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Trouble Finding Car for Wellington

Progressive Experiment Embarked on by Department

LISTENERS in general will be pleased to learn that the Post & Telegraph Dept. has fitted up an experimental trouble-finding van in an effort to locate howling valves, leaking power lines and general induction which may be causing trouble to receiving sets. This departure is based upon the best practices of Britain and America where considerable attention has been given to these factors. The British Post Office has had vans so equipped and in America quite a number of the large car companies, in their own interests, have undertaken the work of keeping the air clear to the fullest possible extent for satisfactory radio reception.

The enterprise of the department will be welcomed by listeners, and if the results anticipated are secured in Wellington, consideration will doubtless be given to the question of extending the practice to other centres where required.

THE van equipped as the trouble-finder is one of the department's Ford vans, but it is admitted that this is only temporary and it is anticipated that a more suitable vehicle will be provided in the near future. The van is equipped with a 6-valve Super-Heterodyne Receiver with a good volume control. There is, of course, a loop aerial for the purpose of direction-finding. A mariner's compass will also be installed for night operation to secure correct direction.

WHILE wonderful things can be done by scientific radio apparatus it will perhaps be as well to indicate that, useful as the van will be, it cannot perform miracles and certainly will encounter difficulties which will take time and patience to overcome. Listeners will receive the best results from the P.O. department's enterprise only by full co-operation and care in the manipulation of their own sets. A certain amount of research has already been done by the department and this has shown that the description by the public of interference varies very remarkably, and that what might be described by one person as "severe interference" is treated by another in the same locality as negligible.

This point is emphasised because it is only to be expected that on the public learning of the existence of this van, the volume of complaints and requests for investigation will increase. We therefore, at this stage, specifically ask readers to use discretion in sending reports to the Radio Inspector. Before that is done the public should be sure that the interference complained of is not only temporary and that it is sufficiently serious to warrant investigation. If possible, someone of technical experience should be consulted before a report is sent in, or the local Radio Society asked to assist. If, however, the listener is satisfied that there is a definite case for investigation, then reports should be made to the Radio Inspector with the fullest possible amount of information, including date, time and duration of interference. Name and address should also be given to permit of further information being procured.

THE van will be employed in tracking down all sorts of interference. Howling valves will naturally have attention, and the effort be made to clean the air during broadcasting hours at any rate of this nuisance. Many reports indicate that this interference is most serious after the closing down of the N.Z. stations, the reason being that at that time a number of owners of low-powered sets endeavour to reach the Australian stations, and in the effort strain their valves to the limit and so cause radiation. The Department's first concern, naturally enough, is with the recognised broadcasting hours for N.Z. stations, and it is a moot point how far effort should be made to clean the air after N.Z. stations have closed down. All the same, however, if a bad case of howling is located after the closing of N.Z. stations, unquestionably action could be taken.

THE question as to the power of the department to correct listeners who are howling is covered by the fact that the license requires the operation of non-radiating receivers, and if a set is howling then the owner is using a radiating receiver contrary to his license, and in that event it can be cancelled.

THE definite location of "howlers" is not as easy as may be thought at first glance, because the howling might be of a temporary nature, so that by the time the van has taken one bearing and seeks to secure another in order to get a cross bearing, the original delinquent may have ceased howling and be replaced by another. It was found by the British Broadcasting Corporation in its investigations that greater success was achieved by reliance upon the volume than upon the direction. For this reason, the local van has been equipped with a particularly sensitive volume control.

IN spite of the difficulties of coping with the howling valve nuisance, a great deal of attention will be given to it and as thorough a survey as possible will be made of the area concerned. This will be done both in the afternoon and evening.

IN the case of interference due to radiation from power lines a special problem is presented because of the fact that any part of a line subject to leakage may be radiating apart from the source of the original trouble. For instance in one case that was definitely located in Wellington, radiation was most noticeable at a point several miles from the point which was primarily causing the radiation. In this case again the volume control has in experience proved to be more effective than the direction-finding method.

THE actual experiences that have been recorded in the United States in connection with investigation of interference are very interesting and illuminating, and show that the possible causes of interference are far more numerous than may at first be imagined. Electric light and power companies in the States have been keen to help

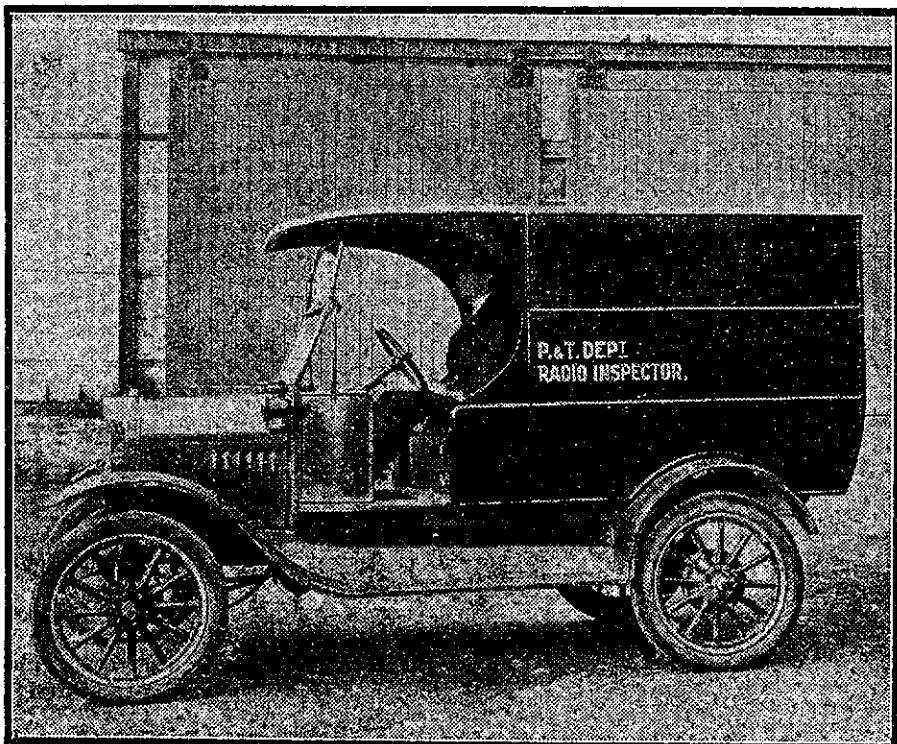
the cause of radio by reducing interference. In this they have been actuated by two motives, first the desire to keep people at home to listen to radio because they then use more light and power and become better customers for the commodity these companies are selling. In the second place the location of interference is valuable as reducing leakages and effecting economy in transmission. The same motives operate in New Zealand in relation to the Power Supply Boards, City Corporations, etc. In the case of Wellington it is fair to mention that the officials of the City Corporation Electrical Department have been most accommodating and helpful in the investigation of complaints.

AMERICAN EXPERIENCE.

THE National Electric Light Association of New York City has gone thoroughly into the causes, detection, and cure of interference with radio reception. In a special report of the Technical National Section of the Association in respect to basic conditions it is stated:—"All who have had any part in the location of sources of radio interference, have agreed upon certain basic facts. Even the smallest arc may cause interference. An imperfect contact in house wiring may disturb two or three neighbours. An air break switch not in exact adjustment, may disturb radio sets over quite a radius. In all such cases, the high frequency current are propagated along the circuits much as carrier current is propagated, and will affect all receiving sets which are tuned to any part of the frequency range of the interfering currents. Tree contacts, faulty lightning arresters, grounded arc circuits, leaky insulation of all kinds, have caused interference. When it is realised that one ten-thousandth of one per cent. of 10,000 kw. is 10 watts, and that this much power might easily be radiated from an important contact or dirty insulator of a 66 kv. transmission line, it will be obvious that these conditions offer a new opportunity for resourcefulness on the part of the utility engineers.

The Association suggested the following questionnaire forms, which, by the way, could be used by the New Zealand P. & T. Department for assisting their radio inspectors in locating the source of electrical interference. (These forms could perhaps be made obtainable at all post offices on application.)

1. Name of party complaining.....
 2. Address of party complaining.....
 3. Nature of disturbance: (be brief)
 4. Is the disturbance continuous or intermittent?
 5. Does the.....trouble exist in the day time?.....
If intermittent give exact time it starts and stops for 7 days.
Sunday, starts..... stops.....
Monday, starts..... stops.....
Tuesday, starts..... stops.....
Wednesday, starts..... stops.....
Thursday, starts..... stops.....
Friday, starts..... stops.....
Saturday, starts..... stops.....
 7. Was the temperature below freezing when the trouble occurred?..
 8. Have you replaced or recharged both A and B batteries recently? Give approximate date.....19..
 9. How many other listeners in your vicinity are having the same trouble?
- Give names and addresses below.



Motor van equipped by the Telegraph Department for the Wellington district radio inspector to undertake a campaign in respect of howling valves—, power line leakages, induction, and interference to satisfactory radio reception.

—Wallace, photo.

—(CONTINUED ON P. 14.)

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

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

IN a recent number of "The Proceedings of the Institute of Radio Engineers of Great Britain" is an excellent paper entitled "Service of Broadcast Receivers," by L. Manley and G. E. Garity, of the Radio Corporation of America. This paper comprises, in effect, a very exhaustive set of instructions for the inspection of radio receivers and for the diagnosis of defects and failures of all kinds. The paper is so long (it covers 25 pages) that it is impossible for me to give more than the very briefest account of the ground which it covers.

The failure of receivers is classed broadly under the following heads: "Lack of Operating Experience on the Part of the User," "Location," "Defective Accessories," "Open Circuit," "Short Circuit," "High Resistance Connection."

It is interesting to note the author's suggested list of tools and apparatus which should be possessed by anyone undertaking the inspection and care of receivers. The list is as follows: Set of tested valves, multi-scale voltmeter of good quality, pair of headphones, large and small screwdrivers, small soldering iron, solder and non-corrosive flux, spare wire and tape, test leads with clips, pipe cleaners, large piece of cloth, set of high-tension and grid-bias batteries (small).

APPLICATION OF OSRAM SCREENED VALVE.

MR. L. H. Wright, radio specialist, 153 Willis Street, Wellington, gave me a practical demonstration, the other evening, of the application of the Osram new screened-grid valve. Mr. Wright had built one of these valves into a four-valve broadcast receiver. The circuit embodied one stage of tuned radio-frequency employing the new valve in that position, with the usual detector and two stages of standard transformer-coupled audio-frequency amplification. The circuit included fieldless binocular coils, and regeneration was obtained with a variable condenser. Thus there were three condensers for control—one for the aerial circuit, one for the secondary circuit, and the other for regeneration. The last-mentioned gave exceptionally smooth and gradual control of reaction. The installation of the screened grid valve had been carefully followed out according to the manufacturers' instructions. The valve which is sold with the necessary holders (or supports) was fitted horizontally. One half of the valve lay inside the aluminium-shielded stage of radio-frequency, and through a neat circular hole in the side-wall of aluminium the valve projected towards the detector valve of the set. It will, therefore,

be observed that only one half of the Osram screened-grid valve lies within the shielded portion of the set. This is strictly according to the Osram people's instructions. Mr. Wright's set was connected to my aerial, and was immediately bringing in the Australian stations with astonishing volume and clarity free from any parasitical noises. It was manifest that the new screened-grid valve was accomplishing the work of at least two ordinary stages of radio-frequency, if not three stages. I think a word of praise is also due to Mr. Wright, who is a young Englishman, for his neat adaptation of the new valve to a circuit which embodied some of his own innovations. I can strongly recommend all dealers to get acquainted with the new screened-grid valve as it is going to be a big thing in radio.

RESISTANCE-CAPACITY COUPLING.

RESISTANCE-CAPACITY coupling for low-frequency amplification has become deservedly popular, and is, in fact, increasing in popularity, partly owing to the development of suitable valves, and partly to the purity of reproduction, which is obtained with this system when suitable valves are available.

So much has been said in praise of resistance-coupling that many experimenters are apt to take it for granted that resistance-capacity coupling is perfect, and that no distortion or other troubles can possibly arise when it is used. It is not, however, always so efficient in practice as it may appear in theory, and there are some points which ought to be watched carefully. It should be noted that the amplification obtainable per stage can never exceed the amplification factor of the valve. It therefore follows that a valve with a high amplification factor is desirable, but unfortunately such valves generally have also a high impedance, which is a disadvantage. An ideal valve for this purpose would be one with a high amplification factor and yet with a low impedance; in actual practice available valves represent rather a compromise.

Valves specially designed for resistance-capacity coupling can now be obtained having amplification-factors ranging from 35 to 50, and with impedances of 70,000 up to as much as 200,000 ohms. The total amplification obtainable depends also upon the resistance in the plate circuit. This must be fairly high, but it should not be so high as to cause too serious a drop in the voltage applied to the plate.

MELBOURNE DEALERS COMBINE.

THE Radio Dealers' Association of Victoria held its inaugural meeting in Melbourne the other day. There

were present 130 Melbourne city and suburban radio traders. The objects of the association are: "To watch over and protect the general interests of its members; to collect information and disseminate same to members; to use every means in its power for the removal and redress of grievances; to promote the progress and trade of the radio trade in general; to form a code of rules and practice for the efficient carrying out of its objects, and to simplify and facilitate the conduct of business; to arbitrate on all matters submitted for dispute and record decisions for future guidance, and to obtain such conditions by united action as would be impossible or more difficult to achieve by individual effort."

NEUTRALISING A BROWNING DRAKE.

THE neutralising of a Browning-Drake set is an operation which puzzles many amateur constructors. When all connections have been made, turn on all the rheostats and place the reaction so that it is just on the "raw edge." Now, using the receiver and unit dials, tune in a strong transmitter, say 2YA, Wellington. Remove the negative filament wire joined to the radio frequency valve socket. You will still hear 2YA working. Take a long stick suitably shaped, and turn the screw in the neutralising condenser until the signals are cut right out or nearly so. You will find the correct point quite marked; going beyond either one way or the other immediately increases signal strength. Now replace the filament negative wire, and tune in stations in the ordinary way, using the unit and receiver simultaneously. Once the balancing has been effected correctly, it should not be altered unless you use a new radio frequency valve, when the method given above should be repeated.

A NEW POWER AMPLIFIER.

A NEW power-amplifier valve, which has a far greater output than any valve previously designed for reception purposes, has recently been developed. The valve is known to the radio trade as the 250 type and it has a maximum output of 4650 milliwatts; that is to say, the 250-type valve is capable of delivering more energy than two 210-type valves connected in a push-pull circuit, or it can produce 6.6 times as much undistorted output as a single 171 type and three times as much as the 210 type. The valve has been designed primarily for use in conjunction with auditorium loudspeakers where enormous volume is required; and it may be used for the operation of a plurality of loudspeakers in hospitals and exposition work where a number of reproducers are supplied with energy from a common amplifier. Also, it is ideal for use in a roomy home; as the valve may be operated with low potentials at only a fraction of its

maximum output. In this way it is possible to insure ample reserve power, thus guaranteeing distortionless output at all times.

The chart below shows the electrical characteristics of the 250-type valve for various values of plate voltage:

	250	300	350	400	450
Plate voltage	250	300	350	400	450
Grid voltage	45	54	63	70	81
Plate current (M.A.)	28	35	45	55	65
Plate resistance	2100	2000	1900	1800	1800
Mutual conductance	1800	1900	2000	2100	2100
Amplification factor	3.8	3.8	3.8	3.8	3.8
Output (Milliwatts)	900	1500	2350	3250	4650
Filament voltage	7.5	7.5	7.5	7.5	7.5
Filament current	1.25	1.25	1.25	1.25	1.25

In size the new valve is considerably larger than the 210 type (6½ inches in height and 2 11-16 inches in diameter), but it is mounted on a standard UX-type base.

The filament is of the rugged oxide-coated ribbon type, which operates at a dull red heat. The current for heating this is usually obtained from a 7½-volt winding of a power transformer; and the design of the transformer should be such that, with normal line variations, the voltage applied to the filament is maintained within 5 per cent. of the rated value. The plate of the valve is blackened, and is tall and narrow, as in the 281-type rectifier.

In operation the new valve should preferably be mounted in a vertical position, and provision should be made for sufficient air circulation (natural) to prevent overheating. Because of the high plate voltages used the power supply should always be turned off when the valve is inserted or removed from the socket, or when adjustments are to be made.

By using low plate voltages the life of the valve may be greatly increased; and this is always recommended where the volume requirements are such that the maximum output of the valve is not essential. A plate potential of 350 volts permits greater output than is usable in most installations. In cases where maximum plate voltage is used, the receiver design should be such that, even during the maximum expected line-voltage variations, the plate voltage will not exceed 450.

When deciding upon the plate voltage to be used it should always be remembered that the use of a high potential does not in itself appreciably increase the volume, but only allows greater volume without distortion. Also, it should be remembered that, when operating the valve at maximum voltages, the plate of the valve should be frequently observed. Plate temperatures exceeding a dull red heat indicate an excess of plate current, which may be caused by an overload of plate voltage or insufficient grid-bias voltage. Always, when operating this valve, it is essential to make sure that the grid-bias potential is of the correct value for the plate voltage used. It is also necessary to make sure that a coupling device (output transformer) is connected between the plate circuit of the valve and the loudspeaker.

BROKEN-DOWN TRANSFORMERS.

ONE of the most common faults which may develop in a receiver after a period of use is a breakdown in the primary winding of the audio frequency transformer. The fault generally manifests itself in the form of crackling noises in the loudspeaker, which gradually increase in intensity, until the wire definitely breaks, when signals cease completely. Often by leaving the receiver switched off for a while the two ends of broken wire meet again, and on switching on the same cycle of events occurs.

If these are the symptoms, the dealer who is called upon to diagnose the trouble may well commence by testing the transformer primary (or both, if there are two audio frequency transformers). It is rarely the secondary which breaks down, since this winding normally carries no current. On the other hand, the primary carries the plate current of the preceding valve, which in time may cause a breakdown in the case of cheap transformers with fine wire primaries. Even some expensive instruments are by no means immune from the trouble.

The primary winding may be tested for continuity in many ways, including a battery and a pair of 'phones or a neon lamp indicator. Naturally a battery and small pocket lamp bulb will not do, since even if the winding is continuous, its resistance is too high to pass enough current to light the lamp. With a small battery and a pair of 'phones, wired in series with the primary of the transformer, a loud click should be produced when making and breaking the circuit. Even if the winding is faulty, a slight click may be noticed, due to the charging up of the windings, but it will not be sufficiently loud to be confused with the click that is due to a continuous winding.

While we here in New Zealand are contemplating an influx of batteryless sets, English papers report a new invention in batteries. Patents are being sought in Great Britain on an interesting form of accumulator battery, intended mainly for wireless work. The new feature of the battery is a device which obviates the need for periodical inspection to replace water lost by evaporation, and "gassing" when the battery is on charge. It depends on the fact that the "gassing" arises from the electrolysis of the water in the battery, and the consequent release of hydrogen and oxygen in the form of gas bubbles. If suitable means of igniting the mixture of the two gases in the top of the battery could be found they would recombine as water, and drop back into the battery. The patent covers a device for igniting the gases as they are released from the battery. The cells of the battery are tightly sealed so that evaporation is prevented. Attached to the top of each is a device resembling a motor-car spark plug, with which is associated a small spark coil. As the battery begins to "gas" the gas pressure in the top of the cells rises until, when it reaches a prearranged pressure, a switch is automatically closed, and the spark coil produced a spark in the top of each cell, igniting the gases and causing them to recombine into water. It is proposed to apply the same device to rectifiers used in various forms of battery chargers and eliminators to overcome the need for supervision.

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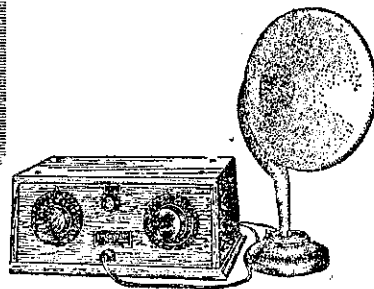
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ANSWERS TO CORRESPONDENTS

A Performer (Onehunga).—You omitted to sign your letter.

2YA'S Transmission.

A.R.C. (Banks Peninsula): I must give great praise to 2YA's orchestra. It is the best that I have heard broadcasted. I always thought the Christchurch Picture Orchestra that Mr. Bellingham was conductor of, and the one relayed by 1YA on Tuesday nights, were the best. But 2YA's easily eclipses them both. 2YA has started that bad fit of fading and mush again. It began after 8.15 time went out, and is getting worse now the winter is approaching. There was no fading during the summer or in the daylight sessions. Some nights 2YA is not worth listening to. She goes mushy for several minutes at a time. Not one item is heard clearly. Last night (May 12) 2YA was the best I have heard for weeks—no fading or mush, and everything beautifully mellow. The orchestra was a delight to listen to. I think the announcer of 2YA speaks too closely into the mike. His voice booms and barks very badly at times. Several set owners say the same. I think the programmes are first-class, and any odd item or so I do not like, I go elsewhere when that is on. I notice one of your correspondents says that he had picked up 29 stations on a five-valve. Was it a record? I know of two different five-valves. One has got 75 stations—over 47 Yanks in that lot—the other 50 odd stations, and over 30 Yanks. These are machines built up out here, and on the 200 to 550-metre band. I know a three-valve that has over 50 stations, including over 20 Yanks. All of the stations on the three machines were at loudspeaker strength.

Over 100 Stations.

E. N. Handley (Wanganui): I see that a few correspondents have been sending in lists of stations logged on five-valve sets, so here is my small list: New Zealand: 1YA, 1ZB, 1ZQ, 2YA, 2YK, 2ZF, 2AQ, 3YA, 3ZC, 4YA, 4AK, 4ZB. Total, 12.

Australia.—New South Wales: 2UN, 2BL, 2FC, 2GB, 2KY, 2UW, 2UE, 2BE. Total, 8. Victoria: 3LO, 3AR, 3UZ, 3DB, 3BY, 3CT, 3WP, 3LD. Total 8. South Australia: 5CL, 5DN, 5MA, 5KA. Total, 4. Miscellaneous: 7ZL, 7BN, 4QG, 4RN, 4MB, QME. Total, 6.

U.S.A.: KFI, KGO, KFON, KNX, KPO, KOA, KFWB, KNRV, WBBM, KFVD. Total, 10.

India: 7BY, 1CA. Total, 2.

Manila: KZRM, KZRO. Total, 2.

Japan: JOCK, JOBK, JOAK. Total, 3.

Also the C. A. Larsen, whaler. Total, 1.

Grand total, 56. While on a S-W adapter and A1 valve three coil set I heard another 46 stations, so my list is just over the century mark. My five-valve set is a B-D, and I had it in use for two years. My first set was a crystal set, which I made over six years ago.

Some Scalps to Get.

"Shannon": In reference to who is the champion five-valve listener, please allow me to suggest a few stations to "scalp hunters"—ones that are to be picked up right now:

5DN Adelaide, 308 metres.
3BY Melbourne, 250 (early Sunday morning and Monday).
7BY Bombay, 359.
7CA Calcutta, 371.

Five Japs., all in between the lower edge of 4QG's wave and two BL's wave. Three of these stations are between 4QG and 3LO, and one on about 302 metres, and JOAK I should say is about 347 metres. Then there is KZRM, Manila, 400 metres, and not a hard one (Sunday morning, 1.15, they usually cross to the Stadium). Turning to the Yankies, KGU, Honolulu, 270 metres, KFWB, Oakland, 237, every night till 5.30 p.m., and one night per month, near mid-month, till 7.30 p.m.: KEX, Portland, 240 with their "Doe Boys," are interesting. KGBU, Alaska, was also picked up last week on 220 metres. KGBU is the only one I consider freak reception. Writer has only logged this 600 watt, Alaskan station, three times.

A Suggestion.

"Q.R.N." (Masterton).—The R.B.C. is certainly to be congratulated on the very fine orchestra now attached to 2YA. Every one of the items which I have heard performed by those players has been most enjoyable, and surely the broadcast listeners of this country have no cause for complaint now.

I am also very pleased that the items by the Symons-Ellwood-Short Trio are being continued, as I have always considered these items to be worth a lot more than the price of a radio license.

There is one suggestion that I should like to make, and it is that the announcer should state, at the beginning of the evening session, the "request" items to be played by the orchestra, as there must be a number of others, like myself, who, on account of studies, etc., cannot afford to spend the whole of each evening listening, but have to select those items which they desire specially to hear. I, for one, cannot mix music with trigonometry, etc., but like to pick out the choice "delicacies" from the radio "menu." Once again congratulating the R.B.C. on the service we are receiving.

Question of Harmonics.
"W.S." (Tokomaru Bay).—In your issue of April 20, "G.C.H., Master-

ton" mentions getting 4YA on 230 metres. He asks other readers to let him know of any stations they have picked up on their harmonic waves. I am a rank amateur and new listener-in, so state dial settings only. I frequently get 4YA on both 66 to 67 and (harmonic) about 10. This was very clear at loudspeaker strength, during a lecture on French literature about 7.45 on May 5. I also just logged 2GB, Sydney on 13 to 14, although I found it should be 33 to 34, and have since got this station on 13 to 14 when unable to tune out 1YA or 3YA (38 to 39 and 30 to 31) from their correct wave-length. Is this too close for a harmonic? One evening had 2FC Sydney clearly announced, with few bars music, cut off, then whispering, repeated over and over again, this when 1ZB on 19 and 2AQ on varying lengths were testing, and on (if I remember rightly) the latter's setting. Last week had a similar experience on 4YA's setting. Were these stations practising modulations—whatever they may be?

A Crystal Range.

Crystal D.X., Wellington: May I add my quota to the general praise of the new departures at Station 2YA? The programmes and rendering of the new orchestra are a musical treat, and with the listeners' share in selecting items, should contribute to the general enjoyment. May I suggest the consideration of selections from "Tannhauser," "Lohengrin," etc., and the Gilbert and Sullivan operas.

In my opinion, the "Maori Pageant" and the farcical comedy "Jane" were milestones in the progress of 2YA, but the "Station Orchestra" is going to be the draw for the coming winter. The supporting items are also much improved, and the whole programme goes with a swing. I am one of the band of enthusiasts using crystal reception, and can hear 2YA quite plainly on loudspeaker straight from set; with a locally-made one-valve amplifier I have heard quite a number of other stations (on 'phones), including 1YA, 3YA, 3ZB (Tailhapa?), 2FC, 3LO, 4QG, 4GB, etc.

Not always hearing the station call, I identify them by the items in current programme. On two consecutive Wednesdays during April I have heard chimes from 2FC, and on the 30th of that month a pealing of bells was heard, suggesting a "carillon." Of course all this was not heard without interference from morse signals, etc., but I consider this good reception from a crystal and one-valve combination. In conclusion, I may add an appreciation of your paper, which I read from back to front and then some.

South African Station Heard.

C. J. Nordstrand (Onerahi): I wish to thank you and also the various listeners-in for letters received and their answers to the letter I wrote re information of the station we were puzzled over. We can now pick it up very often if we feel inclined to sit up a few hours later, which, I may state, is pretty often. "Wireless mysteries" are too fascinating to leave—at least I find it so. Regarding the South African station: this we picked up at 2.30 on the Sunday morning. "Three of us distinctly heard 'Albert Street, Newport, South Africa,' but we did not

get the call sign. "Band music" was being broadcasted at the time. We have tried for it several times since, but evidently conditions have not been satisfactory. We received the "signal," but nothing else we could really distinguish, so shall keep on trying. Not having the metres marked on our set, we quite accidentally dropped on it, almost on the top of the "broadcast drum," up to 100. I hope others will be successful in logging another stranger.

9XF Well Received.

