Souvenir of 3 YA, Christchurch -- The Copyright Problem -- Next Week's Programmes

THE RADIO RECORD

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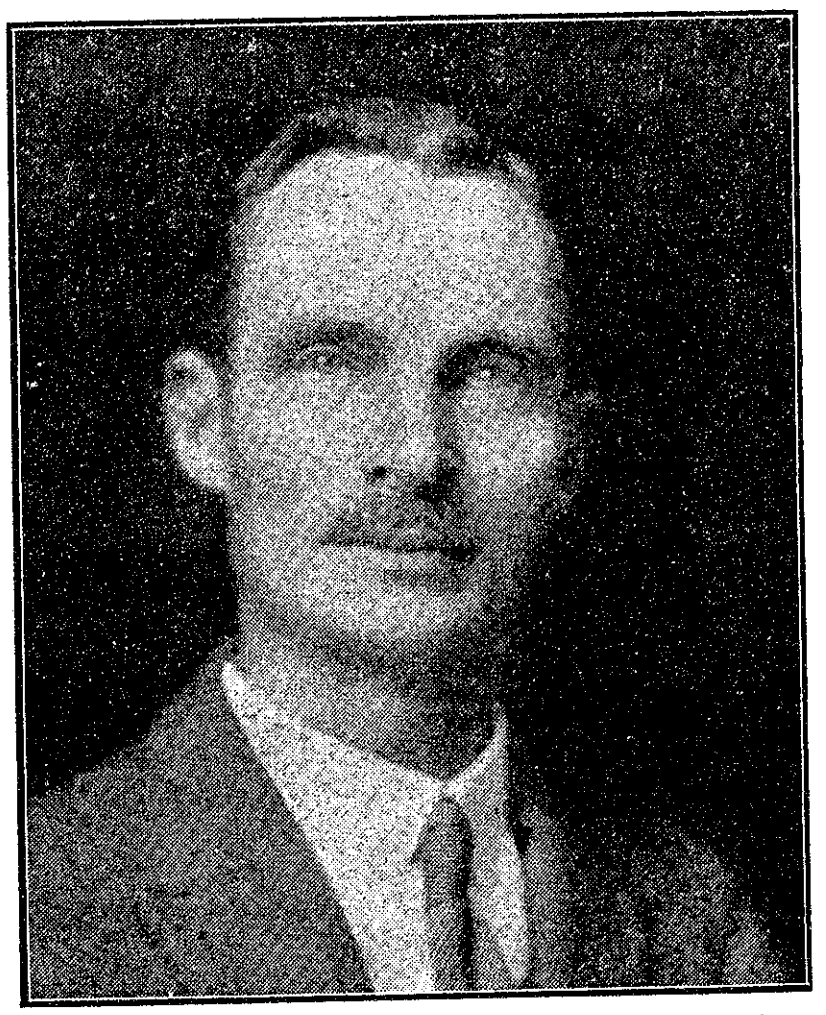
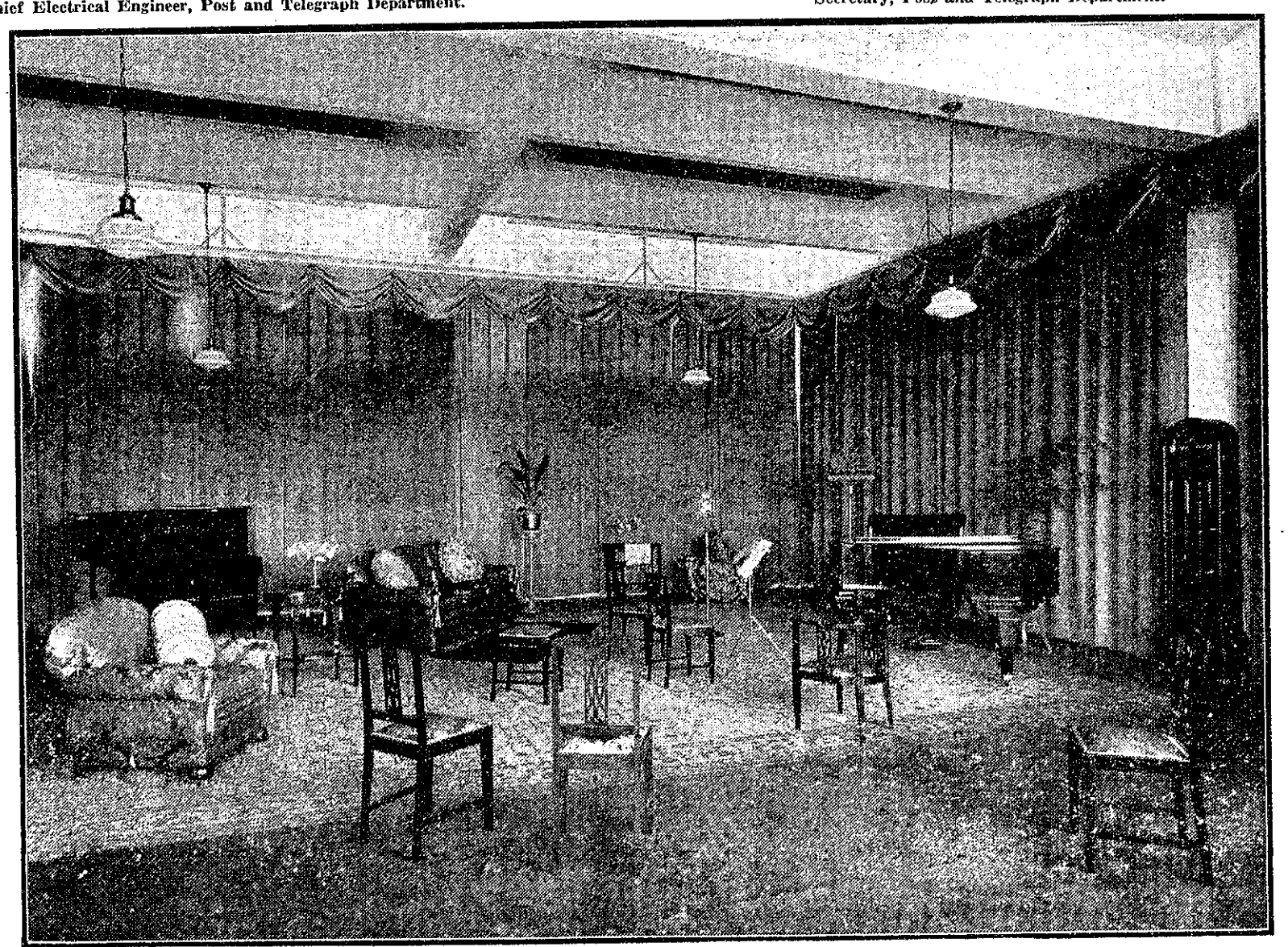


—S. P. Andrew, Photo.

MR. A. GIBBS.
Chief Electrical Engineer, Post and Telegraph Department.

—S. P. Andrew, photo.

MR. G. MACNAMARA.
Secretary, Post and Telegraph Department.



INTERIOR OF THE 3YA STUDIO, CHRISTCHURCH; A HANDSOMELY DECORATED ROOM.

Home of 3YA Christchurch

High Standard of Efficiency and Comfort

Towering Masts Dominate City of the Plains

In this issue, by word and picture, we feature the Christchurch station, 3YA. In regard to both equipment and studio appointments, everything is of the best. Compared with 2YA there is a contrast in power and style, but not in quality. A glance at our illustrations will show the type of building in which 3YA is located. The headquarters of the company is also in Christchurch. The Broadcasting Company's business occupies the whole of the top floor, most of the third, and part of the second. The equipment throughout has won high praise from visitors, one of whom, with British experience, recently averred that there were no better features in overseas stations.

Though not as powerful as 2YA—which is the second most powerful in the British Empire—Canterbury has a very up to date station in 3YA. It is only five months since the opening ceremony took place, so the station equipment is still the last word in efficiency, and visitors from overseas, who have seen the station of 2LO (London) and others, declare that they have seen nothing better that the appointments of the studio in Christchurch. It is a station of which Christchurch is proud. Not only does the station serve Canterbury and other parts of the South Island admirably, but it is also heard particularly well in the North Island, notably along the East Coast, Bay of Plenty district, etc.

A SELF-CONTAINED STATION.

There is one striking difference between 2YA and 3YA. The Christchurch station may be described as self-contained, for the studios and transmitting plant are under the one roof, whereas in Wellington the studio is in the city and the transmitting station is on Mount Victoria. That, of course, is necessary in the case of Wellington because that city is surrounded by high hills and the power of the station would be largely discounted were it transmitting from the city level. Christchurch, however, is entirely different. It lies on a plain, the nearest hills being miles away. So, right in the heart of the city, Christchurch has two lofty iron lattice-work towers which are a landmark for miles around.

WELL FURNISHED STUDIO.

There is nothing awe-inspiring in a visit to a broadcasting studio. It is like walking into a comfortably furnished drawing room, with grand piano, gramophone, artistically shaded standard lamps, easy chairs and chesterfields. There seems to be no mechanical apparatus such as one would associate with wireless broadcasting. The only things of such a nature are the microphones, and these are very inconspicuous. The necessary mechanism and machinery are just out of sight and sound on the floor above.

The studio, lounge, and smoking room are furnished with taste. The studio is on the fourth floor. Entrance is gained through sound-proof doors.

The studio calls for special mention. It is furnished throughout in Jacobean style and is draped to a height of fifteen feet with rose pink chenille hangings, with skirtings of silver frieze, the purpose being to secure the best acoustic conditions for broadcasting.

The furniture is of rosewood and harmonises beautifully with the colouring of the draping and of the carpet. Both ceiling and floor are padded. In this respect, 3YA studio contrasts with 2YA, where padded panels on the walls take the place of the curtains in 3YA, and the roof of 2YA, being pitched, is not padded.

THE LOUNGES.

Adjoining the studio on one side is the ladies' lounge and the control room. In the walls of both are large plate-glass, sound-proof, windows, which permit of complete observation of the working of the studio. This observation makes the evening more interesting for the artists who are waiting their "call" and it is essential to the announcer in the control room. The whole operation of the station is controlled from this room, which is in direct communication with the operator in the transmitting room on the floor above. In front of the announcer is a switchboard which enables him to control the microphones in the studio and to connect up with any of the telephone lines to theatres, churches, football grounds, and elsewhere for relay purposes. From this room the news of the day, market reports and other items are given out.

COMFORT OF ARTISTS.

The comfort of artists has been given special attention. Adjacent to the studio are the ladies' lounge and the gentlemen's smoking room. Both are most artistically and comfortably furnished. A loud-speaker is provided, so that the artists, as they wait their call, can see, through the plate-glass window, and hear, by means of the loud-speaker, all that transpires in the studio. As in 2YA, plate-glass partitions are a feature of 3YA By their means everyone can see from one end of the building to the other. Plate glass windows between rooms are a distinguishing feature of New Zealand stations.

LADIES' LOUNGE, CHRISTCHURCH STUDIO.

THE MECHANISM.

On the fourth floor is the Western Electric 500-watt transmitter, the heart of the broadcasting mechanism. It delivers 500 watts of radio frequency energy to the antenna system. The plant consists of what is known as the speech input apparatus, which includes microphones and amplifiers, etc., the transmitter, a motor generator, and the power panel. Four 250-watt valves are employed, two being used as modulators and two as oscillators. A 50-watt valve serves as a speech amplifier.

The microphones are so constructed that they will operate satisfactorily at a distance of several feet from the source of sound. They transmit faithfully every gradation in tone of speech and music. These "mikes" are so suspended by springs that mechanical vibration which would otherwise affect the clarity of the sounds transmitted, is reduced to a minimum.

The aerial is at a height of 150 feet. It is of the flat top, inverted L type, with four wires, having a multi-wire counterpoise beneath. One tower stands on the roof of the four-story ferro-concrete offices of Messrs. A. R. Harris and Company, and the other tower has firm foundations in the earth.

COMPARED WITH THE B.B.C.

One of the most recent visitors to the studio of 3YA was a lady who had been on the staff of the B.B.C. for three years. Save that the London station was larger—there being some nine studios—the appointments were not as good as she saw at 3YA. She saw at 3YA, too, for the first time in a broadcasting station, the large plate-glass windows in the dividing walls of the various rooms. She heartily approved of the innovation. In fact, she approved of everything that she saw at 3YA, for everything exceeded her expectations. Incidentally, she condemned the present Government control of broadcasting in Britain, contending that the cost of running the system had greatly increased but that there had been no commensurate benefit to listeners. It had not silenced criticism, there being as much as ever.

DETAILS OF THE ROOMS

Although not so large as the splendid rooms which accommodate 2YA in Wellington, the Christchurch studio is in every way extremely suitable for its purpose, the whole building having been very carefully designed to secure the maximum efficiency in transmission and comfort of the performing artists. As compared with 2YA, it has the advantage of contiguity between the studio and the transmission, the lines being on top of the building specially built as the home of Christchurch broadcasting

THE STUDIO.

The studio is a handsome room of approximately 40 feet in length by 30 feet in width. It is draped with rose chenille, with a silver frieze round the top. The floor is covered with an attractive fawn carpet, slightly tinged with rose colour; and the furniture strikes a distinctive note, being fashioned of rosewood and upholstered in black and silver damask. A full Chesterfield suite graces the studio, which also contains a grand piano and gramophone. Standard lamps, with rose-pink shade, and a few graceful silver vases, complete the equipment of the studio. A large plate-glass window, in three sections, and moveable, separates the control room from the studio. Full vision of the studio is thus given the operator, and the moveable sections permit of direct instruction being given. A complete glass window is also placed between the ladies' lounge and the studio, so that the waiting artists can see the progress of the programme.

LADIES' LOUNGE.

The ladies' lounge is a beautifully decorated and cosy room of 18 feet x 15 feet It is upholstered in blue and grey, the same colour scheme being carried out in the carpet, while the furniture is in grey reed-loom, with attractive covering of blue and grey silk shadow tissue. Cushions in silken texture of blue and grey, with curtains of fawn repp, complete the reposeful effect of charm and comfort, while a few pieces of Dutch pottery in dull blue add a decorative note of colour The French polished tables and chairs, in the prevailing tone of grey, are quite in the picture; and great plate-glass windows give a view of both studio and main smoking lounge. This latter is slightly larger than the ladies' room, being 18 feet x 18 feet.

All the rooms are separated by steel partitions, painted white, topped with plate-glass, giving a wide range of vision throughout the suite of rooms. The smoking-room is in Jacobean style, with multi-coloured carpet. The Jacobean furniture includes a monk's table and fawn velvet chenille suite, with cushions of blue and fawn velvet, a delightful ensemble being completed by a Jacobean standard lamp shaded in rose, and fawn repp curtains. The walls are decorated with a Royal deer, and some coloured pictures of New Zealand scenery.

TECHNICAL DETAILS

(By J. M. Bingham, Assoc. M.I.R.E.)

Although 3YA, Christchurch, was not the first of the Broadcasting Company's stations to be erected, it seems a fit and proper thing that, as Christchurch is the home of the head office of the R.B.C., that a description of 3YA should follow that of the big station 2YA. Before proceeding further it may be as well to explain what all this "YA" business is about. Many listeners-in, particularly the newly fledged ones, are unfamiliar with the Government regulations, which came into being some years back. These

regulations are still in force, and under different phases of radio communication. However, it should be sufficient to state that all licensed transmitting stations shall have calls consisting of a numeral followed by two letters, and, in the case of broadcasting stations, the first of these letters shall be a "Y." The numeral part denotes the district. Thus, Auckland is the first district, Wellington the second, Canterbury the third, and Otago the fourth "8YA," therefore, denotes the broadcasting station in the third, or Canterbury, district

THE TEMPORARY STATION.

Before the present station came into being there was in Christchurch a small 50 watt station, designed and constructed by the R.B.C., but which was run as an amateur station by the Radio Society of Christchurch, under the call sign of 3AC. This station, though only of low power, gave a reasonable service to Christchurch listeners, and served in some measure to keep the ball rolling till the present 8YA took the air in September last. Immediately after the opening of 1YA the writer rushed post haste to Christchurch to commence the installation of the 500-watt transmitter which was waiting there in cases, having been ordered and delivered at the same time as the Auckland station. It was decided that the first location of the station and studio should be only of a more or less temporary nature, in view of the fact that the A. R Harris Company's premises, which were eventually to house the station, were only in course of construction A large hall in Hereford Street, which had previously done duty as a dance hall, was converted into a temporary studio and connected by land line with the transmitter, which was erected in a galvanised iron shed at the rear of the A. R. Harris Company's property in Gloucester Street. This temporary arrangement worked exceptionally well, and was used right up to the time of the change over to the new building. While the building was in progress the opportunity was seized for making every provision for the future installation of the station. All the necessary conduits were fixed in position, wires were drawn in, lugged, and labelled, and everything got in readiness for the change over. At last the time arrived for putting in the permanent installation. All the equipment was lifted up to the room built to receive it, and placed in position. The work of connecting up occupied only a few days, and the station was then ready for the official opening.

THE STUDIO EQUIPMENT.

The studio is located on the third floor of the A. R. Harris Company's building, and was specially designed for the purpose, having walls approximately 15 feet high. Adjoining the studio are the various lounges and the control room. The lounges are described elsewhere, but the control room is worthy of explanation here. It consists of a long, narrow room approximately .14 feet by 5 feet, and looks into the studio through a large plate-glass window. Along one side is a bench, which holds the various control equipment for connecting to relay lines, microphone switching, and signalling to the transmitting room on the roof. The studio is wired to take duplicate microphones, and by suitable adjustment of controls it is possible to use either one of two microphones, or to bring both microphones into service, in order to obtain any desired degree of balance.

The control room also has a microphone for the announcer, and a loudspeaker for checking up on the transmission. This loudspeaker is so arranged that when announcements are being made the speaker is automatically cut out to prevent "howling back" into the microphone.

MICROPHONES.

On account of the rugged nature of the carbon microphone, this type is used almost exclusively. There is, however, a condenser microphone in the studio, but this is used only on special occasions, as it is a very touchy, though high-grade, piece of apparatus.

THE TRANSMITTER.

The transmitter is located in a specially built room on the roof of the building, and consists essentially of four pieces of apparatus. The motor generator, power plant, transmitter, and speech input equipment. The motor generator set consists of three units: a 5-h.p. three-phase motor, directly coupled to a 1600-volt generator for plate supply, and a 16-volt generator for filament lighting. The whole generator unit is fixed to a concrete bed, set on rubber, which very effectively prevents any noises being communicated to the rooms underneath. The motor generator set is contained in a partitioned off portion of the transmitter room, this portion also containing the battery charging apparatus and the Edison A and B battery sets, which are used for the amplifier equipment.

SPEECH INPUT SYSTEM.

In the larger portion of the transmitting room are the other three units. On the right is the speech input equipment, which consists of a rack on which are mounted the various meters, amplifiers and switches for keeping check on and controlling the music which is picked up by the microphones in the studio. This equipment is of a highly important nature, as it is here that the minute currents delivered by the microphones are amplified to an extent sufficient to modulate the transmitter. On the main or "8B" amplifier is mounted a "gain" control, by means of which the operator regulates the volume level of the amplified signal. Immediately above this amplifier is also another amplifier, but this one is used merely to operate a loud-speaker for keeping an accurate check on the quality of the transmission. By means of a small key switch it is possible to connect the loud-speaker directly into the radio, transmitter or on to this amplifier, and by changing alternately from one to the other, comparisons can be made between the signal going in to the transmitter and the signal going out of the transmitter, and observations made to see if there is any distortion actually occurring in the transmitter itself.

THE TRANSMITTER.

Immediately alongside the speech equipment is the transmitter proper, consisting of the filter system, oscillating, and modulating circuits, and aerial tuning system. The valves employed consist of two oscillators, and two modulators, each of nominal rating of 250 watts capacity, together with a speech amplifier valve of 50-watt capacity. The oscillating circuit consists of a modified three-coil Meissner capacitively coupled to the aerial through circuits designed for the suppression of harmonics.

The output from the speech equipment is first applied to the 50-watt amplifier valve, and the output from this is passed to the two modulators, which are coupled to the two oscillators by the Heising system. On the front of the transmitter panel are meters for observing the functioning of the various circuit and dials for the tuning controls.

Immediately to the left of the transmitter is the power panel, for controlling the power applied to the different circuits. On the front are meters, rheostats, and push-button switches. The whole of the operation of starting up is performed by push-buttons, the application of power to the various circuits being automatically controlled in their proper sequence by relays within the power panel

THE AERIAL.

The aerial system is swung between two steel towers, one of 104 feet height, erected on the corner of the building, and the other of 151 feet height, erected on the ground at the rear of the building. The aerial is of a four-wire flat top, "L" type, directional north-north-east.

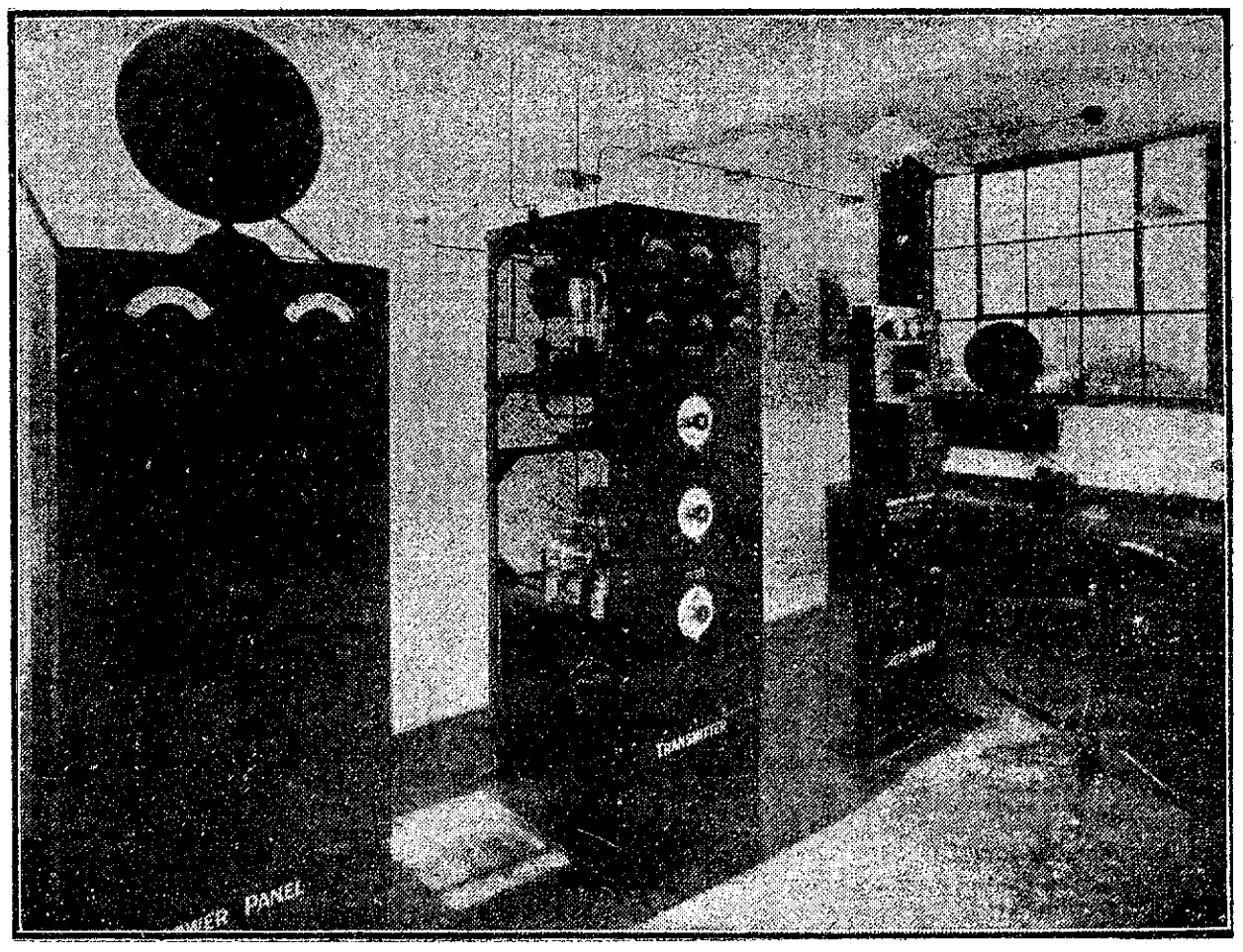
Taking all things into consideration, 3YA is, perhaps, the most conveniently equipped station of all the R.B.C.'s stations, as it is the only one where both studio and transmitting room are located adjacent to each other, and the company is justly proud of this station.

Attractive Studios in Christchurch.

Artistic and Harmonious Effect.

The thoroughly artistic and striking nature of the furnishing and equipment of both the Christchurch studio and the Wellington studio stands to the credit of Mrs. J. M. Bingham. With excellent taste, Mrs. Bingham has achieved an effect in each case that is attractive, harmonious, and creative of an atmosphere of restfulness and comfort. Under such conditions the performing artists can give of their best; and in this sense the artistic taste displayed throughout constitutes a permanent asset to the efficiency of broadcasting in general. The labour, taste, and judgment involved in the equipment of the two studios have been outstanding, and the result stands as a tribute and credit to Mrs. Bingham.

SMOKING LOUNGE OF THE CHRISTCHURCH STUDIO.



TRANSMITTING ROOM AT STATION 3YA.

RADIO'S FUTURE

A MAYORAL VISION

CAPACITY FOR SERVICE

The Rev. J. K. Archer, Mayor of Christchurch, is interested in radio broadcasting from the civic point of view. As a service supplementary to the success of broadcasting he was specially interested in the first number of "The Radio Record."

"The first issue of your paper," he said, "is in my judgment a complete success. The illustrations and general production are attractive, while the letterpress is exceedingly readable. Not being the possessor of a wireless reception set, I cannot give any testimony of practical value as to the articles dealing with the technical side of broadcasting, but perusal of these articles suggest that they must be of great service to possessors of receiving sets.

"As to radiology itself, there can be no doubt that it is of immense service to the public and will become increasingly so as time advances. Even to dwellers in large centres of population, with their numerous opportunities for attending concerts, picture theatres, and other forms of public entertainment, it must be a real boon, while to those resident in outlying areas it must be of almost incalculable benefit. It brings them into touch with the centres of population and makes available for them all current activities and enjoyments. To the aged and infirm everywhere, who are unable to leave their homes, it brings if not a new lease, yet a new enjoyment of life.

"If one were to venture upon a criticism it would be that some of the people—whether singers, reciters, preachers, or musicians—whose contributions to programmes are broadcast, overstrain their voices as though they were trying to make people hear at long distances without the assistance of the apparatus. This has several undesirable effects, one of which is that the overstrained voice loses some of its carrying power, and another that there is a distinct loss of pleasure for listeners-in. I have had at least two personal experiences of this nature. Some months ago whilst convalescing I had the opportunity of listening-in at a long distance from Christchurch, and everything was most enjoyable except that the loudness of the voices of the speakers and singers proved somewhat tiring.

