very prominent, and Wurliizer organ items. Picked up at 5.30 p.m., still going strong at 5.50 p.m.

Sunday, April 29.—2XAF, WGY, NY, at 2 o'clock (weak), but improved later. National Broadcasting Company, piano solo, male duet, lady soloist, violin and banjo solo, Rainbow Hotel, N.Y., speech and cheering; orchestra, "Rain or Shine." Announcement about standard eastern daylight saving time; transmissions, Hotel —. Orchestra, "My Heart Keeps on Speaking of Love," by request, "Among My Souvenirs"; songs, "A Little Girl That Loves Me," "One Little Girl—That's You." Orchestra closed down about 4.30 p.m. Strong morse cut them out eventually. Got station at 5.37 p.m. at about 32 metres. Band march, Wurliizer organ; items, piano solo; static was bad; also station at 9.50 p.m. Talking and orchestral music; 10.15 p.m., still going strong, but never weak.

Monday, April 30.—2FC calling; WGY, Schenectady: "We are glad to get transmissions from your chain of stations. Best wishes to all from 2FC."

The opening of the new studio by His Excellency the Governor of New South Wales was described. The architecture of the studio is "Old English," panelled in oak; the control board is 14 feet by 15 feet; there is a 20-kilowatt S.W. transmitting plant, installed by Australian Amalgamated Wireless, Ltd., architecture of the studio is "Old English," panelled in oak; the control board is 14 feet by 15 feet; there is a 20-kilowatt S.W. transmitting plant, installed by Australian Amalgamated altogether a most up-to-date studio. It was mentioned that the speech broadcasts for 1924 were 62 hours, and in 1925, 424 hours. There were 100,000 broadcast listeners all over the State. The machinery in the old studio had been scrapped and modern installed. In his speech His Excellency said: "I look upon this as one of my most happiest and pleasant experiences of broadcasting at the present time. It will not be far distant when all stations will put over S.W. concerts."

I next heard 3LO, Melbourne saying, "Hello, Hello, WGY, glad to have your report on rebroadcast to-night's proceeding; we hope you have received our programme. OK, please stand by for adjustments."

MYSTERY EXPLAINED

MR. SELLENS' REPORT.

The Boston "Christian Science Monitor" of March 27, states:

A Wellington (New Zealand) radio experimenter [this refers to Mr. R. W. Sellens.—Ed. "Record"] heard a General Electric Company engineer chatting with an English radio engineer via the short waves. The New Zealander, 7800 miles from Schenectady and 12,000 miles from Chelmsford, Eng., heard two men separated by the Atlantic Ocean, talk about the weather and transmission quality. He heard them laugh at witty sallies and he heard the "good-by" of the American and the "cheerio" of the Englishman.

Voices From Loudspeakers.

The New Zealander, like other listeners in Canada and South Africa, was greatly puzzled at what appeared to him a peculiar radio phenomenon. He reported that when tuned to 2XAD, the 21.5 meter station at Schenectady, from which the American spoke, he heard the American clearly but the English voice was somewhat indistinct. On the other hand, when tuned to the 21-meter transmitter of 5SW at Chelmsford, England, he heard the Englishman perfectly and the American side of the conversation imperfectly.

The answer is simple. In these two-way conversations, the spokesman at 2XAD speaks into a microphone and hears the Englishman's reply through a loud-speaker, about two feet away. The loudspeaker reproduction of the English voice as well as the voice of the 2XAD announcer is picked up by the microphone. The same condition exists at the Chelmsford receiving and transmitting station.

A SHORT-WAVE STUNT

SCHENECTADY AND CHELMSFORD.

Recently as a stunt, for the amusement of the broadcast listener, station 2XAD, Schenectady, U.S.A., transmitted a phonograph record which was received and rebroadcast by 5SW, Chelmsford, England. A receiving station near Schenectady picked up 5SW's rebroadcast and WGY then put out received signal on 379.5 metres. In other words, music which originated within a mile of WGY's transmitter was put on the air after it had twice crossed the Atlantic.

Perhaps the most interesting feature of this double rebroadcast was the short time which elapsed between pick-up from the record and the reception of WGY's rebroadcast of the record music. It is estimated that the difference in time was approximately one-thirtieth of a second. The phonograph was located in the control room of WGY. An electric pick-up was used and the output was fed directly to the short-wave transmitter. Within two feet of the phonograph a loudspeaker reproduced the music after its passage across the Atlantic and back.

Our Mail Bag

Applause for "Jane."

H. E. Morse, Karori: Last evening the wife and I listened in to Mr. Stanley Warwick and company in the comedy "Jane" and we thoroughly enjoyed the performance. It must be very hard for the artists giving of their best to such a silent and uncomplimentary audience. We had quite a job to restrain ourselves from clapping and stamping our feet, and wish to thank you and the company for a very enjoyable evening's entertainment. Wishing you all the best of good luck.

More Applause for "Jane."

L. Ferguson (Palmerston North).—I am writing to express my appreciation of the concert broadcast by the Wellington station on Thursday night last, May 3. I have a personal interest in "Jane," as I took part in it when it was played in Palmerston North in December. On Thursday night, the whole play was exceptionally clear, and proved a most delightful change from the usual musical and elocutionary programme.

Silent Nights.

D.A.G., Christchurch: Might I mention a matter which must trouble all Auckland city and Christchurch listeners with average valve sets?