H. F. Ross, Invercargill: In your issue of May 4 there are letters from Mr. Green and Mr. Wenlock concerning 9XF. The following extract from my log-book may be of interest:—Station 9XF, on about 282 metres with 50,000 watts, broadcasting a special test programme, picked up about 6 o'clock Sunday, April 15, and was still going at 10.45 when I closed down. Maximum signal intensity from about 8 o'clock till 9.40, when it gradually became weaker, with more frequent fading, which was present all the time, but not so noticeable during period of maximum intensity. Its modulation was excellent, and the programme presented of an excellent variety. Many of the songs were accompanied by a grand organ. Two gentlemen, one with a very deep bass voice, rendered quite laughable, humorous sketches and duets accompanied by guitars. One was something about "When the Flying Fish are Flying." A tenor, Joe C., was very well received. At about 8.45 the announcer stated that he would present gramophone records while Herrman and — went outside to get a little fresh air. He continued: "Now, you folks, roll back your carpets for some dance items—we will be putting over some real hot stuff. Our first number will be —," from

the musical comedy "Good News," by courtesy of the Wurlitzer Co. of New York." Another number was, "Are You Thinking of Me?" A quartet of ukulele players were well received throughout the evening. Strong induction, with static increasing, rendered it difficult to receive them. Their identity I could not catch, but it sounded something like the Gold Star Radio Corporation. His location I could not understand, either, although he spelled it out once, and I know it had several "ms" in it near the end. The broadcast was received easily on the loudspeaker on my Symphonic Shielded Six.

I also received the foreign station mentioned by Mr. Nordstrand, just below Sydney, and think it may be one of the new Japanese stations testing. He was very loud. Could anyone tell me the identity of an American station operating between 2BL and 3LO? It may interest the Palmerston North Radio Club to know that I have been receiving their station 2ZF well on the speaker, and also 2AQ, Tailhapa, who had a strong hum. The following is a list of stations I have heard the last two months on loudspeaker:—1YA, 2YA, 3YA, 4YA, 2ZF, 2AQ, 3ZC, 2BC, 2FC, 3LO, 3AR, 4QG, 7ZL, 2UW, 2UE, 2KY, 2GB, 3DB, 3UZ, 5DN, JOAK, JOBK, JOCK, 9XF, KGO, KFI, KFON and several Americans I have not yet identified. 2FC can be heard very faintly sometimes at midday, and 2FC, 2BL, and 3LO can be received at about 4.30 on speaker. 2YA is coming in well in daylight now, also 4YA, which is not much stronger at night.

33 Stations Logged.

A. E. Ireland (Taradale, Napier).—Re Mr. Ellis's par in this week's "Record," I think I beat his record, and my set is only a four-valve neodyne, home-made. My list is (I have marked those that I have had on the loudspeaker thus *):—New Zealand: 1YA*, 2YA*, 3YA*, 4YA*, 3ZC, 4YA*, 2ZF*, 1ZQ, 2AQ*, 1ZB, 4ZM*. Australian: 2BL*, 3LO*, 2FC*, 2GB*, 2UQ*, 3AR*, 5CL*, 2UB, 2KY, 7ZL, 4QG*, 3UZ, 5DN, 2UW, 5KA, 3DB. American: KFON*, KGO, 9XF*, KPO, KFI, Japanese: JOAK*, JOBK, JOIK. Making a total of 34 stations. My aerial is nothing to speak of, being only 35ft. high. I am a bit doubtful about 2UQ, but could be sure the announcer said 2UQ, so this will make 33.

DX Enthusiasts Thanked.

E. Green, Mt. Biggs, Feilding: Through the columns of your valuable "Radio Record," I hereby wish to acknowledge and thank all those radio fans in New Zealand who assisted me in clearing up Station 9XF, Illinois. I also wish to thank especially Mr. William Terril, Mr. J. Brydon Speedy and Mr. W. J. Tonkin. It was very gratifying indeed to see how eager other DX fans were to exchange notes on reception, and I would be only too pleased to exchange notes with any other radio fan if they so desired. I have not got many stations as yet. These are the ones I've logged so far on four valves 'phone strength or five valves speaker strength: 2AX, 2ZF, 2AQ, 2YA, 1ZB, 1ZQ, 1YA, 3YA, 3ZC, 4YA, 4ZB, 2BL, 2FC, 2KY, 2BE, 2WW, 2GB, 2UE, 4QG, 5DN, 5KA, 5CL, 3LO, 3AR, 3DB, 3UZ, 7ZL, 2ME ship, AIPi ship, KFVD, KFON, KFWB, KGO, KMTR, KFSD, KSL, KOA, KFI, WO, WIO, KFXD, KPO, RADIO K, OYA, 9XF, JOAK, JOBK, JOCK, KZRM. Total 49. Any information regarding these stations will be gladly supplied if any radio fan cares to drop me a line or call personally here at Mount Biggs, Feilding.

New Zealand Stations Appreciated.

Reg. B. Schofield (Hastings): I see by your "Mail Bag" columns that receivers are showing their appreciation of their programmes, etc. I must say that I am getting splendid reception from the four principal stations, particularly 3YA and 1YA. I get 2YA very strongly but distorted. Cornet solos and other instrumental music is my choice, but am quite satisfied with the programmes as we get them.

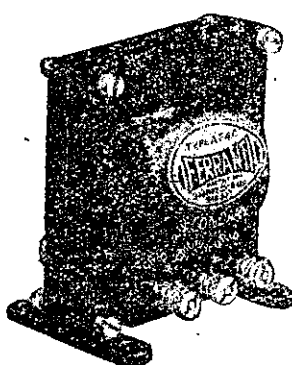
Napier Listeners Pleased.

E. J. Crabbe (Napier): Heartiest congratulations from Napier listeners for the perfect studio orchestra at 2YA. The music is a treat and comes through as clear as a bell. Congratulations also to the Broadcasting Company for fine arrangement of items to suit every taste. Any listener that complains of the music now should be entitled to a medical examination. The Mail Bag page is a great help to listeners, and is always the first thing I turn to when I get my "Record." The idea of finding out who has heard most broadcast stations on a five-valve set is rather good, and I am sending my list of stations heard since the beginning of the year. Stations heard are:—New Zealand: 1YA, 1ZQ, 1ZB, 2YA, 2AQ, 2ZF, 3YA, 3ZC, 4YA, 4AK, 4ZM, and Norwegian whaler. Australian stations: 2BL, 2FC, 2GB, 2KY, 2UE, 2UW, 3LO, 3AR, 3UZ, 3DB, 3AS, 5CL, 5DN, 5KA, 7XL, 4QG. American stations: KFON, 9XF, KFWB, KOA, KOMO, KPO, KFI, and several others I cannot get the call from. Japanese stations: JOAK, JOCK. This makes a total of 37 stations for five months. I have written to the above stations for confirmation, and have received cards from most of them now. The Jap. stations have been very loud and clear after the Australian stations have closed down.

The following is a comparison of the four New Zealand stations in daylight and dark reception. In the afternoon 2YA is clear and steady, 1YA is clear but fades badly, 3YA is fairly clear but fades, 4YA is very clear and steady but rather faint. At night 2YA is very

(Continued on Page 14)

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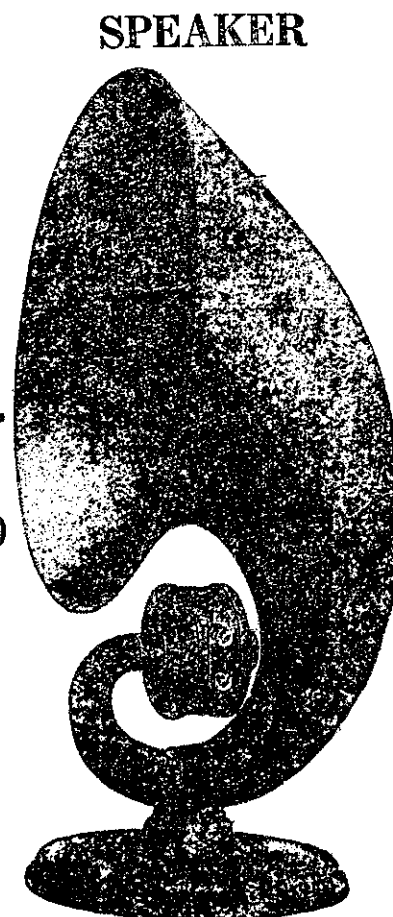


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DEALERS IN ALL LEADING TOWNS.

N.Z. Radio Listeners Guide

SUBSTANTIAL AND HANDSOME PUBLICATION

THE "N.Z. Radio Listeners' Guide" (1928-9, 164 pp.) is now published and in process of distribution. It will, we think, be welcomed as a notably substantial and handsome publication of definite usefulness to listeners. Its compilation has proved exacting and onerous upon the writers engaged, as it was desired to make the publication one worthy of the Dominion and the cause of radio.

Opening with a brief survey of wireless and an examination of the principles of radio, attention is speedily concentrated upon the art of "listening," as a preliminary to which there is given a comprehensive chat about "selecting a set." All factors are covered in relation to prospective needs, after which follows a special section for the crystal user and points about crystal detection.

The needs of the valve set owner are next fully covered in a series of very comprehensive articles, dealing with all parts of the set and equipment.

Next comes the section, "The Servicing of Sets." This section alone makes the book worth while, for packed within the pages covered by it is the experience of an outstandingly competent radio engineer, giving guidance on all difficulties in reception likely to be experienced. This is intended to be particularly useful to the country listener who has not a radio shop just next door.

The history of radio in New Zealand is briefly covered, after which comes "The Listener's Log," as comprehensive a compilation as possible of New Zealand, Australian, and overseas stations, their wavelengths and times of operation. A list of the more important American and Canadian stations may be expected to incite the ambitions of some of our D.X. champions.

A SHORT wave section, contributed largely by Mr. F. W. Sellens, will be of value to all interested. This gives a full list of short wave stations which have been heard on telephony in New Zealand and the hours of reception so far as they can be scheduled. This is supplemented by a few additional stations whose times of operation are not certain. In view of the growing interest in short wave reception a very full account of the construction of a short-wave receiver with full working diagrams and constructional details is given in the constructional section. This describes the circuit which is in point of fact used by Mr. Sellens. A technical description of the screened grid valve indicates the marvellous possibilities of this recent improvement.

CONSTRUCTORS will find their section particularly full and reliable. The articles cover the whole range of crystal reception, one and two-valve amplification, the four-valve circuit, and the short-wave shielded receiver.

A glossary of wireless terms will probably prove one of the most popular sections of the book. This has been specially compiled, and is quite the most comprehensive and compact that we have seen.

Other sections give the law relating to wireless licenses, a list of amateur transmitters, the Morse code, and useful abbreviations.

FOR usefulness and value to constructors and ordinary listeners alike nothing will exceed the special "Valve Guide for each position in the set" compiled with immense patience by "Megohm," and comprising a tabulation of all the main valves on the market to-day. This is supplemented by a valve guide table and other tabular matter of an indispensable character.

Summarising the work, we can say definitely that it reflects credit upon the technical writers of the "Radio Record." It is a definite effort to give listeners a concise and informative volume embracing to the fullest possible extent information continually desired.

The "Guide" may be procured from booksellers and dealers or direct from ourselves—P.O. Box 1032, Wellington. The published price is 2s. 6d., postage 3d.

Notes from Auckland

(By "Listener.")

THE one topic in radio circles this week is the promised orchestra for 1YA. The announcement in the "Record" has been hailed with delight. All valve set owners here are keenly interested in the presentations by the fine band of musicians at 2YA, and few miss going on to 420 metres when that orchestra is scheduled. It has provided us, at this distance, with a rare musical treat, and now that 1YA is also to have its orchestra, there is keen appreciation of the enterprise of the Broadcasting Company, and there are smiles on the faces of many dealers, who foresee a big influx of new business from the additional attraction. Our local trio is an excellent little combination, and to some it has a decided appeal, but it cannot hope to catch the favour of the general body of listeners in the way that a full orchestra will do. The talent is here, and the capabilities of Mr. Bellingham for welding it into a body of which not only the station but also the city will be proud, are undoubted. All radio fans will anxiously await his coming North, as the sign that the promise is within short distance of fulfilment.

IT must be a very pessimistic listener who continues to grumble at the local programmes. Every week they show some distinctive feature of improvement. They are accumulating brightness and variety and the generality of listeners quickly comment upon the fact. The Saturday football relays have missed the genial Mr. W. J. Meredith, who is very well qualified to describe the game he has refereed so long. Mr. Meredith has been away on sick leave, but is now back at the microphone at Eden Park, where he is always a prominent figure. Enthusiastic amateurs whose greatest delight is to contemplate anything new in the way of radio sets, have found much to interest them in the wireless room of the Nauru Chief, the supply ship of the British Phosphate Commission. This vessel carried a half kilowatt telephone set, working on a wave of 720 metres, and effective over a daylight range of 700

miles. The set is used solely to converse with the shore stations of the commission on Nauru and Ocean Islands, each of which has a similar equipment. These two shore stations also provide continuous two-way conversations between the two islands, which are nearly two hundred miles apart. The ship's plant is a splendid example of British workmanship, and, from the accounts of the officers, has fully justified its installation. It has saved the mendless detail, and avoids all that rush of preparation that would otherwise arise when the Nauru Chief arrives at the islands. Officials returning from holiday are enabled to converse with friends ashore, and to pass along instructions even to the preparation of the dinner on day of arrival.

MR. Jordan, operator of the Nauru Chief, has a very high opinion of 1YA. Despite its comparatively low power, it reaches as far up into the Pacific as its bigger Australian cousins, and for clarity of announcement in particular it stands supreme. Missionaries in the Solomons, and traders throughout the South Pacific, all know 1YA, which does as much as any other broadcasting plant to relieve the monotony of island life. Hearing it 1500 miles away, and comparing it with 2YA, it is hard to believe that it is only one tenth of the power of the Wellington station.

WELLINGTON reception here just now is better than it has ever been. Whether this is due to exceptional atmospheric conditions, or to improvements in the South the writer knows not, but, both by day and by night 2YA comes in with splendid audibility, and without that pronounced fading that marked its operation some months ago. And, as for the programmes—well, they are better than the Auckland ones, and that is saying something.

SPORTING

RACING AND RUGBY

NEXT WEEK'S BROADCASTS.

June 2—Auckland Racing Club's Great Northern meeting, first day (by courtesy of the club), 1YA.
Rugby Football.—Athletic Park, 2YA; Lancaster Park, 3YA; Carisbrook, 4YA.

AUCKLAND COMEDY PLAYERS

UNDER the direction of Mr. H. Montague, this combination of players continue to present bright and entertaining comedy attractions at 1YA, and on 25th inst. they will put on the air Houghton's delicious one-act comedy, "Just Fancy." This is one of the brightest and wittiest short plays of the present generation. The situations are hilariously funny, and the dialogue has a laugh in every line. The cast includes Miss Mary Norwood, Miss Irene Day, J. F. Montague, and J. N. Gordon, all experienced and capable artists. On Friday, June 1, at 1YA, Mr. J. F. Montague and his company of players will present an arresting one-act play, "Campbell of Kil-mohr." The setting of the play is Scotland, after the rebellion of '45, when the Young Pretender's attempt to capture the English throne from the House of Brunswick had failed. The play is intensely dramatic and ends on a note of tragedy. Nothing quite so powerful has previously been attempted on the air in New Zealand, but the producer feels confident of the result. The characters are mainly Scottish, and Mr. Montague has taken special pains to secure a cast of Scottish players to suit the respective parts. The majority of the players on this occasion will be making their "first appearance" on the air, so that listeners cannot complain of want of change in this direction.

"The School for Scandal"

Richard Brinsley Sheridan's comedy, first presented in London in 1777, can never lose its place as the wittiest comedy of the English stage. For sheer audacity and power of construction, the famous "screen" scene has never been equalled at any time in any country, and the "Quarrel" scenes between Sir Peter and Lady Teagle are comedy of the highest order. On Friday, June 15, at 1YA, two of these scenes, blended into one, will be presented by Mr. J. F. Montague, Miss Melzie Johnston and Mr. Hellyer. Miss Johnston is a young player of the greatest promise, who is making her first "appearance" on the air, and will be heard in the wonderful comedy role of Lady Teagle. Mr. Montague will be Sir Peter.

TIP-TOP PROGRAMMES

APPRECIATION FROM OVERSEAS

A VICTORIAN correspondent writes the following appreciative letter to 2YA:—

"I must write to let you know what I think of your station and the programmes you put over. I have only a four-valve receiver working off a 40ft. aerial, 45ft. high, but the reception from your station is wonderful. At times it is that loud that it is uncomfortable, and we have to cut down the volume. It sure shows some of the local stations some points as far as the programme goes. 3LO, Melbourne, comes first in my estimate, then 2YA a close second. Although in the summer months here the static is sometimes deafening, I usually manage to get your station at least once a week. However, in the winter months we have no trouble at picking up 2YA, but the other New Zealanders are hard to get even on the 'phones."

"I am enclosing a snap of the set on which I receive 2YA. As you will see, it is no special set, but just the usual standard Browning-Drake circuit. I have it out in a tent, and I have some trouble with dust, which is rather plentiful here. You can see by the size of the speaker that we have to have some volume to make it uncomfortable to listen to."

"I wish you every success in the future, and am looking forward to hearing some more of your tip-top programmes this winter."

ALL BLACKS' TOUR

BROADCASTING OF RESULTS

JUDGING by the correspondence which the Broadcasting Company receives, there seems to be a lingering hope that running descriptions of the matches in South Africa will be re-broadcast by the New Zealand stations.

It can be stated definitely once again that this cannot be done, for technical reasons. No one regrets this more than does the Broadcasting Company. Careful investigations by the Broadcasting Company last year, when the tour was decided upon, proved this. The Broadcasting Company was the first to realise the importance which would attach to a broadcast description, and even considered the sending of its sports announcer to South Africa. The technical side of the problem, however, presented insuperable difficulties, and the proposal was definitely ruled out.

Under the circumstances, the company has made the best arrangements possible, namely, that the results of each match shall be cabled at once and broadcast with the opening announcement when the stations next go on the air. For instance, the results of Saturday games will be announced by 1YA and 2YA at 3 o'clock on Sundays, and by 3YA and 4YA at 5.45.

NEW STUDIOS FOR 2YA

GREATLY IMPROVED FACILITIES

ALTERATIONS and improvements have lately been effected at 2YA. Hitherto only one floor of the building has been utilised, but the demands of the service have now necessitated that the office staff should be moved downstairs, thus leaving more accommodation upstairs for artists.

Two new studios have been formed by converting the ladies' lounge and the general office (on either side of the station director's office) into studios. This has been effected by means of large plate glass windows in the dividing walls and by the installation of an intricate system of wiring for microphone and switches.

The wiring system is very complete. There is a main control panel in the announcer's room, but each studio has its own panel of buttons and switches. There is a system of coloured lights in each studio which designate which studio is on the air, and, when required, announcements can be made and orchestras, bands, vocalists, or any kind of "turn" can be broadcast from any studio.

The additional studios will greatly increase the efficiency of 2YA. There will now be more facilities to aid artists in their practising, and the working of the station when on the air will be greatly helped.

TRACKED TO ITS LAIR

CHRISTCHURCH "ROARER" LOCATED

AN INTERESTING SEARCH.

FOR some time past valve-set users in Christchurch have endured considerable interference from a source that no one was able to locate. The locating of such sources being a very difficult matter. The interference in question was dubbed "the roarer" by the radio editor of the "Star," and as such it became known. But Nemesis was on his track.

Three radio sleuths were set out to find him, and they did their work in a systematic manner. The investigators were Mr. J. M. Bingham, chief engineer of the Radio Broadcasting Company, Mr. Head, deputy radio inspector for Christchurch, and Mr. G. Blogg.

They arranged to take bearings whenever the "roarer" was in action. These bearings were taken from different parts of the city, and when plotted on a map it was found that the lines crossed in the vicinity of a large private hospital. It therefore seemed evident that it was the violet ray plant in this hospital that was responsible for the "roaring."

On Tuesday night last the interference was definitely located. The "roarer" was in his best voice, so the search party at once went to the locality whence they thought the noise came. To make sure they took another bearing on their direction-finding apparatus. Yes, it was the hospital. But they thought that they would circle the block to eliminate all doubt.

The next bearing suggested that it was not the hospital at all! Surely the tramline must be responsible for this change of direction on the part of the apparatus. They would try another corner of the block where there would be no induction from tram lines.

"The roarer!" Without a doubt. But not from the direction of the hospital! A doctor's house in the vicinity was indicated.

THE car, the apparatus and the searchers took up their position outside the doctor's gate. There was no doubt now. "The roarer" was still going at full blast, and the direction-finder pointed straight to a lighted window in the doctor's residence.

The investigators waited until a patient left, and then they went in to interview Dr. Thacker, to whom they explained matters. Dr. Thacker listened with a sympathetic ear, and undertook to arrange the times for the treatment of his patients so as to keep "the roarer" off the air during broadcasting hours.

Mr. Bingham was acting in an unofficial capacity, and Canterbury listeners are indebted to him as well as to Mr. Head and to Mr. Blogg for giving up their time on many evenings, also to Dr. Thacker who so promptly offered, once his attention had been drawn to the interference caused, to keep "the roarer" quiet during broadcasting hours.

AN experience similar to the foregoing has been the lot of listeners in various towns on the South Coast of England, where the violet ray is extensively used for therapeutic purposes. The "Morning Post" says:—With the increasing use of the rays the position has become little short of intolerable, for Brighton and Hove contain a vast number of nursing homes and hospitals where the rays are much in use, and broadcasting is turned from a pleasure into torture.

One sufferer told a tale typical of many others. "Wireless reception has always been difficult here," he said, "because of the close proximity of the South Downs, but fairly high-powered sets had done much to overcome this. Now, however, the extensive use of violet rays for medical treatment is spoiling our pleasure entirely."

"We know that the rays are far more important than wireless music, but is there not some way by which condensers or earths may be applied to obviate the interruption. The noise is horrible—just like a circular saw in motion—and as luck will have it, it is usually at its worst between 10 p.m. and 11 p.m., just when the best programmes are coming through. Once the violet rays start it is quite impossible to hear anything else."

The B.B.C. state that these difficulties can be overcome by the use of a certain type of "smoothing circuit" which will shortly be procurable.

Violet rays are not the only electrical agents which may interfere with reception, according to an official of the B.B.C. The use of a vibro-massage machine may interfere with the reception, not only of the shop in which it is being used, but with that in the houses near. It is very difficult to locate this trouble.

"There will shortly be on the market a 'smoothing circuit,' of which the final tests are now being made," he stated, "and we hope that this will deal effectively with these interruptions."

BAND BROADCASTS

AN INTERESTING CONFESSION.

An interesting confession was made by Mr. B. Palliser at the final meeting forming the 2YA Musical and Dramatic Committee. Mr. Palliser, who is a member of the executive of the North Island Band Association, on being voted to the chair, expressed his pleasure at the opportunity of being present, and said that he was glad of the invitation to participate in such a committee aiming at forwarding music through the influence of broadcasting. Mr. Palliser went on to confess that formerly he had been rather opposed to broadcasting band music. When the proposal had been made in connection with the band festival held in Wellington a year or so ago to broadcast some of the proceedings, he had strenuously opposed it. He now felt that his earlier action had perhaps not been wise, and that more benefit might have been secured to band interests by a judicious co-operation with broadcasting than by taking the stand he did. He was free to confess that he could now see further than he had been able to before, and thought that ways and means could be devised by which broadcasting could co-operate with special functions organised by the bands in a way to mutually benefit both.

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BROADCASTING IN JAPAN

NEW 10,000-WATT STATION

POOR PROGRAMMES.

NEW Zealand listeners who operate multi-valve sets will be interested in the news that within a few weeks six 10,000-watt (aerial power) broadcast stations will be operating in Japan.

A correspondent writes to London "Modern Wireless":—

As there are so many points of resemblance between the island Empire of Japan and our own country (Great Britain) in the matter of modern activities, at least, the development and present state of broadcasting in Japan is an interesting study. When one considers that less than a century ago the Japanese were prone to resist the influx of the foreigner and his devilish arts by force of arms—very primitive arms—the present situation of the country in world-politics, and in broadcasting, is amazing, though when we consider the last-mentioned we are bound to confess that listeners in England are far better served.

Broadcasting in Japan was started by the Tokio Broadcasting Company, which erected a 6-kw. set in March, 1925. This was followed by the formation of the Osaka Broadcast Company, with a transmitter of the same power, in May of the same year. Then in July, 1925, the Nagoya Broadcast Company also put up a 6-kw. set.

At that time the license fee was 2 yen per month, or about £2 8s. per annum, and the companies had to issue the licenses and collect the fees.

GIANT STATIONS BEING BUILT.

In January, 1926, the Tokio fee was reduced to £1 4s. per annum, and the Osaka fee to £1 10s., the Nagoya fee being unaltered. The number of subscribers was then: Tokio, 140,000; Osaka, 40,000; and Nagoya, 15,000.

The first Government regulations for broadcasting allowed for the formation of eight companies, of which only three were formed, but during the summer of 1926, the Japan Broadcast Association came into being, and combined the three, with a directive board appointed by Teishinsho (Japanese Government Communication Department) consisting of ex-Teishinsho officials—the equivalent, one supposes, of the B.B.C. Board of Governors.

In March, 1927, the Japan Broadcast Association placed orders for six 10,000-watt (aerial energy) stations, three Marconi type and three Western Electric type, destined for (Marconi stations) Tokio, Osaka and Kumamoto, and (Western Electric type) Hiroshima, Sendai and Sapporo. These stations are to be capable of working at 20 per cent. overload for at least one hour per day, and all are expected to be ready by the middle of the year. They will transmit within a band of 330-400 metres.

Somewhat Spartan Fare.

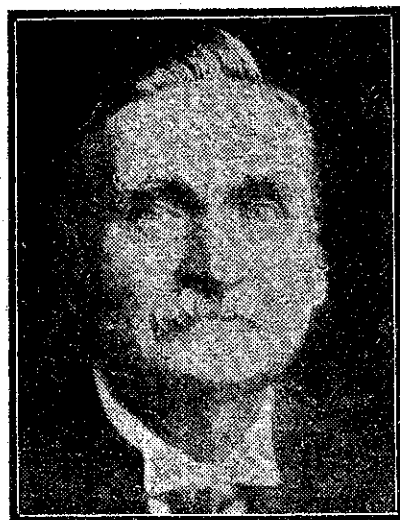
At present the Japanese listener has not much to attract him, and it is said to be almost impossible for him to receive either of the other two stations when the one nearest to him is working, as Tokio works on 375 metres, Nagoya on 360 metres, and Osaka on 385 metres. The only thing which will save such a situation is the provision of excellent programmes, but these appear to be lacking. Here is the Tokio programme for November 3, 1927:—

9.40 a.m.—Chorus, "Kimigayo." Lecture.
10.30 a.m.—Lecture.
11.15 a.m.—Market news and weather report.

Auckland Racing Club's Winter Meeting

BRILLIANT RACING TO OPEN ON SATURDAY, JUNE 2

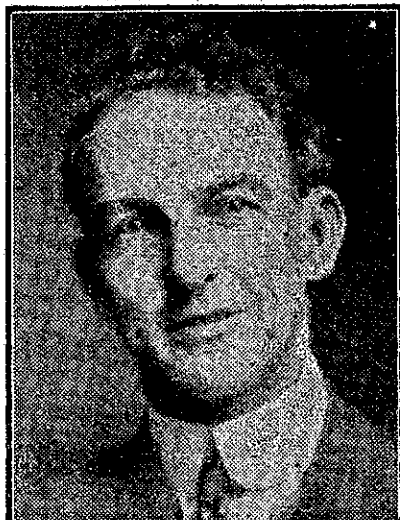
WHAT is unquestionably one of the most attractive and brilliant events of the racing year opens at Auckland on June 2 with the winter meeting of the Auckland Racing Club. The course at Ellerslie takes rank as probably the most beautiful and picturesque in the



SIR EDWIN MITCHELSON
(President A.R.C.).
—S. P. Andrew, photo.