"What the future of radiology will be no one can with safety prophesy. Its possibilities, however, appear to be immense. It is hoped that those who are in charge of it for this Dominion will adhere to their present plans of distributing many types of programmes and the best of every type. Through the air the public desire to get educative and inspirational matter as well as entertaining. In this way the interest of every class of person will be secured and maintained and the whole community will be benefited."

CHILDREN'S SERVICE

SUCCESSFUL INNOVATION

An innovation which is likely to be generally approved was introduced at 3YA on Sunday evening last, when a service for children was broadcast from the studio for half an hour before church time. Some of the members of the juvenile choir of the Edgeware Road Methodist Church, under Miss Rapley, supplied the music, and the children's voices were delightful.

Afterwards the service at Sydenham Baptist Church, where the Rev. J. K. Archer is the minister, was broadcast. Mr. Archer has a good radio voice, and he preached a powerful sermon on the Crucifixion.

A special sacred concert followed, the soloists being some of the best broadcasting artists in Christchurch.

RADIO ON FARMS

The increase in the use of sets on United States farms shows a tremendous jump from 10,000 in 1922 to 1,350,000 in 1926 at the close of the year. Exports from the United States in radio apparatus increased from 2,800,000 dollars (£560,000) in 1922 to 8,500,000 dollars (£1,700,000) at the close of 1926.

The saturation comparison with other industries to date is as follows: Number of homes in the United States, 26,900,000; phonograph, 11,000,000; passenger automobiles, 18,000,000; telephones, 17,000,000; homes wired for electricity, 15,900,000; farms, 6,370,000; homes without radio sets, 20,300,000. The radio saturation totals 24 per cent., showing that more than three-quarters of the United States is still a potential market for broadcast receivers and the necessary accessories.

A census of United States radio manufacturers reveals 2550; wholesalers and distributors, 985, and retailers, who carry a complete stock of sets and accessories, 20,000. During 1922 there were 8500 dealers; the peak was reached in 1924 when there were 45,000, but since that time they have been reduced so that 20,000 was the number of dealers in the United States when 1927 arrived.

THE NEW ZEALAND

Radio Record

PUBLISHED WEEKLY.

Printed Tuesdays to permit of effective distribution before the week-end, with full copyrighted programmes for the succeeding week. Nominal date of publication Friday.

LITERARY MATTER.

All literary matter and contributions must be addressed to the Editor. If the return of M.S. is desired, enclose 1d. stamp.

SUBSCRIPTION RATES.

Rate of Subscription: Single copies, 3d.; Annual Subscription (if booked), 12/6, post free; nominal rate, cash in advance, 10/-, post free; special immediate offer for prompt acceptance, 7/6, post free, paid in advance.

ADVERTISING RATES.

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

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

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

A. J. HEIGHWAY,
Managing Editor,
"The N.Z. Radio Record,"
P.O. Box 1032.
WELLINGTON.

WELLINGTON, JULY 29, 1927.

COPYRIGHT MATTERS

One aspect of broadcasting which has occupied a considerable amount of attention on the part of the authorities since its inception in New Zealand is that of copyright and, associated with it, royalties. The difficulty in dealing with the copyright issue has not been apparent to the general body of listeners, but it has unquestionably added to the difficulties of the company and the authorities in placing radio broadcasting in the Dominion upon as satisfactory a basis as possible. The general body of listeners will, we think, peruse with interest the very comprehensive and masterly treatment given to the subject of copyright in a special article elsewhere in this issue. This sets out the legal aspect of the matter. The copyright law, rightly enough, seeks to protect the author of a musical or artistic work in respect of his rights and earnings, but in so far as broadcasting is concerned it would seem to have carried that desire for protection to a point which may impose a certain amount of disability upon the general public. All authors of musical and artistic work have copyright of those works whether registration is made thereof or not. That copyright obtains during the life of the author and for a period of 50 years thereafter, and if reproduction of the work is desired by anyone, it is entirely within the right of the author or the holder of the copyright to cede the right of reproduction or refuse it. The fee chargeable for the right of reproduction is entirely within the discretion of the author or his nominee—there is no outside authority which can arbitrate or have any influence whatever upon the size of the fee demanded.

The development which has accentuated the difficulty in Australia and New Zealand has been the formation of an association designed to protect the rights of authors. To those general objects in themselves no objection can be taken, but as the article ably points out, there is a feature in the legislation which calls for consideration in relation to protection of the general public. At the time the British legislation from which the present position has arisen was passed, broadcasting was in its infancy, and no one foresaw the extent to which it would grow. The manufacturers of instruments for the mechanical reproduction of music, however—pianolas and gramophones—were fully alive to the danger presented to themselves by the owners of copyright being at liberty in respect of works of national importance to arbitrarily impose any fee whatsoever, and so limit their capacity to reproduce these works in the public interest. They were therefore able to have provision made that, where agreement as to the amount could not be reached, a statutory minimum copyright fee should be paid.

Some such legislation is required in relation to broadcasting. As things stand, the Copyright Association has it entirely within its discretion to impose any fee whatsoever, individual or comprehensive, in respect of works desired to be broadcast. Arising out of that position, the New Zealand broadcasters have been compelled to meet the requirements of the Copyright Association. Listeners will appreciate the factors of the position as it stands as affecting their interests, and will, we think, also appreciate from this explanation the degree of investigational work and negotiation which has been undertaken by the Broadcasting Company in the protection of listeners.

* * * *

The opening of 2YA has aroused considerable interest right throughout the country. The indications definitely are that a new wave of interest in radio broadcasting is arising. This will steadily grow in volume as the organisation in respect of the service side is matured. Comprehensive arrangements are in hand for the steady development of an era of better and fuller programmes. Afternoon sessions, calculated to appeal particularly to the women in the home, are well under way, and will be put on the air in the very near future. These will embrace subjects of particular interest to women in the home, and will serve to place them in full touch with the world in all those features that specially appeal.

* * * *

We are pleased to be able to say that our initial number has evoked widespread favourable comment. This favourable reception is being accompanied by a steady inflow of subscriptions, for which we desire to extend our thanks. The policy of service upon which we have embarked can only be carried to its fullest point by our journal being placed in the greatest possible number of listeners' homes. The subscription has been based upon the lowest possible level—in fact, below the paying point until the circulation grows to a high figure. As indicated in our first number, it is the desire that the journal shall serve all interests connected with radio broadcasting—be the avenue, not only for the programmes of the Broadcasting Company, but for the point of view of listeners themselves, the record of their receptions, suggestions, and even complaints, and also as the medium for contact between the public and the traders who desire to serve the general body of listeners with efficient and modern equipment.

CONGRATULATIONS!

EXPECTATIONS EXCEEDED

GOOD-WILL FOR FUTURE.

Mr. A. Markman, who was Secretary to the Post and Telegraph Department when the Radio Broadcasting Company of New Zealand, Ltd., was formed, and who retired from that office in November, 1926, sends the following message of congratulation and good-will:—

"Following on the opening of the Wellington Broadcasting Station with an output of five kilowatts supplied by the Western Electric Company, and to be known as 2YA, I would like to take the opportunity of congratulating the New Zealand Radio Broadcasting Company on showing enterprise in erecting and opening a station of such magnitude.

"It will, I feel sure, prove of greatest service to everyone interested in wireless. During the earlier stages of wireless broadcasting in New Zealand many difficulties had to be overcome.

"I feel sure that considering the geographical situation of the Dominion and its comparatively small population, every reasonable effort has been made to build up an organisation which before very long should satisfy the very large majority of enthusiasts.

"The number of licenses of all classes issued during the present year is, I

—S. P. Andrew, photo.

understand, in the vicinity of 21,000. I must admit that this number far exceeds the estimate I ventured to make during the year 1925 when occupying the position of Secretary to the Post and Telegraph Department. This underestimate on my part probably goes to prove that the service the New Zealand Broadcasting Company has since rendered to listeners has been the means of creating a source of education, information, and amusement, with the consequent increase in the number of licensed listeners and dealers.

"It only remains for the company to see that the best talent is secured, while at the same time listeners should realise that the selection in New Zealand is somewhat restricted when compared with other countries of considerably greater population. If the company, the Government, and the listeners will view the situation from each other's point of view and realise the difficulties to be met on all sides, I feel confident that broadcasting will be carried on with satisfaction to all concerned."

Random Philosophy

Dead yesterday and unborn tomorrow,
Why fret about them if to-day be sweet?
—Omar Khayyam.

Do to-day's duty, fight to-day's temptation, and do not weaken or distract yourself by looking forward to things which you cannot see, and could not understand if you saw them.
—Charles Kingsley.

To-morrow is that lamp upon the marsh, which a traveller never reached.
—Martin Tupper.

To-day is yours. To-morrow —
—Anon.

To-day is thine to spend, but not to-morrow;
Counting on morrow breedeth bankrupt sorrow;
O squander not this breath that Heaven hath lent thee;
Make not too sure another breath to borrow.
—Omar Khayyam.

To-morrow, and to-morrow, and to-morrow;
Creeps in this petty pace from day to day,
To the last syllable of recorded time;
And all our yesterdays have lighted fools
The way to dusty death.
—William Shakespeare.

The last day is hidden, that every day may be regarded.
—St. Augustine.

ON THE WATCH TOWER

--- *Social, Political, and Economic Notes.*

By Observer

A SURVEY OF THE NATIONAL BALANCE

At the present time New Zealand, economically and perhaps politically and socially as well, is at the parting of the ways, and at one of the turning points of her development. The situation is very interesting, and illustrates to how great an extent, at the present time, our prosperity is moulded by outside influences, notably the world price level. This is because of our extreme dependance upon foreign markets for our exports, which are vital to our economic existence along present lines, since it is by them that we pay the cost of our large and varied imports, and the interest on our huge and growing national debt. New Zealand is like a man with an undeveloped outlying farm. He is borrowing lavishly to improve it, some of his improvements not being very necessary, wise, or likely to be fully productive in the future, while he is also enjoying all the luxuries the world can afford. These commitments he meets by sending abroad the produce of his farm, balancing the deficit by adding it to his debt. Incidentally he is a rather shiftless and inefficient person.

OUR WANTS HIGHLY DEVELOPED

Rightly or wrongly New Zealand desires roads and bridges, railways and smooth boulevards, ferries and harbours, hydro-electric power, telephones and telegraphs, and many other conveniences, some of which are so necessary that it is admittedly justifiable to mortgage the future to some extent to secure them, others being plainly extravagant in our existing stage of development. These things we cannot afford to pay for out of our own savings; indeed, we are a very spendthrift rather than a saving people; but we do pay for them out of the savings of other people, mainly our British kindred, by borrowing part of their accumulated capital on public account. There is no favour in this They would not lend to us unless it suited them economically to do so, but there is a general opinion in Britain, and a growing opinion here, that we borrow too much for public purposes.

In addition, New Zealand wants motor-cars and their expensive accessories, movies and gramophones, champagne and fur coats, whisky and tobacco, and she wants a lot of them. To satisfy these wants we import from abroad, and we send in payment the products of our land, which constitute almost the whole of our exports. It is obvious, therefore, that our prosperity must depend directly on the comparative price levels of our exports and imports, in conjunction with the rate of interest on our borrowings. If export prices rise relatively to import prices, that is, if the prices of primary produce rise relatively to the prices of manufactured commodities, or fall less than those of manufactured commodities, it is to our advantage, and vice versa, since we should be getting the same volume of imports for a less volume of exports, and vice versa. Unfortunately in recent years the tendency has been for manufactured prices to be firmer than primary produce prices. Similarly, if primary produce is high in price, then we have so much the less volume of our exports to part with in payment of interest, and vice versa.

Our prosperity is thus directly dependant on the market for our exportable produce. As it unfortunately happens, such prices have tended to fall relatively to other prices, and the rate of interest has tended to rise. This accounts in great measure for the present straitened condition of the Dominion.

EFFECT OF OUTSIDE FACTORS.

It is important for our people to understand that the causes of our prosperity lie mainly overseas, and are to a considerable extent beyond our control. We cannot modify these factors, and we therefore have to adjust ourselves to world price movements and shape our requirements accordingly. If we carry over the habits permissible in a period of prosperity into leaner times, then we can look for trouble with the certainty of finding it Trouble, in fact, is about the only thing you are perfectly sure to find if you look for it, and often you cannot avoid it even if you carefully refrain from seeking it out. None of our younger generation can now remember hard times in New Zealand, since the last generation has lived through a period of steady and assured prosperity, so that it is perhaps not unnatural that many people should imagine that prosperity to be eternal. Things, however, have not always been so. From the early seventies until the middle nineties of last century there was a general downward trend of world prices, accompanied in New Zealand by considerable hardship, but from the end of that period up to a year or two ago prices trended steadily upward. These lengthy price swings take about a generation to work out, and then the pendulum swings back. The reason for the movement has never been satisfactorily explained, but it is clearly marked for the period, about a hundred years or so, of which we have reliable records.

All the indications, however, now point to a period of falling prices; not a catastrophic drop, but an average moving slowly downwards. This will, it is true, mean lower prices for our imports, but it also will mean lower prices for exports as well; and that, in conjunction with the increase both in average interest rates and the volume of our public debt, means that we shall have to curtail our expenditure and improve our income unless the standards of living are to be rather seriously affected. The standards of living of some of our people, notably the farmers, have already been forced to some measure of adjustment: it is only a matter of time, if things go on in their present trend, before others will have to adjust themselves as well. This will not do much real harm, since much of the expenditure of our people is for pleasures of a poor ethical content that could be dispensed with without much real curtailment of satisfaction or efficiency.

We must face the fact that export prices, the sources of our income, in the main, are dropping, that money is harder to borrow, and that unemployment, though not great in volume, is persistent to an extent not known in New Zealand for over a generation. These are signs of the times.

WHY IS WORKING CAPITAL SHORT.

As it happens we have been for many years living, economically speaking, and perhaps in other respects as well, in a fool's paradise. Such a paradise is a pleasant place of abode, as long as it is habitable, but the roof is now leaking badly. We have made singularly little provision for the future; we have been a spending rather than a saving people. Of course many people have saved, and saved considerable capital, but when one considers the resources in the way of borrowed money and goodly revenue for exports that we have enjoyed for so many years, it must be admitted that there has been overmuch consumption, and that much of that consumption can now fairly be regarded as wasted. We seem to be bare of working capital, and much of the capital that we have borrowed from abroad has not been expended wisely or productively, but rather has been frittered away in duplicated works, in works that do not pay their way and therefore have to be subsidised, either out of taxes or fresh borrowings, in works that are an extravagance at our present stage of development, and in works that are competing with one another and thus lowering the aggregate productivity of the investment.

The borrowing policy up to a point, has been sound; we were justified in anticipating the future to some extent, but the ease of borrowing has tempted us, and other oversea Dominions, into much wasteful expenditure that is now a source of economic embarrassment. It has tempted us to think in big figures, and we have slowly been led along until we have a load of debt that is a considerable burden. Not all or indeed most of this is dead weight debt, but much capital borrowed on public account for developmental pur-

poses is not fully productive or meeting its cost, and the trend in this direction has been accelerated in recent years. That the Government feels this to be so is plain from speeches in the House, from the curb placed on local body borrowing last year, and from the emphasis which the Ministers put on the need to check further borrowing.

ARE WE TOO MOLLY CODDLED.

It is further open to question whether our easy money period has developed in our people the right morale. We are accustomed to receive from others, and pay ourselves somewhat extravagant compliments, but do we deserve them? Our people are of good quality, comparatively enlightened, clean in body and mind, and good tempered and upright. There is very litle bitterness or corruption in either private or public life, but are we industrious and self-reliant, are we confident with the serenity that comes from achievement and understanding? To ask these questions is, unfortunately, to answer them. We have overdeveloped the paternal powers of the State, and allowed it to coddle us until we have become pathetically dependent on the community and entirely without self-reliance as individuals.

It is disquieting how every interest, every industry, and many individuals rush to the State for assistance in matters that have always been held to be the job of the individual himself. If we want to send athletes abroad, or build a new house, or get a problem investigated we run to the Government. It is also disquieting to find how every industry runs to the State for protection, and to find, also, how members of Parliament are prepared to grant that protection as a matter of course. Doubtless this is partly kindness of heart, and partly self-importance on their part, but what shall be the end of a country in which all industries run to the Government for protection, avowing that independently they cannot stand?

At the moment the gold industry, the timber industry, the wheat growing industry, and a host of small manufacturing industries are clamouring for protection. How can they all get it? Can we carry on if our industrial life is to become parasitic upon State bounties to a considerable extent?

WHAT IS THE MATTER WITH LABOUR?

We find also that the parties to our economic life are unable or unwilling to settle even their own internal affairs. No country has done more for the working man than has New Zealand, and yet we find Labour pampered, sulky and discontented, and demanding maintenance en masse from the community. Neither employers nor men are willing to assume responsibility for what is peculiarly their own affair, the internal conduct of industry. This is shunted on to an artificial body, the Court of Arbitration, because the parties lack the ability or will to settle their own disputes, as they do in other more responsible communities. In this way both employers and employees are shielded from the embarrassing but healthy competition of new men and new methods, and the dead hand of bureaucratic uniformity is placed upon the flexible system of industry with paralysing effect.

We have been poor-spirited enough to buy freedom from industrial difficulties at the heavy price of industrial inefficiency. We have an uneconomic wage level divorced from standards of production, protected by the fiat of the Court, made possible by excessive protection to inefficient industries, and falling with a heavy impact upon the unprotected people outside, mainly primary producers and the commercial and professional classes.

UNFAIR TO FARMERS.

The effect of this on the farming classes is such as to arouse their just resentment, and to cause vigorous complaint from the primary producers at the present time. They are exposed to the full blast of world competition, and the atmosphere in which they have to work is perhaps over-bracing. They cannot pass on to their foreign purchasers additional cost due to the protection of industry and labour at home upon an uneconomic level. Supply and demand get them in what they buy, but do not aid them in what they sell. If they want capital they pay the economic rate for it, and that rate is now high. They sell in an unprotected market, but buy many commodities and services in a market heavily inflated by artificial protective expedients of every kind. They are, in effect, subject to a special tax for the benefit of labour and capital generally in our manufacturing industries Crushed between the upper millstone of a declining world price and a high rate of capital on the one side, and the nether millstone of artificially high wages and commodity prices in the Home market on the other side, their plight is made the more unenviable because of the fact that higher rates for capital and lower primary produce prices are forcing down the value of land, but not affecting the weight of mortgage. Inefficiency in other aspects of our life is bolstered up and sheltered at their expense.

BREATHING SPACE FOR FARMER NEEDED.

What is urgently wanted in this country at the present time is more breathing space for the primary producers. While they are not, as a class, in extremis, there is no doubt that their present position is far from enviable, and in particular it is difficult for them to get the capital necessary to improve their land and methods of production, and thus increase output, which seems to be the only way to increase the national income, since we cannot control the world price, and should not attempt to do so. There is little chance of increased production from New Zealand lowering world price levels to any extent, because our contribution to world supply is relatively small, and the market for primary produce is indefinitely expansible. Our correct policy is to produce all we can at the world price level.

As land values become stabilised, and that point is approaching, the position will become easier, though many individuals will suffer, and

it is greatly to be hoped that much of the capital that hitherto has been attracted to more or less dubious local body ventures may be induced to flow towards the land.

Considered schemes of long term credit, on the mortgage bond system, should establish themselves without much difficulty for investors in New Zealand, and it is urgently necessary, in the interests of our national safety, that they should, and that without delay. Unless our farming is sound the country is not sound; and if we are to improve our land, which to a great extent is virtually unimproved at the present time, we cannot make much progress in increasing the volume of primary production and lowering costs. If only a fraction of the capital that is either wasted or uneconomically spent by private individuals or public authorities in the Dominion were diverted to the land we could soon place the rural life of the country on a sound footing. What is wanted is not artificially cheapened money to boost values and foster speculation, but loans on sound farms to working farmers at the proper ruling rates for capital. This is quite within the bounds of accomplishment.

A LITTLE LIST OF NEEDS.

The following, it would seem, are among the most urgent requirements of our country at the present time:—

(a) Less private extravagance and more saving.

(b) Less eagerness on the part of public authorities to rush to the pawn shop.

(c) Fewer uneconomic public works by the Government or the local authorities, and the utter abandonment of obviously unpayable works.

(d) The abolition of special priviliges to employers and workers by eliminating State fixation of industrial conditions, placing on the parties the responsibility for the conduct of industry.

(e) Greater economy in administration of the State and local body services.

(f) The elimination of overlapping agencies, whether educational, industrial or otherwise. No more duplication of harbours, transport agencies or educational establishments should be permitted. The whole problem of competing transport systems, i.e., road, rail and ship, should be carefully investigated and reported on by the experts of the State with a view to eliminating double service where advisable.

(g) A public opinion enlightened on the issues, and prompt to insist upon a revision of our national expenditure and policy in the light of the more difficult times we have now entered upon.

It is futile to blame Parliament or the Government. They may fail to give us a lead, but that is because they follow instead of leading public opinion, as democratic governments must necessarily do. The trouble with our rulers is not that they are unrepresentative, but that they represent too closely the ideas and wishes of the average elector, and he has been lulled by a generation of easy times into a point of view that is fraught with serious danger in face of present issues and problems.

Let us wake up, rub the sleep of artificial prosperity out of our eyes, start to think, and start to work. If we shake off feebleness and develop self-reliance we can tackle the problems facing us with a vigour that should give no ground for alarm as to the future.

STATION 2YA

IMPROVING THE LAND LINE

NEW EQUIPMENT ORDERED

With a view to improving the land line connecting the studio with the transmitting station of 2YA, and to provide the necessary monitoring and control facilities at the station, new apparatus has been ordered from America.

There is at present on order from America further plant for the improvement of the Wellington station. It relates to the land wire between the studio and the transmitting station on Mount Victoria. The tests showed the company that this line is not perfect for the transmission of music. Therefore, without delay, the company placed an order in America for the necessary equipment. American plant was chosen because delivery can be secured in approximately seven weeks, as against 24 weeks from London. The American price, it may be said, is several hundred pounds dearer than the British. The long delay in the delivery of the British apparatus is due to the fact that certain of the units would have to be designed and tested, whereas the Americans have specialised in equipment of this nature. So U.S.A. had to get the order.

The purpose of the equipment is to provide further amplification at the radio transmitter end of the circuit, on account of the attenuation of the connecting link between the studio and the transmitting station. There are a number of factors involved. The transmission level over the connecting circuit must not be too low, or the ratio of noise to signal will be excessive. On the other hand, it must not be too high, in order to prevent interference with adjacent lines. Further, all non-loaded cable circuits, unless very short, introduce considerable distortion, due to unequal attenuation of high and low frequencies. In order to correct this distortion equalisers are installed at the transmitter end of the circuit, and these equalisers reduce the transmission level, rendering it necessary to amplify the signals before passing to the transmitter.

The main components of the additional equipment are the amplifier referred to, with volume indicating equipment to permit of the attendant measuring and regulating the level of the received signals, the equaliser, and monitoring equipment.

EMPIRE BROADCAST

MUSIC FROM LONDON

A DEFINITE POSSIBILITY

Without fixing any term or time, there is yet a definite possibility that in the future the back-blocks of New Zealand will hear the world's masters broadcast from London. British authorities are installing a short wave station for Empire purposes. A short-wave receiver is being installed at 2YA. The possibilities of rebroadcast are there.

There has been a strong demand of late that the British Broadcasting Corporation should establish a high-powered short-wave station for Empire broadcasting. The Broadcasting Corporation has given way to this demand, and it announced recently that an area of land and suitable buildings were being obtained at Daventry, near the long-wave British broadcasting station, for the erection of a short-wave station for communication with other Dominions. A promise has been given that the short-wave station will be operating before the end of this year.

On Short Waves.

In announcing the decision to provide the short-wave station the engineers of the Broadcasting Corporation pointed out that a perfect service from it to the Dominions could not be guaranteed. Reception at distant points would be subject to fading and distortion, and the period daily in which it would be possible to receive signals from the station would be limited in accordance with the positions of daylight and darkness. No wave-length for the station has been announced, but it will probably be between 30 metres and 40 metres. The fact that the station will be built near the Daventry station shows that the relaying of the programmes from the London station 2LO is being contemplated, as much of the programme from Daventry consists of the relaying of programmes from 2LO.

Beam Possibilities.

An alternative to the erection of a special short-wave station for Empire broadcasting which is receiving attention in Great Britain is the possibility of using the beam wireless service for this purpose. It is pointed out that, apart from the large saving in cost which would be involved, the service likely to be provided by the beam system when it is fitted with the promised telephony equipment would probably be superior to that from a short-wave station not employing beam concentration. Manufacturers of wireless apparatus in Great Britain are showing much interest in the proposal, and as a means for creating markets for British wireless equipment in the Dominions it is likely that an Empire broadcasting service would receive a measure of financial support from manufacturers.

THE LISTENER'S VIEW

SOME CANDID COMMENT

JAZZ AND OTHER MUSIC.

Correspondents write freely to the various New Zealand stations expressing their approval and otherwise of different items in the programmes. We quote just a few excerpts:—

"Just a note to tell you that your band concert was not worth listening to—and neither were the vocalists who varied it. The same opinion may be expressed anent your piano and banjo items in the afternoon. This sort of trashy music does not give one much encouragement to put in a good radio plant."

"It is the opinion of the average listener-in that Monday night's band concert from 3YA studio is the brightest spot of the week's offering. Everything seems to issue from the studio with sparkle and colour. I'm sure we all feel under a deep debt of gratitude to the contributing bands."

"I am sure there are scores who, like myself, just hunger for music such as that broadcast last night from the Majestic Theatre."

"I will give you my opinion on your amateur jazz and and foxtrot music. It is so hideously ugly and so badly played that I wonder you can endure to announce it. There must be something wrong with people who can make such a dreadful noise, even to themselves, but to bring it before the public is a painful nuisance which ought to be suppressed. I do hope that you will take my hint, which is well meant. I know you have to suit all classes of listeners, but I am sure the majority of listeners agree with me."

"Personally, we do not like jazz music and will be pleased when its era has passed. But no doubt it is popular with many, who have a right to their fair share of it."

"You often relay instrumental music from the picture theatres. It is much appreciated in this household. Could we not have more of this?"

[At times other correspondents have complained about the music from moving picture theatres.]

"I am one of the hundreds of listeners who delight in the Friday night organ recitals and often I have a dozen or more musical friends here to share with me the recitals."

[Here again other listeners object to organ recitals!]

"Thanks for Sunday morning service broadcast. It was much appreciated by two who were unable to attend a service."