On Wednesday nights the only New Zealand stations on the air are 1YA and 3YA, with wavelengths very close to each other. The result is that the average valve set listener cannot cut out the local station and listen-in to the other New Zealand station. Therefore on Wednesday nights all Auckland city 1 Christchurch set listeners have only one New Zealand station to listen to. Could not the silent night of either 1YA or 3YA be altered and a station with a wavelength more removed substituted?

More Hymns Wanted.

Geo. Rankin, Dannevirke: I wish to express my appreciation of the programmes the company is now putting on the air. Week nights are good and must give pleasure to young and old. But what about Sunday nights? Do you think it would be too much to ask the company for one station out of the four to give us one hour of sacred hymns and solos? If they could do so I am sure it would give great pleasure to many as to me. It seems out of place after a good sermon, with the singing of some of our children's hymns, to hear some of the jazz which is put on. Now, Sir, if we had one station we could tune in to it would still leave the other three for the other vocal and instrumental music. Wishing the Broadcasting Company every success.

Sunday Afternoon for Farmers.

K. G. Rouse (Murchison): Just a line to convey thanks for the excellent performance of "Jane," given on the 3rd by a very able company, under the direction of Mr. Stanley Warwick. The reception was ideal, and every syllable was clear and distinct. Quite a number of listeners in locally would like to hear a Sunday afternoon concert given from 2YA, even if it is only a selected gramophone concert, the main reason being a farming district, and Sunday is practically the only day one can listen-in during the afternoon. The various programmes "put on the air" should be ample to satisfy all tastes, and the class of music rendered by the various musical trios, and the new orchestra at 2YA has been of a very high standard. Hoping that 2YA will be able to put something on on Sunday afternoon to satisfy the farming community. [This will be done as from May 15.—3Ed.]

A Taranaki Listener.

H. G. Davey (Opunake).—Whilst not intending to take part in any discussion relative to 2YA's reception in Taranaki, may I be permitted to give my experience and opinion. First of all, I live just 28 miles by road from New Plymouth, have a Federal 5-valve set, and can honestly say that 2YA's reception has been all that is desired, all of which can be verified if necessary. Just recently 2YA has been a little below the usual, but if my memory serves me correctly, your station has been making some experiments to suit New Plymouth's conditions. If that is so, I wished you had just carried on. Now, as regards programmes, I don't pose as a severe windy critic; for one reason, you cannot, I admit, please everybody. Sometimes the trio, good as they are, have given us country folk, in my opinion, a little too much of high-class music, but I just see that has been altered by the introduction of an orchestra, which is quite a treat to sit and listen to. But (capital B) will it please? Now, I have a suggestion to make, which will, I think, be a slight improvement, and consideration to up-country children. When you put the Children's Hour on the air, and the birthdays are read over, could you give all the country ones first. The reason for my suggestion is that little ones, whose parents possess a radio set, desire to come and hear their little friend's names called, and as some of them come a distance, it makes it a bit late, if the name or names is left rather late, for living in the country is quite different to just hopping out and catching a tram. Whilst I'm in the writing spirit, may I draw your attention to the fact that some of your items, etc., are somewhat marred by the footling of motor horns of passing motor-cars. Could you, please, that nuisance a little?

Taranaki Reception.

"South Taranaki" (Stratford).—I noticed a letter in last week's "Radio Record" written by Mr. Payne, of New Plymouth. Now, Mr. Editor, most of the noise about faulty transmitting comes from North Taranaki. Why? Because we are perfectly satisfied with the Broadcasting Company. I have personally listened-in to three different receiving sets at different times in New Plymouth, and I could not find anything to complain about. I feel that there must be something behind all this New Plymouth agitation, and a friend let the "cat out of the bag." He informed me that some of the New Plymouth fans considered that the Broadcasting Company should establish a relay station in that town, because it would put New Plymouth on the "map," and the only way to get this would be to make a noise about faulty transmission, and thus induce the Broadcasting Company to accede to their demands. Well, Mr. Editor, let us hope, for the good of broadcasting in New Zealand, that the Broadcasting Company will not be so silly as to entertain the proposal. For my part I would much prefer two good super-stations than a lot of half-pye mush-room ones.

Fair Play.

"Well Wisher" (Stratford).—I have been closely following the correspondence regarding the quality of the programmes transmitted from the New Zealand stations, and from what I can gather from same, most of the complaints come from those who apparently have just recently purchased receiving sets. For myself, Mr. Editor, I look upon myself as a new-chum at the game. I built my first receiving set in 1920, and we were glad to get any music or speech that was offering, and we appreciated what good or bad things were in the air at that time, and we did not rush the newspapers with our complaints. I have watched the progress of broadcasting since that year, and can honestly say that the Broadcasting Company deserves our very best thanks for the splendid programmes they are "putting across the air." What on earth are our Auckland radions squealing about, insisting that the Broadcasting Company be made to publish their balance-sheet? What does it matter if the company are doing well out of the business, as long as they are "giving us the goods"? For my own part, if the programme from a particular station is not to my liking, I switch on to something that does suit me. Surely there is no trouble in doing this? If your radio correspondents are honest they will admit that there is a great diversity of opinion, even among their friends, on the merits of any particular programme. That being so, how on earth can the same people ever hope for the Broadcasting Company to please every listener-in? Let me, in conclusion, urge the Broadcasting Company to continue the splendid programmes they are transmitting nightly, and leave the "grousers" to squabble among themselves. Let's be fair to the company and give them at least credit for the excellent service they are rendering to the public.

