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WELLINGTON, FRIDAY, SEPTEMBER 14, 1928.

The Southern Cross is on the Wing

Moderate Conditions Prevail for Historic Flight

AFTER a delay extending over nine days the giant three-engined Fokker, "Southern Cross" took off from Richmond aerodrome at 5.34 (New South Wales time) on Monday evening, and as we go to press is steadily winging its way to New Zealand where, at Sockburn, the most extensive and adequate preparations have been made for its landing. Had the flight taken place as planned during the week end we would have been able to give listeners a full account of the scenes of departure and arrival, as well as an indication of events throughout the flight.

To keep faith, however, with readers in distant parts who rely upon regular connection with mails to secure our programmes in advance, we must go to press with the flight in progress and the story of the part of radio still unfinished. Radio is, however, keeping all listeners in touch, and before these words are widely read, success will have been won—as is the general prayer and hope—or all will have been saddened by an unexpected failure. In the expectation of success we extend hearty greetings and congratulations to Captain Kingsford Smith and his gallant companions on blazing their aerial trail to these shores.



THE great flight is on. A week of heavy seasonal weather causing postponement after postponement necessarily somewhat dimmed the first flush of popular enthusiasm occasioned by announcement of the impending flight made after the hurried return of the "Southern Cross" from Perth. Incidentally those postponements in themselves were a tribute to the ability now presented to man by science to collate weather data from wide areas and reliably predict the ensuing atmospheric conditions. It is safe to say that this has been the most dramatic advertisement possible for modern weather service.

A change for the better was bound to come sooner or later, and under steadying influences, although with threat of a further depression approaching, the flight was begun on Monday.

RADIO immediately became the centre of interest. 2BL took up its task of an "all-flight" service and flashed to our shores details of the start. Reception proved dif-

ficult—impossible for effective relay, but within a few moments of departure 2YA was able to announce from 2BL that the aviators had taken off from Richmond at 26 minutes to six; that the four aviators had stood beside the machine enjoying a final smoke, as this enjoyment would be impossible en voyage; that after a 400-yard run the "Southern Cross" had taken off beautifully; that they carried two wreaths to drop in commemoration of the gallant Hood and Moncrieff; and that, finally, the "Southern Cross" had cleared Sydney at eleven minutes past seven, New Zealand time.

FROM all stations this news was given out, and listeners everywhere determined on their course of action—some to "see it through," and some to wait till midnight and rise early, refreshed for the more interesting and thrilling hours immediately preceding the actual arrival.

THE practice was adopted by 2YA of giving out official news immediately it was received and summarising it again in a review after each hour. This arrange-

ment proved quite satisfactory and enabled constant touch to be kept. The evening's progress was wrapped up in the few concise statements that at 8.30 communication was established with New South Wales; at 9.30 trouble was being experienced with the transmitting apparatus and the key was screwed down to give a constant note distinguishable from a group of American commercial stations. At 10.30 progress was being made at ninety knots an hour, and at 11.3 transmission was being made to Australia on 600 metres, but so faint as not to be heard in New Zealand.

THIS news was summarised at midnight, and there we must leave the flight. Taking a line through previous successes and the progress being made under the fairly satisfactory conditions ruling, success seems certain to crown the daring venture. Radio is keeping all in touch with developments, and we sincerely hope that before these words are read radio will have enabled all listeners and friends to picture the stirring scenes at Sockburn attendant on a successful arrival.

Radio Round the World

THE prefix "micro" means "million," so one microfarad is a millionth part of a farad, and one microhenry is a millionth part of a henry, etc.

THE B.B.C. sets listeners a good example in the matter of overhauling aerials; in no station is the aerial permitted to be up longer than six months without being overhauled for the removal of dirt, etc.

A MISSING dance partner, wooden legs, false teeth and attache cases by the score are among the things which the B.B.C. has at some time or other been asked to trace.

A COMMENTARY on the recent shooting match at Bisley, England, for the King's Prize was broadcast by Captain E. H. Robinson, a former King's Prizeman (1923).

BROADCASTING in Ceylon is confined to Colombo, where a station of 1.75 K.W. broadcasts regular programmes on a wavelength of 800 metres.

THE Japanese listener pays a license fee of 2s. a month to the Broadcasting Association; in addition the Government levies an annual charge of 2s. for expenses.

IN China, Shanghai and Hong-Kong have a broadcasting station each, the former under American auspices, having a power of 500 watts, and the latter 1.5 K.W.

SWEDEN heads the world in respect of the number of licenses issued, viz., 57.8 per thousand inhabitants. Two additional high-power stations are to be constructed, one 50 k.w.

FIVE-MINUTE appeals on Sundays from the B.B.C. stations realised over £40,000 in 1927.

NO fewer than 800 stations in America, excluding amateurs, are operating on the broadcast band.

THE first concert broadcast in English waters took place in 1907, when speech by wireless was considered almost an impossibility.

THE episode of the meeting between Lucie Manette and her father after his release from the Bastille, from "The Tale of Two Cities," formed the basis of a play recently broadcast from Cardiff.

THE song of the nightingale can now be regarded as an annual event to European listeners. Continental people look forward to this broadcast from the Surrey woods almost as keenly as do British listeners.

THE Cincinnati station, WLW, goes up to 50 kilowatts on the 17th of this month. It should be quite easily receivable in the Dominion, as are the Pacific Coast stations, which are at present being heard at good loudspeaker strength here.

THE Berlin Conservatory of Music has installed a radio receiver and transmitter for test purposes. Students can thus be trained in the art of broadcasting over the radio. A check-up can be made upon the students' microphone technique and faults corrected.

SOME time ago the Adelaide station 5CL caused consternation amongst some listeners by broadcasting an imaginary "Invasion of Australia," while in England 2LO almost caused a panic by a too-vivid account of an imaginary national disaster.

THE British Broadcasting Corporation's report for 1927 shows a total income for the year of £901,600, of which £800,900 was received for licenses. The sum of £490,000 was spent on programmes.

EVIDENCE that the popularity of radio is growing is evidenced in England, where the number of licenses issued in 1927 was 217,000 greater than those issued in 1926. They now total 2,395,174.

A N enterprising company has set up the "Ceylon Radio Times," and has produced a very fine paper of fifty-four pages. One note indicates what broadcasting in the East is "up against." "My keen listeners are unable to understand the Sinhalese and Tamil musical programmes."

A N Auckland daily paper makes the following comment: "Quite marked is the increase in the number of gramophone records in use in local programmes of late. The interspersing of the world's best, as obtainable from the records, is doing much for the improvement of local entertainment, for the judicious use of the gramophone is commendable. This use can, of course, be overdone."

A CRISIS has arisen in the wireless trade in Czecho-Slovakia. During March licenses decreased by 45,000, while dealers' licenses increased by twenty-six. Demands are being made on the Government to alter the law relating to wireless in a more liberal sense.

3LO recently broadcast music for an old-time dance night. The announcer mentioned, ere the programme commenced, that 230 clubs and other bodies had arranged to hold radio dances to the music supplied.

THE B.B.C. and Broadcasting Bureau of Sweden, each made an appeal to its listeners-in for criticism. From the Irish Free State came 39 letters; from the Swedish listeners, 140,000. The Swedes have evidently taken broadcasting seriously.

A CHRISTCHURCH short-wave amateur has established a unique record. With 100 watts input transmitter and a three-valve receiver he has established two-way communication with 36 different countries, including Siam and the Newfoundland station. In all, over 700 stations have answered his call.

A WIRELESS station is maintained at Willis Island, about 300 miles north-east of Townsville (Australia) solely to give warning of tropical disturbances to the Commonwealth Meteorological Bureaux at Sydney, Melbourne, and Brisbane. The messages sent out from this station also contain timely and valuable information to ships at sea in the areas likely to be affected.

No Battery is Complete—

There's a certain amount of Electricity there, of course—but what happens when that's used. Charge it again—well, why not do it while the set is idle. It's simple and what is more it saves money.

PHILIPS CHARGERS

Are made in several models. There's one to look after the batteries you use. Study these particulars. Then see the full stocks of Radio Supplies at the Electric Lamp House.

PHILIPS "FOUR FIFTY"

For charging 2, 4, or 6 volts at .63 or 1.3 amps. A charger for sets with heavy drain tubes. This will keep your battery up to the mark.

Supplied complete with Rectifying Valve, Resistance Lamp and Input Cord and Plug.

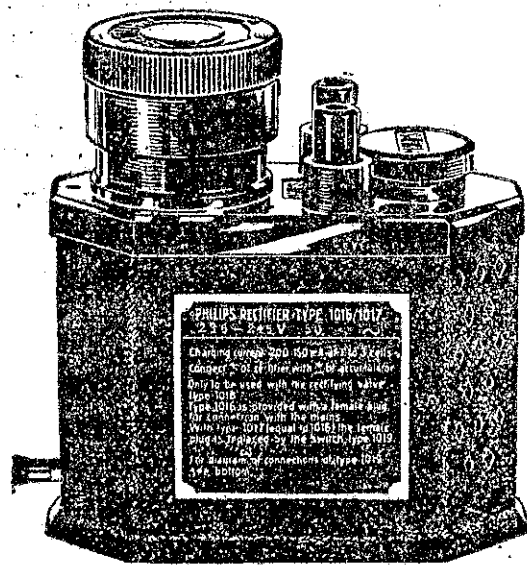
Price, £4/5/-

PHILIPS No. 1017.

The most compact and efficient trickle charger made—charges between 150 and 195 m.a. The knob on the top controls the whole of the power supply when using a B. or B.C. unit. We invite you to send for full particulars of any of these chargers.

Price, £3/10/-

The Battery "pepped up" and good reception is secured.



The man who "didn't get it" probably had a low battery.

We Pay Postage.

PHILIPS No. 366. (Heavy Duty).

For charging 2 to 8 Volts at 3 or 6 amps and 10 to 14 Volts at 3 amps.

A heavy duty charger to give a battery a quick charge or for charging exceptionally large batteries, including Motor-car Batteries.

Price, £7/17/6

PHILIPS No. 1009.

For charging either A Batteries of 2 to 6 volts at 1.3 amps or B Batteries up to 120 volts 60 to 100 Milliamps.

This charger is ideal for the man who uses wet batteries for both A and B supply.

Price, £5/17/6

The ELECTRIC LAMP HOUSE

"Everything Electrical." Licensed Radio Dealers.

27 MANNERS STREET (3 Doors from Beggs), WELLINGTON.

THE station at Port Darwin (Australia) is used not only to keep in touch with shipping off the coast, but to clear traffic from the Post Office inland radio station. When floods and storms occasionally demolish the land-lines in the Northern Territory, the telegraph traffic of that huge area is generally cleared by this radio station.

SIX hundred and eight broadcasting stations in U.S.A. now enjoy the privilege of the air. The Federal Radio Commission, in order to clear the ether, has ordered 162 of these to close down. Now the lawyers are on the scene, and at least 30 of the so-ordered transmitters will contest in the U.S.A. Courts the validity of the closure.

IT is amazing how a new song "catch on." Requests for "Ramona" to be put on the air come pouring in to the station. Were these to be acceded to, at least in the case of 2YA, "Ramona" in its various forms would comprise not only all the afternoon session but also a very large section of the evening's entertainment.

BROADCASTING in the three countries of Scandinavia is managed by single authorities, public or semi-public, and financed partly or wholly out of license yield. A distinct feature of Sweden, due to its geographical conformation and the layout of the population, is the profusion of small relay stations all connected to one or two main programme centres.

PLYMOUTH was the first station to bring the sound of the sea to listeners' homes. As early as the summer of 1925 a microphone was placed on the beach in Bovisana Bay, and the noises of the waves were broadcast from all stations. A remarkable feature of the transmission was that the sounds went to London and back to Plymouth before they were actually radiated from the Plymouth aerial.

A FAMOUS surgeon at one of the London hospitals said recently: "Wireless in hospitals is especially useful to a patient just before and shortly after an operation. Many patients have headphones on an hour or so before they are due at the operating theatre, and in all these cases we have noted an even pulse and a low temperature which are, of course, most valuable aids to a successful operation."

THE U.S.A. broadcast an eye-witness's account of New York's reception of the crew of the Bremen—from an aeroplane. The announcer occupied a commanding, but chilly and risky, position 2000-3000 feet up. The broadcasting station sent him instructions, by radio, of the ground to be covered, during a flight of 55 minutes. He did his eye-work through binoculars.

[Is this feasible for New Zealand race broadcasts?]

IN Russia, broadcasting took a form special to the conditions and institutions of the U.S.S.R. The most pronounced features of a widespread system, which is, of course, State controlled, are: (a) The systematic promotion of communal listening (loud-speaker, public address system) in village halls and open spaces; (b) the over-riding influence of the State with, as its corollary, the use of radio as an organ of propaganda; (c) the development of the newspaper bulletin into veritable spoken newspapers.

ENGLISH manufacturers are now beginning to get busy on new apparatus for the British Radio Exhibition, which is to be held in September. This exhibition marks the opening of the wireless "season"—the three following months are very busy ones for the manufacturers. One firm, who, during the rest of the year work a day shift only, in the autumn and winter run the factory 24 hours a day, and employ three times as many hands.

A MOST important project was launched a while ago by the B.B.C., who set about the assembly of a permanent orchestra of between sixty and seventy musicians. Neither trouble nor expense has been spared to secure the world's best available musicians. It is aimed to surpass everything of its kind. It is understood the annual cost will be £80,000. The orchestra is almost complete, but as yet a conductor has not been selected.

BY a well-arranged co-ordination of services of the two big Sydney stations, Australian listeners are supplied with continuous opportunity for reception from 7 a.m. till 11.30 p.m. on all week days. During the best listening hours both 2FC and 2BL are operating, while for the whole of a 16½-hour period there is no period of silence. On Sundays there is broadcasting by one or both stations from 10 a.m. to 10.30 p.m., with brief intervals at 2 p.m. and 5 p.m.

A CORRESPONDENT to the Racing Commissioner of 2FC asked him to announce over the air all the grey horses that were entered in the Melbourne Cup. The writer said his reason for asking was that he had had a dream in which he saw a grey horse win the Melbourne Cup. He stated that he had never before dreamt about horses, but he distinctly saw a grey win, and the dream was so vivid he felt justified in ascertaining the names of all the grey horses in the Melbourne Cup.

AT Rock Point, N.Y., there has just been erected what is said to be the most efficient type of beam transmitter yet installed. Outstanding features are its simplicity, and the efficiency with which it directs a pencil of radio waves toward distant receiving stations, resulting in economy of power and high speed transmission. From ordinary broadcasting stations, radio waves spread out in all directions, and most of the energy is wasted. The new system uses a system of auxiliary wires to serve as a reflector for the waves and focus them in a beam.

THERE is at least one case definitely established where life has been saved by listening to wireless programmes. An elderly man was in a very bad condition and his life was despaired of. In conversation with a nurse some days after his arrival in hospital he said that he determined to hear his home town carillon before he died, explaining that he had seen it announced as a future item. The event was a week ahead, and the doctors doubted whether his wish would be fulfilled. By sheer will power, however, he kept himself alive, and by the time the carillon was broadcast his condition had so changed for the better as to make his recovery certain. He was eventually discharged from the hospital in good health.

RADIO is ever being applied in some new fields some of which are truly amazing. One of the most recent applications is thought transference, which deals with a process that works with a specific band of electromagnetic waves. A specially designed radio set is used to detect the signals.