"Now for a growl about Sunday broadcasting. Is it not about time we had something besides church services and music? It is a day we have more leisure and should enjoy some good music in the afternoon as well as in the evening. As far as I am concerned, the church services could profitably be cut out. At any rate, it is a bit over the odds that after the service you should go on to broadcast a service of song from the church. It is too much even from the Holy City."

Finally: "I do not find fault with your programmes, as I realise how difficult it must be to please everyone with a different programme every night."

Comprehensive Review of the Copyright Position.

One of the many problems which have confronted the Radio Broadcasting Company in organising to give service to listeners has been the copyright problem. Some involved negotiations have been necessary in this connection to protect listeners.

The facts embodied in the following comprehensive review will come as a surprise to both the listening and general public. In brief, the position is that to-day the owners of copyright can demand any fee desired, or prohibit the broadcasting of any copyrighted work. This creates a possible danger from which only legislation can guard the listener—legislation to fix a statutory royalty in the case of necessity. Manufacturers of mechanical music (gramophones and pianolas) have such protection—why not the broadcaster?

The term "copyright" connotes the proprietary interest of an author in any literary, dramatic, musical, or artistic work composed or produced by himself. Originally copyright included the sole and exclusive liberty of printing or otherwise reproducing copies of an original work or composition. With the development of the dramatic and musical arts the expression, however, has come to include another and analogous right namely, the sole and exclusive right of performing the work in public. It is in connection with this right of public performance that the art of radio broadcasting comes into contact with the copyright laws.

WHAT IS THE LAW?

The law relating to copyright in this Dominion is contained in the Copyright Act, 1913. This Dominion Act is substantially a reproduction of the English Copyright Act of 1911, a consolidating and amending Act introduced in England at that date.

Under the provision of the New Zealand Act the term for which copyright subsists in a work is for the lifetime of the author and 50 years thereafter. These rights include the right of performance in public just referred to.

It is doubtful whether, in 1911, the art of radio broadcasting had reached the point where it was necessary to consider its relationship to the copyright laws. This surmise would seem to be true in view of the fact that in other countries litigation has taken place on the question as to whether or not the propagation by wireless of a musical copyright work is an infringement of the copyright therein It would appear to be clear, however, that in this country, at any rate, the reproduction of musical copyright works by means of radio is an infringement of the copyright in such works, save where the broadcasting has been undertaken with the permission of the author or assignee of the composition.

A FIXED ROYALTY TO PROTECT REPRODUCTION.

During the consolidation of 1911 of the English enactments relating to copyright, the question arose as to the rights of persons to manufacture and vend mechanical contrivances for the reproduction of musical works. Copyright owners contended "that no industry ought to be permitted to flourish on the methods of the highwayman." On the other hand those persons interested in the reproduction of musical works by mechanical means, whilst recognising that some remuneration was due to the composers whose works were adapted to mechanical reproduction, nevertheless feared that, if composers were allowed unlimited powers to either permit or prohibit reproduction of their works, a monopoly prejudicial to them would be created in the most popular works In 1909 there had been introduced in the United States copyright Act a right of compulsorily acquiring licenses to reproduce musical works by mechanical means upon payment of a fixed royalty.

As the outcome of this controversy a clause was inserted in the English Act **compelling a musical composer**, in the event of his having grante da license to one person to reproduce his work mechanically, **to grant to any other person a like license to reproduce the same work upon payment to the composer of a stipulated royalty.** A provision to the same effect appears in the New Zealand Act, namely Section 25. This provision, although modifying the rights of the author, nevertheless recompensed him for such modification and at the same time established an equitable relationship between him and the manufacture of mechanical contrivances It will presently be shown that these modifications of the copyright laws have a distinct relevancy to the present relationship between the author or assignee of musical copyright and the broadcaster

REGISTRATION NOT NECESSARY.

It should be noted at this juncture that no formality of any kind such as registration is necessary in order to bring musical works within the scope of the Act. As has been already stated, copyright in a work subsists for the lifetime of the author and 50 years thereafter. It will thus be seen that it would be a matter of extreme difficulty, if not of actual impracticability, for a person in New Zealand to discriminate between copyright and non-copyright musical works. By international arrangements practically the whole of the modern musical works introduced into this country acquire the protection of our copyright laws. From this it will be gathered that a broadcaster **must necessarily use musical works which are the subject matter of copyright.**

THESE ARE THE FACTS.

The foregoing observations may be briefly summed up under three headings:—

First, that the broadcasting of copyright musical works is an infringement of the copyright therein.

Secondly, that the author or assignee of such copyright works has the sole right to permit or prohibit their performance in public.

Thirdly, that the fact that registration of a musical work is unnecessary in order to confer copyright thereon renders it impracticable to discriminate between copyright and non-copyright works.

It is clear, then, that the broadcaster cannot, without infringing the law, use copyright works unless he has secured the permission of the author or his assignee and that the author or his assignee can prevent the broadcasting of their works altogether or permit the broadcasting thereof subject to such conditions as they may impose.

ONE BODY CONTROLS COPYRIGHT

Practically the whole of the musical copyright works introduced into New Zealand are controlled directly or indirectly by one corporate body Consideration of the copyright question requires consideration also of the situation created by the vesting of practically all musical copyright of importance in this one entity

In the month of January, 1926, there was registered in Australia a company under the name of the Australasian Performing Right Association, Ltd. The objects inter alia for which this corporation was established included that of "protecting and enforcing the rights of authors, composers and publishers of music and literary and dramatic works and the owners, holders and licenses of copyright and performing rights for any such works and of restraining and preventing by legal process or otherwise unauthorised use of the same." The original signatories to the memorandum of association of the corporation were the following:—

J. Albert and Son, Music Importers, Sydney; Allan and Co., Proprietary Ltd., Music Importers, Melbourne; Chappell and Co., Ltd., Music Publishers, Sydney; E. W Cole, Music Importer, Melbourne; L. F. Collin Proprietary Ltd., Music Importers, Melbourne; D. Davis and Co. Ltd., Music Importers, Sydney; Sam Fox Publishing Co. (Australia) Proprietary Ltd., Music Importers, Melbourne; Nicholson and Co. Ltd, Music Importers, Sydney; W H. Paling and Co. Ltd., Music Importers, Sydney.

WHO ARE THE MEMBERS?

The definition of a member is given in the Articles of Association of the company, namely:—

"The Performing Right Society Ltd. England and any association, company, firm or person associated, affiliated or connected therewith and any composer, author, publisher or proprietor of any musical, literary or dramatic work (but no other person) shall be eligible as a member of the company and may on application by him be admitted a member thereof by the board at its discretion, but the board shall have full and unrestricted power to refuse any such application for membership without assigning any reason for such refusal."

INTERNATIONALLY AFFILIATED.

The business communications of this association show it as being affiliated with the Performing Right Society Ltd. (England), Societe des Auteurs Compositeurs et Editeurs de Musique (France), Societa Italiana degli Autori (Italy), Sociedad d Autores Espanoles (Spain), Foreningen Svenska Tonsattares Internationalla Musikbyra (Swened), a group apparently having similar and as extensive interests in their respective countries as the Australasian association has in Australia and New Zealand.

Pursuant to the association's Articles of Association each member—

'Undertakes during the period of his membership to assign to the company in accordance with the rules for the time being in force his interests whether present or future in the right to perform any musical or dramatic work which has been or shall hereinafter be published by him and until such assignment and so far as it may not extend every such member by virtue of his election invests the company for and during the period of his membership with the right in their or in his name to institute and prosecute proceedings against all persons performing such works without having obtained the consent and authorisation of the owner of the copyright or his agent in that behalf and to defend and oppose any proceedings taken against any member in respect of such works and to compound, compromise, refer to arbitration or submit to judgment in any such proceedings and generally to represent the member in all matters concerning the works notified to the company in pursuance of the rules."

INDIVIDUAL RIGHTS CENTRALISED.

In addition—"Every member by virtue of his election also invests the company for and during the period of his membership with the sole right so far as it is or shall be or become vested in him—

(a) To authorise or forbid the public performance of all or any of the works published or to be published by him or in which he holds or shall hold the copyright.

(b) To grant licenses for the public performance of any or all of the said works.

(c) To collect fees and subscriptions and other moneys whether for the performance of any of the said works or by way of damages or compensation for unauthorised performances thereof.

(d) To protect generally his interests in the said works

From these extracts it will be seen that this association is widespread and is enabled by reason of its membership and the powers conferred on it by its members to exercise a powerful influence in the musical copyright field.

THE POWER OF THE ASSOCIATION

In answer to inquiries addressed to it from New Zealand, the Australasian Performing Right Association Ltd tendered the following information touching on copyright controlled by it. First it intimated that the members of the association are the owners or agents for the owners of practically all the British copyright music published or to be published in Australia or the Dominion of New Zealand. Secondly, that the various foreign associations affiliated with it control practically the whole of the copyright music published in their respective countries, thirdly, that the copyright controlled by the Australian and New Zealand publishing agents are assigned to it; fourthly, that the members of the association are the owners in Australia and New Zealand or agents for practically all the American and British Dominion musical copyright published or to be published in Australia and New Zealand; fifthly, that in effect the association controls in Australia and New Zealand 98 per cent. of the world's copyright music.

It may therefore be assumed from these facts that there is little copyright music of importance not within the control of the Australasian association.

EFFECT ON BROADCASTING.

In order to carry on a modern broadcasting service the broadcaster must obviously transmit musical copyright works Such transmissions cannot, as has been pointed out, be legally undertaken without the consent or permission of the copyright proprietor.

The copyright law of the Dominion as it stands at present makes no provision enabling the broadcaster to use copyright works on payment of a fixed royalty as in the case of mechanical contrivances. The amount of the royalty which the broadcaster has to pay rests in the hands of the person or persons owning the copyright music.

It is not unreasonable to suppose that had the art of radio-broadcasting, as it exists to-day, been anticipated in 1913, the Legislature would have seen fit to regulate its relationship with the copyright proprietor in the same way as the relationship between the manufacturer and vendor of mechanical contrivances and the copyright owner was then regulated

As the situation is at present the broadcaster is bound to yield to the demands of the Copyright Proprietor, in this case the Australasian Performing Right Association Ltd. or cease for all practicable purposes to transmit musical copyright matter. This one association has by reason of what may be called its monopoly in the commodity of musical copyright *the power to require the New Zealand broadcaster to pay* **for the privilege of using the association's copyright works, such sum as the association may in its uncontrolled discretion** *think fit to demand.*

This brief account of the copyright law and the broadcaster, and the copyright interests and the broadcaster, demonstrates that in New Zealand, as regards the broadcaster, there has arisen the very situation that in 1911 in England was anticipated by the Legislature in connection with the copyright proprietor and the manufacturer of mechanical contrivances for the reproduction of musical copyright works.

In these circumstances the broadcaster is of opinion that the Legislature should extend to him the rights similar to those already vested in the manufacturer of mechanical contrivances. or in other words that the broadcaster should be enabled to transmit musical copyright works on payment of a fixed statutory royalty.

As the position now stands, the broadcaster must in effect acquiesce in every requirement of the copyright owners irrespective of their being reasonable or unreasonable or else cease to carry on business.

A public service—an undertaking that makes music available to every home in the Dominion—should not, it is urged, be left in the invidious position disclosed by the foregoing facts.

The whole question, it would seem, is one for the early consideration of the Legislature

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A COMPARATIVE TEST OF "B" ELIMINATORS AND THEIR CHARACTERISTICS

LECTURE DELIVERED BY MR. E. W. MAHONEY

My lecture to-night consists of data relative to a series of tests of B battery eliminators. These tests were taken over a period of four weeks, using the one set all the time, so that they are fairly representative of reception conditions To avoid fluctuation of the filament, amperite automatic controls were installed so that all variations of volume, etc., would be only derived from the B battery supply

Four types of eliminators were tried, three being American and the fourth Dutch

The Types Used.

Type one: Made and assembled in America. This eliminator had a fixed tapping for the plate supply and a variable control from zero to 45V for the detector On test it was found that this eliminator was quite satisfactory for a five-valve set, there being absolutely no trace of hum. I might state here that the ordinary valves were used in most tests, but where it was found that the eliminators had stood up to the requirements of these tests, power valves of all grades were used in the last audio stage With this eliminator volume was certainly increased, but the final tonal quality using all six valves was marred by the distinct hum that came through, although, as I said before, on five valves this was not noticeable Owing to these conditions, no further tests were taken with this one.

Type 2: This was an American B eliminator kit ready for building up locally. The guaranteed output of this type was 200 volts for the plate at 85 milliamps. Variable rheostats for the detector and plate supply were incorporated in this unit and worked quite satisfactorily. Tests taken with a special voltmeter showed that the maximum output was 90V for the det and 220V for the plate supply. A series of tests held over a period of one week showed that this eliminator would not conform to the specifications laid down, and there experiments were stopped.

Type 3: This eliminator, assembled in America, was found quite satisfactory for a six-valve set. There was no trace of any hum coming through the loud speaker when the set was on full power Two points were noticed, and they were, firstly, extra tapping for C battery voltages were incorporated in this type, of a range that was quite unsuitable for the average set, and, secondly, the price was fairly high. This was quite a very good type of eliminator, but the two items before mentioned were not quite satisfactory.

Type 4: This eliminator, made in Holland, was tried out and found quite satisfactory for the 6-valve set used Two variable rheostats were used to control the output for detector and plate supply, the range for the det. being from zero to 45 and for the plate supply from zero to 200 volts. Tests on this eliminator were fairly exhaustive, covering a period of nearly three weeks. Power valves of all makes and kinds were used, including the U.X.210, 112, Daven M.U.6 and Philips 605 In all cases the tontal output was quite clear, with no sign of hum or distortion due to the eliminator

The Test.

Test A: The Daven M.U.6 was used in the last stage of audio. Very good tonal qualities resulted, and volume increased. Test B was taken, using the U.X.112 in the last audio stage, and

again the output was clarified and it was found possible to reduce the input voltage to 60 volts and still receive Australian stations at exceptional loud-speaker strength and without the least sign of distortion. Using earphones it was found possible to still further reduce the voltage to 30 volts. This resulted in signals being heard with ample volume on the 'phones, any volume above this being more than the ear could bear with comfort. For instance, whilst listening to 4YA, Dunedin, a few nights ago, who were broadcasting a band relay, it was quite possible to hear people whistling around the band rotunda during intervals of music, and on another occasion when 2BL relayed from the Sydney Town Hall, two ladies in the audience were heard discussing matters regarding dress whilst waiting for the commencement of the programme. This, as I said before, was heard whilst using the 'phones, and an input of 30 volts on the eliminator

Test C was obtained using Philips' 605 power valve, and the same reception conditions prevailed as in the previous tests. One point in connection with this test was noticed, and that was that the tonal output was clearer on this test than the previous one.

Test D.—The super power valve U.X.200 was used in the last stage for the following results. The tonal qualities of the set were vastly improved, and it was found possible to reduce the input of the eliminator under discussion to 50 volts, when Australian stations were heard quite distinctly, word for word, 40 feet or more away from the set. the volume being sufficient to fill a large ballroom for dancing purposes. This is only a brief summary of tests and results obtained, and I must now turn to the commercial side of the question and the relative cost and upkeep, and B eliminators versus dry cell B batteries.

Life of Batteries.

Using oversize B dry cell batteries and using the set for 4 hours a day, with a power valve in the last stage, the approximate life of these batteries is about six months. So that in one year it costs £6 for batteries alone. Not only that, the user must discard these when the voltage drops to 60 volts or only one-third used, and must suffer considerable annoyance from crackling and rustling noises as the voltage drops and the internal resistance of the batteries increases.

On the other hand, a B eliminator costs anything from approximately £9 10s. to £17, being three to five and a half times as much as the cost of a set of dry cells, which most of you will admit is a very serious item. Balanced against that, the first cost of an eliminator is practically the last, as it was found that by using the last eliminator the average drain, when using fully 100 volts, was only 8 watts, and that is allowing a very generous estimate. It would take actually 125 hours before one unit of light was consumed, costing approximately 5½d., so that by using the set four hours a day it would only cost approximately 5½d. a month for B battery supply. Over a period of 18 months the following points are noticed:—

	£	s.	d.
Cost of dry B batteries	9	0	0
Total costs, dry cells	9	0	0
Cost of eliminator	9	10	0
Maintenance of B eliminator for 18 months at four hours per day	0	8	2
Totals costs, eliminator.....	9	18	2

So that it will be easily seen that after this period the B eliminator has nearly caught up with the expenditure on dry cell batteries, and will soon prove its cheapness as compared with the B batteries. Of course a comparison of the two as regards volume and freedom from internal noises is so obvious that it does not require stressing.

Some Major Problems in Broadcasting.

By C. R. RUSSELL.

In this article Mr. Russell gives a comprehensive and balanced resume of the problems with which broadcasting is confronted. Great as have been the advances in recent years, much yet remains unsolved. The problems are not only mechanical, but human, and—in relation to programmes—psychological. A fuller grip of the intricacies of broadcasting will result from perusal of this article.

The layman who is shown over a broadcasting station for the first time often expresses surprise at the simplicity of operation. But behind that simplicity there are the brains of the world's foremost scientists, many years of work involving not only the electrical sciences, but those of physics, heat, light, and sound, geology, to even biology; while without the science of mathematics there would probably have been no radio, as this owes its whole existence to the work of that great mathematician Clerk Maxwell.

The function of a broadcasting station is to propagate a wave which when picked up by a suitable receiving devise within a certain range will give rise to a true reproduction of the original music or speech. Failure to observe this simple principle has been the cause of most of the interference which is now being experienced in the United States with the six hundred or more broadcasting stations.

What is Required.

From the technical point of view, then, the broadcasting station must fulfil two conditions: Sufficient volume must be produced with a certain standard type of receiver at the extreme boundaries of the territory which it serves, and the reproduction as heard from the speaker of the standard (supposedly distortionless) receiver must be an exact repetition of that given out from the instruments and vocalists in the studio. At once the question arises, is there a standard type of receiver? and is such a machine or its speaker distortionless? The anwer to both questions must be in the negative. The best that we can do is to consider an average machine as one of good quality and medium price operating a cone loud speaker. Five-valve receivers of the neutrodyne type fulfil very closely the requirements of the mythical "average machine" for New Zealand. Assuming, then, such a machine we must examine the conditions which must exist at the transmitting end for production of good volume together with undistorted music.

The factors which enter into the average intensity of an electromagnetic wave, or, better still, the current flowing in the receiving antenna system, are expressed in the well-known Austin-Cohen formula, the generalised form being: I2=4.25 I, h1h2 Ld——e -ad//L.

where I1 is the sending antenna current.
I2 the receiving antenna current.
h1 the height of transmitting antenna in kilometres.
h2 the height of receiving antenna in kilometres.
L the wavelength in kilometres.
a dissipation constant.
d distance between stations in kilometres.

From the above formula it can be seen that to obtain increased range the transmitting station antenna current (and hence its power) can be raised, the antenna can be made higher, and the wave-length adjusted for optimum conditions. It is interesting to note at this point that the wavelength L appears as a divisor in the equation, as well as in the exponential term, and this latter term has been for some considerable time strongly criticised by Watson, Fuller, and others, whose opinions have received strong support from experimental short-wave work.

While there are many other factors which must be taken into consideration in applying the Austin-Cohen formula, the chief points which we must take into consideration for our present purpose are that increasing the power of the transmitter, and raising the height of the antenna, will, the other factors remaining the same, give an increase of current in the receiving antenna. While we can control to a large extent the operation of the transmitter, we can do little once the wave has been propagated into space. Its peculiarities are being studied the world over by scientists, but up to date little but theories have been expounded to account for the vagaries of radio reception such as intensity variation, fading or fluctuation of received signal, variation of wave direction or polarisation, static, and interference of various kinds.

Are There Two Waves?

Recent experimental work in America would seem to show that at a short distance from the transmitting station the wave breaks into two, one following the earth, while the other travels perhaps a hundred miles above the earth's surface. The former soon decreases to a negligible value, due to the resistance of the earth, and at a distance of 200-300 miles from the transmitting station it is non-existent, while the free wave travels on and is reflected downwards by the action of the ionised layer generally known as the Heaviside layer. The wave is also refracted, due to the action of the layer.

Fading.

Fading is one of the greatest troubles with which we have to contend, and it may be produced at the transmitter or beyond. If by any chance the voltage of the mains supplying the transmitter should vary, then, unless a regulator is installed, fading will probably take place. Fading, however, is too common to allow such an explanation to be satisfactory, and we must turn again to the wave behaviour for a source of the phenomena. Fading may occur with or without distortion, but in most cases it is the latter. Some months ago the writer toured parts of New Zealand with a portable 6-valve loop receiver and obtained some interesting data. At a distance of approximately 200 miles from Auckland 1YA was found to fade badly, accompanied by distortion; at a distance of 300 miles from this station fading diminished, and there was less distortion. The same thing happened when observations were taken of 3YA and 4YA; at varying distances between 200-300 miles from the stations fading was at its maximum, the one exception being 4YA, whose maximum fading effect appeared to be at about 150 miles.

What is the Explanation?

The fading and distortion can, I think, be explained by the aid of the two-wave theory recently tested in America. At a distance under 300 miles from the transmitter two waves affect the receiving antenna system, the grounded wave and free wave. As these waves are moving through media of different density, it is reasonable to suppose that they do not reach the receiving antenna at the same time; in other words, they are out of phase, a condition may then arise which will cause fading. The true or free wave may by refraction or absorption have a very low intensity at the receiving antenna, which will, of course, cause a decrease in the received signal strength, the bound wave is, however, of the same strength as before and is relatively stronger now in comparison with the free wave; remembering that the two waves are out of phase, the effect of the earth bound wave will be to produce out of phase currents, which will result in a distorted or garbled signal.

Round the Earth Both Ways.

Although not applicable in the case we have been considering, it is interesting to note another distortion effect which has lately been examined in Germany. It was found that the morse signals from distant high-power stations which were reproduced on a tape were being distorted. An examination by oscillagraph showed or seemed to show that a fraction of a second after the signal had been recorded another similar signal, but of much smaller amplitude was shown on the record. This later signal was thought to be due to the wave from the transmitting station passing round the earth by the longer way, and so arriving later than a wave which had travelled by the shorter path. In one instance calculations showed that the wave must have travelled at a height of 182 kilometres above the earth's surface.

Dead Spots.

New Zealand is fortunate in not being troubled to any extent with dead spots, locations where signal strength been explained in a number of ways. In Europe and America, however, this trouble sometimes occurs, and has been expalined in a number of ways. If the dead spot is within, say, 300 miles of the broadcasting station, one explanation is, that owing to the ground resistance, the bound wave is damped out, and, as the result of topographic or other local conditions, the free wave passes over the antenna of the receiver. A similar theory is that the ground wave dies out rapidly, and that the free wave is reflected or refracted by the ionized layer causing the wave to pass over the receiving station. The writer has seen examples of this phenomena in the United States, where a 500 watt station could not be heard 90 miles away in a certain location. When, however, the transmitting station wavelength was changed, the station came through with good strength. The explanations for dead spots are not very satisfactory, and it is much more probable that the receiving station is screened by local topographic conditions, and consequently misses the wave.

Limiting Values.

The limiting value of the sensitivity of a radio receiver is when the ratio of the interfering or extraneous noises to the signal strength approaches 1. As a matter of fact, the limit is approached long before the ratio approaches one in the case of broadcasting; if the ratio is one quarter, the music becomes unpleasant to listen to. Interference, then, is one of the greatest disadvantages that broadcasting has to contend with, and this trouble may be caused by a number of things: Static, power line interference, electrical machinery, radiating receivers. Little is known of the causes producing static, and the subject is, and has been, the subject of study of many scientists. Nearby lightning flashes will, of course, produce violent noises in the receiver, setting up, as they do, a highly damped wave train, which will interfere with any circuit tuned to a point of resonance. Lightning 50 miles or more away will cause similar noises, but of less intensity in the average valve receiver.

Static, however, is often very prevalent on clear nights, when there is no sign of lightning, and this is due to other causes. The atmosphere is not at a uniform zero potential, but at different heights, and in different localities there may be large positive and negative charges; these will cause a continuous electron movement to take place, having the equalisation of the charges as its objective, and this movement produces waves which affect the receiving station. In the same way, when wind blows through rain or clouds, electrification takes place, the rain positive and the wind negative setting up differences of potential, which, if they do not produce lightning, equalise themselves by slower methods, which still produce waves affecting the receiver. Again, when dust is blown about, the potential of the dust clouds is raised, and when such clouds strike an antenna impart to it a true static charge. Sparks over half an inch long have been taken from an antenna at Christchurch during a north-west wind. Evaporation in warm weather is always accompanied by excesses of potential, so that the atmosphere during hot weather is generally in a disturbed state.

Power Line Effects.

Power line interference is very prevalent in many parts of New Zealand, and generally creates effects for which static is blamed. In cities, direct current tramway systems are bad offenders and make the reception of distant stations almost impossible, sparking at the trolley wire and rails, together with sub-station operation give a large variety of interfering noises many of which it is impossible to stop. Broken down insulators on high voltage transmission lines give rise to noises which vary from a crackle to a roar.

Electrical machinery, particularly X-ray, violet ray, diathermy, arc furnaces, battery chargers, and electric ovens, give rise to noises in the receiver which are exceedingly hard to trace. A portion of the annoyance may be overcome by the use of radio frequency chokes at the installation, which prevent oscillations being carried back into the power lines and so radiated.

Enough has been said about the propagation of the wave, its vagaries, and the factors effecting it to show that the transmitting equipment can accept the blame for a very small proportion of the disturbances for which it is often blamed.

The Receiver and Distortion.

We now come to the question of distortion as far as it affects the transmitting station, but before taking up this question we must look again at the average receiver and its operator. Some forms of receivers are supplied with a regeneration control and if the receiving antenna system is poor, or the receiver under powered there will be a tendency for the operator to secure volume by the use of over regeneration with consequent falling off in quality of the reproduction. Then again some audio frequency amplifiers are built for cheapness, rather than quality, and will distort the best of music. Loudspeakers, particularly those of cheap variety will ruin the reproduction of even the best of receivers. Much of the blame that has laid at the door of the broadcasting companies all over the world, alleging poor quality music, can be traced to the receiving apparatus.

Equipment and Personnel.

The transmitting equipment manufactured by such concerns as the Western Electric Company is of course first class throughout and the speech amplifier, modulator and microphone equipment is so designed that if correctly operated it will give remarkably good reproduction—in a good receiver. The routine work of station operator or control room operator has known the light of explanation to some extent in the pages of numerous radio magazines. The public knows that he twirls a number of knobs and the twirling affects the nature of the transmission to suppositional advantage. That is as much as some station operators know too. But in Europe and America has arisen a new occupation, one that is half-way between the station director and the operator. No definite title has been assigned to this new member of the staff although the term accoustician has been used to some extent in America. The holder of this position must first of all be a musician, and also have a fair knowledge of the technique of broadcasting, his duty is to place the microphone in such a position that the various instruments will be reproduced in the receiver in the most natural manner. He is the judge of the quality of the programme, and operation of the speech amplifier control board, should be under his control, rather than that of an operator who knows little of music, and merely follows the movement of a pointer. Given good transmitting equipment then the responsibility of getting good reproduction in the receiver loudspeaker rests with those who see to the placing of the microphone. Years ago it was a common thing for the operator or studio director to wait until the members of the orchestra had taken up their positions and then place the microphone down in any position he fancied. The consequence was that sometimes the big drum drowned all other instruments; at other times it was the cornet, or the saxophone.