New Zealand Preferred.

S. Hill (Dunedin): I have just been glancing through this week's "Radio Record." I must congratulate you on such an excellent paper. The first thing I look for is the "Mail Bag"—these columns usually afford me much amusement. I say they amuse me because I thoroughly enjoy reading letters from listeners airing their views. Now listen, I have been a radio fan for four years or more, and I can tell you that I have never once been really dissatisfied with the programmes. Of course, I admit some stations aren't always brilliant, but, taking them all round, they are easily worth 30s. a year; I have read a letter from this week's Mail Bag, written by "Programme" (Huntville). I second his letter, in fact, I'd like to know him. I have a set that can and does bring in the Australian stations on a small indoor aerial with more volume than

(Continued on Page 15.)

4YA NOTES

(Continued.)

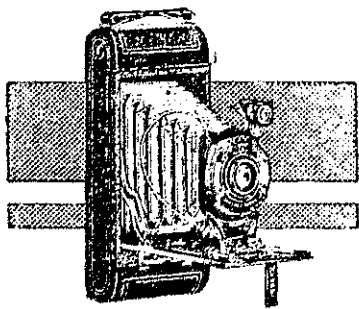
whose bass voice is so much admired, has chosen among his songs, "The Grey North Sea" and Tosti's "Parted." A vocal duet will be rendered by Mrs. D. Carly and Mr. Bert Rawlinson, "O Wert Thou in the Cauld Blast." Flute solos will be rendered by Mr. Chas. B. Gibbons, and pianoforte works by Miss Alice Wilson, who will play Chopin's "Ballade in G Minor."

On Saturday evening at 7.30 p.m., Dr. Lawson, of Otago University, will address listeners on "The Next Step in National Education."

Among the artists to be heard in the ballad concert on Saturday evening are Miss Agnes Guy (soprano), Miss Irene Hornblow (contralto), who will present old English songs, Mr. Arthur Langley (baritone), and a bass singer new to the microphone, Mr. Tom Cooper, who will present the popular number, "Hats Off to the Stoker." Miss Eva Judd will present Kreisler's "Slavonic Dance No. 1 in G Minor" and German's "Morris Dance from Henry VIII." Pianoforte solos will be rendered by Miss Marlet Caddie, who will include Rachmaninoff's "Prelude" among her efforts. In addition to cello solos by Mr. P. J. Palmer, there will be heard a group of instrumental trios.

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Our Mail Bag

(Continued.)

is needed, and yet I am quite contented with New Zealand programmes. I really can't see what some listeners have to grumble about. However, I suppose there are and always will be a few who want more for their money. Still, I don't see that they can get much more for a penny a night. Wishing your paper every success.

Perhaps a Jap.

A. C. Ireland (Taradale).—I see in the "Radio Record" for April 27 Mr. Hamman wanting to know the name of a station. The station about one and a half degrees below 2BL is possibly JOAK, Japan. I heard this station last Tuesday testing for the new station at Tokio, coming through at good loudspeaker strength, and very clear. Nearly all the announcements were in English.

9XF, Illinois.

W. Terrill (Waitara). Having seen one or two inquiries in the "Record" this week re a station on 2ZF's wavelength, may I state this station is 9XF, Illinois, situated at Downer's Grove, 24 miles south-west of Chicago, and for the last week or two has been testing on the mentioned wavelength on a power of 50,000 watts, and also which comes through here at speaker strength equal to 3YA. Also, in answer to C. J. Nordstrand, the station he referred to is very likely JOAK, Japan, which is operating on a new wavelength, being practically on 2BL, on a power of 10,000 watts.

"I Swore I was in China."

J. W. Ashford (Wellington). While listening in last night or rather, the early hours of this morning, after a good night's entertainment from New Zealand and Australian stations, I was about to close down when peculiar chant-like music drifted in a fraction below 2BL's wavelength. The latter station had just closed down, the time being 12.30 to 1 a.m., so I tuned the stranger up and by the music and lingo coming over I swore I was in China. The items were fairly lengthy, and the announcer was a most excitable and noisy individual. Could not understand a word that was spoken, and he was still at it when I closed down at 1.20 a.m. I intended writing you to see if any reader of the "Radio Record" had logged him when I happened, a few minutes ago, to glance over the Mail Bag portion of this week's issue, and dropped right on to an inquiry headed "Who's the Stranger" from Mr. C. J. Nordstrand, Onerahi. He evidently got the same station according to his letter, for he described him perfectly, picking him up close to 2BL. Perhaps some other readers can enlighten us. It would be interesting to know just how far away our friend is. My set is a portable 4-valve operating at the time on a 25ft. vertical aerial. In closing, accept our appreciation of 2YA's improving "menu," especially that of last evening, the three act comedy "Jane," which came through splendidly.

Who is the Champion Listener?

S. R. Ellis (Okato).—Who is the champion five-valve listener of New Zealand; that is, the most stations logged with a five-valve set. I would like to know how many listeners can beat my logging with nine New Zealand, fourteen Australian, three American, two Japanese, and C. R. Larson whaling ship, with a total of twenty-nine? I would like listeners to write to "Our Mail Bag" the record of stations logged by them. There is a listener in Waitara (Taranaki) who has logged somewhere in the vicinity of sixty stations, to his great credit, but he must be working on more than five valves.