Dominion, the grounds being quite unrivalled in their attractiveness. The management of the club has always had before it the ideal of a beautiful setting for the king of sports, and has steadfastly concentrated on that ideal.

LISTENERS and followers of the sport generally will be glad to know that permission has been given for a description of the races to be undertaken. This will be greatly appreciated by country residents who are unable to personally attend the meeting.



MR. W. S. SPENCE (Secretary A.R.C.).
—S. P. Andrew, photo.



VIEWS OF THE COURSE AT ELLERSLIE.

—Star Photo.

11.20 a.m.—Lecture.
12.10 p.m.—Drama, "Kilchi Hogen."
2.0 p.m.—Lecture.
Koto, by Ikuta School.
Story-telling.
Songs for children.
3.40 p.m.—News and weather report.
6.0 p.m.—Play for children.
6.30 p.m.—Lecture.
7.10 p.m.—News; English lesson; Ngauata, soprano solo; Utazawa, Gidayu; weather report.

This to the English mind is somewhat Spartan fare; though, of course, it is possible that Koto, Ngauata, Utazawa and Gidayu may redeem the

whole programme. The number of lectures show that the J.B.A. is copying the British Broadcasting Corporation; and it has just occurred to me that the programme contains no chamber music, unless it is disguised as Utazawa or Koto. I fear that such a type of programme is very dear at £1 4s. a year.

NUMBER OF LICENSES

TOTAL OVER 32,000.

The secretary of the Post Office reports: The under-mentioned summary represents the number of radio licenses issued as at April 30, 1928:—

	Receiving Dealers	Transmitting and Receiving
Auckland ..	10,534	265
Canterbury ..	6,161	219
Otago	1,930	105
Wellington ..	11,314	439
	29,939	1,028

Grand total: 30,175.
The total number of licenses received in the General Post Office up to date is 32,177.

MR. BYRON BROWN

In your last issue we reported, on news received, that Mr. Byron Brown was going on a trip to the Old Country. We are now informed that Mr. Brown has no such intention. We regret having given publicity to this inaccurate report.

A RECORD for amateur telephony in daylight was recently established by GSHS, of London, and U6ZAT, of Los Angeles, California.

WORKERS' EDUCATIONAL ASSOCIATION

BROADCAST LECTURETTES.

Commencing on Saturday evening next, at 7.40 p.m., lecturers of the W.E.A. will broadcast from 2YA a series of lecturettes on topics of public interest and moment. The inaugural lecturette will be delivered by Mr. F. L. Combs, M.A., whose subject will be "What Education Really Is." On June 9 Professor T. A. Hunter, W.E.A. Director, will speak on "The Value of Adult Education," and on June 30 "The Value of Voice Culture in Every Walk of Life" will be the topic on which Mr. Edwin Dennis, A.R.C.M., will speak. The dates and subjects of subsequent lecturettes will be announced in the "Radio Record" in due course. This very fine community service on the part of the W.E.A. should meet with wide appreciation, and prove of great value and assistance to many hundreds of listeners.

RADIO TIME

VALUE TO OUT-BACK DWELLERS.

THE practice of giving out the correct time at intervals from the stations is one that serves a very useful purpose and is generally appreciated, especially by dwellers out-back.

A letter which serves to emphasise this has been received by 2YA. An extract from a very appreciative letter says:

"I'll explain why the correct time is important here. This place is a railway construction camp (P.W.D.), employing about 300 men, and one of my jobs is to ring the starting work bell at 7.30 a.m. I might tell you that our bell is known locally as the 'wireless time' on account of my getting the correct time every night over the air. I am sorry to say Monday morning's time will be purely guesswork. When you said 'Good-night,' after giving the 'Thought,' my watch was 9.28 p.m., and my clock was 9.37 p.m., so I will have to divide the difference in the morning."

"I will listen very anxiously next Sunday for the time, and if you will listen carefully you will hear me say, 'Thank you,' when you announce it. While I have a little space left, let me congratulate 2YA on its new orchestra. It is a tip-top combination."

A LOUDSPEAKER TEST

A SUGGESTION has been made that 2YA, Wellington, should send out a series of sounds ranging from the very lowest bass notes to the shrillest notes in the top register, so that listeners could judge the efficiency of their loudspeakers. An English radio journal says:

"During future broadcasts from York Minster, listeners should listen very attentively to the ringing of Big Peter. This bell has an extraordinarily deep tone, and is very sweet and clear. It was recently recast, and the ringer says it is the lowest-toned bell in the world now."

"However that may be, it is certainly so low that many loudspeakers will trip up on it. So if, next time Big Peter is broadcast, he sounds to you like the beating of a tin can, do not blame the B.B.C. or Big Peter himself—examine that loudspeaker!"

Request Item Coupon

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

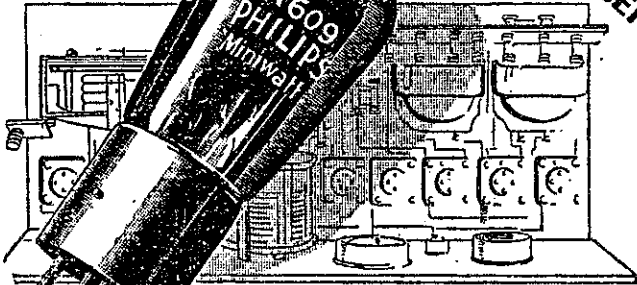
I desire to nominate the following items for "repeats" next week:—

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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A300 (10 AMP.) AUDIO .. 12/6	A300 (10 AMP.) AUDIO .. 12/6
A300 (10 AMP.) POWER .. 12/6	A300 (10 AMP.) POWER .. 12/6
FOR 2 ACCUMULATOR CELLS (4 VOLTS)	FOR RESISTANCE COUPLING
A400 (10 AMP.) GEN. PURPOSE .. 12/6	A400 (10 AMP.) TWO VOLT .. 12/6
A400 (10 AMP.) AUDIO .. 12/6	A400 (10 AMP.) FOUR VOLT .. 12/6
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	A410 (10 AMP.) THE FOUR-FIFTEEN .. 12/6

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SR8



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A. E. STRANGE

404 Worcester Street, CHRISTCHURCH.
Wholesale and Retail.

From the Woman's Point of View.

By VERITY.

TO-DAY AND TO-MORROW

The Line of Future Development.

"The Saturday Review" writes concerning "I Believe in God":—"Miss Royden's book represents the standpoint of her addresses in the Guildhouse, where she has done fine work in ministering to the unchurched. It stands for that temperamental Anglicanism, with much liberality of interpretation and wide elasticity of expression, which she believes to be the line of future development. It is a persuasive presentation of that Christ-centred attitude which Miss Royden has made her own and has helped many others to find."

Ave Atque Vale:

THE retirement of Dean Hitchett, with the weight of years and honour upon him, brings to the minds of his parishioners, old and young, past and present, who are scattered throughout the Dominion and the wider world beyond, many long, long thoughts of evening and morning services in the dim and beautiful All Saints Church of blessed memory, when they listened to brilliant and illuminating sermons and elucidation of that one true light we are all groping for in the darkness of our human spiritual vision. It was a happy gesture on the part of the parish to hold a gathering of remembrance, where the Dean made music in "Poet and Peasant," and Mr. Ritchie's short speech was an eloquent tribute. It seemed fitting he should quote from one of the Victorian poets the Dean had taught his flock to know so well.

Grow old along with me!

The best is yet to be!

The note of hope was apparent and persistent, as how could it fail to be, bringing to mind that confidence in the ultimate hope inculcated by the teaching of this brilliant and intuitive preacher, to whom many thoughts turn and to whom we hope still at times to make happy pilgrimage.

New 'Cellist for IYA.

Miss Molly Wright, the new 'cellist for the trio at IYA (Miss Hemmings having resigned), was born at Buxton, in Derbyshire, and commenced the study of the 'cello when she was nine. At the age of 15 she went to Manchester and entered the Royal Manchester College of Music, where she stayed for eight years. Her first master was Walter Hatton, of the Brodsky Quartet, leader of the 'cellos in the Halle Orchestra, and leader of the grand season at Covent Garden. After four years with Mr. Hatton she went to Carl Fuchs (whose 'cello method is used the world over), and finished her training with him.

Miss Wright was for three years solo 'cellist with the Municipal Orchestra at Lytham—St. Anne's. She has made many appearances at the Lesser Free Trade Hall and the Houldsworth Hall, Manchester, and was a frequent performer at 22Y Manchester.

Miss Wright has a very full, rich tone, and, as might be expected from one of her training and experience, her artistry, phrasing, and interpretation are a sheer delight.

Miss Jeanette Briggs.

Miss Jeanette Briggs, the soprano in the Aerial Singers Quartet, heard from 2YA studio, Wellington, is to be congratulated on obtaining with her L.A.B. certificate a prize of £25, awarded by the Royal Academy. Miss Briggs, who has received all her training from her mother, Madame Emily Briggs (L.A.M., London), has been offered the Royal Academy scholarship. Unfortunately it is not possible for her to take advantage of the offer to continue her studies at Home. Miss Briggs has had numerous successes in her short musical career, and we hope that she will be equally successful in the future.

Radio for Hospitals.

All over Australia the installation of radio has proved an inestimable boon to the sick in the hospitals. Daily we read of installations in the country, and medical men tell us that there are many cases where the soothing effect of music has done more towards a patient's comfort than any other means. It is possible that there has been no invention during the last decade which means more to anyone during illness than radio. Children in hospitals take a delight in writing to their favourite "Radio Uncle," and hearing him call them up, with a cheerful message. The older patients, especially the men—who should be strong and active, but are for the time laid up—delight in a thrilling description of a boxing match, or a speedway race, and to those who have to suffer pain quietly, listening to the sweet strains of a studio orchestra acts as a soothing antidote to pain.

Resourceful!

A missionary in Africa received a visit one day from an old chief, accompanied by two wives, one young and one old, who informed the missionary that he wanted to join his Church. The latter told him the Church did not allow more than one wife, so the old man went away. However, the next week he turned up again with the young wife; both of them were smiling broadly. "Now me join Church," he said, "me all right now." "But where is your old wife?" asked the missionary. "Oh, she all right, too," placidly responded the old savage. "Me eat her up."

A SONNET

*I cannot love my Lady as I would;
She is past loving lovable—she tries
With childish hands the portals
of surprise,
And finds by faith those secrets
understood.
She wears the double crown of
womanhood;
Maternal thoughts make bright
her maiden eyes;
Wisdom would not be pure were
she not wise,
Nor goodness beautiful were she
not good.—Gerald Gould.*

"THE BETTER WAY" COMPETITION No. 2. MONTHLY PRIZES FOR HOME-MAKERS

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.

When more than one "Better Way" is submitted by the same competitor, each entry must be written on a separate sheet of paper.

The decision of the Editor is final and binding. A nom-de-plume may be used if desired.

The June "Better Way" Competition closes on June 11, and the result will be announced on the women's page on Friday, June 15.

All entries to be addressed: "Verity," c/o "Radio Record," Box 1032, Wellington.

The Letters of Annabel Lee

MY dear Elisabeth—Maude Royden—a beautiful name sounding like a royal title—has made unprecedented mental and spiritual appeal to the people of New Zealand. To men, be it said, as well as to the sex that is valiantly climbing the ladder of progress, and in many fields of achievement flourishes the feminine flag. Who knows but that soon some small, determined hand may have a finger in the political brew? Listening to Miss Royden's stirring sentences regarding British politics, and the fine, balanced, able women who nobly have won their spurs therein, my prophetic eye envisaged the portals of our own Parliament swinging open in welcome to the first adventurous female to sit in state amid the Weary Willies of the House. "If a woman were to advocate some political move," said Napoleon, with inherent lack of gallantry, "that would seem to me sufficient reason for taking the opposite course." And again, with engaging bluntness, "The man who lets himself be ruled by a woman is a fool." Sheer perversity on the part of the great Emperor! And for our reassurance we have twentieth-century Barrie the Kind telling us pleasant home truths, which indeed Every Woman Knows already, or, if she doesn't, she is past praying for. With all our merits and demerits, however, we have been laggards in the political field; though at this long last we are picking our candidate, for I suggest as a slogan:

Lady, be Good!
If you should, would or could,
How you'd adorn
The Cause of reform!

You'd vote without bias
And squash Ananias;
Whose many small lies
You'd quite pulverise!

Force of Habit.

They were court-martialing the soldier for desertion, and the case looked very black until the young officer acting for the defence arose.

"Sir," he said, addressing the president, "I admit that appearances are against this man. But I propose to prove that in civil life he was a plumber—and he was only going back for his bayonet." Acquitted.

When Labour with fuss
Becomes obstreperous,
With mien so decorous
You'd step on the chorus...

WOMEN in Parliament, and Young

Men in Love! The first gleams the atmosphere, so it would seem; the latter, as expounded by the most modern novelist of them all, poisons it. In his latest novel Mr. Michael Arlen writes with his wonted captivating grace of style, and the portraits of newspaper magnate, political giant, unscrupulous man of affairs, are limned with penetrating skill and insight. But dear, dear! how weary we grow of those lovely ladies, so forthcoming and sensuous and sad, with slender, supple, insistent legs, and tiny feet, just strong enough to balance the slipping, sliding amoureuresses. Witty and effective enough in small doses, the slightness of plot becomes obvious and tiresome, and the practice of love-making as a fine art productive of ennui—on paper, at any rate!

AFTER an initial hasty rush through Leon Feuchtwanger's "Ugly Duchess," the brilliantly gifted Jewish author of which is the literary darling of London coteries of the most exclusive, I returned to that great and gruesome romance, carefully reading through its pages of genius and horror. A masterly presentment of dim and distant days in European annals; pageant of heroic deeds, battle, murder and sudden death. Not much of "whatsoever things are good, whatsoever things are lovely," except perhaps in the younger years of the Duchess Marcarete, whose terrific personality towers over all. Ugly, tragically unable to draw to her those she loved, of a consuming intelligence, a planner of great good to her

AUTUMN

*It is Autumn, and a calmness and a
sweetness seem to fall
Over everything that's living, just as
though it hears the call
Of old Winter, trudging slowly, with
his pack of ice and snow,
In the distance over yonder, and it
somehow seems as though*

Every tiny little blossom wants to
look its very best
When the frost shall bite its petals
and it droops away to rest.

—From "Sunny Songs," by
Edgar A. Guest.

WOMEN AND HER HOME

Plain Scones.

Half pound flour, 2 teaspoons sugar, 1oz. butter or lard, 1 teaspoon cream of tartar, ½ teaspoon salt, ½ teaspoon carbonate of soda, about 1 teacup milk or buttermilk. Mix all dry ingredients; rub in the fat; add the milk by degrees to make a light dough; turn out on to a well-floured board; roll out half an inch thick; cut in rounds, and place them on a cold greased tin. Bake in a very quick oven ten minutes. To make rock scones, prepare the mixture as above; break the pastry off in knobs about the size of a walnut, and bake in a quick oven for ten minutes. Sultana scones may be made in the same way as plain scones by adding 2oz. sultanas after the butter is rubbed in.

Macaroni and Fish.

1lb. cold fish, 4 tablespoons white or parsley sauce, ½lb. macaroni, pepper and salt. Method: Wash the macaroni and boil in salt and water for twenty minutes. Break the fish into flakes, removing all skin and bone. Butter a pie-dish, put the chopped macaroni and fish into the dish in layers, season with a little salt, cayenne pepper, and ordinary pepper, pour over the sauce, and cook for twenty minutes in a moderate oven.

Cream Puffs Made with Wheat Meal.

3oz. butter, 1 breakfastcup of hot water, 4 eggs, 5oz. wheat meal, salt. Boil water, butter, and salt, stir in meal mixed to a paste, boil briskly, stirring all the time till mixture leaves the sides of the pan; put on one side, and when cold beat in the eggs, one at a time, and beat well; put in tablespoonfuls on a cold slide, and bake in a moderate oven about twenty minutes till nice and brown; when cold break at the side and fill with whipped and sweetened cream.

Dainty Dress Accessories.

The close-fitting cap, which, when made in felt, is familiar as the complement of many outdoor toilettes today, has been adopted by woman for evening also.

The Parisienne who wishes to vary the monotony of shingled locks, sometimes dons a dainty cap made from some fabric suitable for evening wear, usually fashioned on the lines of the popular felt model.

A cap for the theatre or restaurant is made from fine net closely covered with gold paillettes, edged with cloth of gold.

For Evening.

Evening bags, too, are an interesting study at the moment. A shell-shaped bag in gold metal cloth, hand-embroidered with small Chinese flower designs, has for its clasp a slide fastening of amber banded with gold. A similar bag in white moire shot with silver has a crystal and platinum slide top.

Evening shoes and handbags are sometimes chosen to match. For instance, with a pair of satin shoes, hand-embroidered in multi-coloured silks on a jade green ground, a pouch bag made from the same material is carried. It has a narrow mounting of chased silver, and a long centre plate of carved jade.

Home-made Fig Syrup.

Take 1 pound of cooking figs, 1oz. of senna leaves, pour on 1 quart of water, and cook gently in the oven until one pint only is left. Strain, then add ½lb. of sugar; put back in oven until melted, then bottle for use.

One dessertspoonful for a child of twelve (other ages in due proportion). This is an easily made, economical and effective preparation.

Mock Strawberry: A Supper Sweet.

Mash one ripe banana, sprinkle with castor sugar; add two heaped tablespoons of crisp "Force," and mix with milk or cream (quantity to taste). To be eaten while crisp. This sweet has the taste of strawberries and cream; it is particularly delicious as a dish for a late meal—after a theatre, concert, or meeting, and is light and nourishing.

Shampooing the Hair.

On the next occasion you wish your hair to look its best and have not the necessary time to wash it, give it a dry shampoo with hot bran.

Heat three or four handfuls of bran in the oven and rub it well into the hair. Shake out as much of the bran as possible, and remove the remainder by brushing vigorously with a clean hairbrush.

Hot bran cleanses the hair and frees it from grease without destroying its lustre; and is much more easily removed than the usual finely powdered dry shampoos.

A Delicious Winter Jam.

This will always justify a place in the jam cupboard. Ingredients: Six cooking apples, peeled, cored, and cut up; 6 bananas, peeled and cut in slices half an inch thick; 4 lemons, sliced very thinly; 4 sweet oranges, peeled and cut up (pulp only). Put all in a pan with six pints of cold water, boil for two hours. Add ½lb. sugar to each pound of fruit, and boil until it jellies—about three hours altogether. This is a pretty jam.

Doll in a Crinoline.

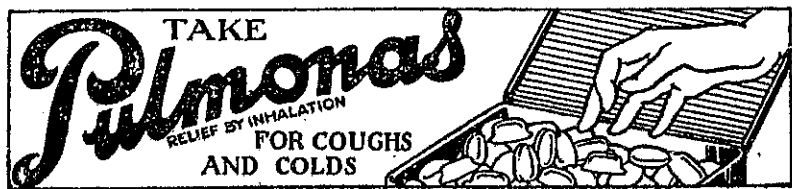
A beautifully dressed doll, representing Queen Alexandra when she was a girl, has been sent by the Queen to the London Museum.

The doll, which is 15 inches high, was made in 1863 and is dressed according to the fashion of the day, including the crinoline skirt. The dress is made of silk, in the Queen's favourite mauve shade. A little panne velvet jacket is worn over the dress. It is lined with white silk and trimmed with white silk braid. The pink underskirt, which is worked out in crochet, is wired to make the dress stand out.

Barley Sugar.

2lb. lump sugar, little lemon essence, 1 pint water, ½ teaspoon cream of tartar. Method: Put the sugar, cream of tartar, and water in a pan to boil. Cook till quite brittle when dropped into cold water. Add a few drops lemon essence, and pour on to an oiled slab. When almost cold cut into strips and twist round the fingers.—Miss Marion Christian, 2YA.

Your
ANNABEL LEE.



Tonking's Linseed Emulsion
is a Certain Cure for Coughs and Colds

Some Features of Next Week's Programmes

"I PAGLIACCI" AT 1YA

"I Pagliacci" concerns a gay harlequin, a dainty columbine, a fantastic clown and a pierrot. But is it a comedy? Just when the curtain falls on the village play which forms the second act of "I Pagliacci," we are told that "the comedy is ended," and the orchestra plays down the curtain with "Laugh, Pagliacci." But the story is one of bitter tragedy. On Tuesday evening excerpts from this splendid opera will be produced in 1YA studio under the direction of Madame Irene Ainsley. The vocalists will be Miss Marjorie Fairie, Mr. Robert Peter and Mr. Ernest Snell.

"I Pagliacci" will occupy only a portion of the evening session, the rest being devoted to an excellent concert provided by the vocalists of Madame Irene Ainsley's Quartet, the Auckland Trio, the Majestic Orchestra and Mr. Eustace Tregilgas.

"The Question of Sovereignty" is the title of Mr. A. B. Chappell's next lecture in this series of talks on "Old New Zealand."

The usual splendid concert given by the Auckland Municipal Band on Wednesday evening will be broadcast. The instrumental items will be supported by a vocal programme contributed in the studio by the Hazel-Sutherland Duo.

"In a Persian Garden," Liza Lehmann's delightful song cycle based on the Rubaiyat of Omar Khayyam, will be given by Mr. Barry Coney's Quartet on Thursday evening.

The song cycle above referred to will conclude the evening session. The first half of the evening's programme will consist of an excellent miscellaneous programme in which elocutionary items will play an important part. These items will consist of humorous sketches by Mr. T. T. Garland, way-side philosophy to a friend by Mr. Fred Barker, and the "Brutus-Cassius



MISS MARIAN WOODHOUSE, L.R.A.M.
—Photo, Steffane-Webb.

Miss Marian Woodhouse, who sang last Saturday evening, May 12, for the first time at 3YA, has a noteworthy career as a musician. A sister of Professor Randal Woodhouse, at one time well known in Christchurch as a tenor soloist, previous to that as Professor of Singing in Dublin University, and now in Sydney. Miss Woodhouse received her training at Home, and earned her L.R.A.M. She is now a successful teacher of singing in Christchurch. Whenever Miss Woodhouse appears on the local concert platform, her fine, rich contralto voice receives high praise from the Press of the city.

Quarrel Scene" (from "Julius Caesar"), as enacted by Mr. Cufford Bell and Mr. Fred Barker. Other items in this part of the programme will be a song by Mr. Barry Coney, "Allah be with us," selections by the Auckland Trio, Mr. Cyril Towsey and Mr. Walter Smith's Radio Statics, the items by the last named comprising both vocal and instrumental.

Two feature items stand out on Friday's programme at 1YA. These are a one-act play, "Campbell of Kil-mohr," to be given by the Auckland Comedy Players under Mr. J. F. Montague, and the presentation of Herbert Oliver's "Our Pantomime," for which the St. Andrew's Quartet will be responsible. There are many good songs in "Our Pantomime."

Other items on Friday's programme at 1YA will be a cello solo by Miss Molly Wright, selections by the Auckland Trio, and instrumental and vocal items by the Internationals.

1YA will be on the air at 11.30 on Saturday to broadcast the first day of the Auckland Racing Club's Great Northern meeting at Ellerslie.

The Lyric Quartet and Ingall's Hawaiians will be responsible for the popular type of programme for Saturday evening.

Christchurch Jubilee Celebrations

SPECIAL BROADCASTS BY 3YA

ON Saturday, Sunday, Monday and Tuesday, May 26 to May 29, Station 3YA will have a very busy time broadcasting the celebrations in connection with the Diamond Jubilee of Canterbury.

Proceedings will commence at noon on Saturday, when there will be a civic welcome to all visitors to the city. This ceremony will be relayed from the Council Chambers.

During the afternoon the principal Rugby football match will be described. Christchurch by night, its illuminations, street scenes and street noises, will be told by wireless. There will be band music and community singing in Victoria Square, while during intervals in the evening's proceedings items will be broadcast from 3YA studio.

On Sunday three church services will be broadcast, and the day's proceedings will conclude with a sacred concert relayed from the Municipal Concert Hall.

On Monday, 3YA will go on the air at 10.30, at which hour the ceremony of laying the foundation stone of the Jubilee Memorial Art Gallery (presented by Mr. R. E. McDougall) will commence.

At noon, in the Winter Garden, there will be an official luncheon to the Prime Minister, party leaders and prominent visitors. The speeches will be relayed.

At 1.30, the ringing of the Cathedral bells will be broadcast. Then will follow a description of the grand procession through the streets of the city. Afterwards, at 4.30, there will be a relay of the speeches made at the high tea given to the pioneers who came out on the first eight ships.

The evening session will consist of a description of the grand military tattoo and fireworks display on the Show Grounds at Addington, interspersed by items from 3YA studio. Dance music from the People's Jubilee Dance will continue till 11 p.m.

On Tuesday, which will be "Children's Day," 3YA will go on the air at 1.30 p.m. to describe the school procession through the city. At 2 o'clock there will be a massed display in Crammer Square, and this also will be described.

The Diamond Jubilee celebrations will conclude with a grand entertainment in the City Concert Hall, when there will be a special choir and orchestra, and the best of local talent will be heard.

At 10.30, ringing of Cathedral bells and singing of "Auld Lang Syne."

MODERN ENGLISH AT 2YA

VOCAL RECITAL

On Monday next (May 28) a programme of modern British vocal music will be presented by the Aerial Singers at 2YA; it will be unique in that for the first time from this station vocal items will be heard accompanied otherwise than by piano alone.

Famous composers, such as Cole-ridge Taylor, Elgar, and Granville Bantock, will be represented by some of the best of their smaller works; whilst compositions by Armstrong, Gibbs, and Charles Wood will no doubt be new to many listeners-in. Landon Ronald, Cyril Scott, Martin Shaw, John Ireland, Roger Quilter, and H. Walford Davies, will also be represented.

The whole programme is of the "modern" school, and much of it may therefore not appeal to all on a first hearing; but it should be remembered that nowadays the best of our British composers rely for their appeal upon "queer" impressionistic effects, and the use of short intellectual "motifs," rather than upon the complete, and in many cases, we fear, somewhat characterless "tunes" employed by musicians of a bygone day.

It is certain that the Aerial Singers, in "breaking new ground" on Monday next, will be as popular as ever. They will present a further programme (miscellaneous) on June 3.

Mr. Stanley Warwick will also entertain with elocutionary items.

On May 29 the Orpheus Quartet will render that delightful song cycle by Easthope Martin, "The Mountebanks." The story shows how wandering minstrels earned their board at the "Barley Mow." . . . There are some very beautiful numbers in the work, particularly the tenor solo, "The Minstrel." The other voices also have solos, and there are quartets written in Martin's very best style. It is an altogether delightful number. In addition to this work the members of the quartet will render solos. Mrs. Alice Harris sings "The Nightingale," by Kjerulf; Mr. Arthur Coe, "Sometimes in My Dreams"; Miss Lily Mackie, "Sunshine and Rain"; and Mr. Len Barnes that wonderful baritone solo, "The Prologue" from "I Pagliacci" by Leoncavallo. Included in the programme will be a short organ recital by Mr. H. Temple White, broadcast on relay from the organ of Taranaki Street Methodist Church.