The problems of broadcasting are many, the points which have been touched upon in this article cover only a few technical problems which it is hoped will be solved in due time.

HUGE RADIO AUDIENCE

There are 6,500,000 radio receivers in operation throughout the United States to-day, compared with 60,000 in 1922, and the audience listening in to-day is about 26,000,000, as against 75,000 auditors in 1922, according to a survey made by "Radio Retailing" from sources said to be as authentic and accurate as it is possible to obtain. The large increase in the audience is attributed to the fact that loud-speakers are generally used to-day, instead of headphones, so that the entire family can enjoy the etherial entertainment.

Money spent in the United States in the purchase of radio sets and accessories during 1926 is estimated at 506,000,000 dollars (£101,200,000) as compared with 60,000 dollars (£12,000) spent in 1922. The total expenditure for the five-year period from 1922 to 1926, inclusive of sets and accessories, is placed at 1,490,000,000 dollars (£300,000,000, approximately).

GLASS FOR INSULATION

Glass has come into high favour as an insulator at broadcast station KDKA, Pittsburgh, U.S.A., where it insulates the heavy copper bands of the transmitter inductance-coil; brass-tipped glass knobs support various condensers on the panel boards, and glass-air insulation has replaced through-the-wall types. The glass-air insulator consists of drilled bell-jars placed on both sides of a circular aperture in the window glass. By bolting the bells together, with the bolt centring in the aperture and the bells separated from the window glass by rubber gaskets, an effectively insulated binding post is obtained.

Full Programmes for Next

STATION 1YA, AUCKLAND.

SATURDAY, JULY 30.

2.30 p.m.: Canada v. Auckland (Association).
7.15 to 7.45: News and information.
8 to 11: Chimes.
Relay of overture from Strand Theatre. Mr. Eve Bentley, conductor.
Vocal—Masked Duo, popular numbers.
Contralto solos—Miss W. Lingard, "Sunshine and Cloud" (Lohr) and "Mother Machree" (Ball).
Baritone solo—Mr. L. Stewart.
Soprano solos—Miss B. Poulton, "Michael's Flute" (Balfe) and "A Garden of Dream Birds" (Calverley).
Contralto solo—Miss N. Lingard, "There is a Green Hill" (Gounod).
Baritone solo—Mr. L. Stewart.
Vocal—Masked Duo, popular numbers.
Weather report and interval.
Relay of dance music from the Dixieland Cabaret by the Internationals, under Mr. Clyde Howley.

MONDAY, AUGUST 1.

SILENT.

TUESDAY, AUGUST 2.

6.30 p.m.: Children's session—Aunt Betty.
7.15: News and information session.
7.30: Talk on "The Taj Mahal," by Mr. Stanley Bull.
7.45: Close down.
8: Chimes.
Relay of overture from Majestic Theatre. Mr. John Waugh, conductor.
Choir—Kingsland Methodist Choir, (a) "Moonlight" (Saning), (b) "The Goslings" (Bridge).
Soprano—Miss Heape, (a) "Sing, Joyous Bird" (Phillips), (b) selected.
Tenor—Mr. Pawsey, "Passing By" (Purcell).
Humour—Mr. T. T. Garland, some humour.
Baritone—Mr. Rutledge, (a) "The Veteran's Song," (b) selected.
Choir—Kingsland Methodist Choir, "Over the Fields of Early Morn" (Buck)
Weather report and interval.
Relay from Majestic Theatre.
Choir—Kingsland Methodist Choir, (a) "Old Mother Hubbard" (Wheeler), (b) "Song of the Vikings" (Saning).
Mezzo—Miss N. Wood, (a) "At Dawning" (Cadman), (b) selected.
Baritone—Mr. Rutledge, "The Bandolero."
Contralto—Miss Davidson, (a) "Vale," (b) selected.
Humour—Mr. T. T. Garland, more humour.
Choir—Kingsland Methodist Choir, "Radiant Morn" (Spainer).
(Programme arranged by Mr. T. T. Garland.)

WEDNESDAY, AUGUST 3.

3.30 p.m.: Lecture on "Women's Institutes," by Mrs. E. D. Dorman.
7.15: News and information session.
7.45: Close down.
8: Chimes.
Relay of overture from Prince Edward Theatre. Mr. George Poore, conductor.
Soprano—Miss Ida Holmes, (a) "One Morning Very Early" (Sanderson), (b) "L'Ete" (Chaminade).
Baritone—Mr. W Brough, "The Lute Player."
Instrumental—The Tongans, Hawaiian selections.
Tenor—Mr. Geo. Barnes, (a) "A Dream" (Bartlett), (b) "The Trumpeter" (Dix).
Bass—Mr. P. Dawson, (a) "The Two Grenadiers" (Schumann), (b) "Joggin, Along the Highway" (Samuel).
Soprano—Miss I. Holmes, "The Bright Seraphim" (Handel).
Baritone—Mr. W. Brough, (a) "A King's Man," (b) "Invictus."
Instrumental and vocal—The Tongans, Hawaiian items.
Tenor—Mr. Geo. Barnes, "I Know a Lovely Garden" (D'Hardelot).
Elocution—Mr. P. Dawson, (a) "Wilfred Denver's Dream" from "The Silver King" (Barrett), (b) "Good-bye, Little Cabin" (Service).
Weather report and interval.
Organ—Mr. A. E. Wilson, selections.

THURSDAY, AUGUST 4.

7.15: News and information session.
7.45: Close down.
8: Chimes.
Relay of overture from Rialto Theatre. Mr. Henry C. Engel, conductor.
Contralto—Mrs. B. Jellard, "Beyond" (St. Quenton).
Tenor—Mr. A. Ripley, (a) "Minnie" (Moffat), (b) "Des Hold Ma Hand To-night" (Jacobs-Bond).
Instrumental—Ingall's Trio, guitar selections.
Soprano—Miss D. Bayne, (a) "Good-bye" (Tosti (b) "Blue Eyes" (Nicholls).
Contralto—Mrs. Jellard, (a) "My Gentle Child" (Del Riego), (b) "One Morning Very Early" (Sanderson).
Tenor—Mr. A. Ripley, "Your Tiny Hand is Frozen" from "La Boheme" (Puccini).
Instrumental—Ingall's Trio, novelty numbers.
Soprano—Miss D. Bayne, "Someone Brought Me Daffodils" (Haydn-Wood).
Weather report and interval.
Dance—Click-Clack Radio Orchestra, under Mr. Walter Smith, latest songs, dance items, and novelties.

FRIDAY, AUGUST 5.

6.30 p.m.: Children's session.
7.15: News and information session.
7.30: Talk on "Motoring," by Mr. Geo. Campbell.
7.45: Close down.
8: Chimes.
Relay of concert from Messrs. John Court's, Ltd.
March—School Orchestra, "Washington Post" (Sousa).
Choir—School Choir, (a) "Hail, Smiling Morn" (Spofforth), (b) "The Lass o' Richmond Hill" (Old English air).
Flute—Master W. Henderson, 'Carnival of Venice" (Paganini).
Selections—School Orchestra, selections from "Iolanthe" (Sullivan).
Vocal—Master E. H. Sealy, "When Spring Comes to the Islands" (Lohr).
Weather report and interval.
Instrumental—School Trio, selections from Weber.
Orchestra—School Orchestra, "Fantasia of British National Airs."
Violin—E. M. Richardson, "Midnight Bells" (Kreisler).
Choir—School Choir, (a) "Away, My Lads" (boat song), (Barratt), (b) "Sweet and Low" (Barnby).
Orchestra—School Orchestra, "Pique Dame" (Suppe).
Vocal—Master R. W. Smith, "The Way Home" (Liddle).
Cornet duet—Masters S. C. Quartly and L. J. Kirk, "Yeomen of the Guard" (Sullivan).
Orchestra—School Orchestra, "Sunset" (tone poem), (Matt).
Male quartet—School Quartet, "Way to de Twinklin' Star" (Lovett-Ring).
Orchestra—School Orchestra, selections from a Handel suite.
Flute—Master W. Henderson, "By the Brook."
Orchestra—School Orchestra, selection from "Gondoliers" (Sullivan).
(Concert given by pupils of Auckland Grammar School, and arranged by Mr. E. N. Hogben.)

SATURDAY, AUGUST 6.

3 p.m.: Rugby—South Canterbury v. Auckland.
7.15: News and information session.
7.45: Close down.
8: Chimes.
Relay of overture from Strand Theatre. Eve Bentley, conductor.
Baritone—Mr. F. Baker (a) "Elegie" (Massenet), (b) "Mother o' Mine."
Musical monologue—Mrs. V. Bartley, "Charm" (Vane).
Vocal and instrumental—Bohemian Duo, (a) "Pokare Kare," (b) "Waiata Maori" (Hill).
Bass-baritone—Mr. J. Kennedy, Maori folk songs.

1YA FEATURES

A GOOD WEEK AHEAD

A service conducted by the Rev. Evan R. Harries, of St. James's Presbyterian Church, will be broadcast by 1YA on Sunday evening, July 31. Afterwards will follow a relay of music by the Municipal Band in the Auckland Town Hall.

THE TAJ MAHAL.

That architectural wonder of the world, the Taj Mahal, is the subject of a talk by Mr. Stanley Bull at 1YA on Tuesday evening at 7.30.

A GOOD NIGHT ASSURED.

Mr. T. T. Garland, a prominent member of the Auckland Savage Club, has arranged the concert programme for 1YA on Tuesday evening. The Kingsland Methodist Choir and assisting artists will contribute items. This choir won first prize at the Auckland Competitions Society's festival in 1925. Mr. Garland will give a number of humorous items. Songs will be sung by Miss Heape (soprano), Miss N. Wood (mezzo soprano), Miss Davidson (contralto), and by Mr. Rutledge (baritone).

WOMEN'S INSTITUTES.

An afternoon talk is to be given at 1YA on Wednesday. The speaker is Mrs. E. D. Dorman and the subject is "Women's Institutes."

MESSRS. BROUGH AND RIPLEY.

With Mr. W. Brough, the Tongans, Mr. Peter Dawson, Mr. Geo. Barnes, and Miss Ida Holmes on the programme, a capital concert may be expected from 1YA on Wednesday evening. Mr. Brough will be heard in "The Lute Player," by Allitsen. This is one of his most popular numbers, and will be new to listeners. The Tongans have appeared only once previously, and the six members of the party are all solo-

MR. BARRY CONEY.

Mr. Barry Coney, who has been appearing regularly at 1YA of late, is a well-known and popular baritone and pianist of Auckland. He studied at the Royal Academy of Music under Frederick King, and studied opera under Constantine Simoniades. He gained a Licentiate of the Academy and had an Associateship conferred. Mr. Barry Coney has sung with signal success at the Queen's Hall, London, and also in the provinces. He has judged at competitions and been heard in all the principal centres of the Dominion—in oratorio, opera, and Maori songs. He is a leading exponent of the art of voice production and voice training in Auckland.

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ists in their own particular branch of music.

Mr. A. Ripley (tenor), who is always a treat for listeners, will be heard from 1YA on Thursday evening. His items will be "Minnie," "Des Hold My Hand To-night," and "Your Tiny Hand is Frozen" (from "Le Boheme"). Mrs. B. Jellard and Miss D. Bayne, two popular singers, will also be heard.

Ingall Trio of instrumentalists have been engaged by 1YA for Thursday evening. Many novelty numbers can be expected.

The weekly talk on motoring will be given by Mr. George Campbell on Friday at 1YA.

GRAMMAR SCHOOL PUPILS.

The Auckland Grammar School pupils will contribute the concert at 1YA on Friday evening. This has been arranged by Mr. E. N. Hogben, assisted by Mr. Ken. Dellow, conductor of the choir. The school orchestra consists of 110 performers and the school choir of 75 voices. The party gave a very fine concert last year, and its appearance on Friday evening will be welcomed. Besides concerted items, vocal and instrumental, a number of solos will be given.

MAORI SONGS AT 1YA.

A feature of Saturday evening's entertainment at 1YA will be a number of Maori songs. The Bohemian Duo will sing "Pokare Kare" and "Waiata Maori" (both of which were sung at the opening of 2YA), and Mr. J. Ken-

Humorous sketch—Mrs. V. Bartley, (a) "Cheering up an Invalid" (Anon.), (b) "Reggie" (Anon.).
Baritone—Mr. F. Baker, "Uncle Rome" (Homer).
Vocal and instrumental—Bohemian Duo, (a) "Down Honolulu Way," (b) "Marcheta," (c) "In a Little Spanish Town."
Bass-baritone—Mr. J. Kennedy, Maori folk songs.
Weather report and interval.
Relay of dance music from Click-Clack Cabaret, by dance orchestra, under Mr. Walter Smith.

SUNDAY, AUGUST 7.

6.55 p.m.: Relay of church service from Methodist Church, Pitt Street. Preacher: Rev. L. Dalby. Choirmaster: Mr. W. Leather. Organist: Mr. L. Bickerton.
8.30: Selected studio items.
9.30: Close down.

STATION 2YA, WELLINGTON.

SATURDAY, JULY 30.

3 p.m.: Rugby match—Athletic Park.

SUNDAY, JULY 31.

6.55 p.m.: Relay from the St. John's Presbyterian Church of special service of World Student Christian Movement. Preacher: Rev. Blanchard. Organist and choirmaster: Mr. C. W. Kerry.
8.15: Relay of the band concert of the Wellington Municipal Tramways Band from His Majesty's Theatre.

MONDAY, AUGUST 1.

7.15: News and market reports.
7.30: Lecture—Mr. A. Morrison, "The Economics of Business."
7.45: Close down.
8: Chimes.
Instrumental—Studio Orchestra, "La Belle Pietrette" (Fowlds).
Soprano—Miss Veronica McKenzie, "Vissi D'Arti" (La Tosca), G Flat (Puccini).
Violin—Mr. Dennis Collinson, "Elfentanz" (Jenkinson), "Meditation" (Massenet).
Tenor—Mr. Edgar Swain, "Che Gelida Manima" (La Boheme), (Puccini).
Pianoforte—Miss Nora Gray, "The Lark" (Balakivew-Glinka).
Contralto—Mrs. T. Watson, "Softly Awakes My Heart" (Saint-Saens).
Elocution—Mr. Clement May, "Studies from Dickens."
Baritone—Mr. T. Watson, "Song of the Toreador" (Bizet).
Cornet—Mr. P. M. West, "Il Bacio" (Arditi).
Vocal duet—Mr. and Mrs. T. Watson, "The Day is Done" (Lohr).
Instrumental—Studio Orchestra, "By the Tamarisk."
Weather report.
Instrumental—Studio Orchestra, "Emotion" (Joy and Sadness).
Soprano—Miss Veronica McKenzie, "Musetta Song" from "La Boheme," "E" (Puccini).
Violin—Mr. Dennis Collinson, "Bortfai Emelek" (Hungarian Dance), (Drdla), "Serenade" (Drigo).
Tenor—Mr. Edgar Swain, "Aria" from "La Tosca" (Puccini).
Pianoforte—Miss Nora Gray, "Berceuse" (Chopin).
Contralto—Mrs. T. Watson, "Che Faro" (Gluck).
Elocution—Mr. J. W. G. Davidson, "Paolo and Francesca" (Phillips), "Fra Giacomo" (Buchan).
Baritone—Mr. T. Watson, "O Star of Eve" (Wagner).
Cornet—Mr. P. M. West, "Serenade" (Gounod).
Vocal duet—Mr. and Mrs. T. Watson, "Arise, O Sun" (Day).
Instrumental—Studio Orchestra, "No. 3 of Three Dream Dances" (Coleridge Taylor).

TUESDAY, AUGUST 2.

7.15: News session and market reports.
7.45: Close down.
8: Chimes—Post Office clock.
Studio Orchestra, "Reconciliation" (Fletcher).
Soprano—Mrs. A. E. Burge, "Villanelle" (Del Acqua).
Clarionet—Mr. A. H. Crump, "Concertino," E Flat (Weber).
Baritone—Mr. E. A. Bradshaw, "Song of the Volga Boatman" (Chaliapine-Koeneman).
Studio Orchestra, "Ludicia" (intermezzo), (Caludi).
Tenor—Mr. Edwin Dennis, "Sing, Break Into Song" (Mallinson).
Cornet—Mr. T. Goodall, "Titania" (Rimmer).
Contralto—Miss J. Baxter, "A Psalm of Life" (Cowen).
Clarionet—Mr. A. A. Crump, "Right Air Valse," B Flat (Biepsant).
Soprano—Mrs. A. E. Burge, "Still as the Night" (Bohm).
Baritone—Mr. E. A. Bradshaw, "Hybrias the Cretan," bass (Elliott).
Weather report.
Relay of Savage Club Orchestra, under the conductorship of Mr. Frank Thomas.
Lecturette—Mr. Douglas Tayler, "Music and Sorrow."
Tenor—Mr. Edwin Dennis, "The Trumpeter" (Dix).
Studio Orchestra, "Gavotte" (Lordelli).
Contralto—Miss J. Baxter, "O Happy Childhood" (Carse).
Cornet—Mr. T. Goodall, "The Lost Chord" (Sullivan).
Studio Orchestra, "Intermezzo" (Redgi), (Caludi).

WEDNESDAY, AUGUST 3.

SILENT DAY.

THURSDAY, AUGUST 4.

7.15 p.m.: News session and market reports.
7.30: Lecture—Mr. W. King, D.B.E.A., "Esperanto"
8: Chimes
Relay of Paramount Theatre Orchestra.
Band—Wellington Municipal Tramways, "One of the Best" (march), (Rimmer).
Soprano—Miss Gretta Stark, "The Lass With the Delicate Air" (Arne).
Band—Wellington Municipal Tramways, overture, "L'Amour de Village" (Bouillon).
Trombone—Bandsman Ballantyne, "Drinking" (Bilton).
Tenor—Mr. Marmion Wiseman, "I Did Not Know" (Troteri).
Band—Wellington Municipal Tramways, descriptive selection, "Turkish Patrol" (Michaelis).
Contralto—Miss Lily Mackie, "Cradle Song" (Kreisler).
Band—Wellington Municipal Tramways, "Musical Switch" (Alford).
Baritone—Mr. Thomas C. Wood, "Harlequin," A Minor (Sanderson).
Band—Wellington Municipal Tramways, "Knight of the Road March" (Rimmer).
Weather report.
Soprano—Miss Gretta Stark, "Songs My Mother Sang" (Grimshaw).
Band—Wellington Municipal Tramways, "Thoughts" (Alford).
Tenor—Mr. Marmion Wiseman, "Here in the Quiet Hills" (Carne).
Band—Wellington Municipal Tramways, "Gems of Harmony" (Smith).
Contralto—Miss Lily Mackie, "The Glory of the Sea" (Sanderson).
Band—Wellington Municipal Tramways, "In a Monastery Garden" (Ketelby).
Baritone—Mr. Thomas C. Wood, "The Blue Dragoons," B Flat (Russell).
Overture—Wellington Municipal Tramways Band, "King's Lieutenant" (Moore).
Band—Wellington Municipal Tramways, "March Mazeppa" (Greenwood).

FRIDAY, AUGUST 5.

7.15 p.m.: News session and market reports. Lecture—Mr. Fletcher, "Rugby."
7.45: Close down.
8: Chimes of the G.P.O. clock.
Instrumental—Studio Orchestra, "Told at Twilight" (Kuerto).
Soprano—Miss M. Goodwell, "The Love Pipes of June" (Day).
Clarionet—Mr. L. O. Power, "Spring Song," B Flat (Mendelssohn).
Tenor—Mr. H. Phillips, "I Know of Two Bright Eyes" (Clutson).
Violin—Mr. F. Martinelli, "On Wings of Song" (Mendelssohn).
Contralto—Miss N. Castle, "The Dear Homeland," low (Slaughter).
Vocal duet—Mr. H. Montgomery and R. Thompson, "Fair Eyes Have Told Me So" (C. Hardy).
Saxophone—Mr. B. Brooker, "Traumerei" (Schumann), "Aria" from "Faust" (Gounod).
Baritone—Mr. L. J. Byron, "Glorious Devon" (German).

Week - All Stations - to Aug. 7

Lecturette, "Imperial Affairs," Samoa.
Weather report.
Instrumental—Studio Orchestra, "Edelweis Gavotte" (Laurbie).
Vocal duet—Mr. H. Montgomery and Ron. Thompson, "The Sunset Trail," A Flat (Hanson)
Clarionet—Mr. L. Power, "Ballet," B Flat (Leuge Recci).
Soprano—Miss M. Goodwell, "Sleep and the Roses" (Late).
Violin—Mr. F. Martinelli, "Hungarian Dance, No. 5" (Brahms).
Contralto—Miss N. Castle, "The Silver Ring" (Chaminade).
Instrumental—Studio Orchestra, "Sowet" (Kamecnik).
Tenor—Mr. N. Phillips, "Mountain Lovers" (Squire).
Instrumental—Studio Orchestra, "Eastern Romance" (Haynes).
Baritone—Mr. L. J. Byron, "The Dawn" (Sanderson).
Saxophone—Mr. B. Brooker, "Chanson Triste" (Tschaikowsky), "Valse Sympathe".

SATURDAY, AUGUST 6.

Rugby match—Athletic Park.
7.15 p.m.: News session and sporting results and market reports.
7.45: Close down.
8: Chimes of the Wellington G.P.O. clock.
Instrumental—Studio Orchestra, "Danse Fantastique" (Raynard).
Comedy Duo—Lockyer and Fox, patter and songs.
Steel Guitars—Mr. C. Soal and Mr. M. Kenny, "Mellow Moon."
Vocal duet—Ronny and Monty.
Bells—Mr. L. Wilkens, "When It's Twilight" (Vincent).
Instrumental—Studio Orchestra, "Vanity Fair" (Fletcher).
Comedy Duo—Lockyer and Fox, patter and songs.
Instrumental novelty—Dibe Dabe (Swiss vagabond musician), "Medley of Popular Airs."
Vocal duet—Ronny and Monty.
Bells—Mr. L. Wilkens, "Close Your Eyes" (Yorell).
Steel guitars—Mr. C. Soal and Mr. N. Kenny, "Hawaiian Airs" (Awai).
Instrumental novelty—Dibe Dabe, "Medley of Popular Airs."
Instrumental—Studio Orchestra, "Bonne Promenade" (Mignard).

SUNDAY, AUGUST 7.

6.55 p.m.: Relay of St. Andrew's Presbyterian Church. Preacher: Rev. F. E. Harry. Subject: "Troubles That Never Come."
8.15: Relay of band concert of the Port Nicholson Silver Band from the Grand Opera House. Conductor: Mr. J. J. Drew.

STATION 3YA, CHRISTCHURCH.

SATURDAY, JULY 30.

2.30 p.m.: Rugby—Challenge Cup.
6.30: Children's session, by Uncle Jack.
7: Close down.
7.15: News and reports.
7.45: Close down.
8: Relay of concert, as per details published last issue.

SUNDAY, JULY 31.

6.30 p.m.: Relay from St. Paul's Presbyterian Church of special service in connection with Students' Christian Union (universal day of prayer).
Brief addresses will be given by Mr. Donald Grant, M.A., general secretary for New Zealand; Mr. Gordon S. Troup, M.A., president of Students' Council; the Rev. W. Bower Black, LL.D., LL.B.
The students will help in conducting the service. Organist: Mr. Raynor White, F.L.C.M.
7.45: A sacred musical programme, including vocal and organ solos, etc., will be given at conclusion of evening service. Solos accompanied by Mr. Raynor White, F.L.C.M., on the organ.
Close down.

MONDAY, AUGUST 1.

7.15 p.m.: News and reports.
7.30: Talk on "The Care of Wireless Receiving Sets," by Mr. C. R. Russell.
8-10: Studio concert by Derry's Military Band, under direction of Mr. E. C. Derry, assisted by vocal soloists.
March—Band, "The Governor's Own" (Lake).
Bass solo—Mr. W. E. Richards, "The Sailor's Paradise" (Richards).
Soprano solo—Miss Violet Collins, "It Is Only a Tiny Garden" (Wood).
Patrol—Band, "Our Blue Jackets" (Nicholls). Illustrating approach, passing by, and disappearance in the distance of a naval patrol.
Baritone solo—Mr. W. H. Odell, "Onaway! Awake, Beloved" (Cowan).
Recitation—Mr. R. R. Wills, "A Springtime Tragedy" (M.S.S.).
Descriptive fantasia—Band, "A Trip to Blackpool" (Bidgood).
Bass solo—Mr. W. E. Richards, "Drinking" (old German).
Quartet—(Bandsmen Joughin, Houghey, Glass, and Sharp), "Scotia" (Wright).
Soprano solo—Miss Violet Collins, "Hushed Is My Lute" (Phillips).
March—Band, "Florentiner" (Fucik).
Interval.
Solo—Band, "Spring Song" (from "Songs Without Words"), (Mendelssohn)
Baritone solo—Mr. W. H. Odell, "Lighterman Tom" (Squire).
Symphony—Band, "First Movement of Unfinished Symphony" (Schubert).
Bass solo—Mr. W. E. Richards, "The Lighthouse Bell" (Solman).
Soprano solo—Miss Violet Collins, "Slave Song" (Del Riego).
Waltz—Band, "Estudiantina" (Waldenfel).
Baritone solo—Mr. W. H. Odell, "Young Tom of Devon" (Russell).
Fox trot—Band, "Lonesome and Sorry" (Finlay).
Recitation—Mr. R. R. Wills, "His Gippsland Girl" (W. Ogilvie).
March—Band, "Universal City" (Arthur).
God Save the King.

TUESDAY, AUGUST 2.—Silent.

WEDNESDAY, AUGUST 3.