Also Heard by Others.

R. Taylor (Havelock North). With reference to queries in this week's "Record" from B. Wenlock, and B. Green, re identity of U.S.A. Station 9XF. I had this station coming in on a five-valve last Sunday from 7 p.m. to 10.30 p.m., on the speaker with volume equal to 2YA. This is no exaggeration, but a fact. Station is at Downer's Grove, Illinois, and announcements made were that station was situated 24 miles south-west of Chicago, and was testing on a power of 50,000 watts, 238 metres. Reports from all over the States were received, and read out during the test, and amongst items played was the "Indian Love Call," from "Rose Marie," "All Alone," "Lucky Days," etc. The station was only half a degree on the dial below 2ZF, and wanted careful adjustment, but when tuned in no trace of 2ZF could be heard—in fact, the music was so loud it drowned out the Palmerston station. I use two earth connections, and find that it makes the set more selective.

W. O. Tinsley (Tahuna). In your last issue Mr. B. Wenlock (Waitara) and Mr. B. Green (Mount Biggs, Reilding) were requiring information as to what station was transmitting on about the same wavelength as 2ZF, Palmerston North. Well, Sir, I have succeeded in logging this station. It is 9XF, Illinois, America, testing on 60,000 watts. I first got this station at 7 o'clock, and it was broadcasting till 8.30, New Zealand time. It was coming in at good loudspeaker strength, with little fading—static at times. The set which I have is a five-valve.

DX, Rotorna. In last week's issue of the "Record" two correspondents were anxious to identify several stations. The station Mr. B. Green has been hearing is 9XF, Illinois, testing on 50,000 watts. I have heard this station at good speaker strength several Sunday evenings. He mentions that KSL is the station usually blotted out by 3YA. In this locality and using a five-valve receiver, I never have any difficulty in separating KSL and 3YA. The former works on 802.8

metres—a separation from 3YA by about three metres. The station blotted out by 3YA is KOMO (Washington) on 305.9 metres or 1 of a metre lower than 3YA. I often hear KOMO on Sunday and Tuesday evenings. Re Mr. C. J. Nordstrand's queries, I think the foreign station he heard was JOAK, Japan. This station works near 2BL's wave, and as Mr. Nordstrand evidently uses a long total length of antenna his tuning will be a little broad. This will run JOAK and 2BL together. If Mr. Nordstrand is sure it was South Africa and not South Australia he heard, I think he has happened upon a lucky patch of ether. I have been a listener for some years in different parts of New Zealand, and have a long log of stations, but have never heard.

2YA'S Variety.

F. J. M., Reikorangi. Through the columns of your paper I would like to thank 2YA for the many enjoyable evenings we have spent listening-in to the excellent concerts put over the air by that station. The other stations have good programmes also, but I prefer 2YA because there is more variety. I also congratulate them on earning the services of such a fine orchestra as we listened to last evening. We have now some beautiful music to look forward to during the winter months.

Appreciation of 2YA.

"Interested," Hataitai, Wellington. I write to express my appreciation of the programme put "on the air" by 2YA on Tuesday, May 1. Surely this comprehensive programme should meet the demands of all tastes and this class of entertainment continuing, I'm sure the rather severe criticisms appearing in the "Radio Record" will be a thing of the past. The orchestra is truly splendid, and in their selections of May 1 were variation in plenty. I have noted that in the criticisms most of the writers have either demanded high-class music or jazz, but what of the countless compositions between these two extremes? Such items as given by the new studio orchestra in the opening programme ("La Priole," "Peer Gynt," etc.) are bright, tuneful and melodious, and could cater for all.

More Appreciation.

"More Than Satisfied," Kilbirnie, Wellington. I have been a wireless fan since 2YA opened, my efforts being confined to a humble, home-made crystal set. I have also been a subscriber to your well-read and instructive journal for quite a while, and consider it time I said my "bit" about the 2YA station and its programmes. Unlike some of the listeners-in, I have not had a musical education, but nevertheless I appreciate good music, well played, just as any normal, intellectual person should. From 2YA's opening night till now I doubt whether I have missed more than one programme each week, so naturally the many criticisms levelled against the company and its programmes have interested me quite a lot. I consider that the programmes from 2YA are great; not that I rave over every single item. The talent employed for songs, elocution, orchestral items, and lectures is equal to the talent employed in any other station in the world in proportion to the population (just over 100,000). The Symonds-Hillwood-Short trio were three wonderful artists, and whilst I did not listen to all their items, I never missed one of their solos if I could help it. I do not know any of the trio personally, but I sincerely trust that they are not readers of the "Radio Record"—so that they would not read the stupid criticisms levelled against them, written in most cases by stupid, unthinking persons. Such artists as Stanley Warwick, Ien Barnes, Jeanette Briggs, Doug Stark, Walpole, and Co. and others far too numerous to mention, would get great big headlines on any concert programme, and they would certainly deserve it. The children's sessions are lovely. Any parent who would not get a set, just for the kiddies

Notes from Auckland

(By Listener.)