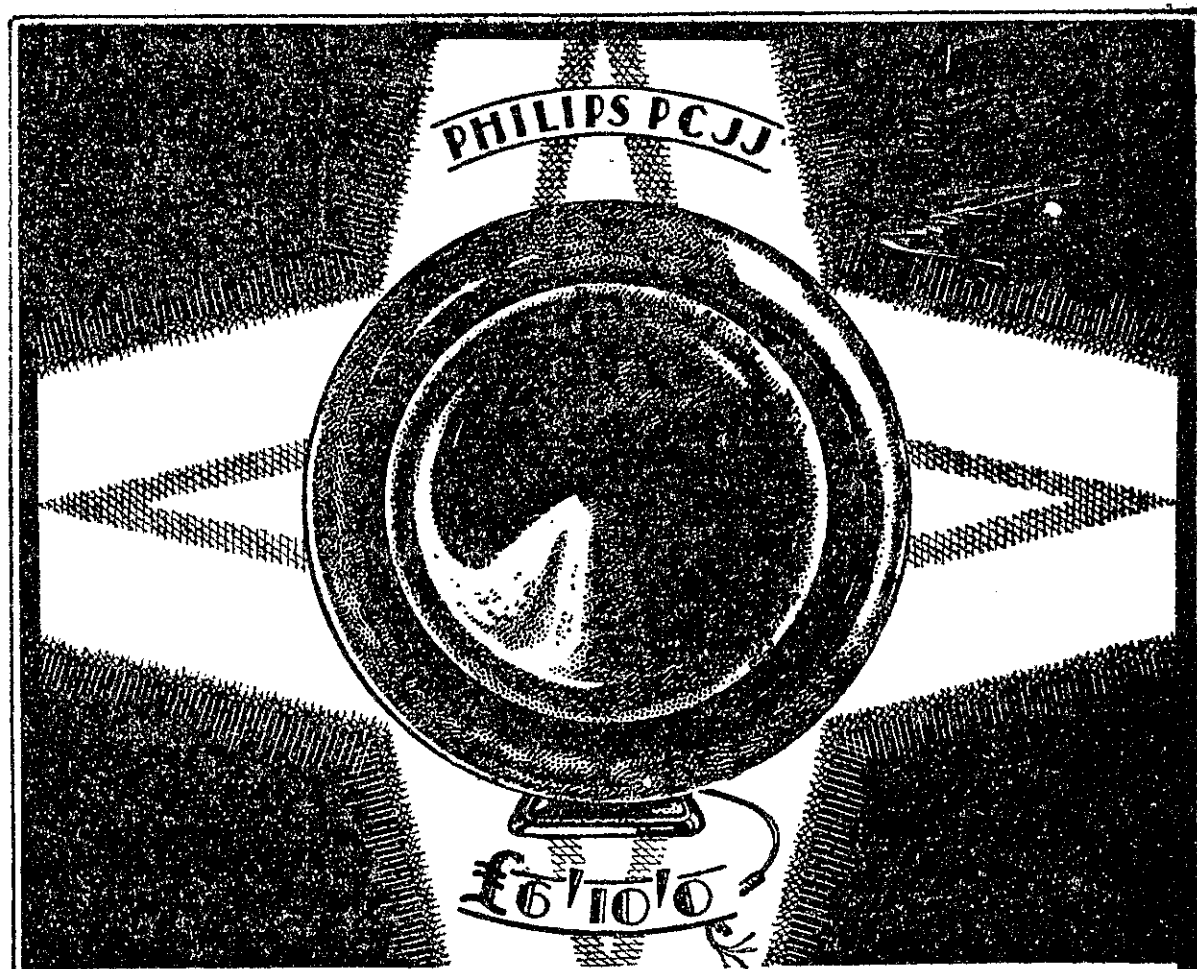
PLAYS are a regular feature of broadcasting in England, some of the more popular being:—"Hal, the Highwayman," "The Daughter of the Regiment," "Recalled to Life" (Dickens), and "Marjory." Most of these are better known extracts from well-known plays.

THERE are three broadcasting stations in North Africa—Radio Carthage in Tunis, Radio Casa Blanca in Morocco, and Algiers. Of these the only one of considerable power is the Tunis Station, which has 5 k.w. The success of the Algiers Station has led the French Government to decide upon replacing it by one of the most modern type and of greater power.

IN 1927 there were 16,000 amateur transmission stations operating in the United States. The number in the rest of the world is not available, but it is estimated at five or six thousand, principally in the British Empire, Sweden, Finland, France, Argentina, and Uruguay. In most other countries the laws are quite unfavourable to amateur radio.

BROADCASTING in Japan began regularly in the middle of 1925, the ground having been previously prepared with characteristic thoroughness. The system shows British influence, and is somewhat similar to that of Great Britain. JOAK, JOBK, JOCK, opened in July, 1925, have been amalgamated under the title of Broadcasting Corporation of Japan. The country has been divided into territorial broadcasting divisions, and the new corporation have installed a high-power station near Tokio, replacing the former JOAK. This is frequently heard in New Zealand.

STRANGE happenings are always taking place. Some are able to be explained, some remain "freaks." A local radio dealer experienced two of these radio "puzzlers" recently. 2YA had closed down and he was listening in to 3LO coming through at its usual volume, which, with his receiver was not very great. Without indication the volume suddenly increased until it equalled that of the local station. Following this the station maintained its volume without fading or distortion throughout the evening. This person is also the owner of an amplifier crystal set, fitted with a filament switch. On one occasion he was surprised to hear, although the circuit was broken, the signals from 2YA coming, somewhat faintly from the loud-speaker.



A SPEAKER YOUR receiver *must* have!

If you have taken pride in your radio reproduction—that is if you have quality transformers, a power valve in the last stage, and correct plate and grid voltages—you MUST have a Philips Speaker.

With a GOOD receiver they are in their

element, reproducing without emphasis or suppression—giving music pulsating with life.

'PCJJ,' 26/10/- 'Junior,' 25/5/-
'Baby Grand,' 23/15/-

Advt. of Philips Lamps (N.Z.) Ltd. (Radio Dept.), Hope Gibbons Building, Courtenay Place, Wellington

PHILIPS

LOUDSPEAKERS

On the Inside of a Rebroadcast

WITH the re-broadcasting of over-seas stations so much in evidence, it will be interesting to listeners to give them a little glimpse of the means by which these events were made possible. The Eucharistic Congress proceedings were broadcast in Sydney on both long and short waves for the benefit of Australian and overseas listeners and 2YA was enabled to make its successful rebroadcasts by picking up 2ME on the short wave band. It is usually found that the short wave band is less troubled with static than the ordinary broadcast band and in addition the waves are more reliable in daylight.

Advantage was taken by 2YA of the special equipment possessed by Mr. G. R. McCarthy ("Mack," of Macks Radio Co.) for short-wave reception, and the success of the rebroadcasts is undoubtedly largely due to his skill and public-spirited co-operation. The little "den" from which he raked the ether for 2YA is at his home some ten minutes walk from Courtenay Place, right under the shadow of 2YA itself. Yet in this

THE past has been an exceptional week for rebroadcasts. The Eucharistic Congress in Sydney, an event of world-wide importance, has been brought prominently before listeners in a series of successful rebroadcasts by 2YA and other stations. This has followed on last week's success by 3YA in re-broadcasting 5SW's treatment of the signing of the Kellogg Peace Pact in Paris. In addition, as re-broadcasts were so much to the fore, 2YA seemed to catch the habit, and on Saturday afternoon in the interval of the Wellington-Hawke's Bay football match reached out and dragged in PCJJ and put it on the air for a few minutes. The item was a novelty and was appreciated as such, but the reproduction could not be classed as perfect, although it was as perfect as human ingenuity could make it in the circumstances. Before the match quite a brilliant quarter of an hour was given listeners in the rebroadcast of 2XAD, Schnectady, New York.

area, with power lines for domestic reticulation and tramway operation within the sphere of influence as well as other sources of interference, "Mack" was able to pick the required signals out of the air, clean them, and amplify them and pass them over in "good order and condition" for 2YA to retransmit to New Zealand listeners.

THIS is delicate work and success waits only on the expert. Every amateur short wave enthusiast will appreciate the delicacy of reception attained in perfecting loudspeaker reception on these occasions. Fourteen years' experience lies at the back of Mr. McCarthy's attainment, the last two only being in New Zealand. After a preliminary grounding in telegraphic work, practically all corners of the world have seen him—even far Persia and the ice-bound North. By merit he is a member of the Institute of Radio Engineers. But in spite of his vast experience he classes himself still as a "beginner."

His "den" is packed full of receivers—big ones and little ones and a few medium ones. All are of his own design and make. The net outcome of his battery of equipment is a power of reception that is quite remarkable. There is no occasion to attempt a detailed outline of his receiving equipment and battery of filters. The results must speak for themselves. And the remarkable feature of the reception secured by "Mack" is its clarity and absence of noise. Four filters contribute to this result. The other main contributory is Mack himself. Throughout reception from Sydney—every minute of it—he sat beside his set in that little den, with head phones on his ears and fingers on the dials—ceaselessly on the alert to anticipate a developing fade or check any undue burst of atmospherics or volume. The delicacy of touch is wonderful. Right on the wave is perfection—a shade off and it is disaster.

AN experience preliminary to the rebroadcasting of Sydney is worth relating as indicating the difficulties that were overcome. Prior tests showed an exceptional volume of deafening noise. Try as he would "Mack" could not cut it out and in desperation was about to call the relay off for the day when the idea suddenly occurred that it might originate by induction from the land-line just put in between his home and the station. This line, two insulated telephone wires, ran from his window to the telegraph poles and then, some 200 yards away, passed through some high tension wires and so on to the station. Inside his room

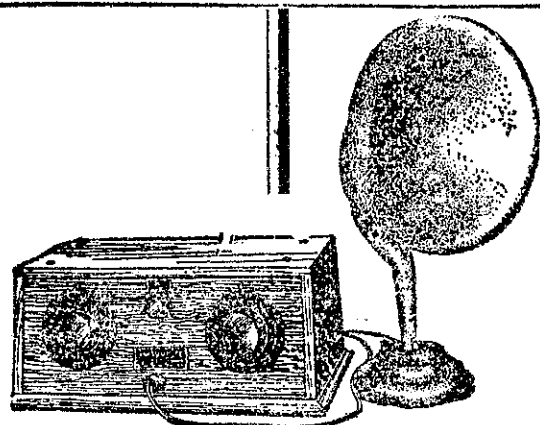
the land-line passed but twelve inches from one of his delicate instruments and thence into his set.

Investigation and test showed that induction from the electric power line was passing along the outside of his land-line and inside his room was jumping the gap to his gear and so entering the receiver to wreck clear reception. Thanks to so speedily locating the trouble, rectification was possible and the matter righted.

THAT the rebroadcasting of the Eucharistic Congress proceedings to the extent that was possible has been appreciated goes without saying. Both 1YA and 3YA also attained successful results for, fortunately, conditions for reception from Australia were fairly good. The Wellington transmission on Thursday evening was specially clear and has since been characterised by experts as the finest rebroadcast yet achieved on this side of the world. For their part in making these performances possible the thanks of listeners are due to all the operators concerned at the different centres. The Company laid itself out to make the most of the opportunity of so outstanding an event, and at each centre the preparations made resulted in definite success being attained. In Christchurch the Company's chief engineer, Mr. J. M. Bingham, working from his private residence, relayed 2ME, and on one evening, when searching for news regarding the Southern Cross, he picked up and relayed not only 2FC but a number of other Australian stations greatly to the interest of Christchurch crystal users. This, by the way, was on 3YA'S silent night willingly sacrificed to serve the public interest in the anticipated flight.

It may be added in conclusion that rebroadcasts of this nature have to be fitted in with the Company's regular sessions, arrangements for which have of necessity to be completed weeks ahead. In the circumstances it was remarkable how little of the big Sydney events had to be "cut out." For this, those listeners most interested have reason indeed to be grateful to the Broadcasting Company.

REBROADCASTS of the Eucharistic Congress were also efficiently handled by other stations. In the case of 3YA mid-day rebroadcasts were made on Wednesday and Thursday which, though noisy, demonstrated the station's keenness to supply service if at all possible. The hours of transmission in Australia were, however, very unfavourable for reception in New Zealand. This was noticeable early on Sunday evening when 3YA's rebroadcast steadily improved as darkness set in. The station went on the air at 6 o'clock, cutting short the children's session under Uncle David as it was deemed that the great demonstration in Sydney was such an event that the curtailment of the regular religious service at 3YA was justified. This rebroadcast was continued for thirty-five minutes, when the broadcast of the local church service commenced.



The
"Courier Three"

High or Low
by the
Flick
of a Switch

*Marvellous Results
Attained—Yet
Simple to Operate*

Yes—considering the splendid receptions, the absence of troublesome plug-in coils, and the fact that the mere flick of a switch will change over from broadcast wavelength reception to low wave reception, the "Courier" Three is a "marvel." It is the only set of its kind in New Zealand—perhaps in the world (Prov. Patent No. 59508 N.Z.). The simplest of sets to manipulate, thoroughly reliable, THE COURIER THREE is fully guaranteed.

Complete—The
"Courier Three"
£19/5/-

If your local dealer cannot supply you, write to us and we will see that you are immediately supplied.

Wholesale Only.

J. Wiseman & Sons Ltd.

ALBERT STREET, AUCKLAND

The
"Courier"
"Brings tidings from afar"

Radio for Airplanes

Affected by Mountains

As the result of experiments carried on last summer by the United States Government Bureau of Standards, in directing planes in flight between Cleveland and New York, using the directive radio beacon at Bellefonte, Pa., it was announced that shifts or variations in the course were found to exist during the night which introduced such serious errors that the beacon indications were not considered dependable for distances greater than fifty miles at night in mountainous territory.

The Bureau of Standards now considers that this problem has been solved.

The shifting was due to a distortion that was introduced in radio waves as they travel through the upper atmosphere. The nature of this distortion was studied, and scientists were able to analyse it satisfactorily. By using special aerial arrangements for receiving, it was found that the shifts could be practically eliminated.

Aeroplanes heretofore have found it necessary to use long trailing wires for radio aeriels in order to collect enough power to operate a radio receiving set. Such aeriels by reason of their hanging down at a slanting angle, do not have the necessary characteristics to eliminate the effect of false radio course indications.

A new type of aerial consisting of a vertical ten-foot metal pole, has been developed by the Bureau of Standards. The use of so short an aerial has been made possible by the development of a new and specialised type of aircraft receiving set.

Australia's Problem

New Relay Stations

WHILE general satisfaction has been given by the recent announcement of the Commonwealth Prime Minister (Mr. Bruce) that the change in the broadcasting control policy of the Federal Ministry will be accompanied by the provision of an elective relaying service for country districts, it is disquieting to note (says the Melbourne "Argus") that the proposal that relaying stations should be connected with the main broadcasting stations by short-wave wireless services is still being considered favourably. Complete failure to provide adequately for country districts and provincial cities is undoubtedly the weakest feature of the existing Australian broadcasting system. This failure can be corrected easily and effectively by the installation of relay stations, but if those stations are to depend on a wireless, instead of a land line, service to obtain

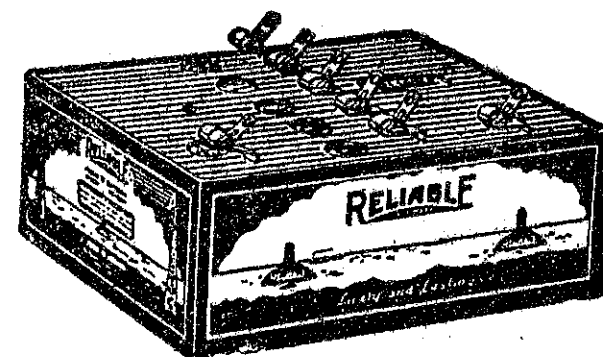
the programmes they will relay, it is to be feared that the position of country listeners will be little better than it is now. The use of short-wave wireless stations as a substitute for telephone lines for the purpose of transmitting programmes to relaying stations is so obvious an economy that it has been subject to full investigation both in Europe and the United States. In every trial the wireless service has been found much inferior, even under the best possible conditions, to an efficient land line. While few doubt that short-wave wireless circuits will undoubtedly play an important part in the future in supplementing, and probably even replacing, trunk telephone lines, they will require to be greatly improved before they can compete with land lines. At present no impartial

engineer understanding the problems to be faced, would recommend the use of short-wave wireless stations for relaying purposes. It is to be hoped that the proposal will be abandoned by the postal authorities, and that they will concentrate on the preparation of land lines for the relay stations.