The Etude Quartet has arranged a varied programme for June 1, including the arrangement of "Where is Now the Merry Party" and the "Huntsmen's Chorus" from "Die Freischutz." There is also a beautiful trio by Calceot, "Breathe Soft Ye Winds." Misses Rita Arnold and Ray Kemp will sing the duet, "Somebody," from "Floradora," and as solos, "May Dew" and "Grendon Fair" respectively. Mr. Frank Skinner will be heard in "I Hear of Thrush at Eve" and "Take a Pair of Sparkling Eyes."

An interesting item will be Miss Gretta Stark's rendering of "Lo, Here the Gentle Lark," with flute obbligato by Mr. Claude Tucker, of 2YA Orchestra. The Hawaiian Trio will contribute to the musical portion of the programme.

On Saturday, June 2, the popular Melodie Four Male Quartet will provide entertaining concerted and solo items.

In addition to three well-chosen quartets in light and serious moods, two duets will be sung, "Drink to Me Only" is a two-part arrangement of the well-known song, and in this number the voices of Messrs. Bryant and Marshall blend very harmoniously. Messrs. Duncan and Allwright will be heard in Gabussi's very fine duet, "The Fishermen," which gives these two singers ample opportunity of displaying their vocal powers and artistry. In Ketelby's song, "In a Monastery Garden," Mr. R. S. Allwright will be assisted by the quartet, which will sing the prayer which forms an important theme of this number. The solo items will include "Like Stars Above," "Will o' the Wisp" and other popular songs.



MR. J. J. FLEWELLYN,
One of 3YA's popular elocutionists and entertainers.
—Photo, Steffane-Webb.

The music for the evening will be provided by the Port Nicholson Silver Band, under the conductorship of Mr. J. J. Drew, who will present their first studio concert of the season.

Mr. Drew's well-trained organisation is always welcome, both on the platform and "on the air." Associated with the Mellow Fellows in the voice portion of the programme will be Miss Amy Eaton, a young lady with a delightful voice, who made a memorable "hit" when she appeared at 2YA with Madame Spillane's concert party a few months ago. Mr. Johannes Andersen will deliver another of his very interesting and entertaining talks on the birds of New Zealand.

Mr. Lad Haywood with his Italian mandolin, the Glad Killers, who have a humour all their own, and Mr. Geo. Titchener, a versatile comedian with a penchant for humorous characterisations, will contribute to the pleasure of the evening.

Entertainment for everybody—for all tastes—is included in the fare provided by the "Mellow Fellows" for Thursday, May 31.

The whole company of Fellows will combine to give the popular "One, Two, Three, Four," which has been asked for repeatedly. The Fellows promise that this will be the last time they will inflict it upon their audience.

A new item of the kind that they delight in "putting over," and which is one of the best that listeners have yet heard, is "That Saxophone Waltz," which will be fresh to very many. It is certain to become very popular.

More stories, true and otherwise (mostly otherwise) and a duologue (not a quarrel) between two Fellows, with songs by the other members of the company, complete a budget as good as usual.

3YA NOTES

AMERICAN NIGHT FOR THURSDAY

A miscellaneous programme in which will be found a number of little known songs as well as old favourites will be given by the Dulcet Quartet on Wednesday evening. Assisting artists will be the Studio Trio, Mr. Harold Beck (cello), and Mr. E. N. Trenberth (flugel horn). There will also be two new performers not previously heard from 3YA. These will be Miss Marie Santoro, a young elocutionist, and Mr. Mal Brunette, an exponent of the clarinet.

Mr. Donald Grant, M.A., well known as a lecturer at 3YA, will give a talk on Thursday evening under the auspices of the Canterbury Progress League. His subject will be "Games and Internationalism."

The next national night to be given by the Madame Gower-Burns' Grand Opera Quartet will be American. French and Italian composers have previously been broadcast, and next Thursday the works of composers from across the Atlantic will be performed for the benefit of listeners. Included will be a number of popular songs, but many will be entirely new to listeners. The programme should provide a most enjoyable treat for all listeners.

Co-operating with the Madame Gower-Burns Quartet on Thursday

evening will be the Studio Trio, Mr. W. Hay (flute), Messrs. Ohlson and Benson (cornet duet), and Miss Mavis Ritchie (elocutionist).

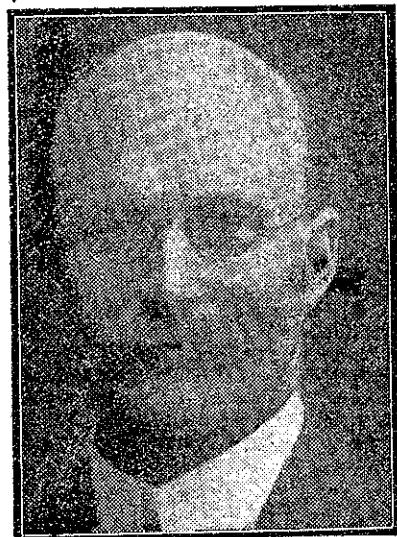
For years now Mr. H. G. Eli has almost literally been "ploughing a lonely furrow" along the hill-tops from Christchurch to Akaroa. With great foresight he pictured what a road, now known as the Summit Road, would mean to Christchurch, and with great determination he has stuck to his self-imposed and somewhat thankless task of endeavouring to have it formed. Thousands of people enjoy the result of his labours to date, but only a fraction of the work has been done. It is about this road that Mr. Eli will speak at 7.30 on Friday evening.

"The Pagoda of Flowers," with instrumental accompaniment by the Studio Trio, is the next feature which the Melodious Four will broadcast. "The Pagoda of Flowers" is a charming Burmese love story, told in song. This very pretty song cycle will be given during the first half of the programme.

Following on the "Pagoda of Flowers" there will be a programme of miscellaneous items, solos, and concerted items by the Melodious Four (Misses Frances Hamerton and Belle Renaut, Messrs. R. Sumner and T. D. Williams), items by the Beresford Banjo Band, and Studio Trio, and Miss Aileen Warren, with humorous recitations by Mr. C. W. Collins.

3YA's Radio Vaudeville for Saturday evening will be provided by Miss Mabel Thomas and Mr. Dave McGill (who will sing selections from operas), Mr. Herbert Smith (tin whistle, flute, and accordion), Mrs. D. W. Stallard, Mr. E. A. Dowell (popular baritone), Miss Elaine Moody's Hawaiian Trio, the Studio Trio, and Mr. J. Birch (elocutionist).

(Continued on Page 14.)



THE REV. A. B. CHAPPELL.

The Rev. A. B. Chappell, who is lecturing at 1YA on "Old New Zealand," is a Master of Arts at the New Zealand University, having taken Honours in Political Science, including history. He holds also the University's Diploma in Journalism. For a number of years he has been on the editorial staff of the "New Zealand Herald." As a public lecturer on literary, scientific and historical subjects, his services are always in great request. He has just been elected for the third successive year president of the Auckland Dickens Fellowship, and occupies many other prominent positions. He has long specialised in research related to life in the Pacific, and to early days in this country.

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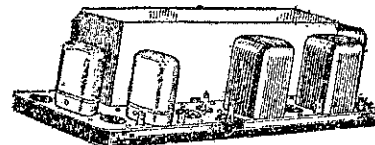
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Full Programmes for Next

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NOTES AND COMMENTS

EUGENE F. GROSSMAN, operating engineer of the United States National Broadcasting Company, has designed and built a new mixing panel that will permit simultaneous transmission over eighteen separate microphones.

It is reported that the United States Navy builds short-wave equipment that must be accurate to within 100 cycles at 30,000 kc. That is, they build a transmitter to this specification, and a receiver to go with it, and the sum of their percentage inaccuracies must not be over 200 cycles in ten million, or 100 cycles for the individual unit. This represents an accuracy of one part in one hundred thousand, or one ten thousandth of one per cent., an accuracy fifty times as great as that required of stations now operating within the broadcast band. These Navy units, it should be noted, are designed for Morse code transmission and reception.

MORE than 1500 radio pirates were rounded up by the British police in 1927. Pirates, that is, radio users who have not paid the Government license fee, are located by means of Post Office direction finding vans. Evidently the pirates operate "howling valve" sets, or they would not be located.

GERMAN police systems have adopted the Korn system of picture transmission, which is built along lines which have become conventional. Korn is a pioneer in the field, having, as early as 1907, transmitted newspaper photographs between Paris and London. Synchronous motors and neon lights are used.

A SOUNDPROOF room has been designed by Frank Andrea for the engineers of Fada Radio in New York. It has two walls, two ceilings, and two floors. The space between is filled with wood chips and the whole is supported on cork to remove vibrations of the building.

A CONTROVERSY rages as to radio concessions extended by various Chinese administrations. Japan has an agreement, negotiated by the Chinese Ministry of the Navy, which gives it a monopoly for thirty years. In 1921, the Federal Telegraph Company made a contract with the Chinese Ministry of Communications for five stations to be operated by the American company for twenty years. The British also obtained contracts on behalf of the Marconi Wireless Telegraph Company. Apparently an exclusive license in China is non-exclusive.

THE use of a fixed condenser across the loudspeaker terminals on the set will help to increase the quality of tone, whilst a fixed condenser across the loudspeaker connections will have the effect of eliminating diaphragm rattle and hand capacity noises, such as those produced by touching the speaker cords.

POPULARITY of the alternating current receiver is shown by a survey completed by the United States National Electric Manufacturers' Association. It was found that there are at least 1,000,000 such sets in daily use. The survey also noted a slight decrease in battery operated receivers, dry cells and direct current valves.

WHEN using a long aerial the coils on your set should be loosely coupled if selectivity is desired.

EXPERIMENTS carried out in order to find the best wavelengths for different times of day show that wavelengths of 26 to 40 metres are suitable when the path between transmitter and receiver is in complete darkness; wavelengths of 20 to 26 metres are suitable at times of transmission from darkness to daylight and vice-versa, or when the path is partly in daylight and partly in darkness; and wavelengths of 15 to 20 metres are suitable for a total daylight path.

WHAT is believed to be a unique record in direct long distance communication was established recently when a message was transmitted almost from the South to the North Pole. It was a signal on 83 metres from the 3 kilowatt transmitter of a whaling ship in the South Pacific. The Bergen radio station on the west coast of Norway received the message. It is figured that this message travelled 7000 nautical miles, or more than 8000 land miles.

JACKS often give trouble due to poor connection at the projection prongs and it is a good plan to see that they are kept clean, but do not wear them out by cleaning with sandpaper or other rough material. Dust often gets between these contacts and impairs volume. A little household liquid ammonia on a rag will clean the points of the jacks.

THE power valve improves tone quality and may give slightly more volume, because it can handle greater power output with less distortion than can the general purpose valve. The power valve of the American type in the 135-volt class is generally denoted by 112-A.

Sunday, May 27

1YA AUCKLAND (333 METRES)—SUNDAY, MAY 27.

- 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 service, conducted by Big Brother George, assisted by cousins from St. David's Presbyterian Sunday School.
6.55: Relay of evening service from Congregational Church. Preacher: Rev. Lionel Fletcher. Choirmaster, Mr. W. Gemmell.
8.30: Relay of Municipal Band concert, under the direction of Mr. Christopher Smith.
9.30: God Save the King.

2YA WELLINGTON (420 METRES)—SUNDAY, MAY 27.

- 3 p.m. to 4.30 p.m.: Afternoon session.
6.0: Children's song service—Uncle Ernest.
6.55: Relay of evening service from St. Gerard's Redemptorist Church, Hawker Street, Wellington.
Organ solo—"Flemish Folk Song," arr. Roper (Bosworth).
Rosary—"With Choral Responses."
Antiphon—"Regina Cœli" (Witzsca).
Sermon.
Motets—"Mother Mary, Queen Most Sweet" (Anon.); "As the Hart Pants," 42nd Psalm (Mendelssohn).
Organ solo—"Hail, Queen of Heaven" (traditional).
Benediction.
Motets—"O Salutaris Hostia" (Clements). "Veni Sancte Spiritus" (Vogler). "Tantum Ergo" (Beethoven). "Divine Praises" (Anon.). "Adornatus and Laudate Dominum" (Barrett).
Organ solo—"Finale March," from "Jessonda" (Spohr).
Conductor—Mr. Frank J. Oakes.
8.15 (approx.): Relay of the Port Nicholson Silver Band recital from the Grand Opera House. Conductor, Mr. J. J. Drew.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, MAY 27.

- 11 a.m.: Relay of morning service from Trinity Congregational Church. Preacher, Rev. D. Gardner Miller.
3 p.m.: Relay of Civic Service from Anglican Cathedral. Preacher, Rev. J. K. Archer.
5.30: Children's song service, conducted by Uncle Sam, assisted by scholars from St. Paul's Presbyterian Sunday School.
6.30: Relay of evening service from St. Paul's Presbyterian Church. Preacher, Rev. W. Bower Black, LL.B. Organist and choirmaster, Mr. Norman R. Williams. Organ solos will be given after service by the organist until 8 p.m.
8.0: Musical items from 3YA studio.
8.15: Relay of sacred concert from Christchurch Municipal Concert Hall.

4YA DUNEDIN (463 METRES)—SUNDAY, MAY 27.

- 5.30 p.m.: Children's song service, conducted by Big Brother Bill, assisted by children from Knox Church Presbyterian Sunday School.
6.30: Sacred concert and service by the International Bible Students' Association. Address by Mr. O. G. Canty.
8.0: Relay from His Majesty's Theatre of concert by the Kaitoraki Band, under the conductorship of Mr. E. Franklin, and vocal items by assisting artists.
9.15: Close down.

Monday, May 28

1YA AUCKLAND (333 METRES)—MONDAY, MAY 28.

SILENT DAY.

2YA WELLINGTON (420 METRES)—MONDAY, MAY 28.

- 3 p.m.: Chimes of the G.P.O. clock, Wellington.
3.1: Selected gramophone items.
4.30: Sporting results.
4.35: Gramophone items.
4.55: Sporting results.
5.0: Close down.
6.0: Children's hour—Uncle Jeff and Aunt Gwen.
7.0: Chimes of the G.P.O. clock.
7.40: Lecturette—Rev. J. R. Blanchard, B.A., "Airways on the West Coast of Australia."
8.0: Chimes of the G.P.O. clock.
8.1: Overture—"The Barber of Seville" (Rossini).
8.9: Vocal quartet—Ariel Singers, "Isle of Beauty" (Coleridge-Taylor).
8.13: Tenor solos—Mr. Roy Hill. (a) "The Sleeping Beauty" (Gibbs); (b) "Bright is the King of Words" (Williams).
8.19: Instrumental trio—Symons-Ellwood-Short Trio, "First Movement, Trio in F Minor" (Dvorak).

- 8.29: Vocal duet, with two violins and piano—Misses J. Briggs and N. Coster, "A Christmas Greeting" (Elgar).
8.33: Pianoforte solos—Miss Iris Trim, A.T.C.L., (a) "Air de Ballet" (Chaminade); (b) "Nocturne in B Major" (Chopin).
8.41: Sketch—Mr. A. Stanley Warwick, "In the Library" (Jacobs).
8.51: Instrumental—The Orchestra, (a) "Serenata" (Moskowski); (b) "The Fairy Tarapatapoum" (Foulds).
8.59: Vocal quartet—Ariel Singers, "Love is a Sickness" (Parry).
9.3: Weather report and announcements.
9.5: Instrumental—The Orchestra, "In a Persian Market" (Ketelby).
9.15: Bass solos—Mr. J. M. Caldwell, (a) "Old Clothes and Fine Clothes" (Shaw); (b) "Hope, the Hornblower" (Ireland).
9.21: Vocal trio—Ariel Singers, "A Song of Rest" (Davies).
9.25: Violin solo, with orchestral accompaniment—Miss Ava Symons, "Kol Nidrei" (Bruch).
9.31: Elocution—Mr. A. Stanley Warwick, (a) "The House With Nobody In It" (Kilmer); (b) "A Song of Sunday Morning" (Dean).
9.36: Soprano solo—Miss Jeanette Briggs, "Home Thoughts" (Bantock).
9.40: Instrumental—The Orchestra, "Chopiniana" (Hosmer).
9.48: Tenor solo, with violin, cello, and piano accompaniment—Mr. Roy Hill, "I Will Go With My Father a-ploughing" (Quilter).
9.52: Mezzo-contralto solo with cello obbligato—Miss Ngaire Coster, "O, Lovely Night" (Ronald).
9.56: Instrumental—The Orchestra, request numbers.

3YA CHRISTCHURCH (306 METRES)—MONDAY, MAY 28.

- 10.30 a.m.: Relay of speeches at the laying of the foundation-stone of the Jubilee Memorial Art Gallery.
12 noon: Relay of speeches at the official luncheon to the Prime Minister, party leaders, and prominent visitors at the Winter Garden.
1.30 p.m.: Relay of the ringing of Cathedral bells, symbolising the completion of 60 years' progress, and the commencement of grand procession through the city.
4.30: Relay of speeches at high tea, given to the pioneers of the first eight ships. (Speeches by prominent visitors).
6.0: Children's session—Uncle Jack, bedtime stories, songs, and birthday greetings.
7.15: News session.
8.0: Relay of description of Grand Military Tattoo and fireworks display from the Show Grounds, Addington, interspersed with music from 3YA studio, followed by Dance music until 11 p.m., relayed from the People's Jubilee Dance at the Winter Gardens.
11.0: Close down.

4YA DUNEDIN (463 METRES)—MONDAY, MAY 28.

SILENT DAY.

Tuesday, May 29

1YA AUCKLAND (333 METRES)—TUESDAY, MAY 29.

- 3 p.m.: Afternoon session—Selected studio items.
3.30: Lecturette on "Electric Cooking," by a representative of Messrs. Turnbull and Jones.
3.45: Further selected studio items.
4.0: Literary selection by the Announcer.
4.8: Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Uncle George, assisted by Old King Cole and his Merry Fiddler, songs, recitations, duets, letters, and birthdays.
7.15: Lecturette—Mr. George Ambler, "Washing and Preparing Birds for Exhibition."
7.30: News and market reports.
8.0: Chimes.
8.1: Relay of orchestral overture from the Majestic Theatre Orchestra, under the direction of Mr. J. Whiteford-Waugh.
8.11: Soprano solos—Miss Marjorie Faire, (a) "Gray Days" (Lohr); (b) "The Birthday" (Kahl).
8.19: Instrumental trio—Auckland Trio, "Trio, Op. 56—First Movement" (Reissiger).
8.28: Tenor solo—Mr. Robert Peter, "Green Isle of Erin" (Roeckel).
8.32: Relay of entracte from Majestic Theatre.
8.37: Contralto solo—Madame Irene Ainsley, "Pleurez Mes Yeux" ("Le Cid"), (Massenet).
8.42: Talk by Mr. A. B. Chappell, M.A., on "Old New Zealand—The Question of Sovereignty."
8.57: Relay of orchestral interlude from the Majestic Theatre.
9.2: Weather forecast.
9.4: Cornet solo—Mr. Eustace Tregilgas, "Dream of Love" (Hawkes).
9.9: Excerpts from the opera, "I Pagliacci" (Leoncavallo), produced in the studio under the direction of Madame Irene Ainsley.

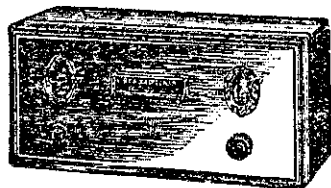
Tonio, the Clown, comes before the curtain and tells us all that the world's a stage, and all the men and women merely players. He makes love to Nedda, the wife of Canio, but she will have none of him, and seizing a whip cuts him across the face. He vows revenge. Nedda has tired of the precarious wandering life of the strollers, and arranged to elope with the young peasant, Silvio. Tonio overhears them, and runs to tell Canio of Nedda's infidelity. Canio, already suspicious, returns to find who the lover is, but is too late. In his rage he threatens Nedda with his dagger, but is restrained by Beppo. Canio decides that he must play his part and don his motley, though his heart is breaking. So, it is "Laugh, Pagliaccio!" In the second act we have a barnstormers' theatre in the village square. The play begins, and the action is almost identical with what is happening in the lives of the actors. It is too much for poor heart-broken Canio—he has to play at punishing the faithless wife. He stabs her! Silvio leaps from his place among the spectators on to the stage. Canio now knows! The dripping dagger flashes once more, and Silvio falls. Bowing to the horrified audience, Canio drops the dagger, and remarks: "The comedy is ended."

Cast.

Nedda (Columbine) Miss Marjorie Faire
Canio Mr. Robert Peter
Tonio (Silvio) Mr. Ernest Snell
The Prologue—Tonio.
"Ballatella"—Nedda.
"My Fate Is In Thy Hands"—Silvio and Nedda.
"On With the Motley"—Canio.
"Serenade"—Canio.
"Pour the Philtre"—Nedda and Canio.
Finale.

- 9.39: Instrumental trio—Auckland Trio, "Rustic Suite" (Hawkes).
9.48: Contralto solos—Madame Irene Ainsley, (a) "Harp of the Woodland" (Martin); (b) "The Cup of Life" (Martin).
9.55: Cornet solos—Mr. E. Tregilgas, (a) "Wardleian" (Clement); (b) "Chanson Triste" (Tschalkowsky).

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10.0: Violin solo—Miss I. Bosworth, "Caprice Viennoise" (Kreisler).
10.2: Baritone solo—Mr. Ernest Snell, "Invictus" (Huhn).
10.8: God Save the King.

2YA WELLINGTON (420 METRES)—TUESDAY, MAY 29.

3 p.m.: Chimes of the G.P.O. clock, Wellington.
3.1: Selected gramophone items.
4.30 and 4.55: Sporting results to hand.
5.0: Close down.
6.0: Children's hour—Big Brother Jack.
7.0: News session, market reports, and sports results.
7.40: Lecture by representative of the Agricultural Department, "For the Man on the Land."
8.0: Chimes of the G.P.O. clock, Wellington.
8.1: Overture—The Orchestra, "The Merry Wives of Windsor" (Nicolai).
8.9: Soprano solo—Mrs. Alice Harris, "The Nightingale" (Kjerulf).
8.18: Baritone solo—Mr. Len. Barnes, "Prologue" from "Pagliacci" (Leoncavallo).
8.18: Instrumental—The Orchestra, grand opera selection, "Faust" (Gounod).
8.24: Contralto solo—Miss Lily Mackie, "Sunshine and Rain" (Blumenthal).
8.28: Humour—Mr. Doug. Stark, (a) "The Waggle o' the Kilt" (Lauder); (b) "The Wedding o' Lauchie McGraw" (Lauder).
8.36: Instrumental—The Orchestra, (a) "Standchen" (Ozibulka); (b) "Valse Bleue" (Margis).
8.46: Tenor solo—Mr. Arthur Coe, "Sometimes in My Dreams" (d'Hardelot).
8.50: Organ solos—Mr. H. Temple White, (a) "Adoration" (Gaul); (b) "Berceuse in A" (Dellbruck); (c) "Festal March" (Calkin).
9.0: Weather report and announcements.
9.2: Instrumental—The Orchestra, "Ballet Music" from "Meyerbeer's operas" (Kretschmer).
9.10: Humour—Mr. Doug. Stark, "Stuff and Nonsense" (original).
9.16: Instrumental—The Orchestra, "The Mikado" (Sullivan).
9.26: Song cycle—The Orpheus Quartet, "The Mountebanks" (Easthope Martin).
Quartet—"Preamble."
"Episode."
Contralto solo—Miss Lily Mackie, "Dusk of Dreams."
Baritone solo—Mr. Len. Barnes, "The Quack Doctor."
Quartet—"The Heartrending Story."
Tenor solo—Mr. Arthur Coe, "The Minstrel."
Soprano solo—Mrs. Alice Harris, "Jingle Hall."
Quartet—"Envoy."

9.52: Instrumental—The Orchestra, request numbers.

3YA CHRISTCHURCH (306 METRES)—TUESDAY, MAY 29.

1.30 p.m.: Relay of description of school procession through the main streets of the city.
2.0: Relay of united Children's Display from Cranmer Square, including bands in attendance.
8.0: Relay of Grand Jubilee entertainment from City Concert Hall, consisting of miscellaneous concert by well-known artists, grand choir, and special grand orchestra.
10.30: Relay of ringing of Cathedral bells and the singing of "Auld Lang Syne."
Close down.

4YA DUNEDIN (463 METRES)—TUESDAY, MAY 29.

3 p.m.: Town Hall chimes.
3.1: His Master's Voice gramophone recital.
3.30: Social notes and news.
3.40: Studio music.
4.0: Address on "The Domestic Uses of Electricity," by Mr. G. J. Butcher, of Messrs. Turnbull and Jones, Ltd.
4.15: His Master's Voice gramophone recital.
4.25: Sporting results.
4.30: Close down.
6.0: Town Hall chimes.
6.1: Children's session—Big Brother Bill, selections by the Albany Street Boys' Brass Band, letters and birthdays, stories for the tiny tots, travel talk by Big Brother Bill for the older children.
7.15: News session.
7.30: Address delivered under the auspices of the Otago Tramping Club.
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—Band, "Great Little Army" (Alford).
8.5: Bass solos—Mr. E. G. Bond, (a) "Vagabond" (Molloy); (b) "Myself, When Young" (Lehmann).
8.10: Overture—Band, "Raymond" (Thomas).
8.20: Recital—Mr. Eric Hebdon, "Shaking Hands" (Anon.).
8.26: Contralto solo—Miss Wyn McPeak, "Softly Awakes My Heart" (Saint-Saens).
8.29: Two waltzes—Band, (a) "Always" (Berlin); (b) "A Night of Love" (Spiers).
8.34: Tenor solos—Mr. Chas. Edwards, (a) "To Sing Awhile" (Drummond); (b) "Two Eyes of Grey" (McGeoch).
8.38: Selection—Band, "Iolanthe" (Sullivan).
8.53: Humorous recital—Miss Madge Yates, "Peach Pies" (Anon.).
8.59: Baritone solo—Mr. R. B. Macdonald, "The Great Awakening" (Kramer).
9.2: Weather forecast.
9.4: Humoresque—Band, "Parade of the Tin Soldiers."
9.11: Address—Pastor W. D. More.
9.25: Bass solo—Mr. E. G. Bond, "Cobblin'" (Sanderson).
9.28: Trombone solo—Band, "The Lost Chord" (Sullivan, arr. Laidlaw).
9.38: Contralto solos—Miss Wyn McPeak, (a) "Three Fishers Went Sailing" (Hullah); (b) "Slumber Song" (MacDowell).
9.43: Intermezzo—Band, "In a Monastery Garden" (Ketelby).
9.51: Vocal duet—Messrs. Chas. Edwards and R. B. Macdonald, "The Song of the Sword."
9.54: Recital—Miss Madge Yates, "Roundabouts and Swings" (Chalmers).
9.58: Baritone solos—Mr. R. B. Macdonald, (a) "Onaway, Awake, Beloved" (Coven); (b) "Cloze Props" (Charles).
10.4: March—Band, "Argandab" (Thomson).
10.8: God Save the King.

Wednesday, May 30

1YA AUCKLAND (333 METRES)—WEDNESDAY, MAY 30.

3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Further selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Uncle Tom, opening chorus, pianoforte solo, Eric Linfoot, "Toccata" (Harris); song, Uncle Tom, selected; pianoforte solo, Lyned Alison, "A Passing Storm" (Carroll); story-time, letters, and birthdays; closing chorus.
7.15: News and market reports.

8.0: Chimes.
8.1: Relay of Auckland Municipal Band concert, under the direction of Mr. Christopher Smith. The following items will be rendered from the studio by the Hazel-Sutherland Duo:—
Vocal duets—Hazel-Sutherland Duo, (a) "Because of You" (Tosti); (b) "Good Luck and Bad" (Squire).
Contralto solos—Miss Phyllis Hazell, (a) "Lament of Isis" (Bantock); (b) "Salaam" (White).
Baritone solos—Mr. Frank Sutherland, (a) "Three for Jack" (Squire); (b) "The Red Star of Romy" (Sanderson).
10.0: God Save the King.