THE latest event of importance in radio circles has been, not an innovation in programmes, not another storm in a radio teapot, but an auction sale of radio apparatus that demonstrated unmistakably the keenness of public enthusiasm for broadcasting. All day long bidding was in excited progress, and right through the evening until after 10 p.m. the auction mart was thronged with hundreds of eager buyers who went away well satisfied with the undoubted bargains they had secured in the £3000 worth of stock that was put under the hammer. There were so many novitiates who came under the guidance of the knowing one, and purchased their requirements, that there is bound to be a big rush for licenses within the next few days. It might well be assumed that such a sale would be bad for the retail radio trade, but seemingly that is not the case, for one local retailer declared that his business in batteries and other accessories had received a very decided impetus from the auction, and further stated that he would welcome an auction sale every week. His experience was by no means an isolated one.

IT is safe to say that every valve set operating tuned in Wellington on Tuesday last, to listen to the premiere of 2YA's orchestra. And the general verdict of listeners with whom the writer has swapped opinions was "Excellent." The right combination and the right staff, too. The choice of selections was one that could not help appealing to all tastes, and even those who can usually appreciate nothing but the frothy catchiness of modern American compositions were satisfied that they at last had received their merited consideration for which they have been clamouring. They note approvingly that future selections as indicated in the "Record" published programmes are on the similar lines of something for all. There will be no peace now for Mr. Bellingham until he comes to Auckland and establishes another such excellent body of instrumentalists to disperse similar music from 1YA.

A CORRESPONDENT in the local Press comes forward with a novel suggestion, with which the Broadcasting Company may be able to fall in line, though there may be obstacles of which the outsider is unaware. He suggests that, to assist the unemployment fund, the artists who usually face the microphone for one of the nightly programmes in the studio, appear at the Town Hall, whence their items could be relayed and put on the air. Listeners, he argues, would be glad of the opportunity of visualising performers whom they now know only as voices and through the introductions of the announcer. Such a concert would considerably assist the unemployment fund.

1YA will have experimented with another progressive undertaking in the annals of New Zealand broadcast-

and their session, would be hard. In conclusion, Sir, I would like to ask the hundreds—perhaps I should say thousands—of other satisfied listeners to drop a line to your paper and voice their appreciation of the artists and the programmes generally, and so help to crowd out the selfish ones who want all jazz or all high-brow, or what not. Trusting the company keeps on improving and giving us the same class of entertainment for 30s. per year, and that the newcomers will be more reasonable. Above all, they should try not to reach such a low state as that which exists among a certain few in the southern city.

ing before these notes are read. Arrangements have been made with the Auckland Choral Society whereby two of the choruses from one of their final rehearsals of "Elijah" will be relayed. The idea is an excellent one. Listeners will be able to enjoy the fine choir singing, and the society will undoubtedly benefit in securing a fine advertisement for their production of "Elijah" in the Town Hall. An innovation such as this contains many possibilities, and if it proves acceptable there is no reason why its scope should not be extended. The Bohemian Orchestra, the Amateur Operatic Society, and similar bodies might thus find radio of considerable service, while listeners will welcome the chance of "getting in early."

ROTH Rugby and Association football codes are eager that the games under their official jurisdiction should be broadcast from 1YA. Their officials are fully alive to the advantages accruing. In Mr. W. J. Meredith the company has a capable and experienced describer of football, and his accounts of the games at Eden Park are followed with intense enthusiasm by supporters of the game who are unable to get out to the ground.

QUITE a large fleet of coastal steamers convey passengers from the port of Auckland to the Far North, the Bay of Plenty, and other parts. Gradually these vessels have been fitted with wireless in conformity with Government regulations, all the work being done by local firms. The latest craft to be so equipped is the Malanesian Mission steamer Southern Cross, which is now leaving for her periodical cruise to the South Seas, supplied with a plant that will keep her in touch with the world and its affairs.

HAWKE'S BAY NOTES

It is pretty evident that licensees in the Hastings district are coming to realise the value of their Hawke's Bay Radio Society, for at the last meeting of the society the attendance was about forty, including several members of the Napier Radio Society, which has been on the quiet list for some months. The Napier visitors attended through invitation, and the meeting was a most successful one. An innovation was the providing of supper, this proving very popular, and with a few more meetings like this it is hoped that interest will once more come back to the full.

It is probable that the Napier society will open its doors again soon, and there is a movement on foot for the two societies, which are separated by only a dozen miles, to combine. If they do it will be a very strong body, which should have quite a strong voice.

It is not unlikely that three "drives" will be made up this way soon to install receivers and headphones in public institutions. The Napier Commercial Travellers are reported to be working on a scheme to place a set in the Old People's Home. The Napier society has hopes of doing likewise (with headphones for each bed) in the Napier Hospital, whilst the Hawke's Bay society is hopeful of doing the same for the newly-opened Hastings hospital. The latter scheme is now fairly well on the way, and although not much hard work has been done in the way of collecting, just on £50 is now in hand, the total being sighted by the donation of £20 from Mr. W. Shrimpton.

Static has been "king pin" up this way for the past month or so, but after the rain this week it appears to be settling down.

With local listeners 3YA is still the most popular station, its transmission

being much clearer than 2YA. 1YA is a good second to Christchurch, although 2YA gets the palm for daylight transmissions.

The "Aussies" are all in good form. Through its broadcasts of recent boxing contests, 4YA has been keenly listened to lately, and the writer has been queried repeatedly as to why 2YA does not relay boxing contests. Perhaps the R.B.C. can answer the query. Such broadcasts would be popular.