A unique item during the children's session on Saturday evening at 3YA was a reel danced by four Scottish lassies to a bagpipe accompaniment. This was the first time such an item has been attempted in a New Zealand studio, and it broadcast very well. Scottish items were a feature of this evening's entertainment.

IF there is one place in all the world where wireless is appreciated, it is surely the leper island of Makogai, one of the most beautiful but lonely of the Pacific Islands. The island is nine miles from Levuka, Fiji, but until the installation of a wireless set there last year it was practically cut off from the outside world. During August, 1927, a five-valve set costing nearly £70 was presented to the island which has made the lives of the 450 leper patients, including Fijians, Samoans, Tongans, Indians, Chinese, Solomon Islanders, Cook Islanders, Maoris, and some Europeans less dreary. The set is named "He Reo Tawhiti," meaning "Voice from a distance," and on four valves it can easily pick up all Australian and New Zealand stations.

Renew your Batteries at these Startling Prices for "RELIABLE" (British Made) Radio Batteries



22½ Volts Postage paid	7/6	No. 6—1½ Volts Lots of 3	5/6
45 Volts Standard Size	14/-	C—4½ Volts Each	2/6
45 Volts Heavy Duty	18/6	POSTAGE PAID Anywhere in N.Z.	

DIRECT SHIPMENT Fresh Stocks, ex "City of Batavia," just arrived.
Tested and Guaranteed Full Voltage before despatch. Limited stocks,
so order quickly. Remember!

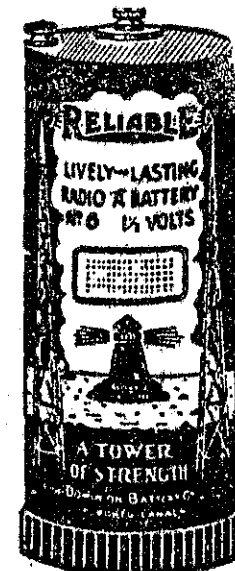
POSTAGE PAID ANYWHERE IN N.Z.

Post Order and Remittance TO-DAY to—

DOMINION RADIO CO.

Customs Street East,

Auckland.



In the case of 2YA the Eucharistic Congress was broadcast from 5 o'clock to 6 o'clock on Sunday, when, owing to arrangements made earlier, it was necessary to transfer to the local studio for the special children's session.

Improved Reproduction

£250,000 American Company to Exploit Wellington Device

TEN years ago, when only sixteen years of age, Mr. A. E. Rod, of Day's Bay, Wellington, became interested in the general problem of sound reproduction. To him the sound projected from the gramophone was flat and uninteresting, and he set to work to produce an entirely new type of machine with better reproduction.

He was not new to the field of invention. Previously he had invented an ingenious toy which was sold for £25. Other inventions, though cleverer, were not suitable as commercial propositions.

THE first result of his research into sound production was a new type of gramophone which was not, however, entirely satisfactory. Undaunted, he kept on, but for years laboured without result.

When radio became popular the young inventor turned his attention to it, and finally produced something remarkable which seems likely to have very far-reaching results.

THE principle employed is quite evolutionary, and when applied to wireless gave remarkable results. On tuning in the local station or Sydney, the impression received was that the actual voice or instrument was present in the room. The difference between the tone and that received through the types of receivers at present in use was

something like the difference between the roundness of a stereoscopic photograph and a flat picture. The difference was at once striking and arresting.

MR. ROD demonstrated his patent to musicians, music-lovers, and those generally interested in sound reproduction. Those who heard these demonstrations were agreed that it was infinitely superior to anything they had heard before.

The patent can be widely applied, but the gramophone, telephone, and wireless furnish some of the most important fields for its application.

A local company was formed to finance the sale of the patent abroad, and Mr. Rod and his business manager, Mr. Davis, left New Zealand in May last for Europe and America.

LAST week those interested in the patent received a cablegram from Mr. Davis, stating that Mr. John Maxwell, chairman of the British International Pictures, Ltd., had taken up the matter, and was floating a company with a capital of £250,000 to acquire the European rights. Mr. Maxwell has secured an option over the rights until October 28.

From this it would appear that success is assured, and that Mr. Rod has definitely produced a device which will revolutionise the reproduction of radio sounds.

Dr. P. Fennelly at 3YA 1YA "Mystery Night"

"The Psychology of Success"

DR. P. Fennelly, LL.D., who is visiting Christchurch during the course of his world tour, when he is devoting his time to educational work, is to speak from 3YA on Wednesday evening, September 12. Dr. Fennelly is a past president of the British Association of Practical Psychology, and he will speak at 3YA on "The Psychology of Success."

The 1YA Musical and Dramatic Committee is now busily checking the entries for the great mystery night competition conducted at 1YA on August 29. Some hundreds of answers were received, necessitating careful checking to see who is the winner of the £50 Edison cabinet phonograph, presented by Phonographs, Limited.

Another competition will be announced shortly. It is to be held on September 26. On this occasion listeners will be invited to name the item that is being given, and a handsome prize, another gramophone, will go to the one who has supplied most correct titles.

Waiting for the Tasman Flight

Stand-by Service Given by 3YA

Christchurch Crystal Users Hear Australian Stations

THE proposed trans-Tasman flight again demonstrated what a great service broadcasting renders to the public. From the first intimation that a flight by the Southern Cross to New Zealand was in view, the broadcasting stations were very busy places, and after the first announcement of the postponement, the staff at 3YA had a hectic time in answering the shoals of inquiries that were received.

All preparations had been made at Sockburn for handling and catering for the tremendous crowd expected to witness the landing on the Sunday, but all these arrangements were completely upset when the postponement was announced.

Townpeople and visitors were left very much "in the air." The aeroplane was expected every day, but as its arrival depended on the weather conditions there could be no definite early intimation. It was then that the Broadcasting Company was looked to. Not only did 3YA supply a special news session for the information of the people of Christchurch, but it answered a host of questions by telephone and from personal callers. There were many visitors to the city from all parts and they did not know whether to stay on in the city till next day or go home. Some had long train journeys and some travelled by motor-car. Many people wished to know if they should wire to friends in distant parts to come. Glorious uncertainty pervaded everything; and all eyes looked to 3YA to tell them what was what. It was all further testimony to the part broadcasting is playing in the life of the people.

Rebroadcasting Sydney.

AS an instance of 3YA's "up to the second" service, one evening the actual announcement by 2FC officially stating that the flight would not take place that night, was rebroadcast by 3YA. The amount of re-broadcasting which 3YA did shattered all precedents. In fact, the trans-Tasman flight seemed to completely disorganise the even tenor of the way hitherto followed

by 3YA. Of course, listeners did not mind in the least. The re-broadcasts met with widespread appreciation from crystal set users, who considered they had much to thank Kingsford Smith for.

TUESDAY evening was a case in point. Although the usual silent day, 3YA had, in accordance with the announcements of the previous day, to go on the air to advise listeners throughout the country whether or not the Southern Cross was setting out for New Zealand. For several days now the staff of 3YA has been ready for a continuous 24 hours' service, and was quite prepared even at the last minute to commence a long run should Kingsford Smith have decided on an eleventh hour departure.

Extended Service to Crystal Users.

THE station was on the air at 9 o'clock in the morning, and went on again in the evening at 6 o'clock for some 15 minutes, the announcements regarding the flight being interspersed with gramophone items. Similarly at 7 o'clock and again at 8 o'clock. Though quite ready to carry on longer than the usual quarter of an hour or twenty minutes, 3YA had not intended to do so, but about that time many requests were received from listeners to continue and it was therefore decided to go on for a while longer. This decision was also influenced by the fact that when the station's operators were listening in to the Australian stations in order to pick up the latest information concerning Kingsford Smith, it had been found that the conditions were very good for the reception of the overseas stations. With each rebroadcast came repeated requests for more, and the result was that the station operator went round the dials of his receiving set and crystal set users were able to make comparisons between the programmes of New Zealand and Australian stations. It was a very interesting experience for crystal set users.

3YA Re-Broadcasts

Who Sent It?

An Effort Appreciated

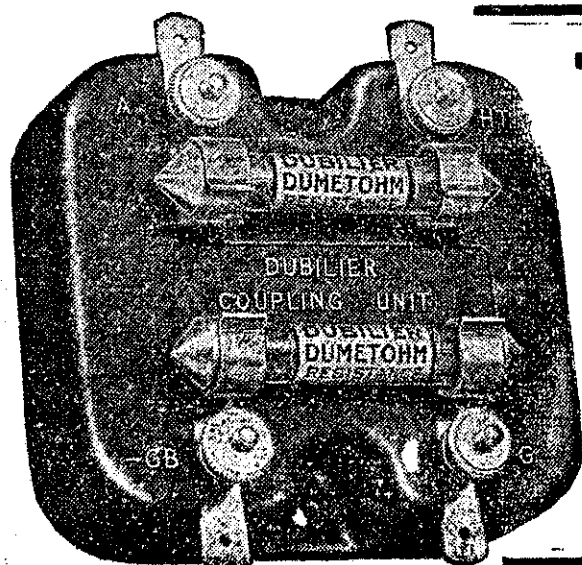
MR. E. H. CULVER, honorary secretary of the Hawke's Bay Radio Society, writes to the Broadcasting Company as follows:—

"At last night's meeting of my society a resolution was passed appreciating the effort of 3YA in relaying the 5SW broadcast of the signing of the Kellogg Peace Pact, special tribute being paid to the work of the Station Director. Reception here on that occasion was not good, but this did not detract from the value of your efforts to keep up to date. On behalf of this society, I offer you our thanks."

WE have received an envelope from Riwaka, bearing date August 17, containing a postal note for 10s., but with no communication to say who is the sender. We would be glad to be advised, so that the proper subscription can be credited.

Also, will Mr. N. F. Bryce, Invercargill please supply his address?

A CRYSTAL should not be handled with the fingers, as the thin film of grease consequent on this is likely to cause a complete failure of the set.



The DUBILIER

RESISTANCE
CAPACITY
COUPLING
UNIT

7/-

This method of Amplification gives purest music—Ask for Price List.

A. E. STRANGE

404 Worcester St., Christchurch

Hawke's Bay Notes

Static has again been king-pin over local reception conditions for some time, and it was at its height when Auckland put over its mystery night stunt. This was interesting enough, but no one down this way has really enthused over it.

From New Zealand stations reception on the whole has been very fair, but the Aussies have been patchy, and the Yanks have been conspicuous by their absence.

RECENT issues of the "Record" have contained quite a lot of controversial matter regarding local reception from 2YA. Some listeners say it is good; some say it is poor; most listeners say nothing. When those who say 2YA is good hear others say it isn't. A cry invariably is "Look for the trouble in your sets first." The writer has spent many hours looking for set troubles, but there's none, and still 2YA as received in Hastings, at any rate, is poor, and not in the same street as 1YA or 3YA. This rules out of court any suggestion that the fault is in receivers, nor does it necessarily mean that it is in Wellington's station. It may be that the intervening hills are the trouble, but against this it is to be remembered that daylight reception is good. At night there is volume a-plenty, but the tone is poor—"tinny," in fact—and distortion is frequent, whereas from the other New Zealand stations tone is good and very little distortion. It's a problem all right, but the solving of it is not in the receiving sets, and those who say that those who complain are wrong have another guess coming.

THE annual meeting of the Hawke's Bay Radio Society was held on September 3, and was very successful. The Rev. F. A. Bennett, the Bishop-elect of Aotearoa, presided. The secretary reported that the membership of the society now totalled 110—a very pleasing state of affairs, so when this society talks there is some weight to back it up.

An entirely new committee was elected, and they are all live members who are hopeful of introducing several new stunts which should hold the interest of members.

The balance-sheet showed a slight profit on the year's workings, which is very satisfactory when the low subscription is considered.

The Rev. Bennett was re-elected president, and was heartily congratulated on his appointment as Bishop of Aotearoa. He is a keen radio enthusiast, and is very much alive to the interests of the society. The society is very fortunate in having such a man at its head, and it is interesting to note that another reverend gentleman is also a vice-president, this being the Rev. R. B. Waugh, another keen enthusiast.

MATTERS in connection with the collection of funds for the Hastings Hospital radio set have not progressed much lately, and the century has not yet been reached, but on September 25 a big concert is to be held in the Municipal Theatre in aid of the fund, and as the Orphans' Club will provide the first part and the Maori students from Hukarere School and the Maori Agricultural College the second part, it

Auckland Notes

IF the radio trade in the Auckland district does not experience a boom, it ought to, for the diversity of entertainment and news lately provided by 1YA, and the big features in prospect are sufficiently attractive to bring thousands into the radio fold. Listeners themselves can help materially in this direction. All are familiar with those friends who say, "I see there is something good on at 1YA tonight. I'll invite myself round to your place to listen in." A delicate hint that possession of one's own set is much better than dependence upon the courtesy of a friend will help them, and will help progress.

2YA is heard with fine steadiness here in the daytime by those who have good sets and know how to operate them. On Wednesday the account of the first Rugby Test was heard most distinctly, and judging by the full and early accounts in the newspapers, the latter made full use of their sets that afternoon.

MR. FRANK SUTHERLAND, our popular basso, was missing from the Wednesday night programme at 1YA. Many Wellington listeners were probably unaware that he was officiating in another important capacity during the afternoon at that day. He was the man behind the whistle at Athletic Park.

SO popular was the rendering of "Rose Marie" by the Madame Ainsley concert party that listeners are eagerly looking forward to the presentation from the "Maid of the Mountains" on Tuesday. There is absolutely no doubt of the general appeal which such renditions make to the large body of listeners.

GREAT was the disappointment of listeners when it was announced on Saturday last that the trans-Tasman flight had been postponed. A Saturday evening flight would have been ideal for most listeners, for there would have been no qualms about sitting up all night with a day of rest ahead. However, when one reached out for "distance" one realised that it was perhaps as well that a postponement had been made. Static was terrific, and that switching from station to station which is beloved of so many would have been impossible.

THE average listener fails to realise all that preparation for a frequently postponed flight entails upon the staff of a broadcasting station. An all-night vigil awaits them when the flight commences, and meanwhile, in anticipation, the staff at 1YA is virtually sleeping on the job. It must have been a trying week for them.

THE announcement in the evening papers that 1YA was to re-broadcast portion of one of the services in connection with the Eucharistic Congress in Sydney, caused large numbers

should be a good turnout. It is up to all listeners to give this concert their full support, and so help to bring the fund to a head.

This society's protest re the racing ban did not meet with much sympathy from the Racing Conference, but when that body meets again the matter will have to be threshed out once more.

to tune in earlier than usual on Wednesday night. Atmospheric conditions were far from favourable, static being very pronounced. Despite this, the magnificent choral music was received at good volume, and all portions of the service could be heard, though it was marred by interference. Still better results are hoped for during the week-end, and there is every prospect of their being attained. Even as it is, the staff at 1YA have reason to feel gratified with their first attempt. It demonstrated possibilities that we are sure will be fully availed of in the future, and in carrying out the re-broadcast the station rendered a signal service to a large number of the community who are deeply interested in the historic services conducted in the new Sydney Cathedral.

America's President

Talk by Visiting Lecturer

DR. Frederick W. Burnham, a noted American preacher, who, with his wife, arrived in Auckland by R.M.S. Aorangi on September 10, is to broadcast from 2YA on Saturday, September 22, a talk on the "Presidential Election in U.S.A." Dr. Burnham is en route to the Federal Conference of the Associated Churches of Christ, to be held in Adelaide in October. He is spending two weeks in the Dominion. Besides extensive world travel in the interests of his church. Dr. Burnham has been active in interdenominational affairs, serving for eight years on the executive committee of the Federal Council of Churches, during four years of which he was chairman. He is a director of the World Alliance for International Friendship through the Churches, and of the Near East Relief. Dr. Burnham is also a member of the National Council of the Boy Scouts of America, and president of the Foreign Missions Conference of North America. Dr. Burnham will preach at the Church of Christ, Christchurch, on Sunday, September 16, when the service will be broadcast.