2.30 p.m.: Relay from Lancaster Park of description of Rugby match, Northern v. Southern Sub-Unions.
6.30: Children's session, by Uncle Jack.
7: Close down.
7.15: Addington stock reports and news and reports.
7.30: Talk by Mr. Donald Grant, M.A., on "Youth Movement."
8: Relay of orchestral selections from Grand Picture Theatre Orchestra, under direction of Mrs. Black.
Baritone solo—Mr. A. Marston Bate, "What the Red-haired Bosun Said" (Harry).
Contralto solo—Miss Belle Renaut, "Kathleen Mavourneen" (Crouch).
Instrumental Trio—Misses Eileen, Joan, and Charlotte Carter, "Allegro" (Sitt).
Comic recitation—Miss Olive Braisher, "Aunt Doleful's Visit" (Dallas).
Mezzo-soprano solo—Mrs. L. G. Bull, "Come, Sing to Me" (Thompson).
Violin solo—Miss Joan Carter," "Rondo" from "Concerto No. 9" (Beriot).
Contralto solo—Miss Belle Renaut, "Oh! Love from Thy Power" from "Samson and Delilah" (Saint-Saens).
Piano solos—Miss Eileen Carter, (a) "Einfach" (Schumann), (b) "Walber" (Greig).
Comic recitation—Miss Olive Braisher, "Oh!" (Weatherly).
Baritone solo—Mr. A. Marston Bate, "Rosebud" (Drummond).
Mezzo-soprano solo—Mrs. L. G. Bull, "I'll Sing to You" (Thompson).
Interval.
Contralto solo—Miss Belle Renaut, "The Rosary" (Nevin).
Instrumental Trio—Misses Eileen, Joan, and Charlotte Carter, (a) Micaela's song from "Carmen" (Bizet), (b) "Scene de Ballet" (Elliott).
Baritone solo—Mr. A. Marston Bate, "On With the Motley" from opera "Pagliacci" (Leoncavallo).
Comic recitation—Miss Olive Braisher, "The Clear Sweep" (Cecil).
Mezzo-soprano solo—Mrs. L. G. Bull, "Nobil Signori Salute" from "Les Huguenots" (Meyerbeer).
'Cello solo—Miss Charlotte Carter, introduction and song to the "Evening Star" from opera "Tannhauser" (Wagner).
Vocal duet—Miss Belle Renaut and Sydney Bellamy, "Maying" (Smith).
Relay from Grand Theatre.
Close down.

THURSDAY, AUGUST 4.

7.15 p.m.: News and reports.
7.30: Lecturette, by Miss Blackmore on "Efficiency and Practice" (arr. by Home Economics Association).
8: Relay of orchestral selections from Strand Picture Theatre Quartet, under direction of Mr. Harry Ellwood.
Baritone solo—Mr. Richard Moloney, "Obstination" (Pontinelli).
Soprano solos—Miss Eunice Catton, (a) "Torna Ancor" (Springtime of Love), (Tirendelli), (b) "Shepherdess of Sleep" (Aylward).
Instrumental String Trio—Misses Stringer and Beck, (a) "Serenade" (Widor)' (b) "By the Waters of Minnetonka" (Lesurence).
Bass solo—Mr. Bernard Rennell, prologue from opera "Pagliacci" (Leoncavello).
Violin solo—Miss Beck, "Souvenir" (Drdla).
Baritone solos—Mr. Richard Moloney, (a) "A Bachelor Gay" from "The Maid of the Mountains" (F. Simpson), (b) "Pearl of Sweet Ceylon" from "The Cingalee" (Moncton).
Soprano solo—Miss Eunice Catton, "Come! All Consoling Sleep" (Wilks).
Instrumental Trio—Misses Stringer and Beck, (a) "Song of the Volga Boatman" (Koenaman) and (b) "Waltz" (Carreno).
Bass solos—Mr. Bernard Rennell, (a) "Somore Woods" (Tully), (b) "Bonnie George Campbell" (Keel).
Relay from Strand Theatre.
9.30: Musical lecture, by Mr. T. Vernon Griffiths, M.A., Mus.Bac. (Cantab.), L.M., T.C.L., "The Plain Man's Music."
Close down.

FRIDAY, AUGUST 5.

Final of Australasian Waterloo coursing eve
7.15 p.m.: News and reports.
7.45: Close down.
8: Chimes. Relay of orchestral selections from Liberty Picture Theatre Orchestra, under direction of Mr. Ernest Jamieson.
Baritone solo—Mr. Rex. Booth, "Sweet Lass of Richmond Hill" (old (b) "Give Man a Horse He Can Ride" (Lambert).
Tenor solo—Mr. Mark Woodward, "Best of All" (Moir).
Comic solo—Mr. A. J. Kinvig, "All the Comforts of a Home" (M.S.S.).
Baritone solo—Mr. D. H. Davis, "Doreen" (Allon).
Mezzo-contralto solos—Mrs Betty Sneesby, (a) "Barbara Allan" (Hatton), (b) "The Girl With the Brogue" from opera "The Arcadians" (Moncton).
Male vocal quartet—Avonside Male Quartet, Messrs. Woodward, Kinvig, Davis, and Ward, (a) "When Evening's Twilight" (Hatton), (b) "Simple Simon" (Masey Dicks).
Baritone solo—Mr. Rex. Booth, "Sweet Lass of Richmond Hill" (old time).
Organ solos—Mr. Robt. E. Lake, (a) "March aux Flambeaux" (Guilmant), (b) "Minuet and Trio in B Minor" (Faulkes), (c) "Nuptial March" (Guilmant), (d) "Valse de la Reine" (Coleridge Taylor).
Mezzo-contralto solo—Mrs. Betty Sneesby, "Kamate" (the Maori war song), (Te Rangi Hikiroa).
Male vocal quartet—Avonside Male Quartet, Messrs. Woodward, Kinvig, Davis, and Ward, (a) "In Absence" (Buck), (b) "The Goslings" (Bridge).
Bass solo—Mr. Albert E. Ward, "Out on the Deep" (Lohr).
Organ solos—Mr. Robert E. Lake, (a) "Thanksgiving March" (Calkin), (b) "Canzone" (Speddin), (c) "Fanfare" (Faulkes), (d) "Cornelius March" (Mendelssohn).
Relay from Liberty Theatre.
Close down.

SATURDAY, AUGUST 6.

2.30 p.m.: Relay of description of races—New Zealand Metropolitan Trotting Club, Addington.
4.30: Close down.
6.30: Children's session, by Uncle Jack.
7: Close down.
7.15: News and reports.
7.45: Close down.
8: Chimes. Relay of orchestral selections from Crystal Palace Picture Theatre Orchestra, under direction of Mr. A. J. Bunz.
Tenor solos—Mr. Leslie Scrimshaw, (a) "Charming Chloe" (German), (b) "Dolorosa" (Phillips).
Mouth-organ solo—Mr. T. L. Drummond, "Absent" (Metcalfe).
Mezzo-soprano—Mrs. William Murdoch, "Longing For You" (own composition), (Helen Murdoch).
Comedy sketch—Miss Lucy Cowan and Mr. John Cannell, "An American Widow" (Rosina Phillipini).
Steel guitar solos—Mr. F. R. Monro, (a) "On the Beach at Waikiki" (M.S.S.), (b) "Sweet and Low" (Barnby).
Relay from Crystal Palace Theatre.
Tenor solo—Mr. Leslie Scrimshaw, "Come to the Fair" (Easthope Martin).
Mouth-organ solo—Mr. T. L. Drummond, "Annie Laurie" (Scotch air).
Comic solo—Mrs. William Murdoch, "The Cheese Song" (M.S.S.).
Steel guitar solo—Mr. F. R. Monro, "Negro Airs" (M.S.S.).
Relay from Crystal Palace Theatre.
Relay of dance music from Winter Garden Cabaret by Mr. W. Bailey's Band.
Close down.

STATION 4YA, DUNEDIN.

SUNDAY, JULY 31.

6.15 p.m.: Relay of service from St. Paul's Cathedral. Preacher: Rev. Canon Neville. Organist: Mr. E. Heywood, F.R.C.O.
8: Studio concert.

MONDAY, AUGUST 1.—Silent.

TUESDAY, AUGUST 2.

3 p.m. to 4.30 p.m.: Afternoon concert.
Town Hall chimes.
His Master's Voice recital.
Address by Miss Puechegud on "Interior Decoration."
Studio items.
Book talk, by Mr. H. Greenwood, librarian, Dunedin Athenaeum
His Master's Voice recital.
Close down.
7 p.m.: Town Hall chimes.
Children's session—Aunt Diana.
News and markets.
8 p.m.: Studio concert, arranged by Miss Mollie Andrews.
Baritone solos—Mr. Reg. Richards, "The Ginchy Road" (Edwards), by request, and "Can't Remember."
Mezzo-soprano solo—Miss Mollie Andrews, "Lilac Time" (Peel).
Piano solo—Mrs. Ernest Drake, "The Prince" (Bridge), by request.
Tenor solos—Mr. Roderick Braithwaite, "The Diver" (Macmillan) and "Internos" (Macfadyen).
Recital—Miss Sheila Neilson, selected.
Soprano solos—Miss Roma Buss, "The Rose Enslaves the Nightingale" (Rimsky-Korsakov) and "Comin' Thro' the Rye."
Violin solos—Mr. Jack Clark, selected.
Baritone solos—Mr. Arthur Lungley, selected.
Recital—Miss Sheila Neilson, selected.
Address—Pastor W. D. More.
Mezzo-soprano solos—Miss Mollie Andrews, "Love Triumphant" (Brahms) and "The Daisy."
Violin solo—Mr. Jack Clark, "Scottish Airs."
Tenor solos—Mr. Les. Dalley, selected.
Piano solo—Mrs. Ernest Drake, "A Country Dance" (Beethoven).
Vocal duet—Misses R. Buss and M. Andrews, "I Wish I Were a Tiny Bird."
Recital—Miss Sheila Neilson, selected.
Soprano solo—Miss Roma Buss, "Spinning" (Clarke).
Quartet—Misses Buss and Andrews, Messrs. Clark and Braithwaite.

WEDNESDAY, AUGUST 3.

SILENT.

THURSDAY, AUGUST 4.

7 p.m.: Request gramophone recital.
8: Studio concert. "War Time Night—the Lighter Side."
Soloists—Mrs. J. Marshall, mezzo-soprano; Miss Myrtle Bills, soprano; Miss Gwen Cooper, contralto; Mr. Alex. Snell, baritone; Mr. W. Currie, baritone; Mr. Billy Gay, comedian.
Opening chorus.
Bugle call—"The Reveille," Sergt.-Major Napier.
March—"Colonel Bogey" (Alford), orchestra.
Vocal—"Sons of New Zealand."
Vocal—"Your King and Country Need You."

WELLINGTON

AN INTERESTING WEEK

The second of the series of Mr. Clement May's "Studies from Dickens" will be given on Monday at 2YA. Mr. May is a notable elocutionist now settled in Wellington, and he gives to his recitals the touch of a master.

Good music, vocal and instrumental, as well as elocutionary items, go to make up the programme at 2YA on Monday next. Besides Mr. Clement May, Mr. J. W. G. Davidson will help to entertain those who like elocution. Mr. Davidson is a leading figure in the 'Varsity Debating Society and is well known in Wellington. He is a prize winner at competitions. The subjects which he has chosen are "Paolo and Francesca" and "Fra Giacomo."

Among the singers at 2YA on Monday will be Mr. Edgar Swain (tenor), a prize winner at Wellington competitions. Mr. and Mrs. T. Watson are singing duets as well as solos. Mr. Watson was trained in the Old Country, while Mrs. Watson is the winner of several championships at competitions and has frequently appeared as a contralto soloist at band concerts. Miss Nora Gray, who is giving pianoforte selections, is also an accomplished soprano soloist. She is a pupil of Mr. Gordon Short.

WELL-BALANCED PROGRAMME.

A fine aggregation of talent will contribute to the programme at 2YA on Tuesday. Mr. Edwin Dennis, L.R.A.M., has a delightful tenor voice. He is the conductor of the Levin Chorus Society and has appeared as soloist on many stages in New Zealand. Mr. R. A. Bradshaw (baritone), who will sing the "Song of the Volga Boatmen" and "Hybrias, the Cretan," is a son of Dr. J. C. Bradshaw, the noted organist of Christchurch Cathedral. Mrs. A. E. Burge, soprano, has appeared as soloist for all the leading societies in Wellington. Miss Jeune Baxter is a contralto with English experience. Both Messrs. Crump and Goodall, who play the clarionet and cornet respectively, are masters of these instruments.

MR. ANDREW MORRISON,
who will speak next week on "The Economics of Business."

MUSIC AND SORROW.

The second lecturette by Mr. E. Douglas Tayler, Supervisor of Musical Education for the New Zealand Government, is to be given on Tuesday evening at 2YA. This lecture will be entitled "Music and Sorrow."

A BUSINESS ADDRESS.

An address of the solid, instructive, and constructive, variety is to be given at the early session of 2YA on Monday, August 1. Mr. Andrew Morrison will be the speaker, and his subject is "The Economics of Business."

SINGERS OF QUALITY.

Miss Greta Stark (soprano), who is singing next week at 2YA, is a soloist of the Orpheus Society. She took a leading part in the recent production of "Floradora."

Mr. Douglas Start, who has a reputation as a comedian, is to give humdy, bass baritone, will sing a number of Maori folk songs.

Listeners-in to 1YA on Saturday will look forward again to Mr. Fred Baker. He is always popular. On this occasion, among other items, Mr. Baker will sing "Mother o' Mine," a vocal number new to 1YA, but sung with much success by Mr. Baker on the concert platform.

SUNDAY EVENING CONCERT.

On Sunday, August 7, the service in the Methodist Church, Pitt Street, will be broadcast by 1YA. The preacher is the Rev. L. Dalby. Mr. W. Leather is the choirmaster and Mr. W. Bickerton is the organist. After the church service a studio concert will be given.

NEXT WEEK'S PROGRAMMES, CONTINUED

(Continued from page 9).

STATION 4YA, DUNEDIN.

March, "Great Little Army" (Alford), orchestra.
March—"Over the Top" (Weidt).
Vocal—"Sister Susie's Sewing Shirts for Soldiers."
Vocal—"Till the Boys Come Home."
Bugle marches—Sergt.-Major Napier.
Vocal—"Over There," "Roses of Picardy," "Tipperary."
March—"The Line Up" (Bertram), orchestra.
Address—"A Padre's Cushy Job," Rev. W. B. Scott, Chaplain to New Zealand Forces.
Vocal—"Good-bye," "Anzac," "Joan of Arc."
Marches—"Washington Greys," "Festival March."
Vocal—"Rose of No Man's Land," "The Ship That's Bound for Blighty."
Bugle calls—Sergt.-Major Napier.
Vocal—"Where Are the Lads of New Zealand, To-night?" "There's a Light Burning Bright," "The Red Cross Nurse."
Marches—"The Old Contemptibles," "Royal Rooters."
Vocal—"God Send You Back to Me," "How You're Gonna Keep 'Em Down on the Farm."
God Save the King.

FRIDAY, AUGUST 5.

3 p.m. to 4.30 p.m.: Afternoon concert.
Town Hall chimes.
His Master's Voice recital.
Afternoon tea music from the Savoy.
Studio items.
"Cookery Talk," by Miss M. Puechegud.
His Master's Voice recital.
Close down.
Evening concert.
7 p.m.: Town Hall chimes.
Children's session—Aunt Diana.
Market reports and news.
8: Studio concert.
8.45: Address, under auspices W.E.A.
9: Dance music, by Ern. Beacham and his orchestra, relayed from the Savoy.

SATURDAY, AUGUST 6:

3 p.m.: Southland v. Otago (Rugby).

CHRISTCHURCH

SOME SPECIAL FEATURES

A special service in connection with the Students' Christian Union will be held in St. Paul's Church, Christchurch, on Sunday evening, July 31, and will be relayed by 3YA. Addresses will be given by Mr. Donald Grant, M.A., Mr Gordon S. Troup, and the Rev. W. Bower Black, LL.B.

CARE OF RECEIVING SETS.

Mr. C. R. Russell, an authority on radio, will give a lecture at 3YA on Monday, August 1. His talk will deal with the care of receiving sets and his advice should claim the attention of all listeners who wish to get better results.

Derry's Military Band, supported by vocalists, will provide the concert at 3YA on Monday. Several of the artists are very promising soloists. Mr. R. R Wills, a pupil of Miss Lucy Cowan, will recite.

THE YOUTH MOVEMENT.

A talk by Mr. Donald Grant, M.A., on "The Youth Movement" will be broadcast by 3YA on Wednesday at 7.30. Mr. Grant is general secretary for the Students' Christian Union in New Zealand. He has given numerous addresses at 3YA, notably a series on "Post-War Europe," based on five years' experience on the Continent, and he is an effective speaker.

MUCH TALENT AT 3YA.

Wednesday's concert at 3YA will be contributed by some excellent artists. Miss Belle Renaut, the possessor of a beautiful contralto voice and very popular with listeners, will sing some favourite songs in "Kathleen Mavourneen," "The Rosary," and "Oh Love, From Thy Power" (from "Samson and Delilah"). Mr. A. Marsten Bate, whose reputation as a 'cellist is established, will be heard as a baritone singer and is expected to please all listeners. Misses Eileen, Joan and Charlotte Carter, talented instrumentalists, are also on the programme. Miss Olive Braisher will give three comic recitations, and Mrs. L. G. Bull, who will make her first appearance before the microphone, will please all with her mezzo-soprano voice.

"THE PLAIN MAN'S MUSIC."

This is the title of a musical lecture by Mr. T. Vernon Griffiths, M.A., Mus. Bac. (Cantab), L. Mus. Tch. at 3YA on Thursday evening. The talk portends a selection of the melodies in which a plain man delights—"music" with "tunes" in it. Half-an-hour has been allotted to this lecture, and listeners will without doubt find the time all too short.

The same evening, too, some good talent will make its appearance. Mr. Richard Maloney, a fine baritone, will make his debut in broadcasting. He has some good songs opposite his name. Mr. Bernard Rennell (bass) comes to Christchurch with high encomiums. He was trained by Roland Foster in Sydney. Miss Eunice Catton is another new singer at 3YA. She is a young soprano with a sweet voice. The Misses Stringer and Beeh will contribute instrumental items.

HOME ECONOMICS.

A lecture under the auspices of the Home Economics Association will be given at 3YA on Thursday at 7.15. Miss Blackmore is the speaker.

AVONSIDE SINGERS.

The Avonside Male Quartet, each member of which is contributing individual items, will take a prominent part in the studio concert at 3YA on Friday. In addition to the concerted and solo items by these four—Messrs. Woodward, Davis, Kinvig, and Ward—Mr. Rex Booth (a very sweet baritone whose singing has met with the approbation of listeners) and Mrs. Sneesby, will contribute. Organ solos will be played by Mr. R. E. Lake. The items to be given by the Avonside Quartet will include various types of sentimental and comic glees.

MR. HARRY PHIPPS,
a well-known and popular Wellington tenor.

SATURDAY EVENING CONCERT.

Bright and cheerful will be the programme on Saturday evening, a usual week-end concert at 3YA. Mr. Leslie Scrimshaw will sing some popular items and Mr. T. D. Drummond, an artist on the mouth organ, will make his first appearance at 3YA. A clever and amusing comedy sketch, "An American Widow," will be enacted by Miss Lucy Cowan and Mr. John Carwell. Steel guitar items will be given by Mr. F. R. Monro. Not a little interest will attach to the first appearance of Mrs. William Murdock, mezzo soprano. She will sing "Longing for You." It is her own composition, and it was highly spoken of in Sydney. Mrs. Murdock also plays her own accompaniments. Her second item will be a comic solo "The Cheese Song."

CHILDREN'S SESSION ON SUNDAY.

As an innovation to the Sunday sessions at 3YA from 6 to 6.30, when the church service starts, a service of song for children is being conducted by Uncle Sam.

A HUMAN AERIAL

The human body was used by a Westerner to tune in Lindbergh's (the trans-Atlantic aviator) welcome in Washington. J. Gordon Reed, of Oakland, writes to KGO, Oakland, California of this novel reception as follows:—

"I wanted to hear the Lindy broadcast, but my aerial was down. Remembering the body to be a conductor of radio energy, I took some copper wire, attached it to the antenna binding post, and placed the other end in my mouth. Then I sat on the radiator making the ground connection. The programme came over clear with loud-speaker volume. But when I had another party take the ground wire in his hand the volume was so great I had to adjust the rheostat. Thus I received the programme on the Pacific Coast through KGO, one man acting as ground and myself doing duty as old Aunt Tenna."

TWELVE SPORTING BROADCASTS

NEXT WEEK'S EVENTS

Besides announcing the results of all sporting fixtures, descriptive narratives of the following events have been arranged for:—

Saturday, July 30.—Canada v. Auckland (1YA).
Saturday, July 30.—Rugby Challenge Cup (3YA).
Saturday, July 30.—Rugby (2YA).
Wednesday, August 3.—North v. South Sub-unions (3YA).
Saturday, August 6.—Trotting (3YA).
Saturday, August 6.—Southland v. Otago (4YA).
Saturday, August 6.—Rugby (2YA).
Saturday, August 6.—South Canterbury v. Auckland (1YA).

NOTICE

OCCASIONALLY THROUGH UNAVOIDABLE CIRCUMSTANCES PROGRAMMES MAY REQUIRE INDIVIDUAL VARIATION, BUT SUCH ALTERATIONS WILL BE AS SLIGHT AS POSSIBLE.

DUNEDIN NOTES

SPECIAL WAR-TIME MUSIC

The Rev. Canon Neville will be the preacher at St. Paul's Cathedral on Sunday next, July 31, when the service will be relayed by 4YA. This will be followed by a studio concert.

On Tuesday next, the afternoon session from 4YA will include the usual weekly talks, on "Interior Decoration" by Miss M. Puechegud, and on "Books" by Mr. H Greenwood.

The evening concert will be a very interesting ballad concert, arranged by Miss Mollie Andrews, during which many of Dunedin's leading performers will be heard. Pastor W. D More will also contribute another of his popular talks.

WAR-TIME MUSIC.

Thursday being the anniversary of the day on which the Great War commenced in 1914, 4YA will present a typical war-time programme, including items mostly of the lighter type. Sergeant-Major Napier, the leading bugler in Otago, will take part in this, and the Rev. W. B. Scott, chaplain to the New Zealand Forces, will contribute some reminiscences of the "Big Push." Many of the songs heard on this night are almost forgotten now, and their revival will bring back happy memories, and not sad ones.

Interesting Addresses.

Miss M. Puechegud will talk about "Cookery" again next Friday afternoon from 4YA, and will give some easily prepared recipes. A member of the W.E.A. will address listeners during the evening session.

SPORTING CAMARADERIE

THREE CODES JOINED BY BROADCASTING.

It is worthy of comment that in Auckland, on Saturday last, a Rugby Union official broadcast the description of the Soccer test match, which was played on the Rugby League ground. Three apparent contradictions were united for the day, and made a great success of it. Mr. Meredith was the narrator of the Canadian-New Zealand Soccer match, being played on the Carlaw Park League ground.

LEARN ESPERANTO!

SERIES OF LECTURES

BEGINNING NEXT WEEK.

In order to provide readers and radio listeners with an opportunity to acquire a knowledge of the international language, Esperanto, arrangements have been made with a well-known Esperantist, Mr. W. H. King, holder of the teachers' diploma of the British Esperanto Association, for the conduct of a course of Esperanto lessons, the first of which is published below. It is expected that the course will extend over a period of 20 weeks, one lesson appearing in skeleton form in each issue of our journal, the lesson subsequently being explained by Mr. King from the studio of 2YA. Listeners are recommended to have a copy of the printed lesson at hand during the explanatory transmission from the station, for, by doing so, the broadcast lesson will be more readily followed.

Inquiries relative to Esperanto may be made to "The Esperanto Instructor," N.Z. Broadcasting Co., Ltd., Wellington, or care of "Radio Record." A stamped addressed envelope must accompany each inquiry, otherwise a reply cannot be guaranteed.

LESSON I.

(To be broadcast from 2YA on August 4 from 7.39 to 7.54 p.m.)

The Alphabet.

Aa Bb Cc C'c' Dd Ee Ff Gg
G'g' Hh H'h' Ii Jj J'j' Kk Ll
Mm Nn Oo Pp Rr Ss S's' Tt
Uu U'u' Vv Zz

Note: No Q W X Y.

The attention of readers is drawn to the letters bearing the apostrophe sign. Text-books show that these letters carry a circumflex, but owing to difficulty in obtaining type the apostrophe will be used throughout the lessons.

Pronunciation.

The vowels sound as in Italian, or as in singing **(do, re, me fa)**:—

A	E	I	O	U
par	pear	peer	pore	poor
are	there	three	or	two

The following **CONSONANTS** are pronounced as in English: b, d, f. h (always aspirated), k, l, m, n, p, r, t, v. z. For the purpose of reference and pronunciation, the letter "o" is placed with each consonant, e.g., bo, do, fo, go, etc.

The following **CONSONANTS** have a special pronunciation: **C** like **ts** in beats; thus **CARO** like **tsar**, **C'** like **ch** in **church**, **G** like **g** in **get**, **G'** like **g** in **gem**, **J** like **y** in **yes**; thus **JARO** like **yaro**; **J'** like **z** in **azure**; **S** like **s** in **so**; **S'** like **sh** in **show**; **H'** (used rarely) like **ch** in **loch**.

DIPTHONGS are as follow: **AJ**; **OJ**, as in **MY BOY**; **EJ**, as in **OBEY**; **UJ**, as in **HALLELUJAH**; **EU'**, as in **THEY WHO** (pronounced quickly); **AU'**, as **OW** in **COW**.

The accent is always on the last syllable but one. There are no silent letters, and spelling is phonetic.

Words: Pa-tro, nu-bo, ci-tro-no, cen-to, sen-to, c'ar, c'i-e-lo, grand-da, pa-go, pa-g'o, ses-hor-a, ho-ro, h'o-ro, h'e-mi-o, i-mi-ti, i-am, jam, ma-jes-ta, dom-oj, pruj-no, vej-no, jus-ta, j'us, ma-jo, ak-vo.

[The second lesson will be published in next week's issue.]

CORRESPONDENCE DIGEST

BROADCASTERS' MAIL BAG

VIEWS OF LISTENERS-IN.

In a future issue we will quote from some of the correspondence which pours into the Broadcasting Company from New Zealand listeners and from overseas. The extracts will make interesting reading, and will afford some indication of the many diverse suggestions which come from well-meaning listeners. Then there are the critics, some of whom have never admitted that there has been anything right with broadcasting.

But these critics are not as numerous as one might suppose. Every letter that is received at the headquarters of the company in Christchurch is carefully noted and filed, and it has been found that somewhat less than 2 per cent. are hostile. The criticism which has of late been heard, mainly fomented by a few, reminds one of a famous quotation: "Because half-a-dozen grasshoppers under a fern make the field ring with their unfortunate chink, while numbers of great cattle reposing in the shadow of the British oak quietly chew the cud, pray do not imagine that those who make the most noise are the only inhabitants of the field."

It has been surprising with what celerity people write to express their opinions on the various programmes. A new announcer, for instance, who may be put "on the air" some evening for a "try out" can expect a verdict from the public next day. If the announcer has pleased them they say so. If he has displeased anyone, the writer is usually candid, brutally so, sometimes. One such correspondent said: "What sort of a Dismal Jimmy have you got for announcer? Did you get him out of the morgue?" But the same man pleased others.