2YA WELLINGTON (420 METRES)—WEDNESDAY, MAY 30.

SILENT DAY.

3YA CHRISTCHURCH (306 METRES)—WEDNESDAY, MAY 30.

3 p.m.: Afternoon concert session—Selected studio items.
4.0: Talk by Miss Henderson on "Electric Cooking."
4.25: Sports results.
6.0: Children's session—Uncle Peter and Mother Hubbard, story by Uncle Peter; piano and cello solos; songs by Mother Hubbard; recitations by "Mother McCree"; story by Uncle Peter, birthday greetings, and good night songs.
7.15: Addington stock market report.
8.0: Chimes and overture.
8.5: Baritone solo—Mr. A. G. Thompson, "The Mother's Heart" (Clarke).
8.9: Cello solo—Mr. Harold Beck, "Cradle Song" (Schubert).
8.14: Vocal solo—Miss Mary Shaw, "Herding Song" (Lawson).
8.18: Clarinet solo—Mr. Mal. Brunette, "Intermezzo," from "Cavalleria Rusticana" (Mascagni).
8.22: Tenor solos—Mr. T. G. Rogers, (a) "Mountain Lovers" (Squire); (b) "That Old-fashioned Mother o' Mine" (Nicholls).
8.30: Instrumental trio—Christchurch Broadcasting Trio, "First Movement" from "Trio in C Minor" (Mendelssohn).
8.40: Contralto solo—Miss Nellie Lowe, "Break o' Day" (Sanderson).
8.44: Flugel horn solo—Mr. E. N. Trenbath, "Widerker" (Hartmann).
8.49: Humorous recital—Miss Marie Santoro, "The Blind Boy in the Gallery" (Anon.).
8.55: Vocal quartet—Dulcet Quartet, "Four Jolly Smiths" (Leslie).
8.59: Weather forecast.
9.0: Overture.
9.5: Baritone solo—Mr. A. G. Thompson, "When the Sergeant-Major's on Parade" (Longstaff).
9.9: Cello solo—Mr. Harold Beck, "Gavotte" (Popper).
9.14: Soprano solos—Miss Mary Shaw, "To the Chicks" (Fraser); (b) "A Churning Lilt" (Fraser).
9.20: Clarinet solo—Mr. Mal. Brunette, "Carnival de Venice" (with variations, (Hartmann), own arrangement).
9.25: Tenor solo—Mr. T. G. Rogers, "Macushla" (McMurrough).
9.29: Contralto and baritone duet—Miss Nellie Lowe and Mr. A. G. Thompson, "Gray Days" (Johnson).
9.33: Instrumental trios—Christchurch Broadcasting Trio, (a) "Serenata" (Toselli); (b) "Bolero" (Ravina).
9.43: Contralto solo—Miss Nellie Lowe, "Vale" (Russell).
9.47: Flugel horn solo—Mr. E. N. Trenbath, "Until" (Sanderson).
9.52: Humorous recitals, Miss Marie Santoro, (a) "The Drama" (a story of the old lady at the play); (b) "A Tragedy" (Anon.).
9.57: Vocal quartet—Dulcet Quartet, "The Long Day Closes" (Sullivan).
Close down.

4YA DUNEDIN (463 METRES)—WEDNESDAY, MAY 30.

SILENT DAY.

Thursday May 31

1YA AUCKLAND (333 METRES)—THURSDAY, MAY 31.

3 p.m.: Afternoon session—Selected studio items.
3.30: Lecture on "Gas Cooking," by a representative of the Auckland Gas Company.
3.45: Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Peter Pan, assisted by the Bayfield Choir. Part-songs by the choir. Duet, Joyce Edwards and Gwen Edwards, "Eventide." Trio, Gladys Keefe, Jean Chalmers, and Myra Hunt, "The Shepherd's Song" (Murdoch). Recitation, Dallas Lethaby, selected. Stories, letters, and birthdays.
7.15: News and market reports.
8.0: Chimes.
8.1: Relay of orchestral overture from the Strand Theatre; orchestra under the direction of Eve Bentley.
8.11: Baritone solo—Mr. Barry Coney, "Allah, Be With Us" (Woodford-Finden).
8.15: Instrumental trio—The Studio Trio, "Trio, Op. 56, Finale" (Reisiger).
8.24: Humorous sketch—Mr. T. T. Garland, "A Suburban Soiree" (Grossmith).
8.29: Instrumental and vocal—Walter Smith's Radio Statics, (a) "Colonel Bogey" (Alford); (b) "My Blue Heaven" (Donaldson); (c) "I'm Gonna Dance Wid De Guy Wot Brung Me" (Archer).
8.37: Novelty—Mr. F. Barker, "A Wayside Philosopher to His Friend, (6) Loyalty."
8.47: Pianoforte solos—Mr. Cyril Towsey, "Romance, F Sharp" (Schumann); (b) "Spring Song" (Mendelssohn).
8.52: Humorous sketch—Mr. T. T. Garland, "Santa Claus" (Leacock).
8.58: Weather forecast.
9.0: Relay of entracte from Strand Theatre Orchestra.
9.5: Vocal and instrumental—Walter Smith's Radio Statics, (a) "Rigoletto" (arr. Walter Smith); (b) "Kiss and Make Up" (Ager); (c) "Hello, Cutie" (Ring).
9.15: Recital—Mr. F. Barker and Mr. Cufford Bell, "Quarrell Scene" from "Julius Caesar" (Shakespeare).
9.20: Instrumental trio—The Studio Trio, "Second Valse" (Godard).
9.29: Presentation of the song cycle, "In a Persian Garden" (Lehmann), by Barry Coney's Quartet:—
Quartet—"Wake! For the Sun Who Scatter'd into Flight."
Tenor—"Before the Phantom of False Morning Died."
Bass recitative—"Now the New Year Reviving Old Desires."
Tenor—"Tram, Indeed, is Gone with All His Rose."
Quartet—"Come, Fill the Cup."
Bass—"Whether at Naishapur or Babylon."
Contralto recitative—"Ah, Not a Drop that from Our Cups we Throw."
Soprano and tenor duet—"A Book of Verses Underneath the Bough."
Bass—"Myself When Young Did Eagerly Frequent."
Bass recitative—"Ah, Make the Most of What We Yet May Spend."
Contralto—"When You and I Are Behind the Veil."
Soprano recitative—"But if the Soul Can Fling the Dust Aside."
Soprano—"I Sent My Soul Through the Invisible."
Tenor—"Alas, that Spring Should Vanish with the Rose!"
Contralto—"The Worldly Hopes Men Set Their Hearts Upon."
Soprano—"Each Morn a Thousand Roses Bring."
Quartet—"They Say the Lion and the Lizard Keep."
Tenor recitative—"Ah, Fill the Cup."
Tenor—"A, Moon of My Delight."
Bass—"As Then the Tulip."
Quartet—"Alas, that Spring Should Vanish."
10.10: God Save the King.

2YA WELLINGTON (420 METRES)—THURSDAY, MAY 31.

3 p.m.: Chimes of the G.P.O. clock, Wellington.
3.1: Selected gramophone items.
4.30 and 4.55: Sporting results to hand.

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THE Dvott expedition to South America is anxious to hear amateur transmitters on 27 metres. Such is the announcement of Eric Palmer, owner of amateur station 2ATZ, Brooklyn, N.Y., who reported that he had been in communication with William DeMello, operator of amateur station 3LIB at Rio Janeiro. The expedition plans to transmit soon from Curaba, 1000 miles from Rio Janeiro, using the call letters GMD.

STATION CFCA, Toronto, Canada, has succeeded in rebroadcasting programmes from Sydney Australia. This achievement, similar to that of WMAK, Buffalo, station, recently, is believed to have been the first successful Canadian rebroadcasting of an Australian programme. Station CFCA previously had picked up broadcasts of English radio stations and had sent them out again for Toronto listeners.

NEW YORK CITY has about 600,000 receiving sets, or one to every ten persons.

A WAVE-TRAP often is an important factor in increasing the selectivity of a radio receiver. Such a trap may be made easily with a tuning condenser shunted across a coil. The trap is connected between the aerial and the antenna binding post on the receiver.

THE drum is the most difficult musical instrument to reproduce over the radio.

A BUSINESS man of Newark, N.J., U.S.A., who is a radio enthusiast, has written the Federal Radio Commission that only three of forty-two listeners questioned by him could name ten or more of the fifty broadcasting stations in the metropolitan area of New York. The fan said he presented the question, "How many metropolitan stations can you name?" to the people who own good radio sets and who are not connected with any phase of the radio industry. The majority could name seven or eight; eleven persons could name but five, and two persons only four stations.

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Programmes Continued

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- 5.0: Close down.
6.0: Children's hour.
7.0: News session, market reports, and sports results.
8.0: Chimes of the G.P.O. clock, Wellington.
8.0: Studio concert by the Artillery Band, conducted by Captain T. Herd, assisted by 2YA artists.
8.1: March—Wellington Artillery Band, "Gardes du Corps" (Hall).
8.7: Safety first—Mellow Fellows, "One, Two, Three, Four" (Alau).
8.11: Selection—Wellington Artillery Band, "Andante in G" (Batiste).
8.15: A novel occasion—The Bass Fellow, "Hats Off to the Stoker" (Arun-dale).
8.19: Soprano solo—Miss Amy Eaton, "April Morn" (Batten).
8.23: Overture—Wellington Artillery Band, "The Golden Cross" (Greea-wood).
8.32: Tenor solo—The New Fellow, "Fairings" (Martin).
8.36: Intermezzo, Wellington Artillery Band, "The Gondolier" (Powell).
8.42: Yorkshire pudding—The Big Fellow, "The Little Shepherd" (Foy).
8.47: Selection—Wellington Artillery Band, "La Sonnambula" (Bellini).
8.58: Weather report and announcements.
9.0: Lecture—Mr. Johannes Andersen, "Native Birds."
9.15: Selections—Wellington Artillery Band, (a) "Londonderry Air" (arr. Hawkins); (b) "Drink to Me Only" (arr. Hawkins).
9.20: Good advice—The Baritone Fellow, "Grendon Fair" (Marie).
9.25: Fox-trot—Wellington Artillery Band, "Love Letters" (Fulton).
9.29: Soprano solos—Miss Amy Eaton, (a) "The Bird and the Babe" (Lieurance); (b) "By the Waters of Minnetonka" (Lieurance).
9.35: Descriptive fantasia—Wellington Artillery Band, "A Dorky's Dream-land" (Bidgood).
9.42: Duologue—Two Fellows, "A Man Hunt" (Foy).
9.47: Waltz—Wellington Artillery Band, "Dream Days" (Fulton).
9.52: An encore—All the Fellows, "That Saxophone Waltz" (Fisk).
9.56: March—Wellington Artillery Band, "Uncle Remben" (Fulton).

3YA CHRISTCHURCH (336 METRES)—THURSDAY, MAY 31.

- 3 p.m.: Afternoon concert session—Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Chuckie, half-hour's programme by a student's singing class from the Training College, under the direction of Mr. Vernon Griffiths. Birthday greetings and bedtime stories.
7.15: News session.
7.30: Talk, by Mr. Donald Grant, M.A. (under the auspices of the Canterbury Progress League), "Games and Internationalism."
8.0: Chimes and overture.
8.5: Soprano solos—Madame Gower-Burns, (a) "From the Land of Sky Blue Water" (Cadman); (b) "A Little Maiden Loves a Boy" (Clough Leighton).
8.11: Flute solo—Mr. W. Hay, "Le Cygne" (Saint-Saens).
8.16: Baritone solos—Mr. Bernard Rennell, (a) "Invictus" (Hubb); (b) "Song of Good Fellowship" (Gaul).
8.23: Cornet duet—Messrs. Ohlson and Benson, "Ida and Dor" (Losey).
8.28: Contralto solos—Miss Ann Harper, (a) "At Parting" (Rogers); (b) "Just a-wearying for You" (Bond).
8.32: Instrumental trios—Christchurch Broadcasting Trio, (a) "Romance" (Bridge); (b) "Intermezzo" (Bridge); (c) "Salterello" (Bridge).
8.42: Tenor solos—Mr. Harold Prescott, (a) "The Night Wind" (Farley); (b) "Morning" (Speaks).
8.48: Violin solo—Miss Irene Morris, "Tand-tick" (Sitt).
8.53: Baritone solo and chorus—Mr. Bernard Rennell and Madame Gower-Burns's Grand Opera Quartet, "Mandakay" (Damsch).
8.57: Humorous recital—Miss Mavis Ritchie, "The School Concert" (Wille-church).
9.2: Weather forecast.
9.3: Overture.
9.8: Soprano solos—Madame Gower-Burns, (a) "Thy Beaming Eyes" (MacDowell); (b) "The Star" (Rogers).
9.15: Flute solo—Mr. W. Hay, "Valse Caprice" (Wood).
9.20: Baritone solos—Mr. Bernard Rennell, (a) "The Song of the Clock" (Burchell); (b) "Reveille" (Rogers).
9.27: Cornet duet—Messrs. R. Ohlson and A. Benson, "Wat'aman, What of the Night?" (Sargeant).
9.31: Tenor solos—Mr. Harold Prescott, (a) "Can This Be Summer?" (Edwards); (b) "Awake, Beloved" (Edwards).
9.37: Instrumental trio—Christchurch Broadcasting Trio, "Kamapuhar" (Glinka).
9.47: Contralto solos—Mrs. Ann Harper, (a) "O, Lovely Rose" (MacDowell); (b) "Slumber Song" (MacDowell).
9.51: Violin solo—Miss Irene Morris, "Meditation" (Massenet).
9.55: Recital—Miss Mavis Ritchie, "Guy's Troubles" (Poulney).
10.1: Mixed vocal quartet—Madame Gower-Burns's Grand Opera Quartet, "A Perfect Day" (Bond).
10.5: God Save the King.

4YA DUNEDIN (463 METRES)—THURSDAY, MAY 31.

- 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 Orchestra, under the direction of Monsieur de Rose.
8.11: Light humorous songs—Mr. Billy Gay, (a) "Frankie and Johnnie" (arr. Crummitt); (b) "Abdul Abdullah Amir" (arr. Crummitt).
8.18: Novelty pianoforte solo—Mr. T. V. Anson, selected.
8.22: Humorous sketch and songs—Miss Billie Lorraine and Mr. Percy James, selected.
8.32: Light soprano solo—Miss Jacqueline Burke, "There's a Cradle in Caroline" (Ahler).
8.35: Saxophone solos—Mr. J. McCaw, (a) "Heimwelt" (Jungmann); (b) "La Paloma" (Yradier).
8.42: Relay of orchestral music from the Octagon Theatre.
8.54: Light vocal solo—Miss Billie Lorraine, "A Bungalow and You" (O'Fagan).
8.58: Humorous sketch—The Two Blue Ducks, "By the Way."
9.8: Weather forecast.
9.11: Humorous song—Mr. Percy James, "Hurricane History" (Cecil).
9.17: Novelty pianoforte solos—Mr. T. V. Anson, selected.
9.25: Light baritone solo—Mr. Billy Gay, "Among my Souvenirs" (Nicholls).

A RADIO amateur in Belvedere, a little Kentish town, regularly invites his friends on Sundays to listen to the Monday morning broadcasts from 3L0, Melbourne's short-wave station, 13,000 miles away in Australia. He uses a six-valve superheterodyne, and Melbourne comes in at good loud-speaker strength. A feature of this radio fan's activities is his claim that when he removed the aerial and earth Melbourne was still faintly audible.

The number of licensed listeners in Germany reached 2,000,000 on December 15, 1927. The number at the end of September was 1,757,083, and the increase, which is partly due to the removal of the Inter-Allied restrictions in the Rhine and Ruhr districts and the opening of the Rhineland high-power station at Langenberg has exceeded expectations. A further rise in the license fee, now 21 marks, will, it is thought, be necessary, and it is even possible that later on the amount of the fee may be reduced.

In deference to requests from Labour members of the official Radio Council of Austria, on which sit representatives of every class of subscriber, special features are shortly to be introduced into Raxag programmes which will appeal directly to town and country artisans and labourers. The Labour organisations are to be consulted, for, naturally, the selection of such features is not easy. The proposal now under consideration is for a monthly lecture, on a workers' topic, such as food or clothing or recreation—non-political, of course.

THE following which appeared in the Chicago "Evening Post" shows how they criticise studio singers in the Press of that city: "There should be a law against the unmerciful butchering of 'Babe,' one of the prettiest tunes to make an appearance in many a month, at the hands of divers persons who are physically unable to sing the song as it was written. The latest atrocity was at WFL, where a Mr. Peterson made a valiant but fruitless effort to do the number. Evidently the pianist tried to help out by transposing, but the upshot of the whole thing was a strong resemblance to the 'proceedings' of the Natty Club, with the 'Unwashed Baritone' as chief executioner."

THE aerial lead-in wire should always be well insulated and should be kept as free of walls, trees, etc., as conveniently possible. Tacking the wire to the walls will decrease the resistance and will increase the losses. The resistance—at radio-frequencies—will even be slightly increased if the wire is close to the walls, although this is not generally realised. For all practical purposes no deleterious effects will result if joints are firmly spliced and soldered. If they are not soldered, however, the resistance of the joint will soon increase as corrosion effects take place.

IN Europe the International Radio-telephone Union regulates the frequencies and time assignments of broadcasting stations. The Hungarian Government has been barred from admission to this organisation at the plea of Czechoslovakian delegates. The Hungarians have been accused of using their stations to spread propaganda, attacking the Treaty of Trianon, thereby endangering the integrity of Czechoslovakia.

PRESENT estimates indicate that the American radio manufacturing industry will have a bumper year in 1928. The total receipts are expected to go over 600,000,000 dollars (\$120,000,000).

THERE are all kinds of radio fans, but here is a new one. A woman has been discovered in America who evidently believes her pet turkey gobbler listens in. She infers that much, at least, in a letter to KOA at Denver. Her gobbler disappeared from its coop one night, she said, and since all other methods for finding it had failed she requested KOA to broadcast for it.

IN connection with a scheme for the investigation of the upper atmosphere, now being carried out by the University of Queensland, the authorities at that institution intend liberating from time to time small balloons filled with hydrogen. These balloons will rise to a height of from 10 to 15 miles, and then, after bursting, will fall slowly to the ground. A postcard will be attached to each balloon asking the finder to fill in particulars as to where found, etc., and then return it to the University. The principle of the experiment is similar to that of throwing bottles containing messages into the sea, and the information regarding winds in the upper atmosphere. The balloons may fall within a radius of 50 miles of Brisbane or may go further afield. The success of the experiment depends upon the number of cards returned, and in order to acquaint as many people as possible with full information 4QG, Brisbane, is broadcasting from time to time statements regarding the liberation of these balloons.

THE first direct wireless messages between England and Australia were transmitted from Carnarvon on September 22, 1918, and were picked up in Sydney.

- 9.29: Light soprano solos—Miss Jacqueline Burke, (a) "Just a Memory" (Henderson); (b) "Ooh, Maybe, It's You" (Berlin).
9.35: Saxophone solo—Mr. J. McCaw, "Meadow Lark" (Berlin).
9.39: Light soprano solo—Miss Billie Lorraine, "Kiss and Make Up" (Bogate).
9.42: Humorous sketch—The Two Blue Ducks, "By the Way," Part 2.
9.47: Humorous song—Mr. Percy James, "The Gay River" (Bovill).
9.52: Relay of orchestral music from the Octagon Theatre.
10.0: Close down.

Friday, June 1

1YA AUCKLAND (333 METRES)—FRIDAY, JUNE 1.

- 3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Further studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's hour—Nod, assisted by pupils of Miss Blamires. Piano, Lorna Frith, "Sea Idylls" (Carroll). Recitation, Gwen Hogan, "Three Foxes" (Milne). Duet, Margaret Vause and Thel Saunders, "Idylls" (Carroll). Letters and birthdays. Piano, Eileen Knox, "Caprice" (Rowley). Recitation, Eva Neil. Song, Betty Chappell, "Fairies Lullaby." Story-time.
7.15: Talk, by Mr. Geo. Campbell, on "Motoring."
7.30: News and market reports.
7.45: Close down.
8.0: Chimes.
8.1: Relay of overture from Rialto Theatre Orchestra, under Mr. Henry C. Engel.
8.11: Vocal quartet—The St. Andrew's Quartet, "With a Laugh as we go Round" (Bennett).
8.16: Instrumental trio—The Studio Trio, "Andante and Finale" (Reinecke).
8.26: One-act play—Auckland Comedy Players, with Mr. J. F. Montague, "Campbell of Kilmohr" (Ferguson).
8.56: Instrumental and vocal—The Internationals, (a) "Dew, Dew, Dewy Day" (Sherman); (b) "I Love a Man" (McDonald).
9.4: Weather forecast.
9.6: Relay of entracte from Rialto Theatre Orchestra.
9.16: Recital—Mr. J. F. Montague, "The Whistler."
9.21: Cello solo—Miss Molly Wright, "Allegro Appassionato" (Saint-Saens).
9.26: Presentation of "Our Pantomime" (Herbert Oliver), by the St. Andrew's Quartet:—
Quartet—"Come and See Our Pantomime."
Soprano—"Princess Love."
Tenor—"Hero of Her Heart."
Quartet—"The Way to Love."
Instrumental entracte—The Studio Trio, "The Shamrock" (Myddleton).
Soprano and tenor duet—"The Song of Our Hearts."
Contralto—"Fairly Queen's Song."
Scena (bass)—"Demon Song."
Quartet—"Life's Pantomime."
9.56: Vocal and instrumental—The Internationals, (a) "Russian Lullaby" (Berlin); (b) "Some Day You'll Say O.K." (Donaldson); (c) "My Rainbow" (Lee).
10.5: God Save the King.

2YA WELLINGTON (420 METRES)—FRIDAY, JUNE 1.

- 3 p.m.: Chimes of the G.P.O. clock, Wellington.
3.1: Selected gramophone items.
4.30: and 4.55 p.m.: Sporting results to hand.
5.0: Close down.
6.0: Children's hour—Uncle Ernest.
7.0: News session, market reports, and sports results.
8.0: Chimes of the G.P.O. clock, Wellington.
8.1: Overture—The Orchestra, "Overture to an Irish Comedy" (Ansell).
8.8: Vocal trio—The Etude, "Breathe Soft Ye Winds" (Paxton).
8.12: Tenor solo—Mr. Frank Skinner, "Take a Pair of Sparkling Eyes" (Sullivan).
8.17: Instrumental trios—Symons-Bellwood-Short Trio, (a) "Minuet" (Shield-Moffatt); (b) "Serenade" (Haydn); (c) "Polish Dance" (Scharwenka).
8.27: Soprano solo, with flute obbligato—Miss Gretta Stark, "Lo, Here the Gentle Lark" (Bishop), (flute obbligato by Mr. Claude Tucker).
8.31: Hawaiian trios—Palmer's Hawaiian Trio, (a) "La Paloma" (Yradier); (b) "Honolulu Moon" (Lawrence).
8.38: Baritone solo—Mr. Ray Kemp, "Grendon Fair" (Marie).
8.42: Instrumental—The Orchestra, (a) "Valse Triste" (Sibelius); (b) "Minuet" (Mozart).
8.51: Vocal quartet—The Etude Quartet, "Far Away" (Bliss).
8.55: Humorous sketch—The Two Billed Owls, "Sweeping t' Chimbley" (Stubbs).
9.2: Weather report and announcements.
9.4: Instrumental—The Orchestra, "Pirates of Penzance" (Sullivan).
9.12: Tenor solo—Mr. Frank Skinner, "I Hear a Thrush at Eve" (Cadman).
9.16: Contralto solo—Miss Rita Arnold, "May Dew" (Bennett).
9.20: Instrumental—The Orchestra, (a) "The Vanished Army" (Alford); (b) "Klegtemestra" (Lotter).
9.29: Novelty vocal—The Two Billed Owls, (a) "Red Lips, Kiss My Blues Away" (Pendling); (b) "My Regular Gal" (Warren).
9.37: Hawaiian trio—Palmer's Hawaiian Trio, (a) "You've Been a Good Pal to Me" (Watson and Bull); (b) "My Tumble-down Cottage of Dreams" (Nicholls).
9.44: Vocal duet—Miss Rita Arnold and Mr. Ray Kemp, "Somebody" (Stuart).
9.48: Instrumental—The Orchestra, request numbers.
9.56: Vocal quartet—The Etude Quartet, "Huntsmen's Chorus" (Weber).
9.59: Instrumental—The Orchestra, popular dance numbers.

3YA CHRISTCHURCH (306 METRES)—FRIDAY, JUNE 1.

- 3 p.m.: Afternoon session—Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Big Brother. The South New Brighton School Drum and Fife Band and School Choir will provide half-hour's programme. Birthday greetings and bedtime stories.
7.15: News session.
7.30: Talk by Mr. H. G. Ell, "What the Summit Road Means to the People of Christchurch and Canterbury."
8.0: Chimes and overture.
The Melodious Four, in a Burmese love story in song, entitled "The Pagoda of Flowers" (with instrumental accompaniment), followed by a miscellaneous concert by 3YA artists.
8.5: Descriptive opening chorus—Melodious Four, "Shwe Dagon Pago Oda" (Woodford-Finden).
Passing of priest, with contralto solo—Miss Belle Renaut, "I Come from Afar" (Woodford-Finden).
Prayer, trio, and chorus (Misses Hammerton and Renaut and Mr. Russell Sumner), "Awgatha, Awgatha" (Woodford-Finden).
Tenor solo—Mr. Russell Sumner, "Midst the Petals in Your Tresses" (Woodford-Finden).
Soprano solo—Miss Frances Hamerton, "In My Lacquered Tray are Roses" (Woodford-Finden).
Contralto solo—Miss Belle Renaut, "The Star Flower Tree" (Woodford-Finden).
Bass solo—Mr. T. D. Williams, "God Keep My Thoughts" (Woodford-Finden).
Contralto solo—Miss Belle Renaut, "Pale Priest Beside the Shrine" (Woodford-Finden).
Contralto and bass duet—Miss Belle Renaut and Mr. T. D. Williams, "Ah, it was There to Live to Love" (Woodford-Finden).
Mixed vocal quartet—Melodious Four, "Shwe Dagon Pagoda" (Woodford-Finden).
8.41: Weather forecast.
8.48: Beresford Banjo Band—(a) "Japanese Fan Dance" (Bonheur); (b) "Swinging on a Rainbow" (Wood and Long).
8.58: Humorous recital—Mr. O. W. Collins, "Insuring His Life" (Romer).
9.3: Soprano solo—Miss Frances Hamerton, "L'Ete" (Chaminade).
9.7: Pianoforte solos—Miss Aileen Warren, (a) "Berceuse" (Greig); (b) "Pavilion" ("Butterfly"), (Greig).

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Programmes Continued

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- 9.12: Tenor solo—Mr. Russell Sumner, "Till I Wake" (Woodford-Finden).
9.16: Beresford Banjo Band—(a) "Old Windsor" (Ellis); (b) "Lancashire Clogs" (Grimshaw).
9.26: Humorous recital—Mr. C. W. Collins, "Not Old" (Julius Day).
9.31: Instrumental trios—Christchurch Broadcasting Trio, (a) "Valse Russe" (Bantock); (b) "Serenata" (Moskowsky).
9.41: Soprano and contralto duet—Misses F. Hamerton and B. Renault, "Pan's Holiday" (Bridge).
9.45: Pianoforte solo—Miss Aileen Warren, "Arabesque" (Chaminade).
9.50: Mixed vocal quartet—Melodious Four, (a) "A Summer Wind" (Cruikshank); (b) "Evening" (Cruikshank).
9.56: Beresford Banjo Band, (a) "Koonville Parade" (Turner); (b) "The Little White House" (Rose and Akst).
10.6: God Save the King.