[Wellington has broadcast boxing on several occasions in the past when permission to do so has been given. The policy of the company is, as has been repeatedly stated by the general manager, to give all possible support to sport by broadcasting functions and events that are made available to it. The popularity of boxing broadcasts is realised, which was why the company has so willingly broadcast the Dunedin events.—Ed.]

ANZAC DAY

8000 PEOPLE HEAR SERVICE.

A further instance of the extensive use of radio apparatus was illustrated in New Plymouth on Anzac Day, when some 8000 people were enabled to hear the service held in Pukekura Park.

The park's recreation ground consists mainly of a large playing field surrounded by three high natural terraces.

Six loudspeakers, carefully arranged to minimise echo effects, were spread around the grounds, while the microphone was placed in front of the platform.

The amplifying system was designed and built by Messrs. Jellymans, Ltd.'s, radio engineers, who also installed and operated it for the benefit of the general public. In the main it consisted of three stages of power amplification, employing four valves in all. The first stage consists of a power amplifier, the second a five-watt, while the third is made up of two five-watts, each with its own input transformer.

This arrangement proved entirely satisfactory, giving ample volume for all concerned. Prior to the service those who had arrived early to secure a seat were entertained by suitable gramophone music.

Heretofore the Anzac service in New Plymouth has been disappointing in many respects, as only a few on the parade ground were able to hear what was said.

TALE OF FAMILY PETS

PRETTYLY TOLD BY A CHILD.

A boy of eight, writing to 1YA, thus describes the family pets. The extract from the letter is printed just as it was written:—

"My brother caught a little magpie and he brought it home and we fed it and it became into a very nice little magpie and we use to chase it. We called it Peter and then when it got a little bit bigger, we gave it worms and then when it got a little bit bigger and Mother was putting in any plants, this little peter used to watch her putting them in, and every time my mother used to go a-way he tugged at them and pull them out; and one time, my father put in a weeping elm, and peter use to watch him putting it in, and when he had gone, one day he went to it and we watched him trying to pull it out, and he looked so funny and he wondered what on earth had happened to it, and he could not get it out, and we did laugh and then we got some fan tail pigeons. We brought them home and they were as white as anything, and my mother never had seen pigeons as white as them and we called them Romeo and Juliet and they follow my brother when he calls them for their food they don't pull anything out like peter use to, we can tell which is a she and which is a he because she has a little top not and he has a top not. My father bought a little cat home and it became a big cat and it got three little wons and we gave to a way and we kept the gray won; it was like a tiger. One day my mother was getting some sugar and a cat had got in and run of the cats wood go there so one day this little cat cut it and killed it and was playing wit' it and my mother saw it with it and she told us so now I must close."

RADIO IN CANADA

146,000 LICENSED LISTENERS.

Canada has at the recent time about 1,000,000 radio fans who listen in regularly and listen to the programmes of broadcasting stations of the North American Continent. This estimate is based on figures supplied by the Government Radio Department, which shows that up to the end of November last year, 146,186 owners of receiving sets in the Dominion had paid the annual license fee.

A conservative calculation is that only 50 per cent of the radio owners pay the fee, which means there are approximately 300,000 radio sets in Canada. If there is an average of three persons listening-in on each set, there are nearly 1,000,000 Canadians who heard the wild waves of Toronto, the mighty voice of the St. Lawrence from Prescott, the murmur of Calgary chinooks, or the howl of the coyote from Winnipeg or Regina. Radio is in its infancy and the manufacturers of sets in Toronto, Hamilton, Montreal and other Canadian cities are probably figuring on a potential consumption of not less than 1,000,000 receiving sets within the next few years.

Children's Sessions for Next Week

AT 2YA.

Monday, May 14—Uncle Jeff and Auntie Gwen. School holidays, little ones, and several kind little friends are coming to join in the children's hour and give you a jolly time. Hurrah for Gwenda, Zena, and Marjorie. Puzzles and stories, too, so get the pencil and paper ready.

Tuesday—Our new Big Brother will entertain you with stories, games, and music. Several cousins are coming to sing you lullabies—Joyce, Gerda, Una, Joan, and Nancy—are't they dears to help. Listen-in at 6 p.m. for a bright and cheery hour.

Thursday—There are new surprises in store for little Radioland on May 17. New pathways in fairyland and new stories to hear—also another little shadow, for Uncle Sandy is leaving us. We shall have to ask the poet of the fairies to make our rhymes. Mrs. Menard's pupils will turn all things to sunshine. "Turning to mirth all things of earth."

Friday—Uncle Ernest once again—Hurrah! And hour of rollicking fun for all. Members of our merry circle are joining in the party, so you'll be amused royally. Ken and Molly and two pals of the little people. The "joy germs" fly when the clock strikes six.

Saturday—Auntie Dot and Uncle Toby will be

taking you somewhere—anywhere—the joy is always in the anticipation. They have some merry frolics, adorns, dressed in Spanish costume, who await their pleasure. Greetings, stories, and dream trips.

AT 3YA.

Monday, May 14, is Uncle Jack's story night. So if all you little ones want to hear something good, put on your ear-phones and tune-in the loud-speaker—and there you are!