Following is an extract from a letter such as the company likes to receive:—

"Allow me to tender my appreciation of the past week's transmissions from the New Zealand stations. I wish to mention that my home is situated under half-a-mile from 3YA, and I have a receiver that enables me to listen to your other stations, also the Australian stations, while 3YA is operating, and I am certain that if the majority of listeners were able to do this very few complaints would be heard. With regard to the quality and nature of the Australian programmes which are so highly praised by a section of listeners in New Zealand, I think that it is a case where "distance lends enchantment." Personally I do not think that the Australian programmes, on the average, are so very superior to those transmitted from the New Zealand stations, and my listening-in experience extends over a continuous period of four years. Certainly they put over many "stunts" which listeners appreciate, but it must not be forgotten that the Australian stations have had several years' start of New Zealand in broadcasting matters. I may here point out that Mr. Prentice, shortly after arriving in New Zealand, stressed the point that station 2BL was continually receiving letters of complaint, and being criticised in Australia for poor programmes."

The following is a sample of many letters received from Australia:—Just a line of appreciation and thanks for the excellent programmes you transmit which we hear very clearly indeed, nearly every night. We have often preferred to dance to your broadcast music in place of that from this or our other States. Every Sunday evening we listen to the church service which we appreciate very much. We can almost hear the coins dropped into the collection plate.

But whether correspondents write to express approval or the reverse, the secretary welcomes all letters. Everyone is replied to and suggestions, if practicable, are adopted.

A letter recently forwarded to the company read as follows:—

Apropos of the recent criticism levelled at the Radio Broadcasting Company, I send you a copy of a cutting from "The Times," London. It will show that even the B.B.C., under Government control, is not giving universal satisfaction. If, in the letter quoted below, the word "German" be replaced by the word "Australian," the sentiments apply exactly to New Zealand.

The letter, which is signed "J. Sullivan, Rosshurst, Hampstead," is as follows:—

"Sir,—Your correspondent Mr. Ernest T. Goldsmith suggests that it is necessary for broadcast listeners to receive German stations in order to get good musical programmes. Mr. Goldsmith must be a very occasional listener, or he would realise (for it is common knowledge among all who listen regularly) that the B.B.C. musical programmes are far and away ahead of any others that are broadcast. Take last Thursday night, for instance. I challenge Mr. Goldsmith to refer to any broadcast music equal to the B.B.C. programme on that evening.

"I think it is about time that some effort was made by listeners to put a stop to the baiting of the B.B.C. that has now become so popular in a section of the Press. The fact is that we have a first-rate broadcasting service. It is defective in so far as it lacks facilities for providing alternative programmes, but the B.B.C. themselves are fully alive to this and are doing what they can to remedy it. Such expressions as "mandarins" and "bureaucrats" are not deserved by the B.B.C. people, who are in fact a most zealous, self-sacrificing, and able body of public servants."

So human nature is the same on both sides of the world!—Yours etc. ——

How Smith Made His Million—

—the Autobiography of the Hour.

This entertaining review-talk was given recently over the air from 4YA by Pastor W. D. More. It deals with the book of the moment—the peculiarly frank and self-revealing confessions of Sir Joynton Smith, one of Sydney's millionaires, who spent some of his early days as a steward on New Zealand coasts. The book itself is striking, and the review selects the high spots with excellent judgment.

Sir Joynton Smith's book is an amazingly frank document, quite unlike any other biography or autobiography. It is the diary of a successful modern business man, and the means used to gain success are stated as frankly as anything the famous Pepys ever wrote. And from cover to cover he book is full of cynical chuckles and ironic laughter, both at himself and other people.

It should be said that Sir Joynton Smith is still very much alive, has the reputation of being the most astute business man in Sydney, is a member of the New South Wales Legislative Council, and, although the book reveals enough experience to flavour the lives of a dozen ordinary men, seems likely to go on joyfully gathering honey for many a long day yet

His Youthful Training.

The writer was one of a family of twelve born in London. The business shrewdness that has made him a millionaire seems to have been inherited from his father. His father kept a shop near Whitechapel which was then, as it is now, near the Jewish ghetto. One day an ancient Hebrew came into the shop to buy a small sausage machine for family use. Smith's father asked him 3s. 9d. Then the haggle began and he was beaten down to 3s. 6d. At this point young Smith took off the selling ticket and found the real price was 3s. 3d. After the Hebrew left the boy pointed out his father's mistake. "That's right, Jim," the father said. "But you see I thought he would beat me down sixpence, instead of threepence." That seems to have been a lesson the boy who became Sir Joynton Smith never forgot.

At the unlucky age of thirteen he became a pawnbroker's rouseabout. He worked from 8 a.m. until 8 p.m., excepting on Saturdays, when he worked until midnight. On Sunday afternoon he was allowed to visit his parents. Added to which he was expected to sleep on the shop counter and work overtime as a burglar alarm. For all this he received half-a-crown a week and his keep.

His career as a pawnbroker's assistant ended, however, very suddenly. He fell down the spout. You have heard pawning things spoken of as "putting them up the spout." It appears the spout was a square funnel, like a lift-well lined with pigeon holes, and rising the full height of the building. It was young Smith's duty to carry the pledges up the spout climbing like a monkey, and, when necessary, fetch them down again. One day his foot slipped, he fell down the spout, and that finished his job.

Try Anything Once!

At fourteen years of age he went to sea as a ship's cook. He didn't know anything about cooking, but that didn't seem to matter much because, in those days, there was very little in ships, anyway, to be cooked. And it seems to have been a guiding principle in Sir Joynton Smith's life that a man or boy should be always willing to try anything once. But when he shipped as a cook the crew had to keep on trying his cooking for a three weeks' voyage. He became famous, or infamous as you please, because he made pancakes of flour and water paste, and, he says, the men who ate his pancakes were braver than the man who ate the first oyster.

I don't know whether he is referring to his own cooking, but he says the man who wanted a real shudder in those days had only to go to sea. Perhaps he was referring to the cockroaches that swarmed through the old boats. He tells the story of a second engineer who awoke one morning with the calloused skin of his feet-soles eaten down to the soft cuticle. The cockroaches had been having a Lord Mayor's banquet in the night.

It was as third cook on the Christian McAusland that he arrived in New Zealand, landing at Port Chalmers in October, 1874. He was then 16 years of age. Some of my Scotch listeners-in will be interested in his first impressions of Dunedin. He says: "You have heard of the Jew who lives in Aberdeen—because he can't make enough to get out of it. Well, the difference between Dunedin and Aberdeen has always been beyond my power of discrimination. If anything, the natural thriftiness of the Scot has been increased by transplantation to the bleak end of New Zealand. No beggar can live there. If asked for saxpence he would die of pneumonia from the chilly reception of his request." You can add this to your collection of witticisms on the natural thriftiness of the Scotch, with the same light heart that Henry Ford collects anecdotes concerning his car. Envy shows itself in many disguises.

By paying half-a-crown to Skene's Labour Agency young Joynton Smith got a job at Dodson's Hotel in Port Chalmers. From there, however, he went to sea again as a steward with the Union Steam Ship Company. He became second steward on the little Maori when she was running between Oamaru, Timaru, and Lyttelton, with monthly trips to the West Coast. There are some interesting stories of this period in the biography. He says that he never knew what sea-sickness was until he made the acquaintance of the stormy coast of the South Island. He says: "I dossed on the transom behind the steering column in the saloon. I remember that, when we had a few passengers, we would have a boiled ham to make the menu more attractive. This ham would repose with me—having a dish cover over it some of the time. On a rough night both the ham and I would be sliding about. The morning after I would arise with shining morning face, and have no difficulty in making my hair stay put, so well-greased would it be." And, in the next sentence, he tells us that such of the passengers as could eat would eat anything. Needless information, of course, in the circumstances.

Another story worth repeating of these old days is of the strategy of the chief steward in keeping down the food bill in the old "Taupo."

"The little scheme was that of scheduling the run so that the Taupo went through French Pass a few minutes after one o'clock in the day. Through this straight Pelorus Jack, the famous pilot fish, would lead the ship. No sooner were the passengers seated at their mid-day meal than the crew would be raised: "French Pass. Come and see Pelorus Jack." By the time the passengers came back everything would be cleared off the dining table. Joynton Smith says: "I have never known this trick to fail, and have always suspected a certain Steam Ship Company of having a hand in getting the special Act of Parliament passed which protected the great asset it had in this fish."

Money in Hotels.

In the twenties Joynton Smith left the sea for good. He got married, and at the same time realised what he says is the ambition of every ship's steward. He became a hotel-keeper. He bought the Prince of Wales Hotel in Grey Street, Wellington, for £1500. From that date he describes his life as "a story of apparent financial audacity which will sound like a romance." And nobody who reads his book will care to contradict him.

It may interest you to hear some of his business axioms. He says that if you have vision, and don't lose your courage, people will grant you enormous credit, and with these three, vision, courage, and credit, all things are possible.

He says that "no delusion is more endearing than that the business hardness of a Scot may be softened by whisky."

He says again "Never have any money to your credit in the bank. If you have you will be apt to try and back winners at the races or to spend it foolishly on all kinds of unnecessary things. Always endeavour to make your financial engagements such that you will be struggling to pay something off, and thus increasing your general asset. That is the way to acquire. It keeps you busy and thrifty, and you are a better citizen for being both." It is fair to say that this latter advice is not his own, but was given to him by Mr. T. G. Macarthy, of Wellington, to whose friendship he gives credit for his amazing financial success.

The same gentleman gave him this advice also. "Always pay the little people in business. They cannot afford to be out of their money, and they make more trouble than the big creditors. It is the small unpaid accounts that injure a man's credit most, and credit is the greatest asset a business man has." He defines credit as the sort of confidence the Irishman had who went to a debtor and said:—"Look here, I want my money. At least if you haven't got it I want it, but if you have got it any time will do."

And this also: "If you are doing well always pull a poor mouth." But Joynton Smith, being the genial egoist he is, says he has never been able to follow the last maxim himself.

How to Lose Systematically.

After four years in his hotel, and at 28 years of age, he was worth £10,000. Then he sold his business and sailed for England with a perfectly infallible system for making a fortune on the English racecourse. His comment upon this part of his life is "One advantage about betting on a system is that you lose your money systematically." In less than a year the sporting life had soaked up £9000 of his fortune, and he was sailing back to New Zealand with £500 with which to start again. From that date until now he has belonged to the order of wise virgins who bank in their own name the money the foolish virgins put on the "sure things."

With his £500 very much the worse for wear—actually reduced to £40—he arrived in Sydney and started in business as an undertaker's tout. His particular line was to visit each funeral, stand by the graveside with the mourners, make careful notes of the names of people in attendance, and the parson's eulogy of the deceased, write all this down on a lithographed card, then call round at the house next day and sell the card for thirty shillings. He says that in the twelve months this business existed h made between twenty and thirty pounds a week, and only had two or three refusals. Several times during the autobiography Sir Joynton Smith hints at his own colossal nerve. This last incident may be taken as an illustration of the fact. From undertaker's tout he became manager of the Grand Central Coffee Palace, Sydney, at a salary of four pounds per week.

This is the beginning of a story of financial strategy that puts American high finance into the infant class, and ends with Joynton Smith a Sydney millionaire, a Knight of the British Empire, and a member of the Legislative Council of New South Wales.

A Story Without a Moral.

I have not time to tell the story here, except to say it is written from an entirely original point of view. It is genially cynical—as Joynton Smith says himself, "Anybody searching for a moral in this biography will have to read one into it. If I were asked to supply one to adorn the narrative, I should probably break all the anons of conventional business. For I have found salvation in running into debt." But that is not to be taken too seriously as these two last stories will show.

A young man waited on Joynton Smith recently and said that he had read his saying that to succeed in business one should always be in debt. Because of this he asked for a loan. He was told that he had not properly grasped the principle. Joynton Smith had never implied that any man should get into his debt.

On another occasion, as Lord Mayor of Sydney, Sir Joynton Smith had to pay an official call upon Sir Walter Davidson, the State Governor.

"My Lord Mayor," said Sir Walter, "I am informed that you are one of the most astute business men in the city of Sydney."

"Well, Your Excellency," replied Sir Joynton Smith, "I have heard myself so described before. And, whenever I do, I invariably button up, because that is how they all start."

The best summary of this book is the one given by the author himself. He says: "These vagrant recollections are more a comic song of survival than a Psalm of Life. Anybody who expects to see me picking my way to higher things on stepping stones of my dead self is hereby duly warned that he will be disappointed. I am proud to think that I have never been a dead one, nor have I backed any but triers."

"Shakespeare? Yest, There's Been a Book About 'im."

ENTERTAINING RADIO TALK BY ALLAN WILKIE.

An interesting address on Shakespeare from an entertainment point of view was given by Mr. Allan Wilkie, C.B.E., the Shakespearean actor-manager, from 2YA, Wellington, last Sunday evening. With a well-modulated voice, which carried distinctly by radio, Mr. Wilkie said:—

"In addressing you to-night upon the subject of Shakespeare I am acting in direct opposition to my personal convictions, for it is my profound belief that if only we devoted one-tenth of the time and energy to the presentation of his plays upon the public stage that at present we devote to the lectures and the writings of essays and books about him and his works we should have a far truer appreciation and understanding of his immortal plays.

"When I was recently playing in a certain Australian town I observed two men looking at and discussing one of my playbills outside the theatre.

"One of them, an oldish man with a white beard, after slowly spelling out the contents of the playbill, said, 'Ah! Yest, Shakespeare. I've heard of 'im, there's been a book written about 'im.' I could not help reflecting what a pity it was from some points of view the old man was not correct in his estimate, and that there had been only one book written about Shakespeare, instead of the hundreds of thousands of books and pamphlets which at their present rate of increase will soon grow into millions. Not that I would for one moment decry the intelligent study of Shakespeare, within certain limits, but unfortunately under present conditions the plain man in the street is inclined to think that Shakespeare is only for the student, that his plays are very heavy and difficult to understand.

"Commentators and academic professors all contribute to this opinion by writing profound criticisms, explanatory notes and essays dealing with every phase and condition of his life and writings, so that the beauty and simplicity of his poetry and dramatic incident is smothered under a mass of pedantic scholarship. Whereas the truth is that Shakespeare was one of the simplest and most lucid writers that ever lived. But it must always be remembered that Shakespeare wrote for the stage—not for the study. He wrote for an audience of whom at last 75 per cent. could neither read nor write—a pretty clear proof that his plays are not difficult to understand by anyone of ordinary intelligence. It is true that some of the words and phrases he makes use of are now obsolete, but the actor, in his interpretation of such lines upon the stage, can be usually depended upon to bring out their meaning by illustrative business and by-play. When a man says that Shakespeare is beyond his understanding he makes the terrible confession that with all the advantages of modern education and the advance of civilisation in the past 3½ centuries that he possesses a lower intelligence than his Elizabethan ancestors.

"From the fact that Shakespeare is made a subject of study in our schools and colleges arises the belief in the minds of many that Shakespeare in the theatre is neither interesting nor amusing, and they have come to regard it as merely an education entertainment. Of course, to witness a Shakespearean performance must be educational, for all great art is educational, whether it takes the form of poetry, plays, novels, pictures, sculpture or music. Art is educational because it teaches us to appreciate the beautiful, the noble, and the finer qualities of life. Art gives expression to the ideals and aspirations of mankind. It enriches the imagination and enlarges the mind. Our love of, and our appreciation, of the sublime and beautiful, is the one quality that raises us above the beasts of the field. To this extent it is true that Shakespeare is educational, but being the greatest genius the world has produced, he has left to us the richest legacy of all the dead, and his plays have a wealth of absorbing dramatic interest and an inexhaustible mine of wit and humour, all clothed in the most exquisite language and abounding with the most profound philosophy. Yet his philosophy is not merely the philosophy of the learned and the academic, it is the philosophy which can be understood and applied by all. Time only serves to deepen and to extend his influence. Shakespeare walks and talks with men in the market place; he is present with us in our everyday conversation. Whenever we say, "As poor as Job" or "As sound as a bell," or "A trick worth two of that," or "Wear one's heart upon one's sleeve," or speak of "The piping times of peace," we are quoting Shakespeare." When we have a desire to be very modern and say "I cannot tell what the dickens his name is" we find we have been forestalled by Mistress Page in "The Merry Wives of Windsor."

"Also in the delineation of character Shakespeare has no rivals. That the same mind should have created such opposing characters as Hamlet and Falstaff, Lady Macbeth and Rosalind, is one of the wonders of the ages. No other writer has ever exhibited such an extraordinary range and versatility. Kings and princes, courtiers and fair ladies, rustics and clowns, witches and fairies pass through his pages, the creation of his teeming fancy, and they are not merely types or puppets, but they are all individuals—they appear to have had an actual existence.

"George Bernard Shaw, the most popular and the most prolific dramatist of the modern world, has not created a single individual of flesh and blood—all his characters are nothing but puppets expressing his personal views. Shakespeare has created a thousand characters whose names are household words. As an indication of the extraordinary manner in which a play of Shakespeare's seizes upon the imagination, a performance of, say, "Hamlet" or "Othello" will linger in the memory 20 or 30 years later, or even longer. Only the other day I met a man who described to me a performance of 'Henry V' by the famous Shakespearean actor Samuel Phelps, which must have taken place at least 50 years ago. The details of the performance of the average modern play are forgotten in a few weeks.

"Another claim that Shakespeare has to our consideration is the fact that he was not only the greatest poet the world has produced, but also he was the greatest patriot—his love and admiration for England and his fellow countrymen was not merely a belief—it was a passion.

"It is impossible for anyone with British blood in his veins to listen to the lines spoken by the dying John of Gaunt in 'Richard II,' in eulogy of England, without a thrill of pride. The typically English sentiment and feeling which he expresses throughout his plays have had an enormous influence upon the character of the British people. His value as a national heritage is beyond expression.

"Did not Carlyle say, 'Far bet[illegible] can we afford to lose the Indian Empire than we can afford to lose our William Shakespeare.'

"But only a poet can do justice to a poet, and Shakespeare stands on such a pinnacle of greatness that only he himself can do himself justice; therefore, if you want to understand and appreciate him, it must be through the medium of the stage for which he wrote, and such is his infinite variety and charm that the appetite will grow by what it feeds upon, and the more you see of him the more you will learn to love him.

Broadcasting engineers in Europe are striving to evolve a characteristic tuning note for the various stations, so that listeners can judge the capabilities of their sets by a standard signal.

One suggestion made to the British Broadcasting Company is for a pianist at stated times to send out tones of uniform strength.

Several German stations use gongs for this purpose, but the British engineers are experimenting with a more elaborate system involving tuning forks. If adopted, this would entail the use of electrically controlled tuning forks, which would first sound all the notes of the scale simultaneously, and then each note separately up the scale.

Amongst the Listeners

This is the Listener's Corner. It is available for reports of receptions from individuals; the correspondence of Leagues of Listeners and reports of their proceedings; constructive criticism or suggestions for the betterment of radio in general and the consistent improvement of the service that broadcasting can render in our community life. We wish this page to be the meeting-place of listeners and officials for the better understanding of points of view and the problems of others.. It is a "Service" page, and we invite you to make use of it. Address all communications: Editor, "Radio Record," P.O. Box 1032, Wellington.

HAWKE'S BAY NOTES

By broadcasting the description of the Hawke's Bay and Wairarapa Shield match at Masterton on July 9, the Radio Broadcasting Company made a lot of friends up this way. One cannot help but offer congratulations to the company for its efforts, but it should be the announcer who should get most of the credit for this. The reception was good, but from a station like 2YA we expected it to be so, and it was not so much the transmission which gained so many friends for radio as the gentleman who described the game. Why, he had the stay-at-home crowds in Napier and Hastings almost as excited as if they were actually seeing the match. At times, though, his voice was blotted out by the local crowds giving vent to their enthusiasm when the tide turned in favour of "the Bay."

With the description of the Trentham races following, a great demand has been created for receivers, and dealers are in hopes of a rosy time. If the Broadcasting Company could realise as we listeners do what a difference 2YA is making, no time would be lost in bringing the three other stations into line. If this were done, and done soon, and the quality of the programmes correspondingly improved, there would not be such a cry for Government control, and radio licenses would soon reach the desired 40,000. It's worth thinking about, anyhow.

Local listeners are still on the job with their growl about the proposal to observe a silent night at 2YA. Why should it be so at this station or any of the other main plants for that matter? It is all piffle to talk about closing down for overhaul. Surely an afternoon off, with all the mornings of the week in the same box is sufficient for this. How does 2BL manage for an overhaul? They don't even have the morning free, and it is hard to see why an up-to-date station like 2YA should be any different.

Although it may not be generally known "abroad," the Hastings Radio Society, which has developed into a pretty strong body, is now working hard for the erection of a station of its own, and the sole reason for this is that the present broadcasting hours and programmes are not meeting with requirements. In New Zealand there is no musical entertainment between 4.30 p.m. and 8 p.m., and this does not cater for farmers, school children, hospital patients, and so on, when 8 o'clock means time for bed, and it is to fill in this gap that the Hastings Society is moving. The society has already secured permission to erect the plant, and at present is after sufficient funds to install it, and have a little in hand to carry on. The proposed plant will have an output of 50 watts, and at the moment it is intended to be on the air from 6.30 p.m. to 8 p.m., three nights per week. As will be readily seen, there is to be no competition with the main stations, so the proposal should meet with full favour. Just now, the society is awaiting receipt of its articles of incorporation, and when these come to hand, and the body is on a sound footing, debentures are to be issued. No difficulty is anticipated in "raising the wind" as soon as the "big push" starts.

The incorporation articles provide for the Hastings Society changing its name to "the Hawke's Bay Radio Society," so the whole province will be its area. I hope this does not clash with the ideas of our Napier friends, who, by the way, seem to have come back to life, under the name of the Napier Listeners' League.

The Hastings Society installed a receiver in its club room on the occasion of the broadcast of the shield match on July 9, and a collection was taken up in aid of the local unemployment fund. Despite a couple of trouser buttons and more than a few half-pennies, and still more browns and church coins, the total came to £4 0s. 6d.

RADIO CLUBS AND LISTENERS' LEAGUES

The following are the secretaries of various leagues and clubs. We would be glad to have a full list for the benefit of readers, and to receive notes of doings for publication:—

Mr. J. N. Leet, 141 Featherston St., Palmerston North.
Arthur D. Ford, P.O. Box 37, Christchurch (Canterbury List. L.).
E. H. Culver, P.O. Box 136, Hastings (Hast. Rad. Soc.).
W. H. Quickfall, P.O. Box 41, New Plymouth.
T. W. Stringer, P.O. Box 512, Auckland.

THE "HOWLER"

HOW TO CHECK HIM

LECTURES AND TUITION NECESSARY

The "Howler" is one of the chief causes of listening difficulties. How can he be checked? Detection and tuition, supplemented by lectures, may do something.

The lure of distance reception must be recognised as one of the attractions of broadcast listening. Few who purchase a four or five-valve receiving set are content to listen only to the New Zealand broadcast stations, let alone confining their patronage to one station solely. In metropolitan and country town areas the besetting difficulty is to obtain entertainment from distant stations, even New Zealand stations, without interference from howling valves. As the popularity of broadcast listening increases the trouble becomes more aggravated, until it has in some districts attained the proportion of a serious menace to broadcast listening.

WHO ARE THE CULPRITS?

One of the worst offenders is the owner of a single-valve regenerative receiving set. With the plate (or anode) voltage of his valve frequently in excess of due requirements he sets out to "rake in" distant stations. To pick them up he increases the filament voltage of his valve or forces regeneration until the valve oscillates, and when the "carrier" wave of the station is picked up he fills his neighbours' loud-speakers or head-phones with blood-curdling howls. The ideal adjustment for reaction is to bring it close to the point where oscillation commences, but if the receiving equipment is then unequal to the task of reproducing the music, the operator of the set forces his valve into slight oscillation, and is content to hear some kind of "mushy" music, while he afflicts his neighbouring listener with howls. If his detector valve plate voltage is too high he cannot adjust his valve to its most sensitive point without "spilling over" into oscillation.

SIGNOR TRUDO,
who sang acceptably at 2YA's opening.
—S. P. Andrew, photo.

ANOTHER BORE.

Another gentleman who occasions a considerable amount of interference is the self-imagined genius who is out to revolutionise radio by some marvellous discovery overlooked by Marconi, De Forest, Armstrong, and others. He is for ever tinkering with and altering his circuit; he winds some wonderful coils and transformers and then sets about to startle the world. The only people this pest startles are the other listeners in his district, for the howls which his set radiates rival those from a steam syren. There are, of course, very capable amateur builders and experimenters to whom the above does not apply.

AN INNOCENT DISTURBER.

An innocent disturber of the peace of other listeners is the novice who operates a neutrodyne or Browning-Drake (another form of neutrodyne) which is not correctly balanced, or neutralised. He has bought his set from the importers, and after a little necessary tuition gleefully reaches out for the DX (long-distance) stations. In many instances his radio set has not been neutralised with the actual valves he is using. And some makes of valves, owing to mass production, vary considerably in characteristics. This results, in many instances, in an unbalanced radio frequency circuit so that the should-be harmless "neutralised" set is a veritable box of howls and squeals.

TO LOCATE HOWLERS.

"Howlers" can be located if competent men, with proper equipment, are appointed to the task. Some Christchurch enthusiasts, a little while back, with the aid of a motor-car and a loop set, located some persistent "howlers," and the same thing has been accomplished in other places. But is the discovery of these "howlers" a solution of the difficulty? Will this completely suppress howling? Experience, unfortunately, proves otherwise, although some good has been accomplished.

WILFUL OR ACCIDENTAL?

Instances are well known in New Zealand in which "howlers" have been definitely located and proven, beyond doubt, guilty. Investigators have asked them to tune their sets, and they were shown to be causing interference. The investigators have then spent some time demonstrating the correct method of tuning and tutoring the "disturbers," yet on the following evening, through lack of skill, or intelligence, the offenders' valves were howling as lustily as ever. In Auckland, the stations outside this city are, sometimes, overwhelmed with a veritable tumult of howls.

TO REDUCE INTERFERENCE.

There are various suggestions offered to reduce the howling valve nuisance. A house-to-house visit by radio inspectors would enable them to ascertain whether untutored people are causing the trouble unknowingly. While there may be some persons, as in the Christchurch example, who cannot be taught or led, there are others who would benefit by a little expert guidance. Though one demonstration is worth a score of lectures by broadcast, it must be recognised that a broadcast lecture covers a wide area simultaneously, and is far less costly than a systematic house-to-house visit. In addition to explaining how to tune a set without causing interference, the lecturer could also describe the test to ascertain whether a neutrodyne is correctly balanced. Those whose sets were not properly neutralised could be advised to engage someone expert in such to readjust their circuits.