Sporting

Coming Attractions

Saturday, September 15:

New South Wales v. New Zealand, Third Test, 3YA.
Wellington v. Otago, 4YA.
Nelson v. Wellington, 2YA.
Wellington Trots (results), 2YA.

Monday, September 17:

Radford v. Leckie (boxing match), 2YA.

Saturday, September 22:

Auckland v. Taranaki, 1YA.
New South Wales v. Maoris, 2YA.
Wellington v. Canterbury, 3YA.
Otago v. Southland, 3YA.

Boxing Broadcasts

Association's Appreciation

THE secretary of the N.Z. Boxing Association has forwarded the following letter to Mr. A. R. Harris, general manager of the Broadcasting Company:—

"At the annual general meeting of the New Zealand Boxing Association, held in Auckland on August 23, I was instructed to write to you stating that the delegates present expressed appreciation of the manner in which your company co-operates with our local associations in the matter of broadcasting boxing contests.

"Might I personally take the opportunity of mentioning that numerous letters reach me, particularly from the inland towns of New Zealand, expressing gratitude for giving lovers of boxing, who are unable to be present at contests, the pleasure of following a description of the bouts."



Sole N.Z. Selling Agents, SPEDDING, LTD.,

Corner Customs Street and Anzac Avenue	..	..	..	Auckland
"The Dominion" Building	..	..	..	Wellington
214 Madras Street	..	..	..	Christchurch
42 Crawford Street	..	..	..	Dunedin

Adv. the Mullard Wireless Service Co., Ltd. England.

Taumarunui Radio Club

THE usual monthly meeting of the above club took place in the Kaitieke Dairy Company's board room on Monday August 27 last, Mr. Laird presiding over a good attendance of members.

Correspondence with the local postmaster relative to interference was read, also the correspondence with the Radio Broadcasting Company. Considerable discussion took place over this and it was decided to write the Post and Telegraph Engineer at Auckland as well to see if we could secure his assistance. The interference has been very bad of late, and as there is no efficient apparatus in the district to trace the trouble, it goes unchecked. One member stated that he had offered the Post and Telegraph Department the expenses of the man sent down to

locate the trouble, but this met with no response beyond a card that the matter would be attended to. This happened some months ago, and such treatment by the department is not very encouraging to the holders of licenses.

A very interesting lecture was given by Mr. Leicester on the principles of audio amplification and the use of power valves.

A demonstration of a set loaned by Mr. Mangham was also given and was appreciated.

THE number of radio receivers in the United States is now estimated at 12,000,000, of which about 8,000,000 are commercially manufactured sets of several valves. This is claimed to be greater than the rest of the world put together. Great Britain is second with nearly two and a half million licensed listeners.

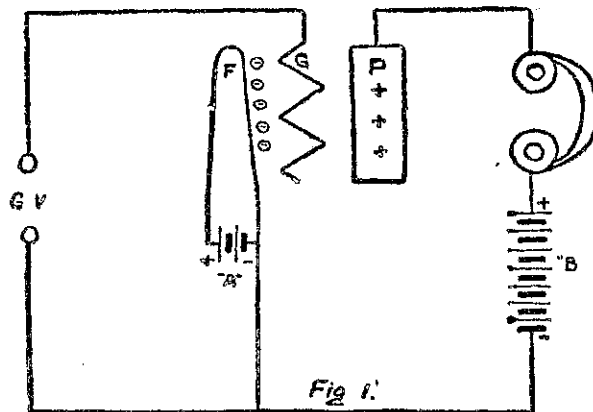
Tom Heeney

Reception Broadcast by 1YA

FROM a broadcasting point of view the reception given to Tom Heeney on his arrival at Auckland was splendidly handled by 1YA. The Auckland Harbour Board gave every assistance to 1YA. A microphone was installed on one of the cranes, from which coign of vantage the scene was well described by Mr. Hutter, 1YA's boxing announcer and a friend of Tom Heeney. On the arrival of the Aorangi one of the Harbour Board's electricians installed a microphone on the deck, and from there Tom Heeney spoke to the people of New Zealand.

Characteristics of Valves

Under the auspices of the Wellington Amateur Radio Society, Mr. W. M. Dawson, a technical expert of experience, has agreed to give a fortnightly lecture from 2YA on various aspects associated with listening. The first lecture will be from 2YA on the evening of September 15 at about 7.40, and will deal with the "Characteristics of Valves." The diagram given below should be kept available by listeners, as reference to it will be made during



the course of the lecture and explanations given.

Another feature of the lecture will be an explanation of the characteristics of different valves, and an explanation of the symbols used in explaining them. These symbols are outlined below. Their meaning, and the characteristics to be looked for in respect of proper use of valves, will be explained by Mr. Dawson.

Filament voltage	Vf
Filament Current	if
Anode voltage	Va
Total emission	is
Amplification factor	g
Mutual conductance (Slope)	S
Internal resistance	Ri
Negative grid bias	Vg
Normal anode current	Cag
Largest diameter	d
Length	l

Regretted by Club.

THE following motion was carried at the annual meeting of the Wellington Trotting Club recently: "The club regrets the recent decision of the New Zealand Trotting Conference in depriving 'listeners-in' in particular invalids, of the benefit of broadcasting the meetings."

Operatic Baritone.

Assheton Harbord at 2YA

ASSHETON HARBORD is a new arrival to this country, coming here recently from Vancouver, Canada. He is an operatic baritone of merit, and has had a great deal of experience in matters theatrical. In England, where he was born, he was a member of the B.N.O.C., previous to which he had been playing in drama and musical comedy. Arrived in the United States, Mr. Harbord was offered and accepted the position of stage director with the American Grand Opera Company, and while acting in this capacity, staged the world premier of Alberto Bimboni's Indian opera, "Winona." In this company also, Mr. Harbord played leading roles among which were Tonio in "I Pagliacci," "Rigoletto," and "Count de Luna" in "Il Trovatore," etc. From this he moved south to California, playing in pictures in Hollywood and then acted as stage director to a traveling dramatic repertory company touring the southern States. At the finish of this tour, Mr. Harbord decided to go north to Canada, where he organised a vaudeville concert troupe with which he toured the Western provinces, and it was at the conclusion of this tour that he made his trip to New Zealand. A versatile actor, a talented stage director, and a baritone of excellent quality, he should prove a source of much pleasurable entertainment at 2YA on Sunday.

Football Results.

NOW that the All Blacks have concluded their tour of South Africa, the bright little interludes on Sunday mornings will disappear. These transmissions have been enjoyed by one and all who have had the cause of the footballers at heart.

Gone are the tense moments when young and old listened intensely for the chimes of the clock to break the silence, to be followed by the cheery voice (with certain exceptions) of the announcer.

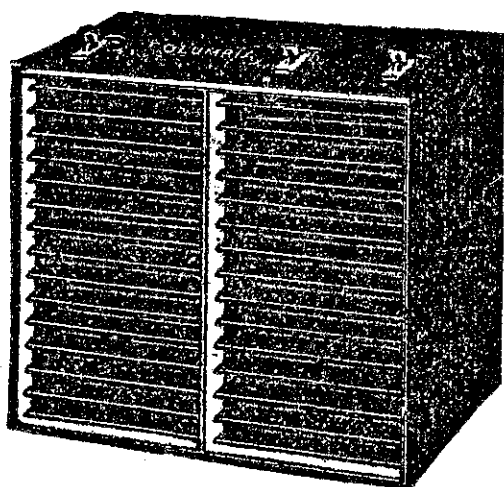
Four of these occasions will long remain in the memory of listeners, especially those who were as enthusiastic as the announcer of 2YA. On each of these occasions (the Tests) the result was known directly the ninth stroke had died away. When one heard "Good morning everybody. This is station 2YA," etc., our spirits fell—we knew the result—what need for further announcement.

But on the two remaining occasions we were better treated. Hardly had the ninth stroke gone out on the air than we heard an excited voice: "New Zealand won the — Test!"

It would be interesting to know just how many heard the ensuing formalities. It is certain that more than one relied on the second announcement before they could "rebroadcast" the exact details.

First Housemaid: "Is Professor Wise absent minded?"

Second Ditto: "Is he? Last night, when the baby cried, he twisted its nose to eliminate the static."



Here is the Most Popular Radio Battery in the World

—The Columbia Layerbilt

NEVER before has it been possible to utilize every cubic inch of battery to produce power. The new Columbia Layerbilt "B" Battery has accomplished this.

Made of flat layers of current-producing material instead of the usual round cells, not a cubic inch of space is wasted. You get more battery for your money, far more energy, greater clarity, volume and distance from your receiving set. There is not another battery like the Columbia Layerbilt—Insist upon it.

Columbia

RADIO BATTERIES

GREATEST CLARITY-
VOLUME - DISTANCE

Factory Representatives
ELLIS & COMPANY, LTD.
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Auckland

Making B Accumulators from Old Battery Plates

MR. J. B. BARRINGTON, Marton, an enthusiastic constructor, supplies information as to a method of making B accumulators from old car battery plates, an idea which is said to have turned out very satisfactorily. The cost of such a battery is stated to be about 5s. per 100-volt unit.

Old battery plates can be obtained at most garages for a small sum. The C.A.V. and "Mac" dry plates especially are stated to be good at any age or condition. Plates that have been allowed to dry for a length of time should be avoided, as the negatives may be found hard and useless. Keep the negative plates under water except when cutting up and soldering. Positive plates are not harmed by exposure, and must be thoroughly dry before cutting. The plates are cut up with a fine hack-saw, containing a new blade.

The Containers.

THE requisite number of small glass jars must be collected, $3\frac{1}{2}$ to $4\frac{1}{2}$ in deep and 1 to $1\frac{1}{2}$ wide at the mouth. These jars are used for various kinds of paste for table use, and may be arranged in rows in a suitable box.

The Plates.

The question of ribs in the grids is immaterial, providing each small plate has at one end, a portion of the outer frame which is found round the grid of the original plates. To this end the bridge which couples the negative and positive plates will be soldered. The constructor who does not consider himself an expert at soldering need not feel timid at undertaking this job for a clumsy, bulky joint will last longer in acid than the nice-looking, neat one.

The bridges should be of fairly heavy sheet lead, $\frac{1}{4}$ to $3\frac{1}{8}$ in. wide, so that it offers a good surface for making a strong joint. The length of the bridges will depend on the size of the containers. It is therefore a good plan to stand the required number of jars in their respective rows, then cut the bridges to the possibly varying lengths.

Soldering Plates to Bridges.

The plates and bridges having been cut to the required sizes and the parts to be soldered thoroughly scraped with a file or knife (the whole surface of the bridges will have to be cleaned on both sides) lay the plate and bridge down end-to-end, allowing a slight opening between them, say $1\frac{1}{64}$ in. On no account attempt to lap the bridge over the plate. There is a little knack in the actual soldering which if the constructor can grasp, he will find this part of the job easy. Wrap a piece of soft cloth round the thumb of your left hand. With your hot copper drop a liberal supply of resin core solder on the place to be joined. Now place the tip of the little finger of the left hand at the extreme end of the plate and the thumb of the same hand on the bridge. Then touch the solder on the joint with the hot copper point until you notice the solder bubble, instantly giving the plate a push towards the bridge, and holding it in position until the solder has set. When dropping the solder on the joint, hold the solder and copper just

over the joint. Avoid touching the lead with the copper point as if you do this the copper will require tinning after every two or three joints.

The Separators.

Out of the same old battery that the plates came from, the constructor will find more than enough separators, whether wood or rubber. In placing the plates into the cells it is advisable to keep the rough side of the soldered joint on the back of each plate, not on the separator side.

When the plates are in their cells, connected up to taps and positive and negative terminals, fill with acid at about 1200. The battery will now give a reading of 1.8 to 2 volts per cell, according to the condition the plates were in when taken from the old battery. After the first charge the battery should read 2.10 to 2.25 volts per cell. The method of charging would be out of place here. I use an electrolytic rectifier with 75 watt lamp in series with the a.c. mains.

The Second Type of Battery.

AS far as my own requirements go, this type of B battery is the monarch of the whole of my collection of H.T. units. The only regret I have in connection with this one is that I did not resort to this type before I bought a good reliable eliminator and 25 dozen test tubes, and collected about ten-dozen paste jars.

The chief advantage of the battery about to be described is that the containers are of wood, and can be made cheaply at any woodware or sash and door factory in sizes to suit individual requirements. The cost of this battery will be more than double that of the one previously described, but still insignificant when compared with its enormous capacity and the service to be had from it. This is the test I put my battery to. After the first charge I left it standing for 21 days, taking voltage readings each day and employing all manner of tests for possible shorts between rows of cells, and after being satisfied that the battery was holding the charge and the insulation between the rows of cells had stood the test of 650 volts, I then coupled up to the set.

The plates, bridges and separators are the same as previously described, the sizes, of course, being in proportion with the containers.

Making and Preparing Containers.

THE containers are of wood. These can be had at any sash and door factory that possesses a chain mortising machine, at about 8s. for 50 or 15s. per 100 containers. The making of these containers will be out of the machinist's line, and it will be necessary to explain to him how the work is done. I will use the dimensions of the containers in my battery as a standard. If the constructor desires a smaller capacity he can reduce these dimensions accordingly. To make 100 containers, ask the foreman or machinist at the factory to take a dressed board 9 inches wide and $1\frac{1}{8}$ inches thick. Cross-cut this into 25 pieces of $5\frac{1}{2}$ in. each. Each of these pieces will make four containers. The inside measurement will be $1\frac{1}{2}$ x $5\frac{1}{8}$ in. and 5 inches deep, with a wall $\frac{1}{2}$ in. thick on all sides, and $\frac{1}{4}$ in. thick

at the bottom. The mortising must be done on the grain end of the wood so that the grain will run vertically with the depth of the container. If horizontal, the container would be useless for our purpose, but the reason for this would take time and space to explain. This container is not the outcome of a single dream; it had to pass through many tests and changes before it evolved into the shape it is at present. The machinist will have to allow sufficient space between each container in the block so that when he rips them into individual pieces there will be $\frac{1}{4}$ in. wall left. If the machinist attempted to mortise them singly it would take him just four times as long to do them than in blocks of four, and he would charge accordingly.

Insulating Cells.

The containers are first immersed in clean boiling fat or tallow for 10 or 15 minutes. My battery is assembled in a benzine case, cut down to a depth of $6\frac{1}{2}$ in. This case holds 56 cells allowing 1-8 in. on all sides for insulation, consisting of bitumen or pitch. Get a narrow strip of wood the length of the case for each row of cells. Pour in the hot pitch to a depth of half an inch all over the bottom of the case. Now quickly stand

the cells in a row at a time. Place the narrow strip of wood on top, and wedge in tightly to hold the cells in place, remembering the requisite space all round. Then proceed with the next row in the same manner. It is a good plan to add a few spoonfuls of fat or tar to this first lot of pitch. This will prevent it from setting too quickly and allow the cells to be arranged nicely. When the cells are all in and the first lot of pitch has set, fill the remaining space up to within 1-8 in. from the tops of the cells. For this remaining 1-8 in. sealing wax is preferable. I gathered up a lot of "dud" 45-volt dry batteries and melted all the sealing wax out of them for this purpose. Fill up to the level of the cells with hot sealing wax. Then melt some wax so that it will only just run out of the tin, and pour a fair quantity all round the cells. Now with a hot soldering iron smear the wax all over the tops of the cells as if you were painting with a brush. This will leave a good finish and an excellent insulation.

The separators for the cells, if of rubber which are mostly corrugated, will need to be flattened out with a hot iron or they will not fit in between the plates. In measuring the depth of these wooden containers it is well

Illustration features the marvellous new

**63/5
MODEL**

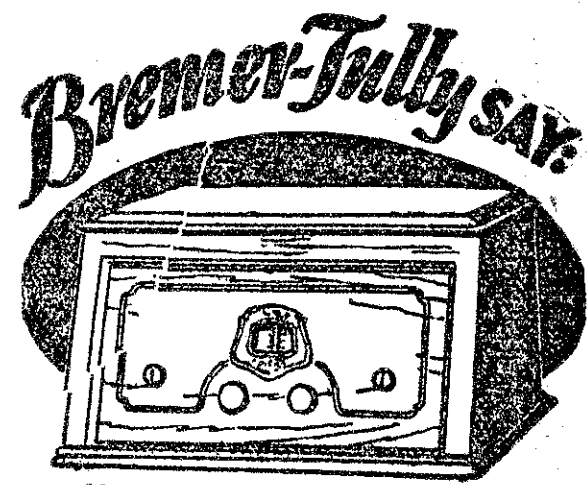
Waitara,
April 15th, 1928.