4YA DUNEDIN (463 METRES)—FRIDAY, JUNE 1.

- 3 p.m.: Town Hall chimes.
3.1: Gramophone recital.
3.15: Fashion talk, by a representative of the D.I.C., Ltd.
3.30: Music from the Savoy.
3.45: Studio music.
4.0: Further music from the Savoy.
4.15: Gramophone recital.
4.25: Sporting results.
4.30: Close down.
6.0: Town Hall chimes.
6.1: Children's session—Auntie Sheila and Big Brother Bill. The musical portion of the programme is to be provided by Sergt. Napier and a quartet of trumpeters from the Military Bugle Band. It will consist of the various bugle calls, from the "Reveille" to the "Last Post" used in the British Army. Time permitting, a number of short stories of courage on the battlefield will be told by Big Brother Bill. Aunt Sheila will also tell stories.
7.15: News session.
8.0: Town Hall chimes.
8.1: Orchestral selection.
8.6: Baritone solos—Mr. Bert Rawlinson (negro spirituals), (a) "Swing Low, Sweet Chariot" (Marsh); (b) "Go Down, Moses" (Marsh).
8.13: Pianoforte solo—Mr. Gordon Findlay, "Invitation a La Valse" (Weber).
8.23: Soprano solo—Mrs. D. Carty, "At Dawning" (Eberhart).
8.26: Flute solo—Mr. Chas. E. Gibbons, "Olivette" (Audran).
8.36: Bass solos—Mr. Neil Black, (a) "Young Tom o' Devon" (Russell); (b) "Rosebud" (Drummond).
8.42: Orchestral selection.
8.46: Vocal duet—Mrs. D. Carty and Mr. Bert Rawlinson, selected.
8.52: Baritone solo—Mr. Bert Rawlinson (negro spiritual), "Steal Away" (Marsh).
8.56: Pianoforte solos—Mr. Gordon Findlay, (a) "Charmeuse" (Clarke); (b) "To the Rising Sun."
9.3: Weather forecast.
9.6: Soprano solos—Mrs. D. Carty, (a) "John Anderson, My Joe" (Burns); (b) "Adelai" (Abbott).
9.13: Flute solo—Mr. Chas. E. Gibbons, "Barbier de Seville" (Rossini).
9.19: Bass solo—Mr. Neil Black, "Bid Me to Love" (Burnard).
9.23: Relay of dance music.
10.0: Close down.

Saturday, June 2

1YA AUCKLAND (333 METRES)—SATURDAY, JUNE 2.

- 11.30 a.m.: Relay description of the Auckland Racing Club's Great Northern number of short stories of courage on the battlefield will be number of short stories of courage on the battlefield will be
6.0: Children's hour—Cinderella. Piano, Pat Towsey, "An Fair" (Ewing). Song, Cinderella, "Pumpkins" (Farjeon). Talk, Uncle Len. Letters and birthdays. Piano, Pat Towsey, "Waltz Lente" (Marikanto). Recitation, Pattie Lovell, "Papa's Letter." Story-time.
7.15: News and market report, sport results.
8.0: Chimes.
8.1: Relay of overture from Prince Edward Theatre Orchestra, under Ern. Beachem.
8.11: Vocal quartet—The Lyric Quartet, "Lay My Head Beneath a Rose" (Frank Crowther).
8.15: Tenor solo—Mr. A. Ripley, "Till Dawn" (Lowe).
8.19: Instrumental—Ingall's Hawaiian Orchestra, (a) "Hawaiian Echoes"; (b) "Isle of Paradise."
8.27: Vocal duet—Messrs. Richard and Thomas, "The Two Beggars" (Newton).
8.32: Humour—Mr. Allan McElwain, some humour.
8.37: Relay of entr'acte from Prince Edward Theatre Orchestra.
8.47: Vocal quartet—The Lyric Quartet, "Deep River" (Burleigh).
8.51: Bass solo—Mr. Ernest Thomas, "Chip of the Old Block" (Squire).
8.55: Instrumental—Ingall's Hawaiian Orchestra, (a) "Kalima Waltz" (Awai); (b) "The Rosary" (Nevin); (c) "A Nest, the West, and You" (Hill).
9.4: Weather forecast and sports results.
9.6: Tenor solo—Mr. Herbert Richards, "Maire, My Girl" (Somerville).
9.10: Vocal quartet—The Lyric Quartet, "The Jolly Roger" (Kidens).
9.15: Relay of dance music from the Dixieland Cabaret by the Internationals, under Mr. Clyde Howley.
11.0: God Save the King.

2YA WELLINGTON (420 METRES)—SATURDAY, JUNE 2.

- 3 p.m.: Chimes of the G.P.O. clock, Wellington.
3.1: Relay description of football match from Athletic Park, Mr. Chas. Lamborg, announcing.
6.0: Children's hour—Uncle Toby and Aunt Dot.
7.0: News sessions, market reports, and sports results.
8.0: Chimes of the G.P.O. clock, Wellington.
8.1: Overture—The Orchestra, "Mazurka" (Auber).
8.9: Vocal quartet—Melodie Four, "The Moon Man" (Macy).
8.13: Italian mandolin—Mr. Lad Haywood, (a) "Annie Laurie" (traditional); (b) "Macushla" (MacMurrrough).
8.20: Bass solo—Mr. W. W. Marshall, "Will of the Wisp" (Cherry).
8.24: Instrumental—The Orchestra, (a) "Cavatina" (Raff); (b) "Minuet" (Boccherini).
8.34: Tenor solos—Mr. Frank Bryant, (a) "The Little Irish Girl" (Lohr); (b) "Heaps of Lickins" (Lohr).
8.40: Humour—Mr. Geo. Tichener, (a) "The Modest Curate" (original); (b) "Baby Bill" (Walters).
8.46: Concertina—Mr. R. Stratmore, "Medley of Old-time Melodies."
8.51: Vocal duet—Messrs. S. Duncan and R. S. Allwright, "The Fishermen" (Gabussi).
8.55: Xylophone solo—Mr. L. Probert, Overture, "William Tell" (Rossini).
9.2: Light vocal—The Glad Idlers, "Just Breezin' Along" (Whiting).
9.3: Weather report.
9.10: Instrumental—The Orchestra, request numbers.
9.18: Tenor solo—Mr. Sam. Duncan, "Like Stars Above" (Squire).
9.22: Vocal quartet—Melodie Four, "Doan Yer Cry, Ma Honey" (Noll).
9.26: Italian mandolin—Mr. Lad Haywood, (a) "Sunshine" (Berlin); (b) "Breeze" (Hanley).
9.32: Baritone solo and quartet—Mr. R. S. Allwright and Melodie Four, "In a Monastery Garden" (Ketylby).
9.36: Instrumental—The Orchestra, characteristic novelty, "The Mouse and the Clock" (Whitney).

AN Ohio radio fan, who is confined to his home in a small town, has written the U.S.A. Government federal radio commission that he spends an average of twelve hours daily with the radio and that he finds little or no station interference in the 600 to 1000 kilocycle band. He wrote that he had eighteen different makes of receiving sets, ranging from two to ten tubes, but that in making his tests he got the best results from an inexpensive set.

THE Hotel Robert Morris, in Philadelphia, in common with many other hotels in the United States, has provided its guests with a compelling reason to stay in their rooms in the evening. The Robert Morris was equipped in March, 1925, and the unusual feature of the arrangement is that the widest possible programme choice is offered to the listener. A plug with three jacks is provided in every room, and the three jacks provide the programme at the moment being transmitted over the Blue or Red Networks of the National Broadcasting Company or the Columbia chain. The radio control room is located on the top floor of the hotel, and the equipment, in the main office on the first floor, is operated by remote control. Constant volume level throughout the hotel is maintained by using compensating and repeating coils. By grouping the jacks in the various rooms in parallel series it is possible to maintain reception in every room in the hotel even though trouble develop in the outlet in one or more rooms.

AMERICAN files report that a Mrs. E. C. Green, of 418 East Manhoning Street, Punxsutawney, Pa., while at home alone listening to the broadcasting of WGY Schenectady was startled by the appearance of a drunken intruder who had forced her front door. Suddenly A. O. Coggeshall, an announcer of WGY, calmly requested the invader to "Please stand by." The sound of a man's voice was too much for the unwelcome visitor, and he turned and hurriedly left the house and Mrs. Green was left free to continue her enjoyment of the programme.

AN American radio editor says:—We understand from an unimpeachable authority that the engineers of a certain radio manufacturing company built into stock receiver models a few years ago, audio amplifiers so good that nearly all of them came back. Criticism arose from the fact that these receivers seemed more noisy than sets of other manufacturers; more static came in, and "whistles" were more evident. It was a simple matter at the factory to put filters in the amplifier system, cutting down on the two ends of the frequency spectrum. Then the receivers stayed sold. It is a fact that many hundreds of these receivers have been sold to Bell Laboratories engineers and their friends. As soon as they are received out comes the soldering iron, off comes the filters, and out of the loudspeaker come the low and high frequencies that are so essential to good quality.

AN extraordinary new type of electric bulb without wires, developed by Dr. Phillips Thomas, research engineer of the Westinghouse Electric and Manufacturing Company, glows when held within range of a powerful electromagnet, and continues to glow for ten minutes after the power is shut off! Though you could turn it off, undress, and jump into bed by its light, it has no such immediate utilitarian purpose. It was developed by Dr. Thomas in the course of experiments he is conducting on the transmission of power by radio.

THOUGH bedridden for many years and suffering from arthritis, an old lady living not far from Sydney has taken a new lease of life since she came into touch with radio. Until recently she felt that she was out of contact with the world, but now that a radio set has been installed in her room, she feels that she is better informed of the happenings of the outside world than when she was able to move about. Everything is now heard over the air, and such a wide range of music and entertainment news and speech is brought to her that she finds a wider field open in her declining years than she had experienced for the past twenty.

NOW the guests of a New York City hotel have radio programmes on tap through the touch of an electric switch. The entire hotel has just been wired for radio, and two central receiving sets are on the thirty-first floor. Nearly all the 1600 rooms have loudspeakers.

MANY of the New Zealand listeners enjoy listening to 2GB, Sydney, when static is not too rowdy, a report from Australia, states: Station 2GB, which is every day increasing in popularity, has made a move forward in the right direction by moving into its new studio this week. The new studio is almost three times as large as the previous one in use, and not only will 2GB be able to present such items as orchestral and bands, but it will mean that their transmission will be better on account of the larger space.

- 9.41: Vocal duet—Messrs. F. Bryant and W. W. Marshall, "Drink to Me Only."
9.44: Humour—Mr. Geo. Tichener, "Kissing the Girl on the Stairs" (Henray).
9.49: Concertina—Mr. R. Stratmore, "Medley of Popular Airs."
9.54: Light vocal—The Glad Idlers, "Hetty the Hard 'Un."
9.59: Vocal quartet—Melodie Four, "My Blue Heaven" (Donaldson, arr. Frank Crowther).
10.3: Dance programme, with vocal choruses by the Glad Idlers.
11.30: Close down.

3YA CHRISTCHURCH (306 METRES)—SATURDAY, JUNE 2.

- 2.45 p.m.: Relay of Rugby football match from Lancaster Park.
6.0: Children's session—Uncle Sam and Aunt May, bedtime stories, songs, and birthday greetings.
7.15: News session.
7.30: Sports results.
8.0: Chimes and overture.
8.5: Tenor solo—Mr. David McGill, "Yes, Let Me Like a Soldier Fall" ("Maritana"), (Wallace).
8.9: Tin whistle and accordion solos—Mr. H. Smith, popular melodies (own arrangement).
8.15: Soprano solo—Miss Mabel Thomas, "Maytime" (Testi).
8.19: Hawaiian steel guitar and ukulele trios—Miss Elaine Moody's Hawaiian Trio, (a) "Kaiwahu Waltz" (MS.); (b) "Somewhere in Honolulu" (MS.); (c) "Mahina Malamala" (MS.).
8.29: Popular vocal solo—Mr. E. A. Dowell, "The Kingdom of Your Eyes" (Nicholls).
8.33: Instrumental trios—Christchurch Broadcasting Trio, (a) "At Evening" (Pache); (b) "Valse Song" (Gounod).
8.43: Contralto solo—Mrs. D. W. Stallard, "I Did Not Know" (Trotter).
8.53: Recitals—Mr. J. Birch, (a) "Devil May Care" (Taylor); (b) "The 9.15 Express" (Taylor).
9.59: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "Somewhere a Voice is Calling" (Tate).
9.3: Weather forecast.
9.5: Overture.
9.10: Tenor solo—Mr. David McGill, "A Night in Araby."
9.14: Magic flute and accordion solos—Mr. H. Smith, popular melodies (own arrangement).
9.20: Soprano solo—Miss Mabel Thomas, "Scenes that are Brightest" ("Maritana"), (Wallace).
9.24: Hawaiian ukulele solo and steel guitar ukulele trios—Miss Elaine Moody (ukulele solo) and her Hawaiian Instrumental Trio, (a) "Ain't She Sweet?" (own arrangement); (b) "Plaintive Melody" (own arrangement); (c) "Hawaii, I'm Lonely for You" (own arrangement).
9.34: Popular vocal solo—Mr. E. A. Dowell, "A Lane in Spain" (Lombardo).
9.38: Instrumental trios—Christchurch Broadcasting Trio, (a) "Nocturne" (Chopin); (b) "Tarantelle" (Trouselle, Donojowski).
9.44: Contralto solos—Mrs. D. W. Stallard, (a) "She is Far from the Land" (Lambert); (b) "Come, Sing the Summer Thru" (Bethune).
9.48: Recital—Mr. J. Birch, "Rosa" (Chevalier).
9.54: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "At Last You Come" ("Mignon"), (Thomas).
God Save the King.

4YA DUNEDIN (463 METRES)—SATURDAY, JUNE 2.

- 2.45 p.m.: Relay of Rugby football from Carisbrook ground.
7.15: News session.
7.30: Address by Mr. H. Skinner, M.A. (under the auspices of the Workers' Educational Association), "The Maoris in Otago."
8.0: Town Hall chimes.
8.1: Relay of orchestral music from the Empire Theatre.
8.10: Contralto solos—Miss Irene Hornblow, L.R.A.M., (a) "Sanctuary" (Hewitt); (b) "To You" (Speaks).
8.15: Cello solo—Mr. P. J. Palmer, "Valse Apache" (Van Biene).
8.20: Bass solo—Mr. Tom Cooper, "The Mighty Deep" (Jude).
8.25: Soprano solo—Miss Muriel Caddie, "Valse Caprice" (Rubinstein).
8.31: Soprano solos—Miss Agnes Guy, (a) "Have the News of My Boy, Jack?" (German); (b) "Only a River Running By" (Hopkins).
8.37: Instrumental trio (violin, cello, and piano)—"Valse in C Minor" (Coleridge-Taylor).
8.42: Baritone solo—Mr. Arthur Lungley, "Deep River" (Burleigh).
8.46: Violin solos—Miss Eva Judd, (a) "Broken Melody" (Van Biene); (b) "Serenade" (Orkla).
8.54: Relay of orchestral music from the Empire Theatre.
9.4: Weather forecast.
9.7: Contralto solo—Miss Irene Hornblow, "Can't Remember" (Goatley).
9.10: Cello solo—Mr. P. J. Palmer, "Song of India" (Rimsky-Korsakov).
9.15: Bass solos—Mr. Tom Cooper, (a) "The Miner" (Sutton); (b) "The Dawg" (Sanderson).
9.32: Soprano solo—Miss Agnes Guy, "Elegie" (Massenet).
9.35: Instrumental trios (violin, cello, and piano), (a) "Barcarolle," from "Tales of Hoffmann" (Offenbach); (b) "April's Lady" (Ancliffe).
9.45: Baritone solos—Mr. Arthur Lungley, (a) "Trooper Johnny Ludlow"; (b) "You Alone o' Me" (Sanderson).
9.52: Violin solo—Miss Eva Judd, "Legende" (Wienawski).
10.0: Close down.

Sunday, June 3

1YA AUCKLAND (333 METRES)—SUNDAY, JUNE 3.

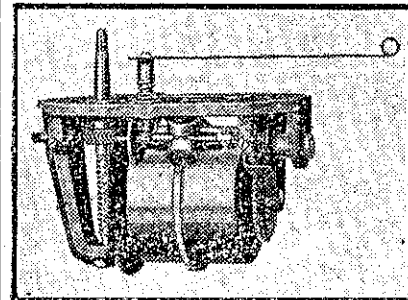
- 3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Further studio items.
4.30: Close down.
6.0: Children's song service, conducted by Uncle Leo, assisted by cousins from Beresford Street Sunday School.
6.55: Relay of evening service from St. Mary's Cathedral. Preacher, Canon Percival James. Organist, Mr. Edgar Randall.
8.30: Relay of organ selections from Town Hall. Organist, Mr. Maughau Barnett.
9.30: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, JUNE 3.

- 3 p.m. to 4.30 p.m.: Afternoon session.
6.0: Children's song service, conducted by Uncle Ernest.
6.55: Relay of evening service from Vivian Street Baptist Church. Preacher, Rev. F. E. Harry. Choirmaster, Mr. J. R. Samson. Organist, Mr. Chas. Collins.
8.15 (approx.): Relay of band recital of the Wellington Municipal Tramways Band from His Majesty's Theatre. Conductor, Mr. T. Goodall.

(Continued on Page 14.)

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A High Grade Unit for Home Construction

(By "Megohm.")

THIS is a continuation of the article commenced last week dealing with the construction of three stages of a Browning-Drake receiver with full copper shielding. The three stages consist of two radio-frequency and detector, the output from which can be put through any separate audio amplifying system. Any constructor may, of course, lengthen the panel and baseboard and include the amplifier in the set, and this portion may also be shielded with advantage.

The success of the radio-frequency amplification being kept high is owing to the complete and roomy shielding. The less efficient the shielding of R.F. stages, the less the amplification that can be obtained per stage with stability, which is an indispensable condition. This circuit, with two R.F. stages, could be built without any shielding whatever, but experiment has shown that in such a case in order to secure any semblance of stability the amplification of each stage has to be kept so low that the total amplification of the two stages is less than that of only one stage working at high efficiency. These remarks are made in order to impress upon constructors the necessity for carrying out the shielding exactly as described, and success will be assured provided that ordinary intelligence is brought to bear upon the details of the actual circuit. Let no constructor be tempted into altering the shielding to the type in which a partition is placed between each stage, and the whole is enclosed in a complete shield.

Details of the direction in which coils are wound are given, and should be carefully followed, as if this is done the receiver should work the first time it is connected up—there will be no reversing tickler or primaries, which is an irritating ordeal when all is expected to be o.k. Only the number of tickler turns may need adjustment.

THE TICKLER-ALTERNATIVE CONTROL.

LAST week a method was shown by which the movable tickler could be operated from below so that the condenser dials could all be kept in line for the sake of uniformity and general appearance. If carefully constructed, this method works well, but for those who wish to avoid this, and do not wish to lower the position of the dial, an alternative system of tickler control is here given that has been properly tested and works very satisfactorily.

This idea works upon the absorption principle, and reference to the diagram shows a collar of celluloid an inch or so deep, diameter to just fit inside the celluloid strips projecting about one-eighth inch above the top of secondary coil. Around this collar is one turn of 16's or 18's s.w.g. double cotton-covered wire, carefully curved and bound together with thread at A and held to the collar with celluloid cement in a few places. The two ends of this wire are left of sufficient length to reach to the lower right-hand of the back of panel, where they are connected to a carbon compression type of rheostat with a maximum resistance of about 50 ohms.

One-eighth of an inch above this turn of wire the tickler winding is commenced, and fifteen turns of 30's s.w.g. double cotton-covered wire should be about correct, but leave sufficient end to add a turn or two more if found necessary. Start winding the tickler at plate end, as in diagram, after passing in and out through two holes which are not shown. Finish at the top and connect as shown. The tickler is shown raised above the secondary coil in order to show the direction of the top turn of the latter, but the tickler actually rests inside the upright strips so that the turn of thick wire is one-eighth inch above the top turn of secondary coil.

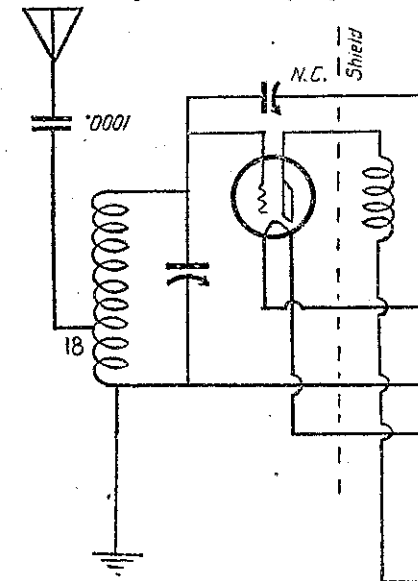
In operation, compressing the carbon is equivalent to turning a rotating tickler down to decrease reaction. The earliest point of maximum compression could be found and a mark made on the knob as a guide to prevent undue compression.

The rheostat is fixed at the right below the condenser dial, and as this condenser is insulated from the panel with a strip of ebonite, this strip can be extended so that the rheostat also is bolted to it so that direct contact with the panel is avoided.

THE ROTATING TICKLER.

If a rotating tickler is decided upon, its dimensions should be 1½ in. outside diameter and 1¼ in. length of cylinder. It may be made of celluloid or thin card, and is mounted upon a spindle of ¼ in. ebonite rod.

For trial, thirty-two turns of 30's d.c.c. should be put on, sixteen each side. Commence winding at A after passing the wire through a hole as shown. Wind in the direction shown by arrow at side, crossing over in the centre and finishing at B, when the end is passed through a hole and then out through a second hole near spindle, round which a couple of turns are taken loosely to avoid any tightening.



of leads when the spindle is turned. The end at A is taken inside and out through a hole near spindle and treated as other end. This end connects loosely to top of by-pass condenser and a thicker wire continues to the amplifier. The other end of this condenser is soldered to the shield tray.

VALVE-HOLDERS.

THE sprung Benjamin or similar socket for the detector valve is mounted on a 2 x 2 x 1 block of wood, shellaced and secured to the base by a central screw.

The two other holders are similarly mounted on blocks an inch high. The position of these is not exactly critical, and can be ascertained from the plan and accompanying scale.

GRID LEAK AND CONDENSER.

GOOD makes of these must be procured. The condenser is held in an upright position by the grid leak soldered to its lower end. The top end connects to top of secondary coil and fixed plates of tuning condenser.

THE WIRING PLAN.

THE wiring is fairly clear on this drawing, but a brief survey will help what may be doubtful points to some. It will be noticed that the pair of filament leads from each valve goes under the base through a hole drilled near each valve. In all three stages the lead running from grid of valve to condenser stator is also connected to top of secondary coil.

It should be noted that all wires terminating with an X are soldered to the shield.

Wires shown slightly broken pass below the unbroken ones. The B battery lead of each primary passes down through a hole in base. The other end of primaries connects to plate of preceding valve. Other points are dealt with elsewhere.

A rough sketch is given of the first R.F. stage showing the general appearance and wiring, aerial and earth terminals, and brass strut holding panel. The .0001 is held by a bent strip of brass bolted to back of aerial terminal. This condenser is about 1½ plates in the home-built variety, or two pieces of tinfoil ½ the full width. (Article Dec. 9th.)

CABLED WIRING UNDER BASE.

THIS is one of the features of the receiver that make for quality and tone. The scheme is to consolidate all battery leads into one cable as much as possible, thus making them function as an efficient by-pass condenser which gets rid of all radio frequencies where they are unwanted, and prevents them getting into the audio system where they are detrimental. This set of leads should be made up quite away from the board, upon which they

its presence in the cable is an advantage to assist the by-passing. The central batten is not shown under the board, but it and the base may be cut out to allow the cable to pass between in the same way as is shown at the output end. No detector B voltage is provided for, as it connects to the input terminal of amplifier not connected to plate of detector through the tickler.

R.R. FILAMENT CUT-OUT.

THIS small panel placed at the right measures 1½ by 1.5-8 in., and its purpose is to provide a convenient means of cutting off this filament supply to either R.F. valve when neutralising. The panel, of ebonite, is screwed to the side of baseboard and behind it the tuned-up edge of the tray is cut away equal to the width. Two sockets, flush pattern if possible, are inserted as shown, and these are both connected together by the end of A positive lead from the battery, and either from here or from another point the A positive may continue to the detector filament.

The positive leads from the two R.F. filaments terminate at the top of the panel in a short piece of flexible wire and a pin to fit the sockets. These

obtaining complete neutralisation that will effectively prevent radiation. Those who have been used to the four-valve will find the process exactly the same with the five, each valve being dealt with quite separately.

The R.F. valves are neutralised as follows:—Tune in a loud station near centre of the broadcast band, 1YA or 3YA, maximum volume being carefully obtained without oscillation, reaction being kept well down. Next turn out the filament of the R.F. valve being treated by withdrawing the corresponding pin from small side panel. Now with the neutralising stick inserted through hole in top of shield, turn neutralising condenser until signals are inaudible or at minimum strength, then turn on filament again and the station should come through well. Now see that the variable condensers are all at maximum tuning; if not, they must be altered to get the best tuning, and the process of neutralising is gone through again. The second attempt is practically certain to be correct. If neutralisation cannot be obtained it may be for several reasons. R.F. primary connections reversed, or neutralising condenser too large or too small capacity. Everything is well standardised in the construction of this receiver, so there should be little chance of trouble of this kind if sizes and valves are adhered to.

VALVES TO USE.

IT is important that only valves of medium impedance be used in the first two stages, and by that is meant

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.

valves having an impedance ranging between 11,000 and 20,000 ohms. Those used by the writer have an impedance not very far below 20,000, and the result is very satisfactory. On very low wave-lengths around 200 metres it will sometimes be found an advantage to slightly reduce the R.F. filament supply.

In the "Listeners' Guide," to be published shortly, there is a useful table showing valves obtainable in New Zealand listed according to the positions in the set for which they are best suited, and also giving impedance, grid-bias, etc., so by consulting this table, a listener may quickly find a suitable valve for any purpose.

For the detector stage, whether followed by transformer, impedance, or resistance coupling, the writer has found a high impedance valve to give the best results, both for tone and volume. High impedance in this case is taken to mean not less than 60,000 ohms.

It is necessary to adjust the number of turns on the R.F. transformers to suit the impedance of the preceding valve. The impedance is stated on printed matter enclosed with the valve.

(Continued on Page 13.)