HOW TO START

CARE IN INSTALLATION

THE LISTENER'S DUTY TO HIS NEIGHBOUR.

Some useful advice for the amateur is given in this article. His own pleasure and that of his neighbour depends upon his knowledge and skill.

All who are concerned in any way with wireless broadcasting—engineers, writers, consultants, and listeners—are asked almost daily by somebody for advice in the choice of a wireless receiving set. And most of those so questioned will agree that very few people have formed, before putting the question, even the vaguest idea of the sort of set they want, what they are willing to pay for it, or what service they expect to receive from it. Among those who do not listen, or listen only occasionally, to the broadcast programmes there is still extreme ignorance of even the most elementary facts relating to the process of broadcasting.

For the listener the receiving end is the business end in broadcasting; and thus, while it is not essential to know anything about what happens in the studio to make the reception of broadcast sound possible, it is certainly very desirable to have some knowledge of what a wireless receiving set is, what it can and cannot do, and how to make it function before buying it. No two people appear to want exactly the same sort of set, and the ultra-enthusiastic appear never to be satisfied with what they have got. And yet from an examination of the market it would seem that every possible taste can be satisfied and want supplied.

The other day there was published a schedule of wireless sets on sale. It filled 17 closely printed quarto pages. Over and above the sets therein described new circuits are discussed with elaborate detail and many diagrams appear in the technical wireless papers every week. There seems to be no limit to the range of variety in design. But it is not for this reason that there is confusion in the mind of the potential buyer; that confusion, one would suggest, exists because he does not really know what he is seeking.

Investigate the Market.

Before buying a wireless set one should hear as many different types as possible, and it is more satisfactory to hear them in private than in a shop, and best to hear those that are owned and operated by people having a musical sense as well as technical knowledge in wireless matters. A very great deal of the criticism levelled against the quality of broadcast music should be directed, instead, against listeners who have poor musical taste and are satisfied with bad reproduction arising from careless manipulation of the set. They are responsible for many an empty pair of ear-phones. Perfect reception depends mainly upon the skill of the listener-in and his manipulation of his equipment.

Having chosen a set to meet his requirements, the listener will find that he cannot spend too much care in the process of its installation, and that he must be ready to exercise considerable patience in adjustment and tuning. Most of the reputable vendors will help in installation. To study the needs of his equipment, and to act upon instructions are duties that he owes to himself and his neighbours.

Always Buying More.

There are few things less stable than the requirements of the listener. His first set is rarely long retained. It is supplanted by something more elaborate. Some like complications and are attracted by a multiplicity of knobs; others are all for the extreme of simplicity. In the writer's experience three sets were installed in a single week recently in different houses in the same street. In no case did the question of expense arise.

In the first case the set is a simple crystal one with a valveless amplifier working a loud-speaker.

In the second the set is of the valve type, having no exterior connections and being fitted with a single knob tuning control.

In the third the set is equipped with the best available aerial and earth systems, and is a flexible four-valve instrument. Each of these sets is particularly suited to the special needs of its owner and gives complete satisfaction. In other cases it is the appearance of the set that matters most; and in some it appears that even anything will do if it reproduces dance music sufficiently well for it to be danced to.

Over and above the general questions of design, performance, and cost there are those of the varying merits of valves, accumulators, batteries, and other components. These are the concern of the enthusiast of long experience. The task of the beginner is to get the best that he can out of the set that he has, to study its moods and vagaries, to treat it with the care that a piece of delicate mechanism deserves; and to remember, above all things, that the greatest disservice he can render broadcasting is to be satisfied with bad reproduction.

NOTICE TO READERS.

Correspondence and matter intended for publication should reach the Editor not later than Saturday for the next week's paper. We go to press Monday night.

—THE EDITOR,
P.O. Box 1032, Wellington.

FIRST AID

DISABLED RADIO SETS

First aid treatment for "sick" radio sets that will enable the man who has only a slight knowledge of radio to recognise the trouble and make the necessary repairs was prescribed by Lee Manley and W. E. Garity at a meeting of the American Institute of Radio Engineers. They pointed out that the sets as a rule do not go bad of themselves. The failure usually occurs while some operation is taking place, such as plugging in the loud speaker, tuning the condensers, or making a change in the battery connections.

If the set has been in operation for a month or six weeks, and has been giving satisfactory service for that period, the cause of failure is generally due to the weakening of the batteries.

If the set has been in operation for a period of six months or a year the possibilities of trouble will increase. If the failure has been gradual, the first thought would be that the tubes were worn out.

Trifles Cause Trouble.

If the breakdown is sudden, a mechanical failure might be expected in one of the movable connections, or pigtails, of a transformer may have burned out. If the trouble is due to a noise condition, the failure might be ascribed to dust or dirt accumulations on the condenser plates or other important parts of the receiver. The defect might also be due to a corroded soldered connection. It will require, as a rule, a rather long time for a soldered connection to corrode to such a degree as to cause this condition.

The local atmosphere conditions under which the set has been operating may have some bearing on the cause of failure. If the set has been operating near the seashore, and has been subjected to the action of salt atmosphere, sufficient corrosion may have taken place in the connections or other metallic parts to introduce high resistance or leakage paths. Moisture may saturate the cheaper grades of insulating material to such an extent as to cause high-frequency short circuits.

Worn Mechanism.

If a set has been operating for a long period of time and has given satisfactory results, and then develops noises and scratching sounds, one should not look for a loose connection in the wiring of the set, but rather for an open circuit in the moving parts. Worn mechanical parts are often mistaken for loose connections in the wiring. The wiring is absolutely stationary, and it is not likely that it will be disturbed in the ordinary use of the set so as to cause a failure due to a loose connection.

Vernier drive-shafts and vernier plates will wear loose, and while apparently they are making perfect contact to the metal surfaces of the condenser, still when the set is brought into a critical condition, as is the case when receiving distant stations, noises will occur that might be thought due to a loose connection in the wiring.

HELP THE SICK

RADIO FOR HOSPITALS

THE WELLINGTON MOVEMENTS.

The Wellington Radio Society's Hospital Radio Fund has not received the support from the public that the cause merits. A persistent campaign over a period of fifteen months has yielded only about £1000.

The fund is for the purpose of equipping the Wellington General Hospital with a powerful broadcast receiving set from which wires are to run to the bed of each of the 600 patients. Headphones are to be allotted to each patient so that listening-in can be enjoyed without disturbing those who are not in a condition, or are disinclined, to listen to broadcast entertainment. In London, alone, there are many scores of hospitals so equipped, and in several foreign countries the hospitals are also furnished with broadcast receiving equipment.

MORE MONEY NEEDED.

It is a subject for regret that the Wellington citizens have failed to give due support to the Wellington Hospital Radio Fund. A sum of nearly £2000 is required to equip the hospital throughout, and only half that sum has been subscribed. The curative effects of broadcast listening upon hospital patients has been endorsed by eminent medical practitioners throughout the world. It is now well established that mental influence plays an important part in the curative process of the human body.

RADIO AS A CURE.

Hospital patients are prone to worry over their plight, and in brooding over their misfortune retard their progress towards recovery. Reading in bed soon fatigues a patient, and without anything to occupy the mind the patient is subject to depressing thoughts. Broadcast listening offers a most valuable diversion to the patient without the slightest bodily fatigue. The patient rests comfortably in bed with the headphones on, and the mind is soothed with vocal and instrumental music and the interest is engaged with news of the great big world or by attractive lectures.

OUR PHOTOS.

We are indebted to Mr. S. P. Andrew for the majority of the photographs of Ministers and performers in last issue and this issue.

HOSPITAL AUTHORITIES FAVOURABLE.

Dr. Wilson, medical superintendent of the Wellington Hospital, is an enthusiastic advocate, for the installation, and is a member of the hospital radio fund committee. The members of the Wellington Hospital Board are also in favour of the scheme, but owing to the heavy tax on the board's financial resources the board has found it impossible to grant any donation towards the fund. The hospital radio fund committee applied to the T. G. Macarthy Trust for a charitable grant, but the application was rejected recently.

INSTALLATION TO PROCEED.

The probabilities are that the fund committee will now instal as much of the broadcast equipment as the money in hand will permit so that as many patients as possible can receive pleasure and interest from radio without any further delay.

The committee are inclined to believe that when the wonderful effect of broadcast listening upon the patients in the Wellington Hospital is known, the public will respond more freely with donations to the fund.

The active members of the hospital radio funds committee comprise Messrs. W. Stuart Wilson (chairman), J. H. Owen (president of the Wellington Radio Society), W. J. Roche (hon. treasurer of the society), and Ivan M. Levy (vice-president of the society, and hon. secretary of the fund). These gentlemen have met once and even frequently twice a week during the past fifteen months to carry on the campaign for funds. Their humanitarian purpose deserves the heartiest support.

SEEING BY RADIO

John L. Baird, television inventor of England, has closed his experimental transmitter and is building a much larger station with a four-kilowatt output at Purley in Surrey.

The first work at the new station will be experimental, but Mr. Baird is hopeful that actual televisor programmes will be presented to the public ere long, according to reports from London. Alterations in the apparatus have overcome the necessity of using two wavelengths, and now the pictures can be sent out on one wave.

Receiving outposts are being installed at Dublin, Belfast, Liverpool, and Manchester with the object of testing television over long distances. Hitherto the longest distance over which television transmissions have been received is 130 miles. —

RADIO FARM SERVICE

EXPERIENCE IN AMERICA

While the total number of listening-in sets in New Zealand is about 20,000, mostly in the towns, it comes as a startling comparison to learn that in the United States no fewer than 1,252,126 farms are equipped with radio receiving sets. The increase to May was remarkable, being 120 per cent. in less than two years. It is quite evident that American farmers are fully alive to the advantages of a radio broadcasting service. With a view to ascertaining the needs of farmers and their ideas for improving the service a questionnaire was sent to 10,000 radio owners.

An analysis of the replies shows that American farmers, by nearly two to one, prefer radio talk to music and a very strong dislike for jazz is expressed. In music they want old-time tunes and classical music. Aside from educational farm programmes, weather and market reports, political talks are evidently popular and more current news programmes are in demand

Farmers are not using the radio merely for entertainment. The day's work is now planned according to the weather forecasts sent out by the weather bureau and received by radio much more quickly than was formerly possible. Market reports are eagerly followed and numbers of farmers report definite savings in dollars and cents as a result of this service

Not only that, but hundreds of the reports from farmers cite instances where the educational programmes prepared by the radio service and broadcast through nearly 100 commercial and State College stations, have been promptly applied to the immediate advantage of the individual radio user.

Many stockmen report larger and more profitable pig crops as a result of the adoption of better practices outlined by radio Others claim that information from these radio programmes has enabled them to get their poultry projects on a sound financial basis. Still others report thriftier livestock and improved marketing practices as a direct result of their recent radio schooling. More cotton on fewer acres, better food in the home, and more eggs from the chickens are listed among the benefits received.

These farm listeners, however, have very definite ideas about how they want the programmes presented. In reply to one question, "Do you prefer lectures to be given by an announcer, who can be clearly understood, rather than by the authorities themselves?" the answers were more than four to one in favour of the trained announcer. Asked to indicate how they preferred farm information presented, 3148 farmers voted for some form of dialogue style, as against 1497 who indicated a preference for the straight lecture form.

Among the suggestions for improving service were: Select speakers with good broadcasting voices; train broadcasters on delivery; make talks short and to the point; schedule talks often enough and regularly enough for folks to get the habit of listening; inject enough atmosphere or entertainment into educational programmes to avoid their becoming dull; and prepare talks in simple and every-day terms.

Practically all phases of farm life were touched on. Among the radio programmes requested were those dealing with: the most economical way of preparing hogs for market, clover as a soil builder; improvement of country roads; the control of insects and rodents; marketing pork, beef and grain; feeding the dairy cow; spraying and orchard care; treating fence posts; raising colts; making charcoal; the production and harvesting of legume hay; utilisation of soft timber for farm buildings; general farm management; the farm labour problem; and fox farming. One farmer asked for information on whether to sell or not to sell the farm.

As the result of the lectures there has been a great demand for literature mentioned in the addresses.

An enthusiastic listener-in, whose home, fortunately, occupies an elevated site at Island Bay, Wellington, takes a delight in demonstrating to his friends the fact that broadcast sound reaches the distant listener actually before it is heard in the immediate vicinity of its origin. This fact, it will be remembered, was stressed by the Right Hon. J. G. Coates, Prime Minister, in his speech on the occasion of the opening of 2YA. The Island Bay man's demonstration is simple, but convincing. He leaves the window open when the chimes of the Post Office clock are to peal forth. "Time after time," he says, "my friends have been astonished to hear the distant stroke of the clock after it has been much more clearly heard per medium of my loudspeaker."

ACROSS THE PACIFIC

Though of only 500 watts, 1YA is frequently heard in Canada and in America. One correspondent expresses his impressions in the following manner:—

"I have often thought that your announcers little knew who or how many were listening to you. I am probably 8000 or 9000 miles away from you, living on a farm engaged in raising wheat on the great prairies 185 miles east of Calgary, Alberta, which is my nearest city by rail."

WAVE-LENGTH QUESTION

UNDER 500 METRES BEST

Interest has recently been caused by a revival of the discussion on the choice of the most suitable wave-lengths for conducting broadcasting services, and the use of wave-lengths of between 1000 and 2000 metres (says the Melbourne "Argus") is once more being advocated. The subject is so many-sided that the sharp differences of opinion which have occurred on the matter can be readily understood, but the weight of opinion seems to justify the action of the Australian broadcasting authorities who have abandoned the long waves for waves between 200 metres and 500 metres. There is no doubt that in some respects long wavelengths for broadcasting are eminently suited to Australian conditions.

Long-Wave Advantages.

Their chief advantage over shorter waves is that they are less subject to absorption, and hence travel further in the daylight than a short wave of equal initial power. This in itself is an obvious advantage, and there is no doubt that many parts of Australia not now served in the daytime would get a good service if the existing "A" class stations were replaced by long-wave stations of equal power and efficiency. A further advantage of the long waves is that they are not so subject to fading and distortion arising from fading as are short waves. It is well known, for instance, that when 3LO was on its long wave the areas in Gippsland, where fading and distortion are now so bad, then had a perfect service.

Serious Disadvantages.

But against these advantages of the long wave, there are serious disadvantages of more than equal weight. In the first place, an extremely large aerial system is needed at the transmitter of an effective long wave station. Experts consider that one of the reasons that transmissions from Australian stations when they were on a long wave were unsatisfactory was that the aerials were far too small. A large aerial involves the use of extremely expensive high masts and a large allotment of ground, enormously increasing the cost of the station. There is, moreover, a tendency for distortion to occur as the wave length used for broadcasting is increased. Although there is no technical reason for believing that signals on a wave of 1700 metres should be much more subject to distortion than signals on 400 metres, there is no doubt that the quality of the transmissions from 3LO since the wave length was reduced has been much improved.

Short Wave Advantages.

Although the daylight range of a long wave station is greater than that of a short wave station, the night range and night signal strength at a distance of the short wave station, subject, of course, to fading, is far superior to that of a long wave station, and moreover interference from static is never so serious on short waves as it is on long waves. The other advantages of the short wave service are mainly economic ones, chief among them being that wave lengths between 200 metres and 500 metres have been adopted as standard for broadcasting, and the development of receivers for broadcast reception has been confined to equipment designed to work most efficiently on the standard wave-lengths.

In New Zealand there are so many thousands of receiving sets in use which are not constructed to tune to the long wave-lengths that any change to a longer wave-length than, say, 500 metres, would not be considered by the authorities.

BROADCAST STATIONS

THE PRESENT WAVELENGTHS.

Following are the principal New Zealand and Australian broadcast stations, with their wavelengths:—

7ZL,	Hobart	635	metres
3AR,	Melbourne	484	,,
4YA,	Dunedin	463	,,
2FC,	Sydney	442	,,
2YA,	Wellington	420	,,
5CL,	Adelaide	395	,,
4QG,	Brisbane	385	,,
3LO,	Melbourne	371	,,
2BL,	Sydney	353	,,
1YA,	Auckland	333	,,
2GB,	Sydney	316	,,
3YA,	Christchurch	306	,,
2UE,	Sydney	293	,,
2KY,	Sydney	280	,,

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A 112-VOLT B ACCUMULATOR

SIMPLE AND EASY TO CONSTRUCT

Here is a description of how to construct a B accumulator on the same lines as one that has been working without a hitch for nearly two years. After success with a battery of the same voltage but with smaller plates, this was designed as an experiment in getting a fair capacity from lead plates without pasting, which is a process that many would prefer not to tackle. It has been so successful and is comparatively easy to make that it is certain to be of great use to many a radio enthusiast who enjoys making his own accessories. An ideal way of using this accumulator would be to arrange a trickle-charger that would operate during the night, so that a full supply of HT current would always be ready for the following day. It is not claimed that this battery has a very high capacity, but when forming of the plate is complete, it will run a four or five-valve set on loud speaker for at least five or six hours, even with power valves in use. Smaller sets will, of course, run proportionately longer, and for two and three-valve sets and short-wave work it will be found particularly suitable. It is convenient to use, giving three voltages which can be altered by plugging in as required, and each valve is protected by a reliable fuse attached to the positive leads as they leave the battery. For those who prefer to go to the trouble of putting paste in the plates in order to gain considerably in capacity, with less frequent charging, the same size and shape of lead plates can be utilised in a manner that will be described at the end of this article. Everything else is carried out as described, and the only difference is in the final treatment of the plates. The accumulator has an advantage over dry batteries, especially for intermittent use, as if charged up occasionally it will always keep in good condition, whereas a dry battery is deteriorating whether used or not, and is comparatively costly to replace, whilst quieter reception will be assured with the accumulator. Frequent charging is of course, necessary, but if convenient switching arrangements are provided, and a good chemical or other rectifier installed to charge from 230-volt alternating current mains, there need be no inconvenience on that account. Very few public electric installations utilise direct current, but where this is the case, no rectifier is required, as the current from the mains may pass direct to the battery, regulated by a suitable number of lamps as resistances. Those who are still on 105-volt supply must charge the battery in two halves simultaneously with a small additional switch attachment that will be described in due course The materials should not cost more than £2, and the cost of charging, even daily, will scarcely show in the electric light bill.

The diameter of the test-tubes used is nominally one inch, but there is usually some variation in size. even in the same batch, so the constructor would be wise to purchase the tubes before commencing the woodwork, so that the size to be provided for will be known. The length of the tubes is six inches, and owing to the way in which the lead plates are folded and interlocked, a much greater capacity is provided than is the case when simple flat strips are used. This shaping and placing of plates may seem difficult at first sight, but if the instructions are carried out correctly, it will be found that the plates will drop together with a minimum of trouble, and the assembling thus prove quite a quick and simple matter.

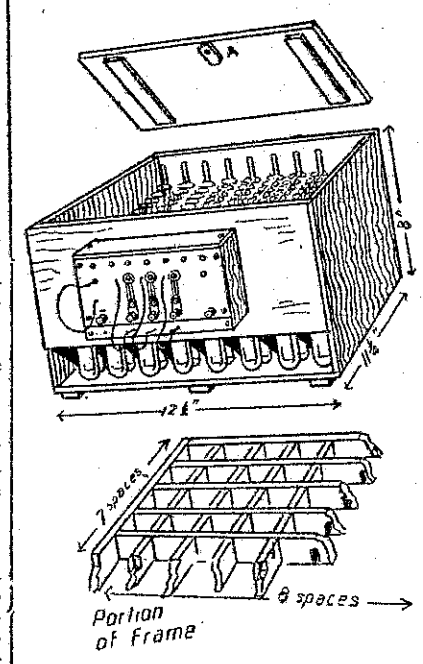
Materials Required.

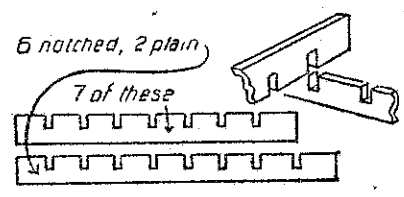
56 Test tubes, 6 x 1in.
Ebonite, ⅛in., 6½ x 3¼in.
5 Terminals.
9 (or more) sockets.
4 pins for ditto.
6 Brass bolts ¼ x 1-8in. with nuts and washers.
Sheet lead 48 x 23in., about 32lb.
Celluloid, 20 mils., 8 x 8 1-8in.
Suitable timber and lathes.
Enamelled wire, brass screws, etc.

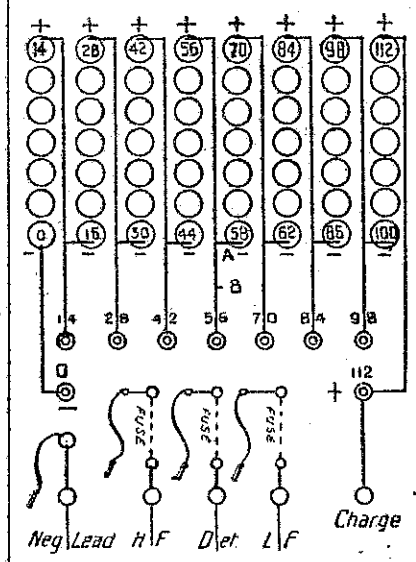
The case is made of heart rimu or other good timber, and a smart finish is imparted by polishing with a rag dipped in a solution of shellac in methylater spirits. This polishing may conveniently be done before the parts are screwed together. The outside dimensions of the case are given on the perspective view, and it will be seen that at the back and front an opening 2¼ inches high is left for inspection of the lower end of tubes and plates. A loose lid is provided, with a turnbutton at A which allows the lid to be kept slightly open whilst charging. Timber used for the case should be ½-inch, with 3-8 battens under the bottom and inside the lid. One-inch number 6 brass screws will be found suitable for putting the case together. At a distance of 1¾in. from the top edge a 5in. slot is cut in the front of case to allow the tap wires to reach the panel. The panel stands away from the front on two side pieces of 3-8in. thickness, 4¾in. by 1½in. screwed to the case from inside, the top ends level with the top of the slot, the space at top being covered with a slip of thin wood projecting over the top edge of the panel and flush with its front surface. Below the panel a strip of wood about an inch wide fills the remaining space and in this four holes are drilled to take the plugs when not in use

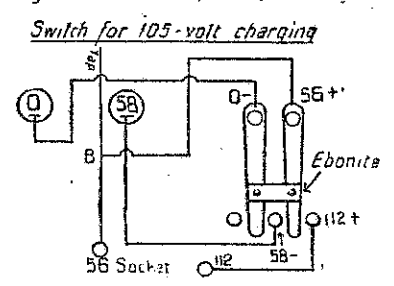
The tubes are supported by a frame with 56 apertures each one-inch square, constructed of laths one inch wide by barely three-eighths thick. These are notched half-way through and interlocked as shown in the diagram. The outside of this frame must be a loose fit inside the case, and a lath is screwed inside each end of the case to support the frame so that its top surface is five inches above the bottom of the case. If the constructor takes the sizes here given for the frame, he should make it first and make the case an easy fit for it, otherwise if the case is made first these sizes may not be quite correct, depending upon the exact thickness of the wood used in making the case. Eight laths are required, 10⅝ inches long, and six of these must be marked out and all notched by making the corresponding saw-cut in each at the same time, so that any slight inaccuracy will not cause trouble in fitting the cross-pieces. The notches must be of a width to take the laths snugly, and spaced out so that every division will be equal. Seven laths will be required of the short size, about 9 5-8in. and these will have six notches cut in each. Two laths will also be required for the ends of the frame, and the length of these will be determined when the rest of the frame is assembled.

The next operation will be the preparation of the lead plates. For these a piece of sheet lead 48 x 23 inches will be required, weighing about 32lb. in the ordinary gauge usually procurable, about 1-16th inch thick. Heavy gauge lead would be difficult to bend and cut. Before cutting up this sheet, lead must be well flattened out and cleaned on both sides with kerosene and pumice powder, or other wet process that will make it fairly bright looking. No dry cleaning method must be used, as the dust raised would be injurious to the health. Now scratch a line down the centre with a straight-edge as guide, giving two portions 11½ by 48 inches. Parallel to this central line two other lines two inches apart are to be marked down near the centre of each half, or in other words a line 4⅛in. from each edge and another line on each side of the centre line and 4⅝in. from it. Now









with a pair of snips or strong shears cut down the central line and then proceed to cut each of the two pieces thus produced into strips 11½ by 1 5-8in. as marked. Each of these pieces will then have two lines two inches apart marked across near the centre. Put eight of these aside for special treatment Forty-eight pieces are to have a piece cut out of the centre as shown by the two marks, but leaving a connecting strip on one side 3-8in. wide, as diagram. The eight other strips are for the ends of each row of cells, and are to be cut into two pieces so that each has a 3-8in. wide tag two inches long projecting at one side of the end, a small piece of waste coming out between the tags. Now the double plates can be bent to shape over a strip of wood about 3-8in thick, with a rounded edge. All the double plates are bent the same way and are put into the tubes alternately as shown in the diagram. See that the tubes are clean, smear vaseline half inch wide inside and outside tops, and drop into place in frame. Now the double plates with the connectors vaselined may all be put in place, and it will be seen which way the end one must be bent so that the tag will come at the outside end of the row. This tag on the end plates is to be bent as shown to prevent the plate from sinking in the tube, and the tap wire is to be soldered to the extreme top of the tag, as by this means the joint is kept clear of the acid. The top of these plates also must be coated with vaseline, likewise the soldered joints when they are completed. The tap wires are also utilised to connect one row of cells in series with the next, and these wires may be soldered to the negative end of each row, and then continue to the panel sockets. Each tap wire should run just below the edge of the tubes, and to keep them in place they may be passed through holes drilled in a couple of inch strips of celluloid about 11in. long, running from side to side between the cells.

The celluloid separators must now be made. They consist of strips 1 3-8in. by 1-8in. These are easily made, and a good supply is required, two for each cell, and some extra ones which may be needed. The celluloid should be 20 mils. thickness, and a piece 8 by 8 1-8in. will make a gross of separators. Divide the 8 inches into thirds of an inch, giving 24 and the 8 1-8in into six parts of 1 3-8in. each. Now take a straight-edge and sharp steel point and rule deep scratches where the celluloid is to be divided When this marking is all done, the celluloid can be bent and broken where the scratches are, and a clean edge results. Warm the strips a few at a time near a fire or over an electric radiator on a metal plate until they soften slightly, then bend to a V of the angle shown in diagram, which is about 70 degrees, but only needs to be approximate. These separators are pushed down between the plates as shown in the diagram, one at the bottom of one plate, and one at the top of the other plate. In odd places it may be necessary to put an extra one in.

(To be Concluded Next Issue.)

SOLDERING

SOME USEFUL HINTS

Probably many home constructors are satisfied at first to attempt to get through without soldering joints in their sets. But twisted wire joints may go a long way towards impairing the efficiency of the receiver, and soldering is really quite a simple and easy process to master, and once learnt, there will be no desire to risk noisy reception by letting joints go unsoldered.