Dear Sir,

... now able to give you a list of 22 American, 14 Australian, 9 New Zealand and 6 Foreign Stations. ... all heard distinctly on speaker of New Model Bremner-Tully 6/35 bought last November. ... and as it is practically still summer-time. ... a good list for this time of the year. ... expect before winter is over to log about 80 stations. ...
(Sgd.) William Terrill.

**Bremner-Tully
RADIO LTD.**

Commerce Street, Anzac Avenue,
AUCKLAND.



"The best set built - for the least it's wise to pay"

Radios may be built for any price—

—but there's no economy where upkeep exceeds original cost.

No company has ever equalled the B-T record in many respects. There has never been a failure in the B-T line.

No B-T product has ever been unloaded over the "bargain" count.

Shall we send you our 80-page booklet, without obligation?

to remember that a chain mortiser finishes a half-round on the bottom. This half-round is very useful as a recess for sediment. So if the container is 4½ in. deep the plate will need to be only 4 in. to allow ½ in. for the recess and ½ in. from the top.

Taps and Terminals.

The constructor can use his own discretion here as the precautions I am obliged to take in insulating and protecting taps and connections would be unnecessary for anyone who does not employ any more than 100 to 150 volts.

I have no doubt that the average listener-in who is accustomed to the neat little commercial B battery will term this one just described as a very bulky affair, quite overlooking the fact that it would require two 120-volt commercial batteries linked up in parallel to give the same capacity as the 120 volts assembled in a half-benzine case, the cost of which does not exceed 16s. If the constructor is at all resourceful he can turn this bulk to good account. I have one of these batteries turned into a stool with two very heavy A batteries standing on it.

Finally, who would not exchange his 90-volt amplifier for one of the 180-volt type when the additional 90-volt H.T. and 40-volt C battery can be had for a few shillings instead of a few sovereigns?

NEITHER time nor space will permit my touching on the technical side of this subject, but I cannot refrain from mentioning here that repeated experiments and comparisons have convinced me that there is a vast discrepancy between the normal rated voltage of some batteries and the actual voltage under load, and that there is a big relationship between the square area of the plate in the battery, and this voltage drop under load; and a starved amplifier plate with a maximum C battery on the grid is responsible for 98 per cent. of the distortion for which the transmitter is often blamed.

"N.Z. Radio Listeners Guide"—160 pages of valuable detailed reference matter—2/6 a copy at dealers, or 2/9 posted. P.O. Box 1032, Wellington.

A Unique Station

Newfoundland's Happy Position in Radio

A BROADCASTING station built, maintained, and operated by voluntary service! Such is Newfoundland's claim to distinction in the world of wireless.

Station SWMC, of St. John, gives a bi-weekly programme, comprising both educational and entertainment features, without a charge of any kind. This station is not a business or advertising proposition—it is the sole property of one little church, but so strongly do they regard their duty and debt to the community from all corners of which they have received support, that they in return give their service free to all.

A Unique History.

IN 1924 several old people of the Wesleyan Methodist Church were connected with the church by means of telephone wires, to enable them to hear the church service. Later the pastor thought that a small broadcasting apparatus would be cheaper for the listeners, and would serve a greater number of aged and ailing people. After inquiry as to cost, the project was deferred.

Suddenly hopes were raised by a Canadian company, which, through interest in radio broadcasting in Newfoundland, offered a set at a price which, although beyond the immediate purchasing power of the church, was so tempting that the offer was accepted.

In July, 1924, the first broadcast of a religious service in Newfoundland was carried out by means of an apparatus owned by, and situated in, Wesley Church.

Labour was freely given by Catholics and Protestants, and when established subscriptions came in from men of all creeds. The church Scout troop under-

took the making and installation of crystal receiving sets at unbelievably low prices. So the old and feeble ones were helped and service given quietly and unostentatiously to an ever-increasing radio audience.

A Larger Output.

THEN there came demands from would-be listeners scattered afar, who wished to bring in the services. The optimistic pastor, desiring to satisfy these demands, spent his vacation in Canadian work hops, studying the larger and more modern transmitters. Finally a 500-watt machine, capable of reaching all Newfoundland, was installed.

Support was readily given. Gifts and entertainment organisations, anything that could be turned into money, were utilised, while people asked for "radio boxes" to collect small sums. With the intrepid pastor as manager, and this spirit of co-operation, the venture was assured financial success.

To-day societies contribute unasked to station SWMC, fraternal organisa-

tions arrange to place a receiving set in the home of any sick brother, sealing skippers stop their ships during the church service, and men of all sects gather round the loudspeaker; lonely lighthouse-keepers wrote gratefully of benefits received.

Organ recitals are a feature, and it has become necessary to replace the forty-six-year-old organ by a new one. Request items are promised for the next two months.

Present Organisation.

Now station SWMC broadcasts a church service every Sunday evening, while in the morning the apparatus is at the disposal of any church in the city, and during the summer months a morning service is transmitted every Sunday. Twice a week a programme is arranged by a voluntary committee. An hotel has set aside a large room as a studio, and the local telephone company makes a special connection between the studio and the radio room as its contribution.

WIRE facilities may be provided between Riverhead and the National Broadcasting Company's control room in its own building on Fifth Avenue, in New York City, so that the intercepted signals may be fed into as many transmitters as may be joined in a network.

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YOUR OWN RAILWAYS, FOR YOUR OWN GOOD.

Marconi's Latest**Music by Beam**

STRIKING evidence of the progress which is being made by the engineers of Marconi's Wireless Telegraph Company in developing apparatus for the simultaneous transmission of telegraphy and telephony over beam wireless circuits was provided by a demonstration of the new apparatus given by Senator Marconi to officers of the Radio Corporation of America. While ordinary telegraph traffic was being transmitted to Great Britain from the Canadian terminal of the British-Canadian beam service near Montreal, a dance concert was simultaneously switched on to the beam. Without interrupting the telegraph traffic, or without being interrupted by it, the music from Canada was picked up at the British receiving station at Bridgewater, and reproduced at full volume on loud-speakers. An impromptu dance was held to it. Subsequently American engineers at the Bridgewater station heard addresses from friends in America so perfectly that every speaker could be recognised by his voice before his name was announced. It is claimed that in addition to greatly extending the amount of traffic which can be transmitted over a single beam, the new apparatus which makes it possible to use the beam simultaneously for telegraphy and telephony so affects the character of the wave radiated from the beam station that to a great extent signal fading is prevented. It is expected that the various Empire beam services will shortly be used for the interchange of broadcasting programmes between the countries in the Empire.

A series of radio talks is to be given over the air from 2YA by Mr. W. M. Dawson under the auspices of the Wellington Amateur Radio Society. Beginners are recommended to watch for these on alternate Saturday evenings.

Wireless Waves**Influence of Refraction**

FOR some time after radio communication was first effected it was thought that the wireless waves travelled in straight lines. When, however, reception was accomplished over longer distances it was realised that there existed what is now known as the "heavyside layer." It was already known, however, that the radio waves did travel horizontally for a short distance, and the natural and correct solution was reached that the waves were transmitted in every direction and that those projected upwards were deflected by the "layer" to some spot at a greater distance on the earth's surface from the transmitting station.

With the acceptance of this theory came two important discoveries—the obvious one, that of "skip-distance," and the second, the cause of "fading" which was due, according to Professor Appleton, to the simultaneous reception of two sets of waves, the horizontal and the deflected.

THE next notable discovery to be made was that the height above ground of the layer varied according to the time of day or night, an increase of 100 per cent. being apparent on some nights. This naturally makes a great deal of difference to DX (long distance) reception, for, the angle of incidence on the layer is equal to the angle of deflection, e.g., waves striking at an angle of forty-five degrees would be reflected at the same angle. From this it may be seen that, theoretically, reception at night should be possible over twice the "daytime" distance.

IT will be seen that many of what are sometimes regarded as extraordinary phenomena are really the outcome of natural functions, and it is with the general appreciation of this idea that DX reception will grow more and more in the public favour.

Growth of Radio**Wonderful Record of U.S.A.**

REMARKABLE statistics have been issued by the Department of Commerce of the United States of America to show how the wireless industry has grown in that country since the first broadcasting station was opened there about eight years ago. The first broadcasting station in America, and probably in the world, was the station KDKA of the Westinghouse Company at Pittsburg. This station was responsible for the discovery, in quite an accidental manner, of the remarkable possibilities of wireless broadcasting. The station was opened in 1920 for general experiments in wireless telephony. The object of the experiments was to develop wireless telephony as a rival to the land line for ordinary commercial communication, but while tests were being held it was resolved, as a matter of convenience, to transmit gramophone music. As soon as these transmissions began it was discovered that the number of amateur stations within range of its transmissions increased remarkably, and it then became evident that most of the new stations had been erected solely to pick up the musical transmissions. Programmes were promptly improved, and a regular service was instituted; and it was not long before the opening of this service was followed by the construction of wireless telephone stations in practically every other large centre in the United States. When KDKA began its experimental service the value of wireless apparatus sold annually in America was less than £400,000. In 1927 equipment sold was valued at more than £100,000,000. At the same time about 10,000,000 of the 28,000,000 homes in the United States were provided with receiving sets, while the number of broadcast listeners in America was estimated at 40,000,000. Nearly 500,000 persons are now employed in the American wireless industry. The number of broadcasting stations operating in the United States at present is estimated at nearly 700.

Identifying Stations

IN New Zealand one is not, as a rule, caused much difficulty in identifying the different stations received, but in Europe endless difficulties must occur. At least fifteen different languages are on the air and although some of them do give announcements in English, the majority do not. However, the various stations have done much to simplify matters and many have adopted distinctive signals. Berne uses a gong, Bratislava bells, Geneva a whistle, Graz a metronome, while most of the German stations use a metronome and a gong.

Some stations also send a Morse letter repeated many times between items. Yet these signals cannot convey much to the uninitiated listener.

Japanese Stations

AS predicted in the "Radio Record" some months ago, the Japanese broadcast stations are now audible on the loudspeakers of some hundreds of New Zealand listeners. The following list will aid beginners in locating the Japs:—

Location.	Call letter.	Wave-length.	Output power.
Tokio	JOAK	345 m.	10,000
Osaka	JOBK	400 m.	10,000
Kioto	JOFK	353 m.	10,000
Kumamoto	JOGK	380 m.	10,000
Sendai	JOHK	390 m.	10,000
Sapporo	JOIK	361 m.	10,000

AN important advantage to be obtained from the use of a grid bias battery is that it results in quite an appreciable economy in B battery current consumption, and thus prolongs the life of the high tension battery. If only for this reason alone a C battery should be used. The higher the voltage of the C used the greater the economy effected in the B battery consumption. Lastly, the use of grid bias enables greater volume to be obtained by reason of the fact that it allows a higher plate voltage to be employed. Without the application of a negative bias to the grid of the valve the higher B battery voltages would probably cause distortion to the signals.

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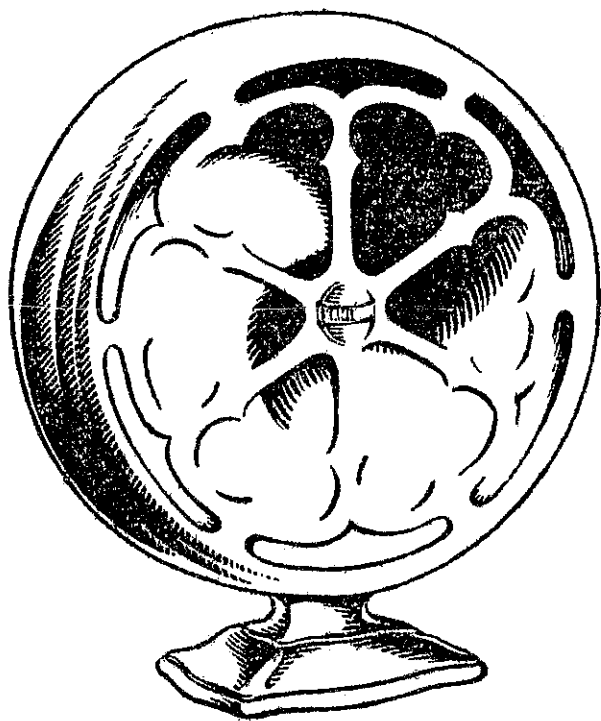
COULD you kindly inform me who puts the morse through on 2FC's wavelength, and if there is any way of shutting him up, as I was under the impression that morse was not allowed in the 250-500 band. It comes through nine nights out of ten, and absolutely ruins 2FC's programme. Re Wellington fading and mushyness: I do not know what labour is required to change over from one wavelength to another, but would it be possible to try one of the other station's wavelength on their silent night to see if it effected the cure that everyone is looking for. Also, as 2YA is a New Zealand station, built for New Zealanders, why not try less power, as anything down to 1000 watts would be sufficient to cover New Zealand.—Satisfied with 30s. Worth (One-who).

[Morse stations should not operate on the broadcast band, but before this trouble can be tracked more information will be necessary. Could you decipher, or get someone to decipher, some of the code and advise us of the result.—Ed.]

Suggestions for 1YA.

BEING a reader of your interesting paper for the last twelve months, I would like to thank Mr. Sellens for his very interesting reports on S.W.

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Our Mail Bag

Will correspondents please practice brevity, as heavy demands are now made on space. All letters must be signed and address given as proof of genuineness; noms de plume for publication are permitted. Address correspondence Editor, "Radio Record," P.O. Box 1032, Wellington.

which I look forward to every week. I would like to ask if he is often troubled with morse on the same wavelength as 5SW, England. I can very seldom get this station clearly for the morse, which seems to start about 7.15 a.m. I cannot get tuned in before that time, not being home. I have noticed a good deal of comment on 2YA fading: there is no doubt that it is a great pity, as it comes in here as good as 1YA, but of course fades very badly. I notice that between 6 p.m. to 8 p.m. it does not fade to the same extent as from 8 p.m. to 10 p.m. 3YA does not fade, nor 4YA, although he is very weak. I understand that Dunedin power was being raised: if so, could you tell me when, as their sports programme is worth listening to. Another point which troubles others as well as myself: If the talks on authors which cover sometimes 20 minutes could be cut down a little and more variation put in, I think more revenue would be the result. Mystery night was dull, but for the picking of the items, which to some would be easy. What about giving some of the old performers a rest with their same old songs, and do the same as 2YA, a "Diggers' Night." I am sure it could be done, and I am satisfied would be encored.—N.D.R. (Papatoetoe).

Sacred Concert.

THESE few lines are for the purpose of protesting against the New Zealand Broadcasting Company in substituting a sacred studio concert last night for the usual band concert from the Opera House at Wellington. We get plenty of sacred music on Sunday from the morning, afternoon, children's, and evening sessions, and always look forward to the splendid concerts from the Opera House. We get 3YA up here better than any other station at night, and are always certain of several listeners-in on Sunday evenings. I can assure you that all were very disappointed at last night's programme and shifted to 3AR Melbourne, where we got a very good band and vocal concert.M.B.A. (North Auckland).

WE would like to express our appreciation of last night's programme (Sunday, September 2). To us it was the best Sunday evening's concert we have ever listened to. While we recognise that the band concerts are very enjoyable, we think that a

programme such as last evening's is much more uplifting and would like you to continue to put one on at intervals. We know these entail more expense, and work, and realise they cannot be given weekly. The company is already giving us good value for our licenses. Re stations. We get Wellington very good here usually, except for very short periods of fading. On Saturday night and again to-night, on our five-valve set, we had so much volume that Wellington was coming through speaker strength with the volume control turned right off. We prefer Wellington for concert sessions, Christchurch for children's and Sunday afternoons. For daily afternoon sessions we are not competent to judge as we are rarely present to receive them.—Wowser (Milton).