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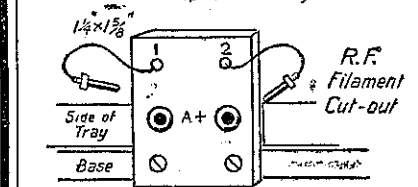
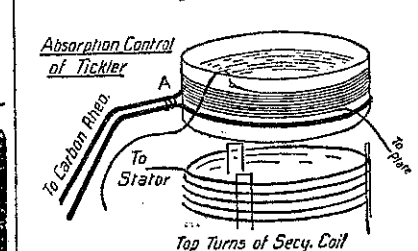
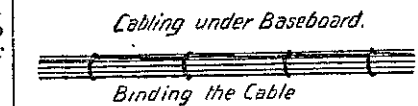
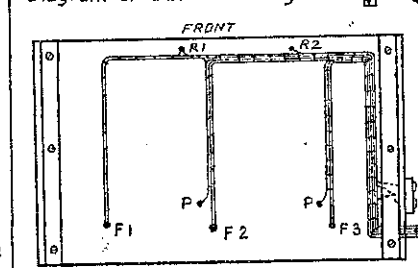
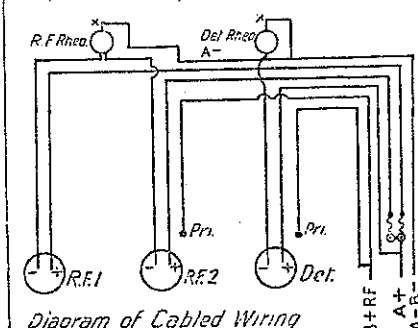
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58-62 VICTORIA STREET,

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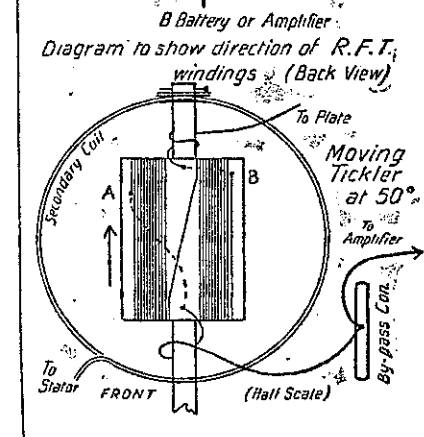
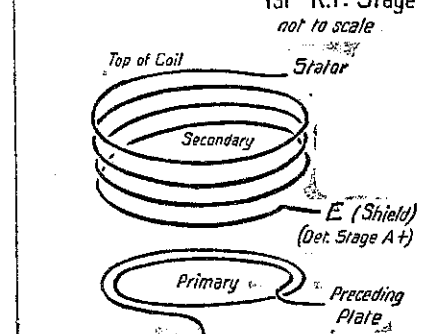
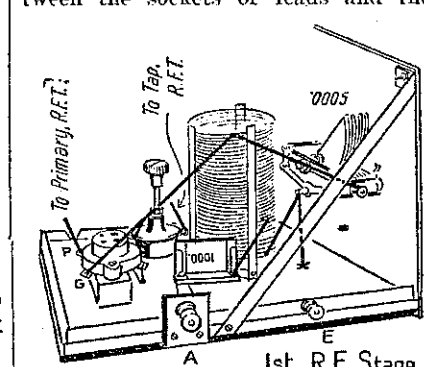
are placed when bound together. The connecting wire to be used for this purpose must naturally be well insulated, and rubber-covered is splendid for the purpose. The writer has used good quality bell-wire, 20's s.w.g., tinned, rubberised, thick double cotton,



and waxed. A diagram of the actual leads is shown. These are to be cut suitable lengths, bent as required, and bound together with thin twine, a "hitch" being taken about every inch. Care must be taken to provide for ends at rheostats and to connect to the small filament cut-out panel at right. The two R.F. and three positive A leads are to run separately as shown, joining where they leave the baseboard. All ends should be left sufficiently long to reach the batteries without joining. Where the A and B leads must separate, bind them separately; up to this point they are all cabled together.

The negative ends of the rheostats are shown wired to the shield, and in the under base cable diagram a negative A wire is shown running to these points. This wire may optionally be run to either one of these points or to both, and as it is at earth potential

are only shown diagrammatically. As they are not used often it would serve to bring out the actual leads and attach the pins. It must be remembered that the shield is negative A, so there must be no chance of connection between the sockets or leads and the



shield, so a good plan would be to protect the back of sockets, with insulation or a small protective block of wood hollowed out and screwed into place to prevent any chance of the cover touching the sockets. The cover is cut away to clear the panel. When the back is fixed a scrap of copper could be used to make a small protective shield with turned edges, which could be soldered to tray.

NEUTRALISING.

WHEN the joyful day arrives upon which constructional work is completed, the unit may be hitched up to the amplifier and batteries, and the process of neutralisation carried out. There is nothing very difficult or mysterious in this connection, and if the instructions are carefully carried out, no trouble should be experienced in

SHIELDED BROWNING-DRAKE

The following list will be a good guide, but a turn or two more and less should be also tried—the object is to use as few turns as possible without losing volume, and that is why the impedance of the valve should not be too high.

Impedance.	Primary turns.
20,000	22
18,000	20
16,000	18
14,000	16
12,000	14
10,000	13

A FINAL NOTE.

FINAL advice to constructors is to buy good components—any make that has quality and is of the correct value. Some constructors appear to go and buy, say, variable condensers, with little care as to the value of their capacity, and then comes along a letter of inquiry as to how the wrong valves can be worked in. Such tactics will not suit this receiver very well, so make sure of what you want, and save the dealer the trouble of guessing for you. The list given last week will be found a good guide with approximate prices, and all required values of condensers, etc. Note that if the absorption control of tickler is to be adopted, instead of a tickler knob, a carbon rheostat will be required, giving a maximum of 50 ohms. The writer feels confident that those who put the necessary care into the construction of this receiver will have a unit that they will be very pleased to possess, and one with which some good long-distance work will be performed.

Last week, in the section dealing with the R.F. transformer, what should have been the fourth line appeared as the sixth.

Constructors are asked to note that the height of the panel is 8½ inches, as stated in the first column and in list. Eight inches appeared on the diagram in error.

RESISTANCE COUPLED AMPLIFIERS

ALTHOUGH resistance coupling is generally looked upon as a reliable means of obtaining pure reproduction in an amplifier, there are points to be observed in order to ensure that this desirable quality is fully secured. The loss of low notes is avoided to a great extent by choice of suitable coupling condenser and leak. A more frequent trouble is the loss of high notes, and this defect has in many factory-built receivers been accentuated by sacrificing the upper musical scale in order to obtain general high amplification on the remainder of the scale.

STRAY capacities in the amplifier circuit contribute to the loss of high note amplification. These capacities are between the plate and filament of the valves, between the plate resistance and its holder, the joint grid-filament capacity of the following valve and across its grid leak and holder, and finally the grid-plate capacity of this valve.

The total of these stray capacities has the effect of a by-pass condenser of appreciable value, and according to the frequency of the note conveyed by the signal, has more or less effect upon amplification. This unwanted capacity has a very high impedance to the low notes, so that all the available voltage is transferred to the grid of the next valve, giving high amplification. This is assisted by keeping the value of the resistance as high as possible, that is, large compared with the internal resistance of the valve.

AS the frequency, that is the pitch, of the notes rises, the stray capacities offer less impedance to the total voltage, so that an increasing proportion is short-circuited or by-passed,

Possible Troubles in Audio Amplifiers

HOW SOME OF THEM MAY BE AVOIDED

IT is a comparatively easy matter for a constructor to build an audio amplifier from specifications and produce a piece of apparatus that will function well from the start and give good quality reproduction. Yet there are unavoidable circumstances that cause components to be used other than those specified, and certain license may be taken by the constructor in various ways, entailing slight modifications of various kinds. In such cases there is always the chance of introducing instability, which is invariably due to some form of "feed-back" or stray coupling, and the greater the amount of amplification, the greater is the danger of audio howl being produced.

One of the most frequent causes of oscillation in audio amplifiers is the high resistance of old or small dry cells, or in some cases an eliminator, supplying B current. This high resistance has the effect of forcing, or "feeding-back," an additional positive potential upon the plate of each valve preceding the last. This is assuming that all plates are fed from the same B supply. This effect, in turn, has an opposing action upon the grid voltages caused by the shifting of phases, with the result that there is a tendency to reduce volume of signals. In some circumstances there is the opposite effect of the signals being strengthened by the feed-back impulses, sufficiently strong, in some cases, as to cause oscillation. If each grid is in phase with the preceding plate and out of phase with the suc-

ceeding one, then in an odd number of stages the signal will be weakened, and in an even number of stages the signal will be strengthened, introducing the tendency to oscillation.

In some cases where R.F. amplification is high, and is coupled to the audio side through an inefficient coupling such as a small capacity condenser, then it may be necessary to include an R.F. stage in the number of stages, as mentioned above.

Transformer Coupling.

THE above remarks apply more particularly to resistance and choke coupling. With transformer coupling it is possible to make the grid opposite in phase to the preceding plate by reversing the connections to one winding, but this further complicates matters because the capacity between the windings then acts so as to reduce amplification.

Mention was made above of phases. These concern the grid voltages only, which are alternately negative and positive, and are quite independent of the direct B battery current. Certain conditions can cause a "lag" in the phases, so that when this is fed back to meet the original impulses, if the lag results in a total reversal, then the positive phase of the feed-back voltage meets the negative phase of the original, and vice-versa. This is a brief idea of the complicated questions involved in dealing with phase combinations.

Merits of "Push-pull" Amplifier.

WHERE it is desired to use a common plate supply and yet be free from any tendency to audio oscillation or instability, the push-pull type of amplifier should be used, as in this method of amplification the signal current does not traverse the battery (or eliminator) at all.

From the above remarks the conclusion may be drawn that it is best to use a low resistance B supply in order to avoid any possible trouble from interaction between stages, or different portions of the circuit, such as would cause audio howling or oscillation. As dry batteries grow old their internal resistance increases and their voltage drops, so that after a certain drop in voltage it does not pay to keep them in use if quality reception is desired, partly on account of the noise much resembling static, which accompanies reception when a dry battery is becoming "bone dry."

"Motor Boating."

NOTHING said above has any connection with another audio trouble known as "motor boating." Howling is not motor boating. The latter is more often experienced in resistance-coupled amplifiers, and is easily recognised by the comparatively slow put-put-put sound. It is a limiting or blocking action, caused by the coupling condensers storing up electrons on the grid side faster than the grid leak can carry them off to the negative side of the filament. The grid of the succeeding tube gradually assumes a more negative bias until it finally becomes so negative that no plate current flows in the output circuit of that valve, which is then said to be "blocked." Then the grid leak passes the accumulated electrons, and the current is restored, only to continue to repeat the same action. One cure of this trouble is to use an impedance in place of the grid leak, as owing to its comparatively low resistance the electrons will flow away as fast as they arrive instead of accumulating. This makes for quality also, as any tendency to "motor boating" is accompanied by distortion, due to the grid charge being at one of the extremes, or off that portion of the curve which allows of even amplification.

Another improvement, if not incorporated already, is to place condensers of 1 mfd. each across each amplifier B voltage, whether from battery or elim-

AUCKLAND DIRECTORY

What to Buy and Where

ATWATER-KENT RADIO	Frank Wiseman, Ltd. 170-172 Queen Street.
ALTONA & HAMMARLUND-ROBERTS 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.
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, Dunworth 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., 96 Albert Street.
PHILIPS VALVES AND APPARATUS	All Good Radio Dealers.

inator, and these condensers should be placed within the amplifier. If such condensers are already installed, an increase of their capacity is recommended.

Care must be taken in placing the transformers in an audio amplifier, as interaction between these when placed too close together may cause howling, especially if the transformers are of an unshielded pattern.

NEXT WEEK'S FEATURE FOR CONSTRUCTORS

A SEPARATE RF UNIT FOR THE UX222 VALVE

Next week will be described the construction of a single-valve unit employing the new shield grid valve. This circuit was recently published in America, and when a copy reached "Megohm" he decided to build the unit at once and test its value. The unit does all that is claimed for it, and in a test upon an ordinary four-valve Browning-Drake, about double the usual volume was obtained.

This will suit many constructors who do not wish to go to the length of constructing the receiver now being described, but which is, nevertheless, strongly recommended as a quality receiver much ahead of the unshielded type which has hitherto been constructed.

The unit, though specially adapted to the Browning-Drake, can be attached to practically any receiver.



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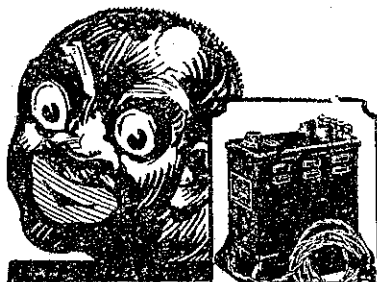
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HEARD The Story about the White Horses?

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

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Auckland

Trouble-Finding Car for Wellington

Continued from Cover.

10. Is there any change in the tone or intensity of the disturbance when your main lighting switch is opened?.....
When the switch on your power service is opened?.....
11. Has anyone who understands radio sets and circuits examined your batteries and your set?
- If so, to what did he assign the trouble
- Please give his name and address
12. How many blocks are you from the nearest street car line?..
13. How long has your radio set been installed?.....
14. When did you first notice the disturbance referred to above?
15. Describe your radio apparatus
16. Any additional information connected with your complaint of radio interference

Suggested Radio Interference Report Sheet.

The following questions were also suggested:—

1. Name
2. Address
3. Type and make of set.....
4. Do you use aerial.....
loop
- If loop, have you attempted locating noise by loop bearing? If so, what do you blame?

13. Near what broadcasting station wave is most noise experienced?
14. Has the following list been made?
- With antennae and ground leads disconnected, and these terminals shorted by a piece of wire, is any noise present, when receiver is operated in usual manner?
- This test will definitely indicate whether outside interference is present, and the relative amount of the total interference experienced that may be charged to it.

Sources of Interference.

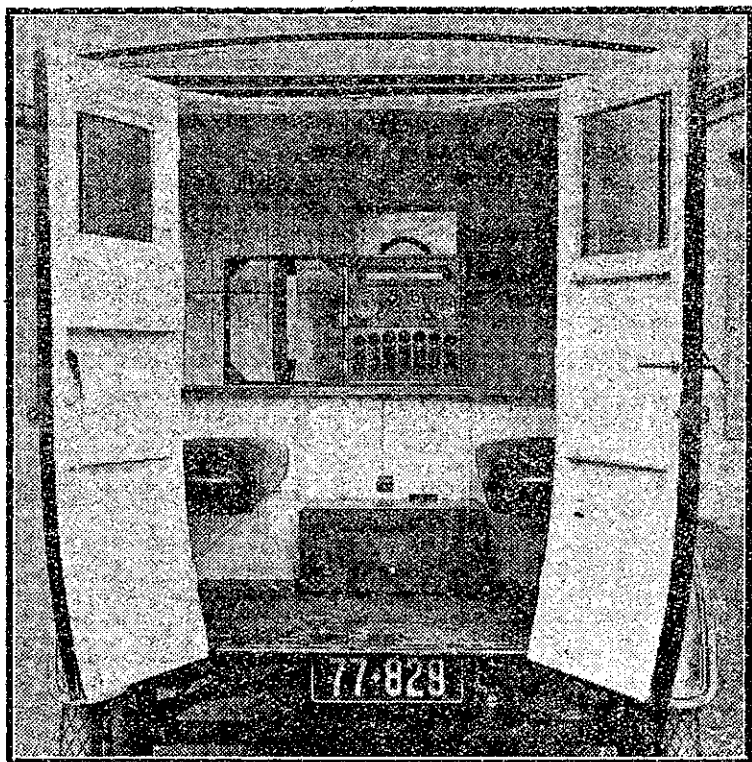
The Association's report also states:—A few of the sources of radio interference are given in the following tabulation. Some of these sources produce interference when the equipment is functioning normally, while in others interference results only when the apparatus becomes defective.

Power Circuits.

1. Lines.
2. Insulators.
3. Lightning arresters.
4. Transformers.
5. Generators and motors.
6. Induction voltage regulators.

Industrial Applications.

1. Arc light circuits.
2. Telephone and telegraph lines.
3. Pole changers and converters.
4. Street cars and electric railroads.



INTERIOR OF TROUBLE-FINDING CAR. —Wallace Photo.

5. Number stages radio amplification ordinarily used.....
6. Number stages audio amplification ordinarily used.....
7. When does interference occur?
8. Continuous
- Day only
- Night only
9. Does it synchronise with lighting of street lights?.....
10. Nature of noise, low frequency hum?....., similar to static?, roaring?....., hissing?.....
11. Can interference be tuned to maximum?
12. If so, broad?....., or sharp?
5. Motors.
6. Smoke and dust precipitators.
7. Sign flashers.
- Household Appliances.
1. Heating pads.
2. Violet ray machines.
3. Flat irons.
4. Door bells, light switches and motors.
- Miscellaneous.
1. X-ray machines.
2. Storage battery chargers..
3. Annunciator systems.
4. Stock tickers.
5. Ignition systems.
6. Electric elevators.
7. Electric furnaces.
8. Moving picture equipments.
9. High voltage testing equipment.

FEATURES CONTINUED

Mr. J. Birch, who appears at 3YA on Saturday evening for the first time, is in the first flight of elocutionists. The church to be broadcast on Sunday evening will be the Sydenham Baptist, where the Rev. J. K. Archer, Mayor of Christchurch, is the preacher.

4YA FEATURES

On Sunday next the International Bible Students' Association will direct a sacred concert and service from the studio. An address will be given by Mr. O. G. Canty.

At the conclusion of this service, a relay from His Majesty's Theatre will be presented, comprising items by the Kaikorai Band, under the conductorship of Mr. E. Franklin, and vocal items by assisting artists.

On Tuesday night the Kaikorai Band will be heard again in a very fine programme of popular music, amongst which will be Alford's popular march, "Great Little Army," the overture "Raymond," a selection of melodies from "Iolanthe," Kereby's "In a Monastery Garden," Sullivan's "Lost Chord," and other items. Assisting on this programme will be Mr. E. C. Bond (bass), Miss Wyn McPeak (contralto), Mr. Chas. Edwards (tenor). A humorous sketch, entitled "The Stocking," will be presented by Miss Madge Yates and Mr. Eric Hebban, two brilliant elocutionists, who, in addition to the sketch will render recitals.

The programme for Thursday evening will, as usual, be characterised by bright and amusing items. Mr. Percy James will be heard in several humorous songs, including a number that is sure to be popular, entitled "Hurricane History" (by Cecil). Miss Billie Lorraine (light soprano), in her inimitable way, will render a group of the latest fox-trot songs. Miss Jacqueline Burke (light soprano) will sing three popular songs. Mr. Billy Gay will sing two popular adaptations from the gramophone, "Frankie and Johnnie" and "Abdul Abulbul Amir," both numbers arranged by Crummit. The Two Blue Ducks will be heard in two humorous sketches, and a humorous sketch with vocal duets will also be given by Miss Billie Lorraine and Mr. Percy James. Mr. J. McCaw will play saxophone solos, and Mr. T. V. Anson, Dunedin's leading jazz pianist, will contribute novelty piano solos.

An entertaining concert will be heard on Friday evening. Heading the programme will be Mr. Bert Rawlinson, singing a group of negro spirituals, "Swing Low, Sweet Chariot," "Go Down, Moses," and "Steal Away." Mrs. D. Carly, among other soprano items, will sing Eberhart's "At Dawning." Mr. Neil Black (bass) will be heard in "Young Tom O'Devon," "Rosebud," and "Bid Me to Love." Mrs. Carly and Mr. Rawlinson will render a vocal duet. Instrumental music, including piano solos by Mr. Gordon Findlay, and flute solos by Mr. Chas. E. Gibbons, will conclude the studio programme, at the conclusion of which dance music will be relayed from the Savoy.

Saturday's concert will be of a high standard. Miss Irene Hornblow, L.R.A.M., will sing several popular modern numbers. Mr. Tom Cooper, possessor of a beautiful bass voice, will render "The Mighty Deep," "The Miner," and "The Dawg." Miss Agnes Guy (soprano) and Mr. Arthur Langley (baritone) will also provide vocal items. Cello solos will be played by Mr. P. J. Palmer, violin solos by Miss Eva Judd, and piano solos by Miss Muriel Cadie. At intervals during the evening selections of orchestral music will be relayed from the Empire Theatre.

LECTURES FROM 4YA

On Tuesday afternoon at 4 p.m. Mr. G. J. Butcher, of Messrs. Turnbull and Jones, Ltd., will continue his series of domestic talks on the uses of electricity.

During the concert session on Tuesday evening, Pastor W. D. More will deliver a humorous address.

A representative of the D.I.C. will give a fashion talk at 3.15 p.m. on Friday afternoon.

Under the auspices of the Workers' Educational Association, Mr. H. Skinner, M.A., will speak on "The Maoris in Otago" at 7.30 p.m., on Saturday evening.

THE musical instruments used by one of the bands whose dance music is broadcast regularly by WJZ, New York, are valued at over £2000.

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MEAN DEPENDABILITY.

Installed at 2YA Wellington.

All sizes. From 9/- each.

EXIDE SERVICE STATION

79 Kent Terrace, WELLINGTON.

Programmes Continued

(Continued from page 11.)

3YA CHRISTCHURCH (306 METRES)—SUNDAY, JUNE 3.

- 5.30: Children's song service, conducted by Uncle Sam, assisted by scholars from the Sydenham Baptist Sunday School.
- 6.30: Relay of evening service from the Sydenham Baptist Church. Preacher, Rev. J. K. Archer. Choir conductor, Mr. W. Bradshaw. Organist, Mrs. W. F. Standen.
- 8.0: Following the church service, there will be a programme of musical items from the studio.
- 8.15 (approx.): Rebroadcast of 2YA, Wellington (concert of Municipal Tramways Band from His Majesty's Theatre, Wellington).
- God Save the King.

4YA DUNEDIN (463 METRES)—SUNDAY, JUNE 3.

- 5.30 p.m.: Children's song service, conducted by Big Brother Bill, assisted by the Sunday School scholars of Dundas Street Methodist Church.
- 6.15: Relay of service from St. Paul's (Anglican) Cathedral. Preacher, Rev. Canon Nevill. Organist, Mr. R. Heywood, F.R.C.O.
- 8.0: Studio concert.
- 9.15: Close down.

Our Mail Bag

(Continued from Page 3.)

clear and steady, with a very slight fade, 1YA is clear and fairly steady, 3YA is not so good and fades, 4YA is very good, clear, and fades only slightly. I don't know how others find them, but these are the results of one week's checking of a carefully-kept log.

An Inquiry?

Browning Drake (Stratford): On last Thursday night I picked up a station just below 4QG; the time was about half-past 1, and I had it till just on 2 o'clock, and during that time there were no announcements in English; at least I heard none, but static was very bad, and I might have missed them. A lady sang a song, then a man sang. Both these were sung in a sort of monotone. Could you give me some idea who it was? The set that I was using at the time was a four-valve Browning Drake.

[See letter from G.C.H. Possibly you heard a Jap.—Ed.]

Japanese Stations Picked Up.

G.C.H. (Masterton).—Learning of the fact that several readers of the "Record" have picked up some of the new high-powered Japanese stations, I decided on Wednesday evening, the 10th, to "make a night of it" and try my luck in the same direction. I met with some success, logging three stations, and perhaps four, but am not sure of the fourth (unless it was JOCK). There was no mistaking three of the stations, as call letters were received in each instance.

12.3 a.m.: A station about 4 metres above 3LO. Sounded like a woman talking, but as 3LO interfering decided to tune in later when 3LO had closed down. However, I could not pick up the stranger later.

12.23 a.m.: Tuned in JOBK—dead on 400 metres, setting about 1½ points on the dial above 4QG. Man talking in Japanese till at 12.30 a.m. call letters were given twice and what sounded like, "Kamati, Komati." Then a man singing in Japanese to accompaniment of stringed instrument (no tune about either). This lasted till 12.45 a.m., when an announcement was given, followed by violin and piano music which continued until 1 a.m., when the station abruptly went off the air in the middle of the item. Came on again almost immediately, but heard nothing till 1.3 a.m., when call letters "JOBK" given slowly, and further speech in Japanese. This was followed by an item on a Japanese instrument which was a little more musical than the first. This item ended at 1.23½ a.m., when call letters were given and further speech in Japanese. Tuned out at 1.26 a.m.

1.27½ a.m.: Tuned in JOAK—dead on 345 metres, the setting being exactly one point on the dial below 2HL. Music and man singing. At 1.28½ a.m. speech in Japanese, then a remark made twice, followed by the call letters "JOAK" (at 1.29 a.m.), slowly and particularly clearly, the station then immediately going off the air.

1.32½ a.m.: Went back to JOBK, but this station also had closed down. 1.34 a.m.: Tuned in JOBK, the dial setting being exactly midway between 3LO and 4QG. This station I listened to until 2.20 a.m. At first volume was not up to the other two stations, but it improved later. First

speech in Japanese, then music (very little tune about it!) with man singing now and then. At 1.43 a.m. speech; at 1.45 a.m. a woman singing (not in Japanese); at 1.48 a.m. announcement, "JOCK" several times and further speech. Then woman singing again; at 1.52½ a.m., speech, the call letters being given several times (sometimes sounding more like "JOBK" than "JOCK") and ".... gramophone middle Send it to our station H," this latter remark being made five or six times in quick succession. At 1.53 a.m. music and man singing (Japanese); at 1.55½ a.m. announcement, "JOCK" twice, and further speech, then music; at 1.59 a.m. speech, the call letters being given several times, then music and man singing; at 2.3½ a.m. announcement, but was only able to get "Jo gramophone"; at 2.6 a.m., music and woman singing "The Marseillaise." (I concluded at this stage that the items in European were gramophone records.) At 2.10 a.m., announcement partly in English and partly in Japanese, ".... very much appreciate Send in to our Station H" (this about five times in succession), followed by call letters—heard very clearly—which I took for "JOCK." Then further music (not Japanese); at 2.17 a.m., announcement, but could not make it out except, "Send in to our Station H," which I caught twice. Then music (not Japanese). Tuned out at 2.20 a.m., the station being still on the air. I worked these three stations on both the 'phones (not that this was necessary, though, as at times the volume was deafening) and on the speaker, the music being very clearly and easily audible on the latter. JOBK and JOAK were received with hardly any fading, reception being very clear and steady, but JOBK was fading a good deal. Static made it difficult to decipher much of the announcements apart from the call letters.

S-O-S

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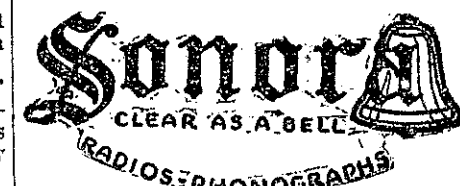
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To the Lady of the House

Persuade hubby to buy a CONSOLE model CROSLEY, and have the unsightly batteries and wires out of the way. We have three beautiful Console "Crosley's" at exceptional prices.

Any of these may be arranged for electrical operation, direct from your house lighting supply.

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NEWS FOR THE CHILDREN

ABOUT TREES

MR. PARTON, of Christchurch, told the children of 3YA a whole host of interesting things about trees on Friday night. He wants all boys and girls to love beautiful trees and to learn all about them. He said:—

"ON Arbor Day in America a speaker asked all boys and girls to improve their love for trees. He wanted them to know how useful and beautiful a tree was, and stated that for long years trees had proved themselves just as much the friend and companion of man as a dog or a cat. You will find trees spoken of in every history book that has been written. You will remember reading in the Old Testament that Adam plucked fruit from one kind of tree and used the leaves of another as clothing. A great Persian poet called for bread and drink while telling his friends about Paradise, but he needed the shelter of a tree to protect him from the desert sun and other causes of distress in this Better Land. Longfellow sought the shade of some elm trees to assist him in writing his poems. In Washington the Treaty Oak was planted by the first President of America. Cleveland planted nine hundred oak trees in the main streets to remind the people of all the local soldiers who gave their lives in the Great War. The same has been done in Ballarat, Australia.

IN Christchurch trees connected with the historical visits of several members of the Royal Family have been planted in the Botanic Gardens.

THERE is really very little difference between plants and animals. The germ of life may be either animal or vegetable. Scientists even are not sure which. These germs are very tiny and can only be seen by the aid of the most powerful microscope, and a great many of them cannot be seen because no glass strong enough has been found. In the case of animals we see the forms as sponges, fish, reptiles, birds, and finally man. In plants we see first germs, pond scum, toadstools, mushrooms, ferns, and seed plants which become our trees.