The ideal soldering tool is the electric soldering-iron, as it keeps at an even heat, and is not made dirty by heating in a flame. The copper-bit is perhaps the most usual implement, and is capable of doing good work if properly handled. Some joints may be more readily made with the assistance of a jeweller's blowpipe (costing about 1s.) in conjunction with a flame of methylater spirits on cotton wool contained in a small receptacle such as the lid of a metal shaving soap container. In this method the joint is cleaned and fluxed and a suitable blob of solder laid on and heat is applied by directing the flame of the spirits upon the joint by means of the blowpipe, actuated by the operator's breath.

Whichever method of heating is employed, the parts to be joined must be made mechanically clean, the heat must be ample to melt the solder easily, and if a bit is used it must be kept in a properly tinned condition. Flux must not be used too lavishly, and surfaces to be soldered must not be handled once they have been cleaned.

By mechanical cleanliness is meant absence of all matter or conditions inimical to the success of the operation of soldering, for example, tarnish or oxidisation, grease, sooty deposits, etc. The presence of such matter in even minute quantities is sufficient to cause partial or complete failure in soldering, so that every surface to be worked should first of all be cleaned either with emery cloth, glass paper, or a smooth file.

It is unwise to assume that already tinned surfaces, such as those of tinned wire, tags, etc., do not require any cleaning. The cleaning in these cases may, however, be confined to rubbing with a cotton rag on which a little flux has been smeared, though if they are badly tarnished the emery cloth should be brought into use.

Certain means sometimes used for heating the bit are totally unsuitable for the purpose. A coal fire is one. Gas is not good, not only because it contains too many sooty impurities and oxidising agents, but also because its heating qualities are too great to be readily regulated for the purpose in hand.

The most suitable and convenient agent to use is undoubtedly a methylated-spirit flame, in which the bit can usually be left for quite a considerable period without raising its temperature sufficiently to cause oxidisation of the tinned surface. Small spirit lamps, especially designed for soldering work, may be purchased at small cost. It is advisable to choose a make which includes a hinged support for the bit.

The point relative to keeping the bit in a properly tinned condition is of such importance that the process of tinning will be briefly described and hints added as to the proper maintenance of that condition.

Tinning is the process by which any surface (not only that of the bit) is covered with a coating of bright solder. To do this with a new bit. it or rather the copper portion (the bolt), should be cleaned with emery cloth and the bit brought to the proper temperature in the spirit flame. This is the case when the flame becomes tinged with a green colour.

Here a word of warning. Never allow the tinned portion of the bit or that portion about to be tinned to come into direct contact with the heating flame, which should only be allowed to play upon that part of the bit where the bolt is rivetted to the shank. Remove the bit from the flame, dip the end of the stick of solder into flux, and with it lightly touch each of the bevelled surfaces.

The solder will probably not run evenly, but will collect in "blobs," so in order to spread it satisfactorily over the entire surface the bit should be wiped while still hot on a cotton rag on which a small quantity of flux has been smeared. The operation is then finished, and it will be seen that the business portion of the bit is completely covered with a bright coating of "tin."

Keep the bit well "tinned." This is the condition of the bit which it is necessary to maintain if quick, clean, and firm joints are to be effected. Should by any chance the tinned surface become dull (that is oxidised), or otherwise mechanically dirty, the bit should be heated and wiped thoroughly on the cotton rag already referred to.

In some cases where the bit has got into a particularly bad condition, it may be necessary to have recourse to a file to remove the entire existing surface. The bit must then be retinned in the manner described.

The rag already twice mentioned requires a short note to emphasise the necessity of its consisting of vegetable fibre, such as cotton, and not of animal fibre, such as wool, which, owing to the quantity of grease and other carbon it contains, soon ruins the surface of the bit for soldering purposes

The remaining points can be dealt with in a few words. Oxidisation, as can readily be inferred from what has already been written, is the main enemy of successful soldering. This undesirable condition is usually the result of over-heating, although it also follows from exposure to the atmosphere for any length of time and it is mainly to counter its effects that flux is used.

That is no excuse, however, for an improper use of this invaluable material. It should be remembered as an axiom that the slightest touch of flux properly applied in the right place is of far more value than wholesale and indiscriminate smears.

Square-tinned wire has many advantages over the round variety as far as ease of soldering is concerned. It is important to remember, however, that in order to effect really sound joints at least three adjacent surfaces of square wire should be cleaned preparatory to applying the solder so that the latter may flow readily all round the actual surface to be joined.

A large number of excellent crystals are either partially or completely spoiled in regard to their sensitivity by the method of mounting. The best of all methods is to fix the crystal into the cup with that compound known as "Wood's metal," but unless this is done very carefully you will overheat the crystal and destroy its sensitivity. The best way to mount crystals in Wood's metal is to take a few fragments (sufficient to half fill the cup) and then to hold a hot soldering iron, poker or, indeed, anything hot enough, against the outside of the cup until the Wood's metal inside just begins to melt. Immediately it melts, remove the soldering iron, wait a second or two, and then press the crystal into the Wood's metal with the aid of a pair of tweezers. The pressure of the crystal will make the melted metal rise up round it and when it sets the crystal will be properly secured.

The Children's Corner

By "ARIEL"

Dear Boys and Girls,

Let me introduce you to these "Huffs" and "Grouches" on this page. Aren't they queer looking fellows? They were drawn by some country children for "The Exporter," a monthly farm home journal; and I've borrowed them to show you. All won prizes. The children made up their own verses too. Don't you think they are splendid? I put them in this week because I thought you would be interested to see what country children can do, and I'm sure your "Howlers" will be quite as good.

Remember the closing date is August 10, and send me your ages, as well as names and addresses with your drawings.

Shall we have a "Smiler" for the second animal in our Wireless Zoo? He is a fat, comfortable fellow who sidles in and purrs contentedly at Bed-Time Story hour. Of course, he can be coaxed out at other times too, but this is when he is most in evidence. When the "Howler" appears, he takes fright and vanishes altogether. They don't appear to be very good friends.

I am telling you what to draw next in good time, so that you can be thinking about it. Closing date for the "Smiler" will be August 17. I will give a prize of 5/- for him, too. Next week, there will be a painting competition, for I'm quite certain that there are a number of budding young artists among you.—Cheerio, Ariel.

RIDDLES

1. Why does a dog turn round twice?
2. Who is the bigger—Mrs. Bigger or her baby?
3. Why did the Great Australian Bight?
4. Why did the tap run?
5. Why did the coal scuttle?
6. What is the difference between a coat and a baby?
7. Why is a washerwoman like a navigator?
8. What is the difference between a tunnel and an ear-trumpet?
9. Why did the butterfly flutter by?
10. What is the difference between stabbing a man and killing a pig?

Look for the answers next week.

WHAT AM I?

My first, fair readers, one of you;
A pleasing songster is my second;
My whole, sweet summer brings to view,
I am a little beauty reckoned.
But when the wintry winds draw near
Like summer friends I disappear.

Answer next week.

Answer for last week Kowhai.

THINGS WE NEVER SEE

A sheet from the bed of a river,
A tongue from the mouth of a stream,
A toe from the foot of a mountain,
And a page from a volume of steam;
A wink from the eye of a needle,
A nail from the finger of fate,
A plume from the wing of an army,
A drink from the bar of a grate,
A hair from the head of a hammer,
A bite from the teeth of a saw,
A race in the course of study,
A joint from the limb of the law.

LITTLE LISTENING LASSIE

Where are you going to
Little girl, pray?
Where do you follow your
Small nose all day?

Why are you listening?
And what are you
Listening, listening,
Listening to?

Where do I go? said the
Little girl— Well,
As I don't know myself
I cannot tell.

Children like me who have
Learned how to hear,
No longer follow their
Nose but their ear.

My ear the whole year round
Leads where I go;
I've heard the band playing
And the wind blow.

I have heard nightingales
Sing and the sea,
I have heard friends telling
Stories to me.

Eyes aren't the only eyes
Ears aren't just ears
My ear, to my surprise,
Sees all it hears.

I have seen places
Where I've never been.
I have seen faces
I never have seen.

I've been all over the
World and returned,
All through my ear that to
Listen has learned.

Then can you wonder at
Me when I go
Listening, listening,
Listening so?

—F.F

TELEVISION IS COMING

SEEING PICTURES FAR AWAY.

Television is coming apace; we are even promised sets by Christmas (says a Home paper).

What has actually happened now is that people in New York have seen people telephoning to them from Washington, 200 miles away, seen their lips moving, faces smiling, hands gesticulating, while their speeches were magnified on loud-speakers.

It is not very long ago that the editor of "The Times," having had a talk with his New York correspondent, received a picture of the scene at the New York end within a few minutes of the conversation. The pictures sent from Washington to New York the other day were instantaneous. As the words came over the telephone the lips from which they came were seen in the act of forming them. Nods and headshakes took their place in the talk.

A RADIO ROMANCE

Heterodyne Smith, sorely wanting a mate,
Resolved to go forth and select her;
But knowing he needed a sparkler for bait,
Bought a two-carat crystal detector.

When he met Sally Brown, it was love at first sight,
Her hair was colour of henna;
She answered, "I'm ready to hook up all right,
If you get the consent of Aunt Tenna."

But our hero soon found out conclusively, that
From Auntie he'd get no assistance;
For when he approached her, she gave him his hat
And a cold look of fixed resistance.

That night while the moon shone like pure liquid amber,
'Neath Sal's window he stole without sound;
With the aid of rope she was able to clamber
In safety, down to the ground.

They married and moved to an elegant flat,
Where their heart-beats grow fonder and fonder and warmer;
And He never kicks when Sal wants a new hat,
For love's such a wondrous transformer.

—T.R.J.

STATIC SPARKS

A little girl came home from school because her teacher was ill and could not be there. The child's mother said: "You must have been very sorry to hear that your teacher was ill." "Oh yes, mother," the little girl answered, "but I couldn't help clapping my hands under my breath."

Student: I have a cold or something in my head.

Professor: A cold, undoubtedly!

The car was going faster and faster down the hill.

"I'd give ten pounds to be out of this," said the nervous wife.

"Keep your money," replied the husband, who was driving, "you'll be out for nothing in a minute."

An egg-site-ing occupation—birds looking for nesting places.

How to get the best out of asbestos—omit the middle syllable.

"Ready for the fray," said the washerwoman, getting to work on the collars.

A small boy, watching his mother frying fish, noticed one with its tail turned up.

"Oh, mummy," he exclaimed, "that one must have been turning a corner when it got caught!"

Employer: Tommy, how many times have I told you not to whistle at your work? Tommy (cheerfully): It's all right, sir, I'm not working—I'm only whistling.

Do you say your hens sit or sat? asked the precise schoolmaster of the busy housewife. "It never matters to me what I say," was the quick reply. "What concerns me is to learn, when I hear the hen cackling, whether she is laying or lying."

"I've been trying to think of a particular word for two whole weeks." "Well, how would fortnight do?"

Peggy (saying her prayers): "Please, God, make me a good girl ——." Mother (prompting): "And ——." Peggy: "And if at first you don't succeed, try, try, try again."

Constable: "What's the idea of racing through this town at sixty miles an hour?" Speed fiend: "Well, you see, something's gone wrong with my brakes, so I'm trying to get home before I have an accident!"

Old lady: "Guard, I hope there won't be a collision." Railway guard: "Oh, there's no fear of that, madam." Old lady: "Well, please be very careful. I've got two dozen eggs in this basket."

Mother: "Children, what is all this noise about?" Little John: "Oh, we've had Grandpa and Uncle Henry locked in the cupboard for an hour, and when they get a bit wilder, we're going to play going into the lions' den."

Doctor: "Gargling will kill germs." Tommy: "Yes, doctor, but how do you teach the little beggars to gargle?"

WHAT DO YOU THINK OF THESE "ZOO" SPECIMENS?

These sketches of members of the household Zoo were drawn and the verses compiled by country children, who are readers of the "Dairy Exporter." I am reproducing them by permission, to show you how to work out your wireless Zoo. The next one for you to draw is "The Wireless Smiler"! Closing date Aug. 17.—Ariel, Box 1032, Wellington.

THE HUFF.

O! Look! Here's Huff, a touchy brute,
to Grouch he's near related;
He'll sometimes come and vex folks,
if "Apollergy's" belated;
He has a friend Practicler Joke, a silly beast, and naughty,
Who helps the Huff annoy and tease people stiff and haughty;
He cannot bear the truth about himself, though kindly spoken;
Offend him, and you'll find with him, your peace is sadly broken;
So, 'ware the Huff! the rough gruff Huff if you'd have joy and ease;
He's surly, selfish, vain and rude, and very hard to please.

—Catherine Graham Weir.

THE GROUCH.

Of all the queer creatures I ever did see,
The queerest of all is this beastie.
He is the one that staggers me.

When one of the family's feeling "put out"
The Grouch can be always seen prowling about,
Oh! try to be careful and keep him out.

You like the Grouch? You don't, I see—
For a grouchy-looking old thing is he,
I would not like him to live with me.

—Margaret Haike.

OUR MOTTO.
IF YOU HAVE NOTHING KIND TO SAY, SAY NOTHING.

THE GROUCH.

The Grouch is a very disgruntled chap,
He grumbles at this, complains about that.
Sometimes is always mislaying his cap,
But he evens things up when passing the cat.
You never can please him whatever you say
This is as sure as night follows the day.
So leave him alone, or better still, send
His picture along, as seen by a friend,
If that does not cure him, I fear nothing will.
To the end of the chapter, he'll be a Grouch still.

—H. W. Jordan.

THE GROUCH.

The Grouch is a nasty thing
In home or in street,
But if you'll only sing
You'll chase him off his feet.
He cannot live where people are happy—
He always likes to be grumpy and snappy.

—Eileen Jones.

THE HUFF

The Huff, he lurks in every home,
Even in the teeth of a comb.
He jumps unknown on everyone,
He never spares a single one.
Be careful lest he pounce on you,
For then he'll turn you black and blue.

—Molly Wilks

"Ask Me Another"

ALL ABOUT IT

£10 in Cash Prizes.

1st £5
2nd £3
4 prizes each 10/-

The "Ask Me Another" fad is the craze of the hour in England and America, surpassing the Crossword Puzzle in popular favour. Interesting and highly educational, the questions given here have been made intentionally difficult, and will provide a good test for your general knowledge. They are designed solely from an educational viewpoint, and in no instance may they be regarded as anything in the nature of conundrums.

Even if you cannot answer all the questions do not withhold sending in your answers. Perhaps the winner will not be able to answer them all.

What You Have To Do.

1. Prove your skill and knowledge by answering these questions fully and exactly.
2. Send POSTAL NOTE for 1/- with each entry. THREE entries may be sent for 2/6 and 6d. added for each subsequent entry.
3. The first prize of £5 will be paid to the competitor whose answers are nearest to those held in a sealed envelope by the Editor of the "Radio Record." The correct answers and the names of the prizewinners will be published in the "Radio Record" of August 19.
4. Write answers in numerical order on one side of the paper only.
5. The decision of the adjudicators must be taken as final. In the event of a tie or ties, prizes will be divided, but no competitor can win more than one prize or share in this competition. If more than FIVE Competitors tie for the First Prize, the whole of the Prize Money, £10, will be divided among them, and no Second Prize will be awarded.
6. The closing date of the "Newest" Competition is August 13, and all answers must be in before that date.

The Newest Craze.

£10 in PRIZES.

PUZZLE No. 1.

1. What is the National emblem of Wales?
2. What bird lays its eggs in the nests of other birds?
3. What is the difference between a camel and a dromedary?
4. What is meant by "nulli seecundis," "ex officio," "locum tenens"?
5. What is the "Plimsol Mark" on the side of a ship?
6. Who are the authors of "The Brook," "Pilgrims Progress," "The Cloister on the Hearth"?
7. What characters in English literature "asked for more," said she wasn't born but "grow'd"?
8. When does Boxing Day fall?
9. What are the five races of the world?
10. What is meant by the "three mile limit"?

?

The Newest Competition,
P.O. Box 1315, Wellington.

Dear Sirs,—Herewith my entry for your "Ask Me Another" Competition, together with 1s. P.N. entry fee. I agree to abide by your rules of entry.

Name .....
Address .....

THE RADIO RECORD

DISAPPOINTMENT

REBROADCASTS IN CHRISTCHURCH

HINDERED BY COUNCILLORS

Just when the Broadcasting Company had found a site ideally suited for a receiving station and proposed to make rebroadcasts of 2YA and overseas stations a regular feature in Christchurch, unlooked-for opposition came from certain members of the City Council.

For the purpose of rebroadcasting the description of the Hawke's Bay-Wairarapa Ranfurly Shield match, and for the official opening of 2YA, a temporary aerial was erected in Victoria Park, Cashmere Hills. So successful was the experiment and so general the public approval, that the Broadcasting Company sought to make the station a permanent fixture, at the pleasure of the controlling authority, of course. When the company applied to the City Council, however, some opposition was raised, Councillor McCombs, a lady member, strongly attacking the company. She said: "My own private opinion is that the mater of broadcasting should never have been handed over to a private company, but that it should be in the hands of the Government and the municipalities. No company should be allowed to exploit persons wishing to make use of the radio, and I am going to oppose it." The company thereupon withdrew its application and the Christchurch people are now wondering if, and where, there will be another rebroadcast of 2YA.

The Cashmere Hills site was chosen because it was eminently suitable for the purpose, from a receiving point of view and from the point of view of telephonic communication, which, if the company had secured a permit from the City Council, it would have perfected. The wisdom of the company's officers in choosing the site was demonstrated by the excellence of the two rebroadcasts in question.

The park is under the control of the Christchurch City Council. Permission for a temporary installation was given by the chairman of the Reserves Committee, Councillor Clyde Carr, and confirmed by the committee, which further recommended the council to grant permission for a permanent installation at a nominal rental, with a proviso for one month's notice on either side.

The council declined to accept the committee's recommendation, however, some members choosing to regard the proposal as involving a possible alienation of public reserves!

Councillor E. H Andrews had suggested that the necessary batteries, etc., could be housed in a corner of a practically disused kiosk on the summit of the hill upon which the temporary masts had been erected.

The park is mostly leased to the present caretaker as a sheep run, and there is a tearoom in connection with the caretaker's residence for the accommodation of visitors. The caretaker had expressed cheerfully his willingness to keep an eye on the installation.

Altogether, the proposal was an attractive one from the company's point of view, and a reasonable one from that of several of the councillors. It was, however, successfully side-tracked by some of the disaffected councillors, and the company decided to withdraw its application. "Sic transit gloria mundi." And "hinc illae lacrimae."

Following on the City Council discussion the company read numerous offers of the use of land in various localities, but not one of them has the same recommendations that the site in Victoria Park has.

The matter of rebroadcasts in Christchurch is therefore at present much in doubt, a fact to be regretted in view of the great public interest in and demand for them.

HEARD IN AUSTRALIA

NEW ZEALAND STATIONS

APPRECIATIVE ACKNOWLEDGMENTS.

Just as New Zealanders like to pick up Australian stations, so do Australians like to listen to Dominion programmes. A great number of letters come from Australia—from Tasmania, Victoria, New South Wales, and as far north as Redlynch, via Cairns, in West Queensland.

An enthusiastic Victorian, living inland, wrote as follows:—

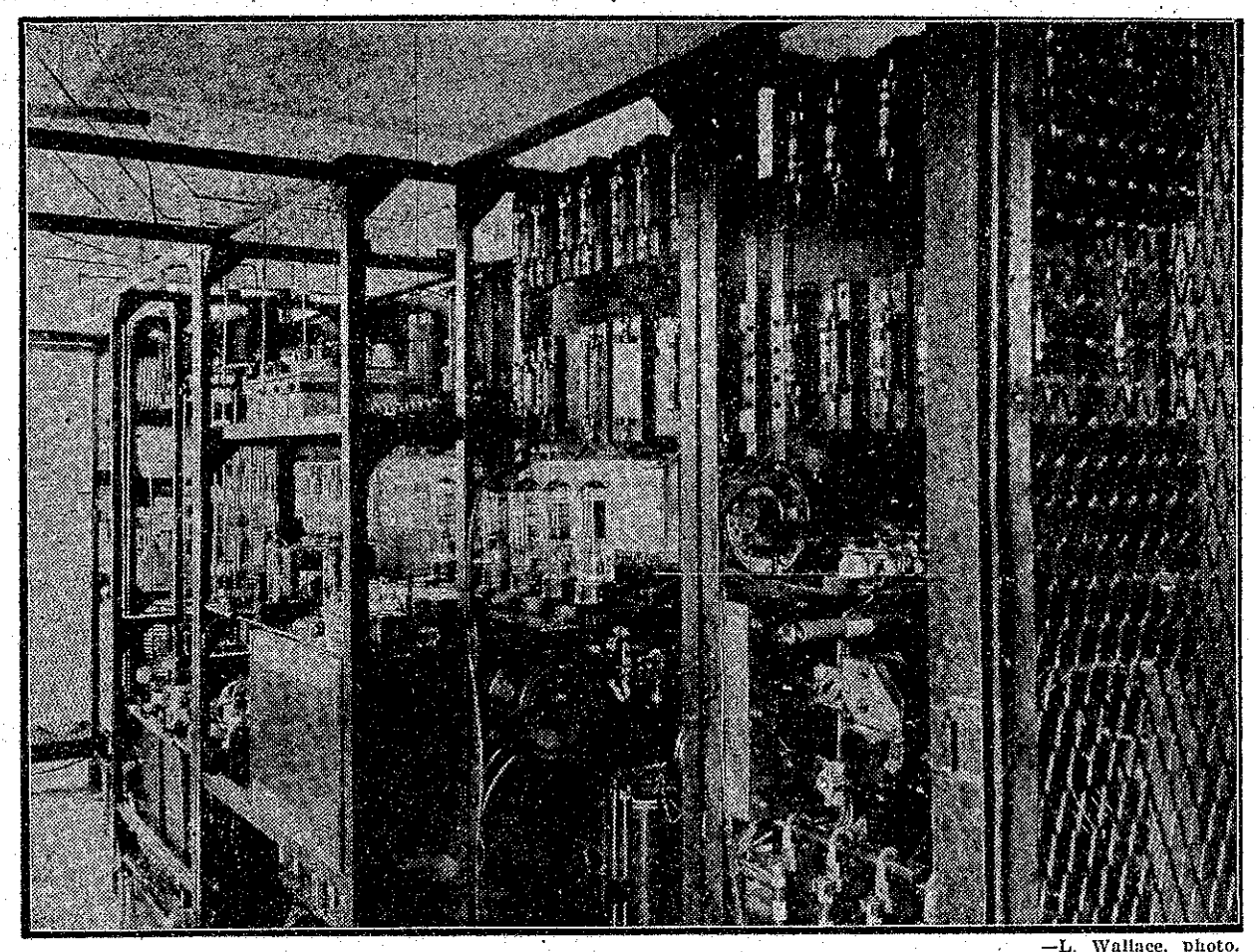
"Last night was the first time I heard a clock strike outside Australia, and I can assure you, Sir, I thought it great. I will listen to you often."

Another correspondent in Victoria said:—"The receiver I used was working on a very poor aerial and as this station was recorded at fair phone strength in daylight, I am rather doubtful if it was 1YA." The items which the gentleman mentioned proved that it was 1YA that he heard.

This was a message to 1YA:—"Your transmission is excellent in every way. I receive you every night and hear everything you send out. It is wonderful considering the low power you are on."

Another writes:—"It speaks volumes for your stations (which, I understand, use only 500 watt power) that they can be received here with as much strength and many times better clarity than Australian stations, on 5000 watts and much nearer."

One more:—"I have now built a two valve set out of spare parts which gives better results than the 8-valve set on which I received 1YA. I can now hear both 3YA and 1YA I cannot understand how it is that your stations are so easy to tune in over here. I think 100 miles on water must equal 10 on land to radio waves."



—L. Wallace, photo.

What a glimpse of the interior of a 500 kilo watt station looks like—view of the "works" of 2YA.

General view of the home of 3YA, Christchurch, and headquarters of the Radio Broadcasting Coy. of N.Z., Ltd. Here the transmitting apparatus is adjacent to the studio, and the masts, placed right in the city, constitute a notable landmark.

EFFECTIVE RANGE

ILLUMINATING ESTIMATES

FACTS ABOUT BRITISH RECEPTION.

New Zealand listeners who have been working over long distances, and securing results from the moderately powered stations of 1YA and 3YA, will be specially interested in the following authentic estimates of effective range, as made by the British Broadcasting authorities. The average New Zealand reception extends over infinitely greater distances than are considered feasible in Britain.

Manufacturers who claim that their two and three-valve sets will give continuous reliable reception "from all the inter-State stations" (says the Melbourne "Argus") will be disturbed by a recent investigation carried out by the British Broadcasting Corporation to show the type of receiver needed for first-class reception at various distances from the main British stations. For really effective reception from Daventry, the most powerful of the British stations, it is estimated that for distances up to 30 miles a two-valve set will give satisfaction. For distances between 30 miles and 100 miles, a minimum of three valves is considered necessary, while for effective reception in towns, where field strength is reduced by buildings, four valves are recommended. A minimum of four valves is needed for distances between 100 and 150 miles, and a five-valve set is required for reception of Daventry over greater distances.

The real importance of these estimates will be apparent when it is remembered that Daventry uses a power five times as great as the power of the largest Australian broadcasting stations, and transmits on a long wave. For the ordinary British stations, which are about half the power of the Australian stations, two valves are recommended for reception up to five miles, three valves for reception from five to 15 miles, and four valves for reception over distances of more than 15 miles.

Two Valves Needed.

For the relay stations, which are about the same size as the B class stations in Melbourne, two valves are recommended for reception up to two miles from the station, and three valves for reception over distances of between two and three miles. All these estimates assume the use of an aerial not less than 25 feet high and 100 feet long. On the above figures it will be clear that for reception of Australian stations over distances of 500 miles, about a dozen valves would be required.

British manufacturers, however, freely admit the fact, which is generally disregarded in Australia and America, that the receiver has not yet been built which will give a consistently satisfactory service from a broadcasting station working on ordinary broadcasting wavelengths over distances of more than about 70 miles. This distance is the limit of effective reception, irrespective of the power of the broadcasting station.

Fading and Distortion.

The limit is determined, not by the sensitivity of the receiver, but partly by the extent to which signal strength is varied, or signals are distorted, by fading effects, and partly by the extent to which transmissions are interrupted by atmospherics. Both these factors operate for an average of one night in two throughout the year over distances of more than 70 miles from a broadcasting station, and seriously interfere with the musical value of a programme. It is perfectly true that inter-State stations can be received in Melbourne on two valves, but for a considerable portion of the time for which the signals are audible, the transmissions are valueless as a source of entertainment.

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