Wednesday—Another surprise for you all. Uncle Peter and Mother Hubbard away for their holidays again! Oh, dear me. But, never mind, Uncle Jack will keep the home fires burning—and we will all be merry and bright, with cousins Noel, Keith, and Geoffrey helping with songs and choruses.

Thursday—Here are Chuckle and Anni Pat—so you know that they have something good up their sleeves. Watch out for this night.

Friday—To-night you are to hear the story of the trees, told by Mr. Parton for the children. Cousins Harold, Frank, and Stan are bringing their mouth organs, and cousin Molly singing her pretty songs.

Saturday—Ho-ho for Uncle Sam and Aunt Mav and their hour of fun and music. "Hush, here comes the dream man!"

Sunday—

The Sunday Song Service for everyone. Uncle Sam giving a nice Sunday talk, and scholars from the Methodist Sunday School singing the hymns.

AT 4YA.

Tuesday, May 15—

What's doing at 4YA to-night? Well, first of all, a crowd of lusty boys singing choruses, giving hakas, and thoroughly enjoying themselves round the microphone. They will certainly be worth listening to, and provide some real good fun for the Radio Family. Big Brother Bill will tell the story of some boys who were just as good as men. There will be a story for the chibabiddies as usual, and the Radio Postie will blow his whistle as usual for lucky birthday people.

Friday—

Some of the clever folk who won prizes in the mouth organ competitions last year will play selections to the Radio Family. They all play splendidly, of course, and will sound like fairy music over the air. This is Aunt Shiela's night. She will tell more of the amazing adventures of Helen. Brother Bill will be there with letters, and instructions for the Radio Postman. Tune-in to 4YA for the Happy Hour before bedtime.

"Uncle" and "Auntie" to Thousands

A Hobby that Brings its Own Reward

A RADIO Aunt or Radio Uncle is a personage to be envied. They are a pleasure that few people are privileged to have, for it is not everyone who is suitable to be a radio uncle or aunt. The requisite gift in that direction may be classed among the talents, the use and development of which bring great enjoyment to the possessor. Every uncle and aunt says: "I just love the work," and it is always a wrench for an uncle or aunt to sever the invisible radio link which binds him or her to thousands of children. It is work which brings its own reward.

Judging from the amount of correspondence received, broadcasting would seem to be responsible for the reviving of the apparently lost art of letter writing, for many thousands of children are now writing regularly. These letters, full of the candour and confidences of childhood, are very interesting and are a great source of delight and satisfaction to the uncles and aunts who receive them.

A Child's Candour.

A very young lady, with the precocity which denotes genius as a critical listener, wrote (exact copy) :-

"dear Cinderella I did not think much of —'s singing please see that he gets taught properly." Her mother felt impelled to add the following note :-

"I feel I must explain that my little girl's candid letter to you was entirely her own production, and was not prompted in any way either by her father or by me. I apologise to — for my daughter's candour, but being her father's daughter I suppose I shall have to get used to it. We feel that the letter was too good to suppress."

AS it a young lady or a budding courtier who wrote to an aunt in this way :-

"I am sending you this peach because I think you are just as sweet. I love to listen to your lovely laugh,

and I think you are the loveliest of all the Aunts and Uncles."

This young correspondent tells the family history:

"I am ten years old and in standard four. I am the youngest of our family of six. I have two brothers and three sisters, my eldest brother is twenty-five; my eldest sister is twenty-two; my second eldest sister is eighteen; my third eldest sister is fifteen; my younger brother is thirteen and is in standard six."

Too Old At Six Years!

JUST a few words to ask you if you will please let me join your Radio family. I am eight years old and my birthday is on December 29. I have three sisters, Bess, Jean, and May, and my brothers are Glen, Bob, and Walter. Walter is only six years old, but he says he is too old to join because he is going to grow whiskers. His birthday is on



"UNCLE TOM" OF IYA.
(Mr. T. T. Garland).

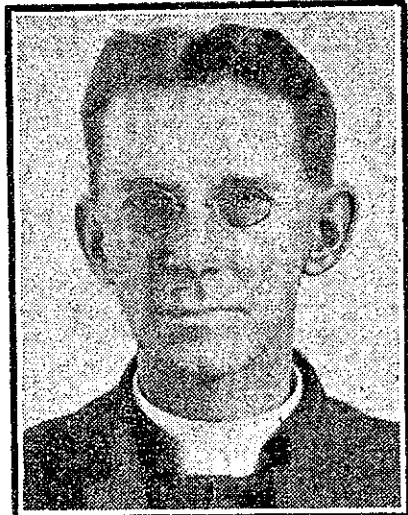
—Photo Tornquest.

February 2. He doesn't believe there is a Cinderella, and he says he will wait to see if this letter acts, and then he will write. Please tell me a name for our canary."

Post-haste, Walter writes: "I alter my mind about joining, it wasn't my fault that I didn't believe about you, I have had Margaret to play with me."

Comparisons Are High Praise.

"To-night I was listening in and heard you sing about 'Dawn on the Farm.' I think it was, and also heard you say you never had people ring up and congratulate you on your singing. I believe your singing very nearly surpassed Cinderella's, and that says a lot, mind you, Uncle Tom. Please sing again soon. I am staying with my uncle, so that is how I am able to listen in. I am sorry to say that at my home we have no Radio set, because of 'circumstances.' You will understand, because you seem to know all about circumstances."