Reception in Dunedin.

THERE is no doubt that, as your correspondent, Mr. D. E. Booth, says, the local reception of 2YA has been very disappointing for months past. The excuses which are made for this cannot hold water, and it is no use saying that we are badly placed for reception. If we are thus placed how is it that for the first few months after the big station was opened we had perfect reception both in regard to volume and lack of fading? I think that the whole cause of the trouble is the broadness with which our local station transmits—many "listeners-in" find it impossible to tune this station out, as it is constantly "coming through" 2YA's transmission and distorting it. It would be interesting, if Dunedin listeners would send to you a report on their reception of 2YA for a week, paying special attention to the two nights when 4YA is silent, and comparing them with the other nights when both are on the air. By this means a solution of the present miserable state of affairs might be arrived at.—Constructive Criticism (Dunedin).

[The broadness of tuning was treated in our issue of August 17, referring to 2ZM. The remarks then made apply here.—Ed.]

Japanese Stations.

AS my neighbour, doubtless in fury at the banning of racing broadcasts, has ceased to continue subscribing to your paper, I am reluctantly forced to part with 10s. myself in order

to remain in the know. This is a very fine location for reception from the various stations, as I have even had the pleasure of wiring to 4YA the reception of the results of their first two races at their last trotting meeting, and last Saturday the names of the players in the Canterbury and Otago match came through perfectly before the game started. I notice that your correspondent "Switch" is "looking for a tame Jap" to interpret JOHK for his benefit. It may prove more favourable to the peaceful relationship of the two countries if he leaves well alone. The other evening I was listening to JOHK at about 10.25 in order to see whether or not the evening musical session was heralded in by a beating of gongs or striking of clocks or what. A lengthy discourse in the very best Japanese was proceeding when suddenly it broke forth into the most mellifluous English: "Terrible; Splendid! Come and make a bet!" Followed by a retranslation of the above into the local dialect, and the station closed down for the session. My chief sorrow about Japanese stations is that nowadays they no longer bang a gong or tea-tray or something to announce the next item as they used to do three years ago. The one which goes in for "light comedy" most frequently is the fellow just above 4QG, who is awfully funny, though his imitations of the cat and the hen in converse pall in course of time. That was a nasty smash in the motor-cycle race for the "silver scarf" at Brisbane last night. I trust that the poor chap wasn't killed, but the way they switched off made it seem like it.—G.F. (Ohura).

[JOGK, operating on 380 metres, would be the station just above 4QG.—Ed.]



Still Smiling!

Of course I'm still smiling. Got one of those EMMCO Battery Eliminators for my radio set months ago. Never had the slightest trouble. No battery worry. Get constant silent power all the time. Fit one in yourself.

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Praise For 2YA.

I FEEL I must express my appreciation of the programmes provided by 2YA. The orchestra is wonderful, and the records played on Sunday afternoon are well liked by all at home, also the humorous items during the week. I must say I can listen to almost anything except jazz. The programme suggested by J.K. in the "Radio Record" of September 7 would certainly be an ideal one.—Crystal (Kaiwarra).

Criticise to Improve.

I AM accused, by E.C.P., of Ngaruahia, of lauding "Aussie stations," in current issue of "Radio Record." I would like to state, for the information of E.C.P., and anyone else, that I very seldom tune in Aussie unless on Saturday night for a fight or wrestling bout. 3YA is my first favourite, 4YA and 1YA next. I don't miss much of Wellington's star items; as, for instance, I thoroughly enjoyed a visiting contralto, who gave Scotch and Irish folk songs. They were a treat, and pronunciation was perfect—and no side. I think if our artists were more natural (less "dorg," as a seaman would say), they would be easier to listen to. The programme on August 4 was a treat, a real free and easy, and as already stated by me was enjoyed by a house full that I know of. I criticise for the benefit of listeners, and then only to try for the best result, not to destroy altogether.—J.K. (Trent-ham).

Java Stations.

IN your answers to correspondents in this week's issue, you give "M.W." the wavelength of ANE as 31.93 metres. I refer him to your Listeners' Guide, which gives it as 31.86 metres. If I may be permitted to correct you, this station no longer uses the 31.86-metre wavelength, transmitting only on 15.93 metres. This is according to their QSL card sent me dated June 10, on which they stated: "We don't sent more on 31.86"—rather a quaint way of putting it. Hours of transmission are: Tuesday, Wednesday, and Thursday between 1770 and 1970 G.M.T. on 15.93 m. Input is 15 k.w. high-tension power amplifier 7000-volt six phases rectified a.c. current 50 cycles. Telephony set is cristal controlled. (The spelling of the last two words are as on the QSL card.) Another station in Java has been heard here recently at very good strength on 40 metres, using your "Radio Record" three-valve S.W. receiver, which continues to give excellent results.—R. F. Stanton (Christchurch).

The Mushiness Fault.

I NOTICE in this week's "Record" that correspondents blame our sets for distorted reception from 2YA. I have tried different B voltages, but there is no difference, part of the items clear, the other part mushy. If you can hear part of programme clearly and the other part distorted and fading, well, the set is all right. When 3YA rebroadcasts 2YA, the same thing is noticed; 3YA rebroadcast goes mushy at intervals. 3YA's set is worked by an expert, and if he cannot get it clearly without distortion, well, it is either 2YA's transmission at fault, or the atmosphere, but most certainly not our sets. 3YA is always received clearly here, no sign of mush, etc. The programmes are of such a high order that it is a pity one hears half of it spoilt through distortion.—A. R. Gardiner (Purua).

The Racing Ban.

BEING one of those who have been greatly interested in hearing the broadcasting of racing events, may I through your columns express my opinion, and I know the opinion of many other country people who have wireless sets, commenting on the N.Z. Racing Conference's opinion that the above increases betting. Let them face a few facts. No doubt some of the members are subscribers to your journal—if not they should be. I have been betting on racehorses just whenever I wish to for the last twenty years and find no difference to-day. I just simply ring a bookmaker or his agent, or a friend, and say what I require and it is done, providing I get my message in a few minutes before the start of a race. Every bookmaker has either a radio or a friend that has one, and it's no use trying to have a bet whilst the race is on, and the describing of an important race is fascinating and interesting and does not increase betting. I have been at hotels and other places where the broadcasting was to be heard, and the numbers that congregated were there to hear how their money was getting on previously handed over to the bookmaker; and why not? The Government oblige the folk that are handy and can afford to go to race meetings with cheap fares, and special trains, to my mind and many others mostly to bet on a legal machine for betting. Why penalise the person who cannot afford to go to a meeting through having to work or many other things that could be mentioned? I can assure the Racing Conference from my own experience and that of many others that the increased betting they complain of is tommy-rot and mostly consists of 2s. 6d. and 5s. bets. In the country districts if we want a bet we ring up and always get our modest quid or two placed exactly where we want it, despite the fact that hundreds of bookmakers are fined the modest sum of £75 or £100 or so. The racing officials know just as well as we do that the country is full of bookmakers and their agents in New Zealand, and I'm safe in saying there is not a township in New Zealand that one cannot get his bet fixed up if he wants one. If the Racing Conference wants to reduce the bookmakers' business there is a far better way, and that is for the New Zealand Racing Conference to do its best to enable the people of this country to walk into any post office and wire money direct to the secretary of the racing clubs, have our bet and place those who are a few hundred miles away from the races on the same footing as those who have excursion trains, concessions and a proper betting machine.—Common Justice (Waitotara).

The King's English.

THE "Radio Record" (Friday, September 7) to hand, and, as usual, I have turned to the "Mail Bag" column, and have just come to the letter headed "The King's English." I think this is a most insulting letter, and one that should never have been printed, but consigned to the waste-paper basket. I think I am right in saying that the majority of Masterton listeners have very little fault to find with any of the announcers; of course, they, like the rest of us, are not perfect. My advice to "Homo" is, if you cannot say a good word for anyone, then don't say a bad one, or sling mud.—J. W. d'C. (Masterton)

AFTER reading "Homo's" letter, I cannot refrain from answering such a sarcastic outburst. Why cannot he be man enough to sign his name? He must be ashamed of his writing. These critics may be students of English and other languages, but perhaps be duds on anything else. Mr. Announcer may perhaps not please everyone, but he does the majority, I think, and if "Homo" and Co. were to have a try at his job they may make a complete bosh of it altogether. In conclusion, Sir, let me quote a text: "Let he that is without sin cast the first stone."—Harold J. Finlay (Hawera).

I CRAVE your indulgence for a few lines in answer to a letter in your last issue entitled "The King's English," by "Homo." This gentleman accuses Mr. Hunt of condoning the announcer's mispronunciations and mistakes on account of his pleasant manner. Now, Sir, I have listened to radio from many parts of this little globe, and can assure him that what he calls a "pleasant manner" is the hall mark of a cultured gentleman, and his English is 20-carat; in fact, it is often a ray of sunshine through the clouds. Myself, I do not profess to be as learned as "Homo" concerning the English language, but I don't think it sporting to splash the mud because the grapes are sour. How about "Homo" trying some of his "Homo" stuff before the "mike" himself? Then we will know what the King's English sounds like.—Fernleaf.

IN your issue of September 7 "Homo," writing behind the shelter of anonymity, makes a most unfair attack on the 2YA announcer. Despite some mistakes of pronunciation, I venture to think that the gentleman under discussion is most popular with radio listeners. There is no doubt that he compares favourably with his predecessor in his announcing. If I thought it fair I could mention several "howlers" perpetuated under the late announcer's regime. The object of this correspondence is, I take it, not to hurt anyone's feelings, but to see what experiments can be made for the sake, more particularly, of the rising generation.—R. Stewart W. Hunt (Eltham).

Mr. Howard Raises Dust.

MY experience has taught me that it is useless to argue with an editor. Still I will venture another round. If the Racing Conference said that the "Dominion" or any other newspaper should not be permitted to publish the results of the races, would you expect Parliament or the Government to interfere and say you must permit them to publish the results? Or would you say, "Less Government in business," and leave it to the parties to settle? Now, that blessed word "democratic" is like the word Mesopotamia to the old lady. "Does he (Mr. Howard) support the demand for some of the few shillings of the listeners?" That's sob stuff, Mr. Editor. As a fact, once I pay my thirty shillings over the counter at the P.O. it matters not to me whether the Broadcasting Company gets it or who gets it. I have no further say in it. The B.C.C. looks out for that. However, my point was, and I insist on it, that the broadcasting of racing news is a domestic matter between the B.C.C. and the Racing Conference, and the Government has no right to interfere.—E. J. Howard.

[There is nothing in Mr. Howard's note to answer. We never argued that



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the Government should interfere. We argued that the Racing and Trotting Conferences were wrong to deprive their supporters, the public, of broadcast descriptions, and that the arguments by which they sought to justify their ban were unsound. Mr. Howard is avoiding the issue. Where does he stand? With the conference or with the people? Why birk the question?—Ed.]

Was it Manila?

I WOULD like to suggest to your correspondent, C. Hodgson, Wairoa, that the station he heard broadcasting a boxing match at 11.45 p.m. on August 25, was KZRM, Manila, operating on wave-length of 406 metres. This station can be heard most nights from 11.30 p.m. until about 2 a.m. under favourable conditions. While I am on the job I would like to tell you how much we appreciate the "Radio Record." The postman is always eagerly looked for here on Wednesdays. When do the Broadcasting Company anticipate putting on the long-looked-for dinner music? Some time ago you mentioned in your paper the company was keeping the matter in view. Has the view become faded and distorted, as 2YA has a habit of doing at times?—G. C. Coleman (Nelson).

I SEE by last issue of "Radio Record" Mr. C. Hodgson, Wairoa, inquires the station between 400 and 420 metres. He will find it to be KZRM, Manila Hotel, Manila, Philippine Islands, on 413 metres, 726.1 kilocycles. I have just received a report from KZRM, with a letter bearing eight 2 cent stamps, with their time of broadcasting hours, etc. Hope this helps the inquirer. Cheerio.—S. Ellis, Okato, DX.

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S-O-S

TRAVEL IN COMFORT BY
CAR

WELLINGTON — PALMERSTON
NEW PLYMOUTH

The Woman's Point of View By "Verity"

Annotations of Annabel

Books

Etched in Moonlight.

(James Stephens.)

HERE is a handful of studies in unhappiness, some few short stories told with a distinctive art of expression and suppression, as devotees of Mr. James Stephens do not need to be assured. Of a rare imaginative insight, combined with the power of conveying the pathos and the horror of life as we know it, the wonder and wistfulness of a world beyond our ken, a sensing of forces around us and about, discernible to an ear attuned but imperceptible to dimmer awareness and grosser susceptibility, this exponent of the fey and the occult holds his audience enthralled, and lures it to fresh literary fields and pastures new indeed. Not a large audience, be it noted: for the subtlety of Mr. Stephens's method, his prescience and genius of portrayal of a life of the spirit, are caviare to the masses.

Wonderful stories, and of a class apart, but leaving one sad of heart, the bubble of bravery pricked, and with a dulled apprehension of the vision splendid. Not for those who turn to a book for amusement, the relaxation of an idle hour; for to be appreciated, this poetic dreamer and stark realist demands concentration and a spark of his own fire of the spirit.

First in the book comes "Desire," the story of a strange dream within that other "dream of life," the awakening being stark tragedy of bereavement. 'Tis told with a fanciful and curiously haunting quality; while for pitilessly realistic presentment of an unhappy marriage, in which poor, pathetic little Four-Eyes is done to death by the clacking of a shrew's tongue, the ironically-titled "Darling" is wonderful in its genre.

In our own Dominion at the present time stalks the spectre of poverty, honest men walk the streets in search of a job; and to some of us the story called "Hunger," visualising the same conditions in an older land than ours, is unbearable in its sheer tragedy of pathos. But it makes sad reading. For instance:—

"What could she eliminate, who had come to the bare bone and shank of life? The necessity for the loaf comes daily, recurs pitilessly from digestion to digestion, and with the inexorable promptitude of the moon the rent collector wanes and waxes." And again:

"They did not complain, for those who are down do not complain. Or, knowing it, they do not admit their downness. For to front so final a fact is to face with naked hands a lion; and to admit is to give in. To be lost and drowned, to be anonymous, unhelpable; debris, a straw which the wind takes and frets and tears, or rots to powder and forgetfulness."

It is wonderful, but it does not add a chapter or a line to the Gospel of Gaiety.—R.U.R.

Guard Your Thoughts

SOME very sound advice to the seeker after beauty and youth is given by a notable member of English society, Lady Neish, emphasising the importance of the effect of thought upon looks—good or otherwise.

I often smile to myself, she says, when I see the face of a beautiful actress advertising a face cream. You cannot attain beauty with a face cream. It needs many other things. An actress keeps her looks in spite of late nights and other disadvantages because she unconsciously uses the power of thought, not on account of the face cream she advertises.

She dare not grow old or look disagreeable, otherwise she might lose her job.

It is an instinct with an actress to look agreeable. She is out to please. It is a pity other professions do not copy her.

A good actress realises that if she allows her face to grow set and stern or disagreeable, she will age as quickly as we do!

Song for Spring.

*If you find a daffodil,
Spent and over-gone,
Leave it on the shining hill
For the kiss of dawn.*

*If you find a song you had
Lost to dream apart,
Give it to the winds, my lad,
For fear it break your heart.*

—Howard McKinley Corning, in the "Lyric."

I merely mention this to emphasise one of the first rules for a beauty seeker or seeker after youth. Guard your thoughts. And here is a golden rule for beauty seekers. "It is no use spending twelve shillings and sixpence on face cream if you go to bed feeling disagreeable."

Fancy going to sleep with one of the expressions we wear when we have a grievance!