DO you know that a tree breathes just as you do, and has water going round and round inside it like the blood in your veins. Trees even digest food and the heart of a certain plant is said to beat. We know that the throbs of the sap just like the throbs in our blood have been noticed.

Children's Sessions for Next Week

TUESDAY AT 1YA.

Yes, here's Old King Cole, that merry soul, with pipe and bowl:
To 1YA he's come to stay, and wile away
An hour or so. I hope you know it won't be slow.
The journey here, he pleased to hear, was full of cheer:
The fiddlers three were full of glee, from care quite free.

WEDNESDAY—Uncle Tom with us, with plenty of jokes and happy songs—cousins playing the piano.

THURSDAY—Peter Pan and the ever-popular Bayfield School Choir. How they'll sing after their fortnight's holiday!

FRIDAY—Ever so pleased to have our Nod back again, pupils of Miss Blamires assisting—nearly all tiny tots to-night.

SATURDAY—Cinderella will entertain the Radio Family with stories, jokes and birthday greetings. Mr. Busfield, who is now Uncle Len, will tell some stories, and cousins will give musical items.

SUNDAY—Welcome back to Uncle Leo, to conduct the Children's Song Service with cousins from Beresford Street Sunday School assisting.

AT 2YA.

Monday, 28—Crank the car, toot the horn, and away. Auntie Gwen and Uncle Jeff take a motor ride across the Kilmatakas. Scenery, historical spots, and punctures!!! Join in the fun, little ones.

Tuesday.—Here's Big Brother Jack with his little "puñ, puñ," driving you to Joyland. Here you behold wonders unseen in the cave that Aladdin visited. The Junior Red Cross members are going to peep into the mysteries of all this unknown land.

Thursday.—Auntie Dot and the Berham-pore School.

A merry set are they.
Ho! Come to 2YA.
An hour of joy and play,
To finish up the day.

6 p.m.: All aboard for the Land of Fun.

Friday.—The first glad day of June. What matter if the rain fairies scamper and patter upon the wind-dowpane. Uncle Ernest is here. Cheerio. Also this is the first time we've heard the Wellington College girls.

Saturday.—"When we were very young." Yes, we're all young to-night. Auntie Dot, Uncle Toby, and Mrs. Martyn Williams's pupils spend an hour roaming through the haunts of A. A. Milne's delightful land of youth.



"CHUCKLE" OF 3YA.

AT 3YA.

Monday, May 28.—Uncle Jack with all his fine stories. He will tell you all about the life of the girls and boys in Christchurch over 60 years ago—as this is our Jubilee Week.

Wednesday.—Uncle Peter and Mother Hubbard back from their holidays—so listen-in for some good tales and

music. "Peterkin" is coming to-night, too, to tell you how to do some more tricks.

Thursday.—Chuckie and Aunt Pat, the Happy Pair, with more birthday verses and songs. A group of merry lassies from the Training College will sing lots of children's songs and rounds.

Friday.—"Big Brother" and "The Captain's" night—So if you want to hear some new games listen-in to-night. The New Brighton School Drum and Fife Band is coming, too, and a merry lot of singers. What a night to look forward to!

Saturday.—Uncle Sam and Aunt May—well, you know what a happy bedtime hour they give you; and some of the competition winners are to be with us, also, Cousins Doris and Gracie among them.

Sunday.—The children's song service, with Uncle Sam in charge. And the scholars from the Sydenham Baptist Sunday School are singing the hymns.

AT 4YA.

TUESDAY, MAY 29—The Boys' Brass Band from the Albany Street School are on the air from 4YA to-night. These are the boys that played all over New Zealand a little while ago, and they know how to make sweet music. Big Brother Bill will tell a story to the chickabiddies, and take the whole family with him on a trip to the other side of the world. You certainly mustn't miss this. Letters and the Radio Postie, too.

FRIDAY, JUNE 1—Here's an exciting announcement. Sergt. Napier and his trumpeters will provide the music for to-night's programme from 4YA. They will play all the calls of the British Army, beginning at the Reveille and ending at the Last Post. And Big Brother Bill will tell tales of bravery and courage on the battlefield to illustrate all the calls. Aunt Sheila will tell her winsome tales also. The letter bag will be opened, and the Radio Postie sent his rounds.

WHEN a tree "goes to sleep" for the winter, it always does so in a very wonderful way. The first sign that comes to us is a change in the colour of the leaves. Sometimes they turn brown, sometimes yellow; and in many cases crimson and purple, looking as gay in the autumn sunshine as the flowers. But long before the trees have taken on their autumn splendour, they have been busy preparing for the great change that is coming later. The beautiful colours of the leaves are a sign to us that other changes have been taking place in the tree. One of the most remarkable of these is the withdrawal of food from the leaves to the branches and trunk. It would not do to lose this food when the leaves fall to the ground in autumn. It must be stored in the tree itself so when the nights grow cold a message is sent into every leaf telling it that the stores must be given up. As the food is withdrawn and the leaves get torn away from their twigs at growing time the tree sets to work to seal the little sores.

DO you know a chestnut tree? Have you seen the long straight poplars with their funny little question points planted like rows of soldiers along the riverbanks and roadsides? Of course you have. You will also know the monkey-puzzle and the weeping willows. But do you know anything of the elm, the ash, the beech, the yew and the spruce? If not you must learn about them as soon as possible.

THE parts of a tree to be studied are the leaves, flowers, fruit, bark and trunk or body. Every tree when it reaches a certain age, bears flowers, some bear fruit and blossoms are always seen. The unfolding of a leaf is one of the wonders of tree life. It is, indeed, a miracle. To-day the budded twigs are sleeping the sleep of winter, and to-morrow the tree breaks out into leaf and blossom. A bud is simply a baby shoot with its leaves and flowers being formed in readiness for bloom. To-day our apple crops, our peach crops and the flowers of our many trees are forming for the coming spring and I want you children to watch their growth from now onwards. I wonder if you have any idea how much moisture is given off by a tree on a hot dry day? Well, I'll tell you! An oak gives off as much as 28,000 gallons of water during the five months of its growth. This cools the air and makes life in the city more pleasant.

LOOSE-END LIMERICKS.—RE-ARRANGE WORDS IN ITALICS TO FORM RHYMES.

There was an old lady of Bucks
Who made pets of the Aylesbury *skude*,
But some years since *hent*
She's preferred a white *nch*,
And has given up quacks for *Cluck-cucks*.

There was an old woman of Hove,
Who insisted that mustard was *veuma*,
So to please her they *dreaps*
On her doorstep black *deat*,
And every day white-washed the *voles*.

On a time a small person of Devon
Dreamt his age was one hundred and *venel*,
He was saying, "This *drack*
Must really be *headars*,
When he woke up and found he was *veens*."

FADING AND DISTORTION

A PECULIAR CAUSE

Deflection of the wave from a broadcast station due to the proximity of screening mountains, such as Mount Egmont in relation to New Plymouth, may cause severe fading and distortion. The New York "Radio Broadcast" says: Ordinarily, the reception of two or three signals from the same station does not seriously affect the quality because one of the signal sources usually predominates over the others sufficiently to make their influence negligible. But there are many known cases where phase distortion accounts for the poor quality with which high-grade stations are heard in some areas. When W.E.A.F. broadcast from Walker Street, New York, several years ago, listeners in Pelham, New York, but 16 miles airline distance from the transmitter, complained that, even with the best of receivers, only a weak and distorted signal could be received. A thorough investigation with loop receivers and field strength measuring equipment revealed that two signals from W.E.A.F., apparently coming in from two different directions and, at some points, exactly 180 degrees out of phase, tended to cancel

each other. Similar effects would be experienced when two stations radiate identical programmes on the same channel.

AUSTRALIAN LISTENERS

OVER A QUARTER OF A MILLION.

THERE are now 263,349 broadcast listeners' licenses issued in Australia.

According to the latest figures supplied by the Postmaster-General's Department, Victoria is still in the ascendancy and has more wireless receiving licenses than the whole of the other States of the Commonwealth together. The following were the respective numbers of licenses in force in the States of Australia at the end of March:—

Victoria	136,481
Rest of Australia	126,859
New South Wales	75,869
Queensland	24,920
South Australia	19,452
West Australia	3,780
Tasmania	2,838

The Victorian total is estimated to be proportionately the world's record, being equal to approximately 78 licenses to every one thousand of the population.

SYDNEY SHORT-WAVE

NEW 20,000-WATT STATION.

NEW Zealanders who possess short-wave receiving sets may soon be able to obtain full loudspeaker volume from 2FC, Sydney, during any time of the day. The Sydney "Wireless Weekly" reports:—

"A further advance is being made in world-broadcasting by the erection of a new short-wave transmitting set at Pennant Hills. This will be used by station 2FC, Sydney, for broadcasting programmes overseas, using the special short-wave which has been found suitable for long distance work. The set now being used by 2FC for this purpose is regularly heard in England and America. In England, particularly, the programmes are frequently re-broadcast. The new transmitter now being erected will have a power of 20,000 watts, which is four times as great as the set that has been in use.

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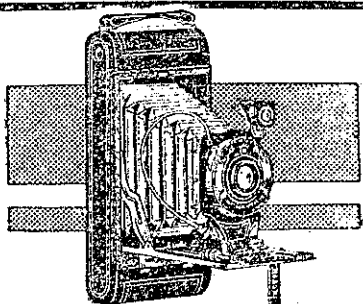
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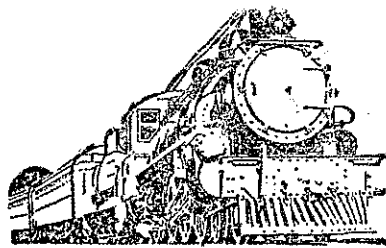
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No. 1A Pocket Kodak with f.6.3 lens is now only 97/6. Other Kodaks from 30/-. Brownies from 10/6.

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Royal Runs by Rail

More Cheap Trips

Beginning on May 31

The new experiment of Special Autumn Concessions has proved so successful that the Railway Department has decided to give the public another opportunity for safe, comfortable, economical outings by train on all lines.

Excursion Tickets, issued from May 31 to June 4 (inclusively), will be available for return until June 16.

Extra trains, additional accommodation, on King's Birthday Holiday, June 4.

Travel by Train to be Happy

Communicate with the nearest Stationmaster, District Manager or Passenger Agent, for full particulars.

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. F. W. Sellens writes: 5SW, Chelmsford, appear to have altered their starting time for the morning test, as on the last two or three mornings there has not been any sign of them till 6.30 a.m. On the one evening I was up till 11 p.m., 5SW was not heard.

Reception with me during the past week has been weaker than usual and not the usual variety of stations heard.

A card just received from OAGAG, Perth (Mr. Coxon) states that he has no fixed hours for working, but is usually on from 6.30 p.m. to 7.30 p.m. and again from 11 p.m. (10 p.m. to 11 p.m. and from 2.30 p.m. New Zealand time). His wave-length is 33 metres.

Saturday, May 12.

5SW was tuned in at 6.15 a.m., when an orchestral item was heard. This was followed by vocal music.

PCJJ was first heard at 1 p.m., and was very weak. Volume gradually increased till they closed down at 1.40 p.m. with the Dutch National Anthem. This is now almost as familiar as our own. IAN was heard directly after the Dutch station closed down for a short time.

2XAF on 31.4 metres were again transmitting instead of 2XAD. Reception was weak. They closed down at 2.30 p.m.

RFM was heard late in the evening.

Sunday, May 13.

2XAF was tuned in at 2 p.m., when it was very weak. The usual dance programme was broadcast. It was only toward the end of the transmission that it was possible to put them on the speaker. They closed down at 2.29 p.m.

Spent the rest of the day B.C. Ling.

Monday, May 14.

The carrier of 2NM was heard, but too weak to do any good with.

3LO were much later than usual in starting. The carrier was on before 6 a.m. and a voice said something about 3ME very faintly. Nothing more was heard, except the weak carrier for some time, it was about 7 a.m. when I first heard him, but was not on his wave all the time. He was not up to his usual strength then. At 11 p.m. 2RB, Goulburn, on about 31 metres, was testing on telephony.

There was not any sign of 5SW at 11.5 p.m. If they were on the air their carrier should have been audible if nothing more.

RFM were transmitting some fine orchestral items at fair volume, not so strong as they used to be.

Tuesday, May 15.

5SW was better than of late, but on account of strong winds, the aerial was swinging, causing unsteady reception. Big Ben was heard, followed by a talk, which, although clear enough, was not intelligible on account

of the jerkiness caused by aerial swing. Violin solos were heard from 5.45 a.m., followed by another talk.

At 6.15 a.m. the musical programme commenced, apparently from a theatre or music hall, the audience could be clearly heard clapping at the end of the items. Several whispering baritone solos were heard with orchestral accompaniment, etc. Volume and steadiness improved before 7.30 a.m., when I had to close down.

On about 30 metres a station was heard which appeared to be RFM, it was the same, or similar voice. It was not a harmonic as there was no sign of him on 60 metres. If it was RFM, it is the first time I have heard him so low in wave-length.

Wednesday, May 16.

5SW did not commence till 6.30 a.m. this morning, and was then very weak, but improved a lot later on.

PCJJ was fair between 6.30 a.m. and 7 a.m. They closed down at 7.42 a.m., as usual, with their National Anthem.

2BO Wellington was testing with 2BU, and afterwards entertained with mouth organ and gramophone records. Reception was quite good, except for a slight swing. Congratulations, 2BO.

Thursday, May 17.

5SW again did not start till 6.30 a.m., but was too weak to bother with.

Did not hear anything the short time I was on the S.W. set during the evening.

Friday, May 18.

PCJJ was quite good, but still weaker than usual.

5SW, Big Ben was heard at 6.30 a.m. and an announcement stating it was 5SW, the B.B.C. experimental short-wave station, on 24 metres, etc., and that they were "going over" to London. Music was heard from London, but it was weak and unsteady. 5SW is not so steady as it might be; this makes talk very hard to follow, even when the volume is fairly good.

Late in the evening 2ME was testing, giving call and counting. The carrier, although strong, varied in intensity or quick fading.

RFM, on 70 metres, besides talk, gave some enjoyable orchestral items.

What Set Used.

A listener inquires which set Mr. Sellens uses. It is exactly the same design as that described by "Megohm" in our columns some time back and published fully in the "N.Z. Radio Listeners' Guide" now issued. This short-wave set is much more satisfactory than an adapter.—Ed.

Southern Reception.

Robert Parker (Invercargill): Whilst listening-in to 3YA to-night (Wednesday, May 16), I am reading the "Short-Wave Corner" in your "Record," and thought a short report of my low-wave experience during the week might add to the interest, especially so as most of your reports are from further north. Invercargill is supposed to be only fair reception regarding the broadcast band, but on low-wave, if this week is any criterion, the short-waves are coming over great. On Sunday, May 13, 2XAF, Schneetady, in the afternoon was hard to hold and only fair. Monday 3LO quite clear in the morning. Tuesday, 14, 5SW coming through beautiful. Items from Daly's Theatre, Leicester Square, talks on artists of the last two decades, some specialist on colour, and studio items all equally good and loud. In the evening RFM coming through fair to good, occasional surging. This morning Chelmsford, England, not so good. Poor reception probably due to a nearby receiver with a threshold howl. PPJO items and close down about 7.30 a.m. was received quite good. I have been experimenting for some time with various coils and turn numbers; also with chokes with the idea of more stability when reception is not good. After various trials of coils, the one that has given the best results is 8 aerial, 7 grid, 7 plate. The latter seems high when compared with some of the manufactured sets, but with a seven plate condenser and a larger capacity plate condenser I have had the best results. Various coils, some of which have no dead spots, yet have given poor results compared with the above turns.

Another Southern Receiver.

G. D. Gerken (Chatten): I may say I appreciate your paper very much and look forward for the next issue. I have been listening in since the Broadcasting Company started and find 3YA has best modulation, but fading very frequently. 1YA comes next; 2YA modulation seems very bad at times, especially on band items, hardly ever fades with me. I have had 2YA on the speaker, using one radio and detector on loop aerial. 4YA has perfect modulation here but not very strong. This station is received very well in daylight. I appreciate Mr. Sellens's short-wave notes, as this locality seems adapted to short-wave receiving. PCJJ, 5SW, 2XAF all come in here as loud as 4YA. I have no trouble picking them up with no aerial. My set is four valves, 1 radio detector, 2 audio, and tunes from 5 metres up to 600, a switch cutting out the radio stage under 100 metres. Although I get no interference here as there are no sets within miles, my set is perfectly neutralised on broadcast band, as I think it should be compulsory for all sets to be.

S.W. Reception in Christchurch.

R. F. Stainton (Christchurch): As an example of what can be heard down here on your 3-valve S.W. receiver, I enclose my log of stations for a week. This is an "average" week as far as my reception goes, except that on Sunday, the 6th, I logged more stations in one day than I had done before. Dry cell valves are used, and with these I can get all I want. I have had the set going two months now and have heard 34 stations on telephony. Previous to this I had a 2-valve for five months and heard only 29 stations. My aggregate now is 40 stations (telephony) in seven months, and then I did not have the set going for a month during this period—as well as holidays away from home.

Saturday, May 5.—5SW, Chelmsford: Piano solos. Loud and clear. Well played. Did not have much time to listen. 7.20 a.m. PCJJ, Holland: 12.40 p.m. Clear but not very loud. "Over the Waves" waltz at 12.25 p.m. 2AB, Wanganui: Testing 1.10 p.m. PCJJ came in at slightly better strength towards 1.30. 2XAF, New York: 2.10 p.m. Concert programme of WGY. At 2.20 p.m. on 30 metres a foreign station (not PCJJ or ANE), with a man speaking for about 5 minutes, then he would switch off and come back after about 3 minutes. Loud but slightly "mushy." 3AP, Christchurch: 2.20 p.m., working 3AW. Foreign station again at 3.30 p.m. (as mentioned above). 2XG, New York: Usual "write down" programme of words. Foreign station again at 4 p.m. (as mentioned above).

Sunday, May 6.—IAN, Auckland: Testing at 10.15 a.m. Loud and clear. Records at 10.43 a.m. 2XAF, New York: At 10.40 a.m., not as loud as late in afternoon, but quite clear enough to be followed.

2BA Wellington (or 2GA): Reports on IAN's transmission, 10.45 a.m. 3LO Melbourne: Not as good as usual; Monday morning's transmission, 11.20-11.45 a.m. 3AL Ashburton: Testing at 11.55 a.m. 2RT Goulburn, N.S.W.: Testing on gramophone records, 2.5 p.m. 3LO again in afternoon, slightly better than in morning. 2XAF at extra loud 'phone strength from 3-3.30 p.m., with dance music. 3AU Rangiora: Testing on records; slight fading at times. 2AP Wairoa-Wellington: Very strong and steady; reports on 2AR, modulation excellent, 3.55 p.m. 3CA (or 3CI), Timaru: Testing, 4.5 p.m. 3LO in evening loudest station heard yet on short-wave; much stronger now. 4PG Brisbane, Q.: Slightly "mushy"; records at 9.50 p.m. RFM Russia: Not very loud at 10 p.m., but later on, at 11 p.m., strength was tremendous; playing "Light Cavalry" overture, very enjoyable. 3CM Christchurch: Testing at 10.15 p.m.; working 2BO Wellington. 4PG again at 10.25 p.m.; RFM still going 11.25.

Monday, 7/5/28.—2XAF New York: 12.30 p.m., not very strong, but clear and steady; announcement "WGY Schneetady." 2LG Goulburn, N.S.W.: Testing on records at 9.45 p.m. 2BO

As Others See Us

IN the British Broadcasting Company's journal, "World Radio," of March 30, appears the following article from the pen of J.T.C. on "Radio Development in New Zealand":—

In view of the fact that a few weeks ago New Zealanders were able to dance to music received from Davenport, it is interesting to see how radio is developing in that Dominion.

Previous to 1926 there were one or two abortive attempts to establish a broadcasting company to serve the Dominion. These failed owing to lack of proper organisation and support.

Early in 1926 the New Zealand Government accepted the offer of two business men to find £20,000 capital for the purpose of establishing the Broadcasting Company of New Zealand. They agreed to a number of conditions imposed by the Government, and were to work under the supervision of the Postmaster-General.

The new company began by raising the license fee from 10s. to 30s., promising to provide excellent programmes with the increased revenue. They erected three broadcasting stations: 1YA, in Auckland, costing £8500; 3YA, in Christchurch, costing a similar amount; and 2YA, in Wellington, accounting for over £30,000. The three stations thus cost nearly £50,000, although the company was originally capitalised at £20,000.

2YA, Wellington, was not opened till July 16, 1927, and as the company had to borrow £15,000 from the Government to erect it, it is virtually a Government station. This is a 5 kw. station, being the most powerful in the Southern Hemisphere, and besides being received clearly in Australia and many of the Pacific islands, it has been picked up in Vancouver. It is within the range of all valve sets in the Dominion.

The Radio Broadcasting Company has certainly improved the programmes, but, unfortunately, they lack facilities to do all they hoped to do when they took over control in 1926. They are up against difficulties, for New Zealand has not sufficient artists of merit to keep the four stations constantly supplied with absolutely first-class programmes, and until recently were able to offer an average fee of only half a guinea. Moreover, each station had one silent night a week, and there was no Sunday afternoon broadcast.

In July of last year the Auckland Listeners' League and the Wellington Radio Society asked for complete Government control.

The following table gives the details of the four stations now broadcasting under the control of the Radio Broadcasting Company:—

Wavelength	Station	Kw.
306 metres	3YA, Christchurch	0.5
333 metres	1YA, Auckland	0.5
420 metres	2YA, Wellington	5
463 metres	4YA, Dunedin	0.25

Mr. Maxwell Howden, the well-known Melbourne amateur transmitter, says: "All indications point to a splendid DX winter for us, particularly on the short-waves. The New Zealand signals are quite audible here for all the twenty-four hours, while at times they reach maximum intensity, even when relatively low power is used. 3AV and 8AJ seem to be the most active stations over there. Old 2AB is on less frequently, but does almost as much DX. In fact, he is getting out so well that when one hears a faint station answering him one can be sure it is from somewhere on the Continent."

Mr. George Ferris, elocutionist, will give two recitations, one in Cockney and the other in Sydney East End lingo.

Wellington: Working 1AI; clear and loud.

Tuesday, 8/5/28.—(Visiting another S.W. enthusiast) got GAG, TWY (?), 2LG on his adapter).

Wednesday, 9/5/28.—PCJJ Holland: Loud and clear, but slight fading 6.55 a.m.; "Cavalliera Rusticana," by orchestra. 5SW Chelmsford: 7 p.m., band playing "Viennese Folk-song"; strong and clear. 2LG Goulburn, N.S.W.: 7.10 p.m., testing on records; modulation not too good. 2RT Goulburn, N.S.W.: 7.15 p.m., clear but not very loud; modulation very good; records. 4NW Brisbane: Working 2LG; steady, but not very strong. GAG Perth: 10.10 p.m.: Usual excellent selection of records put on; steady and clear.

Thursday, 10/5/28.—5SW Chelmsford: Only listened for a couple of minutes, and heard piano solo very clear at 7.30 a.m., followed an interval of 10 minutes. 2LG Goulburn, N.S.W.: Records at 7.20 p.m. 3CM Christchurch: Testing at 10.20 p.m.

Friday, 11/5/28.—PCJJ Holland: 6.55 a.m., more interference during song by lady; next item was an orchestral one, "Peer Gynt." 5SW Chelmsford: Extremely loud and clear; piano duets on two pianos; 7.5 a.m.-7.30 a.m., "Andante," by Mendelssohn; "Introduction and Waltz," by Rachmaninoff; and another I did not note. RFM Russia: 11.30 p.m., clarinet solo with piano accompaniment; more talk. Station on about 33 metres, with records, "Take a Pair of Sparkling Eyes" and some others, but could not catch call sign as static was proving troublesome.

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The Radio Revival.

The company having opened the powerful new Wellington station, and having revised the wavelengths of all four stations, set about other improvements. The money allotted to the payment of artists was increased by 60 per cent., a musical director was appointed to the Wellington station, and a Sunday afternoon broadcast was initiated. They also appointed a superintendent of stations to co-ordinate the operations of the four stations and to bring them up to their maximum efficiency. A promise was made to try to eliminate the silent nights.

The consequence of these improvements was a large increase in the number of listeners. At the end of June there were 21,000 listeners holding licenses, and this increased to approximately 30,000 during the next three months. There are, in addition, nearly 1600 holders of dealers' licenses, and 120 amateur transmitting licenses are in force.

A Church Broadcasting Station.

This was something in the nature of a wireless boom, and was followed by a very interesting development, the formation of the Anglican Broadcasting Association of New Zealand in October last. During his visit, the Bishop of London broadcast a talk which was so successful that the importance of utilising wireless in the service of the Church was realised. A committee was set up and the A.B.A. was duly formed and incorporated. It is their intention to erect a 0.5 kw. station in Auckland at a cost of £8000. A further £4000 to £5000 a year is the estimated cost of maintenance. The association's aim is to instruct rather than to amuse, and, in addition to religious matter, they will broadcast the best in literature, art, and music. They will in no way compete with the Radio Broadcasting Company.

The Government are now taking steps to have lessons broadcast to schools. This should be greatly appreciated, especially by the schools in the backblocks.

The fact that radio has other uses than merely to amuse is being realised, and it should not be long before New Zealand broadcasting is on a sound basis. Beam wireless and the relaying of European programmes are going to make a great difference in the future, and we may perhaps look forward to the time when New Zealand will be in constant radio communication with Great Britain and Europe. When that time comes it will not only mean a considerable change in the life of the Dominion, but also a much closer tie between Great Britain and her lonely child of the South Seas.

MUSIC AND BROADCASTING.

A FAVOURABLE INFLUENCE.

Mr. Bennett North, a well-known teacher of voice production in Sydney, who adjudicated at the Wellington Competitions in 1925, and is in New Zealand to officiate at the Christchurch Competitions now in progress, has a kindly word to say for the value of broadcasting in relation to music. In an interview with "The Dominion" Mr. North said he did not think that broadcasting was baneful to music, as it taught people to listen and to discriminate. In Sydney it has been highly beneficial to the students, who often earned enough in fees for broadcasting services to cover their tuition.

A further comparison that Mr. North made in reference to the general standard of vocal attempts between New Zealand and Australia is of value in relation to broadcast programmes and the comparison sometimes made between Australian and New Zealand stations. Mr. North's view would seem to favour the general quality of New Zealand voices. Mr. North said he was always glad to come to New Zealand, as the standard here was higher than he had found it in New South Wales, especially as regarded men's voices. New Zealand seemed to be able to produce a better type of voice. That applied, perhaps in a lesser degree, to the ladies' voices. One could not say exactly what brought that about, but it may be due to a greater isolation, "away from the madding crowds" of the big cities, where the intonation might be a little more careless, or education might be a factor. The one great weakness in New Zealand was choral singing, which never seemed to reach a very high level, not even as high as that of New South Wales. For the best in choral singing, however, one had to go to Queensland. Mr. North was judging in Cairns (Northern Queensland) at Easter, when there were competitions for first and second grade choirs. In the second grade, there were three choirs so good all round that they scored over 90 marks out of the maximum of 100, and the Cairns Choir in the first grade, singing "Death in the Hills" (Elgar), treated the number with such artistry that he had to award the choir 97 out of 100 marks. Here again he could only account for such a high standard by the fact that the young people had not the same distractions to occupy their time as they had in Sydney or Melbourne.

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