"UNCLE LEO" OF IYA.

(The Rev. Lionel B. Fletcher).

from. Yet it comes down at the "We have just returned from a farm at Kanaki, where we spent an enjoyable holiday. Every night my brother and I listened in to your bed-time stories over a beautiful valve set that they had there. When we arrived home last Monday we found that our Daddy had put one up for us, so we still can hear your interesting stories."

Sometimes the children put posers to the Uncles:

"What is the name of the seven stars, shaped like a saucepan, that usually appear in the sky every night?"

"According to science, the earth turns round on its axis at the rate of about twenty miles a minute. What about when a lark goes up in the sky and stays there about a quarter of an hour. Why, if it is true that the earth was turning round at that rate all the time when the bird comes down it would find itself hundreds of miles away from the place where it went up

same spot."

A Mother's Request

"I WANT you to do a favour for me. It seems very cheeky to ask you, but the trouble is this: my eldest boy is rather a dreamer at school, and the consequence is that he is not as far as he should be; he has just gone into Standard 1. It is not as though he is a dull child; in fact, his work is no trouble at all if he likes to put his mind to it. The teacher has promised to put him into Standard 2 if he works hard, so I was wondering if you would give him a gentle little shake up, as he seems more impressed by anything a stranger says."

Radio Means Happiness.

"WE have just installed a two-valve wireless set, and we never thought that so many happy and pleasant hours could be spent within the four rooms of our home. We feel we must love our Daddy and Mummy more, because of this new-found happiness."

Two lonely children express themselves eloquently regarding Radio:

"We have no one to play with us as the nearest house is three miles away. So the wireless is our big play fellow."

Appreciation from Parents.

"WE must thank you for the pleasure and enjoyment which you have given to all the children—and also to a large number of adults."

"We wish to thank you very much for the happy time you give the children—we Mothers and Daddies enjoy it as much as the children."

"We live in a very lonely valley at the head of the Peninsula. Our nearest neighbour is miles away, so you will understand how very much we appreciate our wireless set. We value the children's sessions and song service very highly. We listen in to every word from 'Good evening, everybody,' to 'Good night,' and when the rain and wind howl around our mountain top, the announcer's voice is marvellously friendly and real."



"NOD" OF IYA.

(Mr. Culford Bell).

—Photo Jauncey.

SCRAMBLED SPEECH

WONDERFUL NEW DEVICE

A METHOD OF SECRECY.

The American Telephone and Telephone Company's new process for scrambling and unscrambling speech and music, which was demonstrated in Washington on February 24, was exhibited publicly in New York for the first time recently at the monthly meeting of the New York Electrical Society. The device promises to render speech by radio telephony unintelligible except to those who have a special apparatus. This secrecy may be introduced into radio telephonic communication.

Sounds which enter the scrambling system as hisses or whistles come out as hollow, leonine roars. That which enters as deep bass comes out shrill and

piercing. The whole scale of sound is turned upside down, so that low is high, medium low is medium high, while the exact middle of the register remains unchanged.

The apparatus, which was demonstrated by Sergius P. Grace, general commercial engineer of the Bell Telephone Laboratories, turns human speech inside out.

"Chicago," said Mr. Grace in his own voice at the transmitting end of the apparatus.

"Si-kay-be," roared the loudspeakers which amplified the twisted language.

Process is Reversed.

The engineer then uttered the syllables "Play-a-teen crink-a-nape," and the device translated those random sounds into "telephone compar." Mr. Grace figured out on paper, with the aid of mathematics, that the name of his friend Bennett would be scrambled into doughnut. He spoke the word "Doughnut" and the loudspeaker shrieked "Bennett."

Sound waves of 5000 frequencies a second are about the highest that the ear can hear. These are scrambled to about fifty frequencies a second, the deepest audible tones. Frequencies of 4000 a second, still very high, are changed to about 1000 a second; 3000 a second to 2000 a second, while those which are 2500 a second remain unchanged.

It was explained that the sound waves actuated a current, as in ordinary telephoning. This current, modulated by the speech, entered an electrical system which was running at 5000 cycles a second. According to Mr. Grace, it would take algebra and calculus to explain how it is that the treble is turned into bass and the bass into treble and how all but the middle tones are thrown into reverse. Asked if the purpose was to keep transatlantic telephone speech in cipher as it crosses the ocean, Mr. Grace said:—

"No, that isn't it. The purpose was to find out if sound could be scrambled

and unscrambled this way and just how to do it. If the time comes when we want to use it in the transatlantic service or in any other way, we have it."

Tests Made Few Years Ago.

A few years ago the American Telephone and Telegraph Company carried on some experiments of this kind between Catalina Island and Los Angeles. At that time there was a hue and cry about the "radio trust," and it was predicted that the scrambling and unscrambling device would be used to modify broadcasting by sending scrambled programmes which would only be made intelligible to those who owned patent unscramblers. A telephone official was asked about this. He said:

"The company is not the least interested in that. I doubt if anything of the kind ever will come to pass. The public is too well broken in to broadcasting and getting it free. They would never stand for being compelled to buy the unscrambling sets."

Mr. Grace said that the instrument undoubtedly would have a military value as a method of communication which the enemy could not intercept. He said that the scrambling and unscrambling instruments could be regulated so that the enemy would not have one chance in a million of listening in successfully.

S.O.S

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