If you are not sure what you look like when you are off guard, it is an excellent plan to write or read or do any little job in front of a mirror. Look up occasionally just casually and note the natural expression of your face. If you look as I sometimes do, you will get a nasty shock!

A face cream can be very soothing in the hot weather, and a good cleansing cream is a real skin beautifier, but the best beauty parlour in the world will be of very little benefit to any woman who does not control her temper and her thoughts.

DEAREST:

Greatly prone to admiration of gay garments not too bright and good for human mortal's daily mood; yet, wandering through shows of spring, one views distrustfully seasonal modes, compelled to a dark doubt that only unerring taste will score, she who is able to pick a winner, so to speak, amid the changes and chances of the sartorial handicapped, the flux of fashion and le dernier cri. And 'tis sometimes well to take a sporting chance, the highly possible contingency being that not she who plunges, but she who hesitates is lost. For a' that, however, one surveys with considerable pessimism frill and plastron, odds and ends and bits and pieces tacked on to a once austere simplicity; realising that she who mixes her colours is oftentimes in as great need of straightening up as he who mixes his drinks.

WITH English Rose, I contemplated recent millinery display. "So this is New Zealand" quoth she in disdain. "Why, in London we can buy better and more beautiful for half the price!" intonation indicating that not only in price and quality is the great city triumphant. And though comparisons are not particularly pertinent between old civilisation and new, weak woman finds the hat of her heart, some adorable wisp of buckled ribbon and straw, and relinquishing it, wistfully parodies the "Maud" of her schooldays—

O, that 'twere possible,
After long stress and strain,
to secure it at a not too soaring cost.

IS it perchance that your Annabel grows "old and grey and past desire" that "the goods" of the season fail in appeal? They like me not, the looming modes, this uneven skirt, that wide hat sparsely decorated, turning one into plain presentment of the Miller's Daughter," so loved, so mourned in the days of Tennyson the Poet and Victoria the Perfect; the "little" frocks (in all but price) burgeon at unbecoming outposts of one's person, creating bitter regret for lovely lines of lost silhouette, a haunting fear that

The slender grace of a day that is dead
Will never come back to me!

With all deference to rapid disappearance of a charming mode, however, 'tis an imperishable truth that Adam finds Eve in frill and furbelow the

same not unattractive enigma as in skimpy skirt and cigarette; just as Himself retains perennial charm in boiled rag, plus fours or motor kit.

CHANGE is in the air, of making of coils and coiffures there is no end; we live in a ripple of wonder as to what will happen next, scientific, platonic, political. On the one hand tempestuous religious body insistently emphasises sins of society; on the other Kingsford Smith and his attendant braves contemplate flight into the unknown, a voyaging through ultimate ether which may or may not land them in port and happy haven. Sunday or Monday, if and when they descend to rapturous plaudits of a crowd that gives thanks to Allah for valorous achievement, it is hoped that protesting minority will raise no unwelcome clamour of personal opinion.

AFTER unlovely picturisation of machine-ridden world exploited in crude and ugly "Metropolis" of the screen, one felt out of love with latest and greatest inventions. Interest revives, however, in hearing of an up-to-the-minute Terpsichore who, forsaking eternal Charleston, Yale Blues and classic meanderings, finds inspiration in no beacon-light of imagination, but models bizarre and graceful gyrations upon the intricate curves and right angles of man-made machinery. Miss Cynthia Maugham, relative of the distinguished novelist of that ilk, originates her daring dances, smart London flocking to see the charming poseuse, who has chosen so strange a metier in which to reveal her strangely intriguing talent.

HOW small a cause in the world's immensity can cause discomfort of the most acute. Down our street, a kindly God-fearing thoroughfare under the shadow of the Tinakori Hills, the crumpled roseleaf exists by virtue of a man's inhumanity to a dumb animal, and incidentally to a harmless neighbourhood. Dumb, did I say? Alas, far from dumb is that big black puppy, restlessly straining at its chain from morning till night and night till morning, his frantic protests against an adverse fate causing men to curse and the gods to weep. Is it obtuseness thus to keep in imprisonment an unhappy animal, or lack of imagination, or just plain, straight-out cruelty? I commend all such cases to the humanitarians in our midst.

Your

ANNABEL LEE.

Tonking's Linseed Emulsion
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The Woman's Point of View

Fashions for Summer

IN frocks for the coming summer greater variety than ever is shown at Home, and the monotonous matchstick silhouette of a few seasons ago is quite dead. The reaction to uniformity is beginning to be felt, and everywhere fashions are becoming more feminine and more elaborate, especially those designed for afternoon and evening wear.

THE tendency towards longer skirts is more noticeable. This is, of course, particularly marked for evening wear, where length is gained by all sorts of devices, such as floating panels and side draperies of all kinds. The "dipping-at-the-back" silhouette has had its full share of popularity, and although many frocks are still seen with this effect, they are not shown in such numbers.

FOR sports and day wear there is no decided change, though the exaggeratedly short skirt is no longer seen. Simple practical designs are shown, which are necessary for the active life of the modern woman.

BLUE is perhaps the most fashionable colour at Home this season. It is shown in all shades, from palest eggshell to navy, a particularly popular one being a little lighter than navy and tending towards sapphire. This shade is being worn both for day and evening wear. Many models in black and white are also shown, and beige, lime green, absinthe, cherry red and grey are all very popular. A new shade is just appearing in Paris for afternoon and evening frocks. This is prune, and is very effective in georgette, chiffon and satin frocks.

EVENING frocks become more and more elaborate. Flounces are seen everywhere, as are puffs on the hips, side and back draperies, bows, uneven hems and flowing panels. Lace, chiffon, georgette, tulle, satin and lame are the materials most used. Taffetas is occasionally used for picture frocks. Chiffon and lace in combination form particularly charming and effective evening frocks.

FOR afternoon frocks there is an immense and charming variety in crepe-de-chine, foulard, and chiffon. Flounces, bows, draperies and pleats are all evident. Brilliant patterned materials are in evidence, and these are worn in conjunction with plain straight little coats in cloth, in dark shades of navy or black, or in a shade to tone with the frock. So that a vivid cherry red and royal blue chiffon frock has a royal blue coat to match, and so on. Smart afternoon coats in black silk are shown with ermine collars and cuffs. A great many of these have the wrapover line, and show fine pleatings. Heavy Ottoman silk is used very successfully for some of these smarter models.

FOR day and morning wear simple suits in navy, black, and neutral colours are worn, and all the coats

show plain lines, mostly in tweed in a small pattern, and in plain cloth. The three-piece suit for morning and sports wear is usually made in light colours, such as linen blue, tomato, beige, clear grey, bisque and lime green. Horizontal stripes are seen on most of the sports models. A new feature of the skirt is that in many instances it is slightly circular, and also longer. Fine wool, knitted in an openwork stitch, is a special favourite for sports clothes, as its effect is extremely light and dainty. This finely knitted wool is often combined with silk in three-piece models.

FEATHER flowers appear not only in the daintiest most effective corsage shoulder bouquets imaginable, but in millinery trimmings of remarkable beauty. Long sprays of poppy buds, of anemones, marguerites and tulips, all made of plumage in brilliant realistic colours, complete with shaggy pompoms suggesting giant chrysanthemums, etc. Cactus blossoms, silky camellias, jasmine, and cornflowers are also included in the tremendous variety of feather flowers to be seen. Felt millinery is becoming rare, and when felt does appear, it is usually in combination with straw, or as an accessory to straw. Bows and ribbons are being much used as a trimming.

TRANSPARENCY and lightness are qualities of this season's millinery, and much lace is stiffened for large as well as medium-sized hats. Straw is plaited for brims into lace effects, or looped to look like a braid or a fine lace, and metal is often interwoven into some hair models. Embroidery is used to decorate some hats, and some of the most original models illustrate afresh the perennial charm of black and white. There is more than a suggestion of good cheer and good taste in the leading colours chosen by the milliners for the summer straws. They include currant, raspberry, morella, cherry, port wine and Burgundy reds. The cherry shades are a pronounced vogue for all types of millinery, to tone with afternoon frocks, or two-piece or jacket suits. Red is also fashionable for country or golf clothes, and for race meeting suits and small hats.

RIBBONS are important, including velvet ribbon, and black satin ribbon is used in quantities, often making whole hats. Metal ornaments are shown in many interesting new types, some modern, and others antique or mediaeval in design. One of the models this year is a striking winged helmet, another a quaint little Flemish cap with ear extensions, the whole made of tiny downy curled feathers looking like rose petals.—Miss Bucleugh from 4YA.

"Quick is the succession of human events. The cares of to-day are seldom the cares of to-morrow; and when we lie down at night, we may safely say to most of our troubles: 'Ye have done your worst, and we shall meet no more.'"—Cowper.

The Lonely Meal

EATING alone can be a very dull business, and there are many of us, alas! who must eat alone. Nine out of ten of us make no effort towards happy meals, but just set the table with whatever comes first, open a tin of some preserved viand, and proceed to eat it as quickly as possible with a book propped up in front of it.

This is a bad habit—bad for mind as well as body. It is surprising how much slackness of this kind influences one mentally, and we all know that food is better digested when eaten in a happy frame of mind.

So make the best of a bad business, and take as much care in laying a table for one as you would for six.

Buy or make yourself sets of table mats in gay colours—linen is cheap and the threads draw easily for hem-stitching. Always have a bowl of flowers before you, you'd be surprised to know how companionable flowers can be.

Do not serve up your meal in dishes that hold three times as much as you need. The china stores cater a good deal for those who eat alone, and you can buy attractive little "one-man" flat and vegetable dishes. Arrange your fruit salad in a sundae glass, put your salad on a little dish that is made exactly like lettuce leaf. Be a party unto yourself.

Unique Foot Rests.

ALTHOUGH a foot rest adds to the comfort of the motorist, it is often left behind as it takes up a large amount of space. When the rest opens to reveal a case fitted with all the toilet requisites and a mirror, still leaving room for luggage for a night or so, the luxury becomes almost a necessity.

Polishing Pewter

OLD pewter, once the despised and rejected of metals, is now enjoying a wonderful popularity among collectors of antiques. Because of the lead in its composition and the consequent risk of lead poisoning, its use for food and drinking vessels was forbidden early in the last century. Our grandmothers and great-grandmothers banished their pewter in disgrace; now we find it among their relics, black with neglect, and it seems hopeless to try to bring it to its proper state of blue-back shininess.

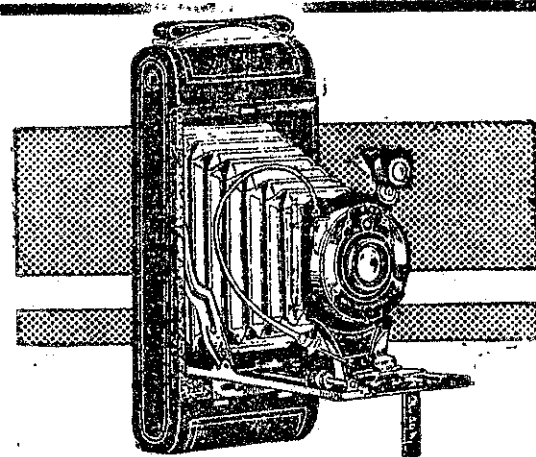
There is nothing more beautiful than dully gleaming pewter.

First of all try the effect of scrubbing in soapy water to which caustic soda has been added. Wear rubber gloves while doing this. This is bound to have some effect but if the pewter is still too dull to polish with ordinary metal polish, rub it with a cloth dipped in oxalic acid. This is a strong poison, so use care in its use.

Then burnish by rubbing with fine silver sand. Pewter that is in a very bad condition may need several treatments in this way, but it is worth while to persevere, using patience and elbow grease at the same time.

Spanish Chops.

TAKE six very thick cutlets. Make a cut on the outer edge extending nearly through the lean meat. Stuff, dip in breadcrumbs, and fry in deep fat for five minutes. Drain on brown paper. For the stuffing mix six tablespoons of salt breadcrumbs, three tablespoons cooked ham, two tablespoons chopped mushrooms, two tablespoons melted butter, salt, and pepper. Fasten slit in chop with a small skewer. Serve with mushroom sauce.



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Features of Next Week's Programmes

Notes from 1YA

ON Tuesday evening there will be a presentation of excerpts from "Les Cloches de Cornville," the delightful light comic opera whose English name is "The Chimes of Normandy," produced under the direction of Madame Irene Ainsley. The cast will be comprised of Miss Marjorie Fair, Miss Irene Rogers, Mr. Arthur Ripley and Mr. Leo O'Malley, who will also be heard in a number of solos.

Mr. A. B. Chappell will continue his talks on "Old New Zealand," this time telling us about "Early Agriculture," which should prove most interesting.

WEDNESDAY'S programme will consist of a band concert by the Auckland Municipal Band, which will be relayed from the Auckland Town Hall, the bandmaster being Mr. Christopher Smith. This programme will conclude with items from the studio, the artists including Mr. Frank Sutherland, who will sing "Broadways," "Captain Danny," and "A Vagabond's Song." Among the instrumental items will be a selection from "Aida."

ANOTHER programme for Thursday of outstanding merit has been arranged by the Savoy Octet, their numbers including "Queen of My Heart," from "Dorothy"; "Light as Air" ("Faust"), "Love, Love" ("The Geisha"), "Blue Danube," and other popular numbers. Also on this programme is Mr. J. F. Montague, who will give "The Lady or the Tiger." The instrumentalists for the evening will be the Auckland Trio, one of whose numbers will be a selection from "L'Enfant Prodigue," and Miss Molly Wright in a 'cello solo, "As Once in Happy Days."

THE main vocalists for Friday's programme will be the Clarion Glee Singers, in popular items, while Miss M. Herald, L.A.B., L.R.A.M., will give a lecture-recital on "John Ireland." The Snappy Three will also be performing that evening, and will include among their numbers "Breeze" and "My Heart Stood Still." Contributing to the humorous side of the performance will be Miss Alma McGruer and Mr. Duncan Black in "A Bit of Irish," and Miss Murphy in "Henry Edward's Mother" and "One Month's Notice."

TWO artists who recently delighted listeners are appearing again at 1YA on Saturday. They are Mrs. Basham and Mr. Briggs, who will render three numbers from "The Mikado," three from "Ruddigore," and three from "Patience." Mr. F. W. Barker will contribute to the humorous side of the programme on Saturday evening. He will give a character sketch, "Mr. Squeers Opens School" (Dickens), and two humorous items, "The J.P." and "Three Stages of Married Life."

There will be a relay of the Majestic Theatre Orchestra, under the baton of Mr. J. Whiteford Waugh on Saturday evening, and the Auckland Trio will include, among its numbers a selection from

CONCERT BY HUTT VALLEY CHORAL SOCIETY

Broadcast by 2YA on Tuesday.

ON Tuesday evening 2YA will broadcast a concert to be given at Lower Hutt by the Hutt Valley Choral Society. The conductor will be Mr. E. Douglas Tayler, F.R.C.O., A.R.C.M., and the choir will be assisted by Mr. Harison Cook (bass soloist) and by the 2YA Orchestra, which will play selections and also play accompaniments.

2YA will be connected with King George's Theatre, Lower Hutt, by a special line for the occasion.

An excellently varied programme will be presented by the Society the items comprising part songs, Ode for chorus and orchestra, choral song (with orchestra), more part songs, and a series of sea shanties, which will have orchestral accompaniment.

"Lilac Time," while Miss Ina Bosworth will perform a violin solo, "Souvenir." Bendall's Collegians in dance music will be relayed from the Masonic Hall, the orchestra being under the direction of Mr. Edgar Bendall.

DIVINE service of the Beresford Street Congregational Church will be relayed from the Prince Edward Theatre, the preacher being Rev. Lionel B. Fletcher, and the choirmaster Mr. William Gemmell. Following this relay will be one from the Auckland Town Hall, being a municipal organ recital, in grand organ selections, the organist being Mr. Maughan Barnett.

Notes from 2YA

ON Monday, September 17, the evening will be devoted to a broadcast of a descriptive account of the Leckie-Radford boxing contest, and the amateur preliminaries.

ON Thursday, September 20, Miss Margaret O'Connor, teacher of dancing, is to deliver another of her interesting and instructive lecturettes at 7.40 p.m. On Thursday, also, the Warblers' Male Quartet will provide the vocal portion of the programme from 2YA. The concerted items will be "A Mighty King is Wine," and "My Blue Ridge Mountain Home," a popular number, the solo part being taken by Mr. Ernest Elliott. Mr. Ernest Elliott will sing "Carmencita," a tune-fun, new popular number, which should find favour with listeners. Mr. Harry Matthew, baritone, will render "A King's Man," and "On the Road to Mandalay," both spirited songs which are sure to be appreciated. Mr. T. C. Wood, bass, will present a song cycle, "Songs of the Open Country," by Easthope Martin. His fine voice is sure to be heard to advantage in these numbers. Listeners will not be disappointed at the quality of the programme on Thursday. Instrumental music will be provided by the band of the First Battalion Wellington Regiment, and Mr. A. Stanley Warwick will contribute elocutionary items. Mr. Johannes Andersen will be heard in another of his interesting talks on bird life.

Wednesday evening's programme, the second half comprising a relay of the Christchurch Orchestral Society's concert. The studio vocalists will be Miss Nellie Lowe, Miss Hilda Hutt, Mr. T. G. Rogers, and Mr. A. G. Thompson.

THERE will be no doubt about the popularity of Thursday evening's concert, the programme for which will consist of plantation melodies. It will be very entertaining to have a whole evening devoted to the melodies which were sung by the negroes of the Southern States of America. In these songs the negroes give expression to the whole gamut of their feelings, from sadness and pessimism to exhilaration. There are songs like "My Old Kentucky Home," others are lullabies, then there are songs of religious fervour, and others of a strong humorous nature. Among the last-named will be the old favourite, "The Camptown Races." The elocutionary items to be given by Miss Maiona Juriss will also relate to the negroes.

A song cycle, "The Little Cactus Flower," for contralto and bass voices, will be sung by the Dinky Duo on Friday evening. This song, which will continue for ten minutes, is not specially well known, but the Woodford-Finden composition is certain to give great pleasure to listeners. The Dinky Duo will also be heard in Messenger's "A Little More."

A NEW vocalist for Friday evening will be Mrs. Ida Graham, who a few years back was a popular concert platform artist in Christchurch. Mr. W. Bradshaw has three very fine songs for Friday evening—"The Sailor's Grave" (by Sullivan), a song rarely sung, "Ailsa Mine" (sung by Mr. Bradshaw some time ago and repeated by request), and the well-known "Star of Bethlehem."

A new instrumental combination, the Eyres Social Instrumental Trio, will make its radio debut on Friday, and will play a number of ukulele selections—waltzes, and fox-trots.

Mr. H. Instone has another of his own original humorous recitations for Friday evening. He has called it "The Swagger and the Tin Lizzie."

ON Saturday evening 3YA will re-broadcast 2YA's week-end programme.

ON Sunday evening from 6.30 to 7 p.m. there will be a relay of chimes from the New Anglican Church at Fendalton. Mr. Claydon will be the bellringer.

Notes from 4YA

Sunday evening's church service will be relayed from the Hanover Street Baptist Church, the preacher being the Rev. E. S. Tuckwell, M.A. A special feature of the service will be the hymn studies, illustrating how well-known hymns may be treated as special arrangements for choral singing. At the close of the service, another fine sacred concert will be relayed from the church.

Are ghost real? Many folks say they are. In any case most people are interested in ghosts, and so Pastor

THE Ariel Singers will present an excellent range of operatic solos on Friday evening. They will be supplemented by Miss Amy Eaton (soprano), and Miss Helen Hart, L.A.B., A.T.C.L., pianiste. A glance at the published programme will show that a really delightful evening's entertainment is assured.

THE opening concerted number, "The Two Snails," to be broadcast on Saturday, September 22, concerns a little English snail, who, on being asked by her French lover, to go to France where these creatures form part of the national diet, replied "Certainly not." A special feature of this programme will be the duet, "The Day is Done" (by Lohr), sung by the two tenors, Messrs. S. Duncan and F. Bryant. The "Song of Hawaii," introducing ukulele effect, is sure to please, while the solo items will be well up to the usual standard. Humorous numbers will be presented by Mr. Titchener. A very large number of listeners will doubtless be interested in the talk on "The W.E.A. Summer School" to be given by Professor T. A. Hunter, W.E.A. Director, at 2YA on Saturday.

Notes from 3YA

A WELL-VARIED programme will be provided by the Woolston Band on Monday evening. Solos will also be played, these items comprising a trombone selection by Bandsman W. Lanham, Gounod's "Lend Me Your Aid," and a cornet solo by Bandsman R. Barber, "Love's Old Sweet Song." Both items will have band accompaniment.

The vocal items which will interperse the instrumental on Monday evening will range from popular to classical. Old favourites will be sung by Mr. E. A. Dowell, always a very popular radio artist, and by Mr. Russell Sumner. Miss Frances Hamerton will be heard in some dainty classics, as will the Happy Duo. The humorous items of the evening will be given by Mr. J. J. Flewellyn.

A MISCELLANEOUS programme with a fair proportion of classical items will constitute the first hour of

Children's Sessions

AT 1YA.

TUESDAY, September 18.—Another evening with Uncle George. And we are glad to welcome the Mount Albert Grammar School Orchestra, who will make their first appearance before "Mike."

WEDNESDAY—Here is Uncle Tom with story and song for all, so keep awake till 7 o'clock and don't miss any of the fun.

THURSDAY—Some of our little cousins to sing and recite for us. And Peter Pan and Cinderella are sure to have some arguments and catches for each other. Listen, and see who wins.

FRIDAY—Nod and Aunt Jean will have stories and songs for the Radio family. Uncle Cyril will play items asked for by the children. The "Gramophone Man" will also be there with some records and stories about them.

SATURDAY—Good-evening Cinderella? Do we see Sunny Jim peeping out of the Glass Slipper? We do, then come and tell us your experiences in the South, Sunny Jim, and don't forget our favourite Haka.

SUNDAY—Children's Song Service conducted by Uncle Leo, assisted by cousins from Beresford Street Sunday School.

AT 2YA.

MONDAY, September 17.—Uncle Jeff and Aunt Gwen with birthday greetings and stories for the little ones, and Cousins Joan, Nancy, Gladys and Pat have a little programme all ready for their cousins of Radioland.

TUESDAY—Big Brother Jack with his cock that crowed in the morn, and to-night the Cheerio girls will be here with their cheery songs and choruses.

THURSDAY—Aunt Gwen and the Evans Bay Sea Scouts under Mr. H. Warren. What a treat! That is not all. Uncle Pepper from the North Pole will tell you some wonderful stories that are all true.

FRIDAY—Uncle Ernest will greet you to-night, and a very happy greeting it will be, will it not? There will be dear little Cousin Kathleen, who will recite, and Big Cousins Dave and Margaret who have some lovely nursery rhymes to sing. What a happy hour it will be.

SATURDAY—Uncle Toby and Aunt Gwen have lots of things to tell you to-night, and we know you will enjoy the pianoforte duets and solos by Mrs. E. Macky's pupils. Also, Cousin Gwenda will sing "Spreading the News" by special request.

SUNDAY—The Children's Song Service will be conducted by Uncle Ernest, assisted by the Church

mer ('cellist). A group of trios will be provided by these artists. Miss Molly Gallagher will contribute a number of elocutionary items. Orchestral music under the conductorship of Mr. L. D. Austen will be relayed at intervals from the Strand Theatre.

of Christ, Vivian Street, under Mr. W. Mason.

"Gisborne—Past and Present" will be the subject of a "talk" to be broadcast from 2YA on the evening of the 21st inst. by Mr. W. D. Lysnar, M.P. Mr Lysnar is familiar with the history of one of the most historically famous portions of the Dominion, and his address will be full of interest to all listeners. Mr. Lysnar will be "on the air" at approximately 9 p.m. on the 21st inst.

AT 3YA.

MONDAY, September 17.—"Blue Monday" Washing Day! It may be—yet Scatterjoy's talk on "Washing Day in many lands" will be far from gloomy or blue! And Cousins Esther, Kathleen, Freda and Betty will provide music and song for you all. Greetings and best writer's verse.

WEDNESDAY—Uncle Peter and Mother Hubbard back again from their holidays, and a merry group of young folk from the Maori Girls' College will delight you.

THURSDAY—Chuckle and Aunt Pat to-night will give you songs, stories, bells and greetings. And perhaps will "Pucker up and Whistle" too. So listen in, hard!

FRIDAY—To-night Big Brother is bringing the "Optimists" along, and after hearing them you will all feel that "the world is so full of beautiful things, we all should be as happy as kings." Miss Arpeggio will delight you with her fairy tale music story, too.

SATURDAY—Oh for a good old "community sing-song" to-night—with Uncle Sam leading, and Cousin Bob and his violin, Cousin Biff and his guitar, and everyone in good form.

SUNDAY—Children's Song Service, with Uncle David at the helm, and the young folk from the Cashmere Methodist Sunday School will sing the hymns to-night.

AT 4YA.

TUESDAY, September 18.—The story of Peter Pan and Wendy

not forgetting Tinker-Bell the fairy. And there will be songs, and fairy music to accompany the story. Which means that 4YA is having a "Peter Pan" programme to-night. Brother Bill will tell the story, and the Radio Postie will go his rounds, too.

FRIDAY—A number of the Family have offered to loan gramophone records for the entertainment of the whole. They think the records are the very best, ever, and they anticipate we shall all think so, too. Very well, then, we shall see—and hear—to-night. And Big Brother Bill will be there with Aunt Shiela. To-night, we go for a trip on the "Time Scooter." This time we shall pull the little green lever, and travel with the speed of light 2000 years into the future. If you want to know what they will be doing then; listen in to 4YA. The Radio Postie will go his rounds as usual.

Horahora Mishap.

DURING the recent mishap at Horahora, resulting in considerable interference with the output of electricity, the Public Works Department took advantage of 1YA to broadcast an explanation of the breakdown, and appealed to the public to economise as far as possible in their use of electricity. Farmers were asked to endeavour to commence their milking an hour earlier than usual.

Radio for Pitcairn.

THE Ruahine, now en route to New Zealand from London, is taking to Pitcairn a quarter-kilowatt ship's transmitter to enable the islanders to communicate with passing ships, and thus obtain, when necessary, a relay to New Zealand or America. The islanders previously possessed a ship's crystal receiver. Mr. McCoy, a wireless enthusiast, journeyed to New Zealand and passed examination. He then went to London and visited the Marconi works, where the company presented the transmitter. The island possesses a petrol engine, which can be used to provide power for the transmitter.

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Sunday, September 16

1YA, AUCKLAND (333 METRES)—SUNDAY, SEPTEMBER 16.

- 3 p.m.: Afternoon session, selected studio items.
 4.0: Literary selection by the announcer.
 4.8: Further studio items.
 4.30: Close down.
 6.0: Children's service, conducted by Uncle Leo, assisted by Cousins from the Greenlane Congregational Sunday School.
 6.55: Relay of Divine service from the Church of Christ. Preacher, Mr. E. Aldridge; organist, Mr. H. Knowles; choirmaster, Mr. W. Thomson.
 8.30: Relay of military Band selections by Auckland Municipal Band, under the direction of Mr. Christopher Smith.
 9.30: God Save the King.

2YA, WELLINGTON (420 METRES)—SUNDAY, SEPTEMBER 16.

- 3 p.m.: Afternoon session, selected studio items.
 4.30: Close down.
 6.0: Children's song service, conducted by Uncle Ernest, assisted by Cousins from Cambridge Terrace Congregational Sunday School Choir.
 7.0: Relay of evening service from St. Thomas's Anglican Church, Newtown. Preacher, Rev. C. V. Rooke, M.A.; organist and choirmaster, Mr. Wenzel Collie, L.L.C.M.
 8.15 (approx.): Studio concert arranged by Mr. Roy Hill.
 Overture—"Egmont" (Beethoven).
 Mezzo-contralto solo—Miss Ngairie Coster, "O Rest in the Lord," from "Elijah" (Mendelssohn).
 Trumpet and organ selection—"A Trumpet Voluntary" (Purcell).
 Bass solo—Mr. J. M. Caldwell, "Honour and Arms" (Handel).
 Cello, organ and orchestra, "Solemn Melody" (Walford-Davies).
 Vocal quartet—Ariel Singers, "This World is But a Fleeting Show" (Waley).
 Overture—"Rosamund" (Schubert).
 Soprano solo—Miss Jeanette Briggs, L.A.B., "Rejoice Greatly," from "The Messiah" (Handel).
 Symphony—"1st Movement 5th Symphony" (Beethoven).
 Vocal duet—Miss Ngairie Coster and Mr. J. M. Caldwell, "O Love Divine" (Stainer).
 Operatic selection—"Il Trovatore" (Verdi).

Tenor solo—Mr. Roy Hill, "How Vain is Man," from "Judas Macabaeus" (Handel).
 Band selection—"William Tell Overture" (Rossini).
 God Save the King.

3YA, CHRISTCHURCH (306 METRES)—SUNDAY, SEPTEMBER 16.

- 3 p.m.: Recital of gramophone records.
 4.30: Close down.
 5.30: Children's song service, conducted by Uncle David, assisted by scholars from the Moorhouse Avenue Church of Christ Sunday School.
 6.30: Relay of service from Church of Christ, Moorhouse Avenue. Preacher, Pastor J. Crawford; organist, Miss E. Hepburn; choirmaster, Mr. H. Ames.
 7.45 (approx.): Recital from the studio of gramophone records.
 9.30: God Save the King.

4YA, DUNEDIN (463 METRES)—SUNDAY, SEPTEMBER 16.

- 5.30 p.m.: Children's song service, conducted by Big Brother Bill, assisted by scholars from the Knox Church Sunday School.
 6.30: Relay of service from the Hanover Street Baptist Church. Preacher, Rev. E. S. Tuckwell, M.A.; choirmaster, Mr. H. P. Desmoulins; organist, Mr. Upton Harvey.
 8.0: Sacred concert arranged by Mr. Desmoulins, from the Church.
 9.15: Close down.

Monday, September 17

1YA, AUCKLAND (333 METRES)—MONDAY, SEPTEMBER 17.

SILENT DAY.

2YA, WELLINGTON (420 METRES)—MONDAY, SEPTEMBER 17.

- 3 p.m.: Chimes of the G.P.O. clock, Wellington.
 3.1: Selected gramophone items.
 4.30 and 4.55: Sports results to hand.
 5.0: Close down.
 6.0: Children's hour, conducted by Aunt Gwen and Uncle Jeff.
 7.0: News session, market reports and sports results.
 7.40: Lecturette, Mr. T. Bryce Wilson, "Care of the Feet."
 8.0: Chimes of the G.P.O. clock, Wellington.
 8.1: Relay from the Town Hall of the boxing preliminaries held under the auspices of the Wellington Boxing Association.
 9.0 (approx.): Description of the contest between Johnny Leckie and Norman Radford.

3YA, CHRISTCHURCH (306 METRES)—MONDAY, SEPTEMBER 17.

- 3 p.m.: Afternoon session, selected studio items.
 4.30: Close down.
 6.0: Children's hour, conducted by Scatterjoy.
 7.15: News and weather report.
 7.30: Talk on Books by Mr. E. J. Bell.
 8.0: Chimes. Studio concert by Woolston Brass Band, conducted by Mr. R. J. Estall and assisted by 3YA artists.
 8.1: March, the band: "Faithful and Free" (Rimmer).
 Trombone solo with band accompaniment. Soloist, Bandsman W. Lanham: "Lend Me Your Aid" (Gounod).
 8.10: Baritone solos: Mr. E. A. Dowell: (a) "Marguerite" (White); (b) "Come Sing to Me" (Thompson).
 8.17: Instrumental trios, Christchurch Broadcasting Trio: (a) "Lugana Lullaby" (Hope); (b) "Scherzo" (Reissiger).
 8.26: Soprano solos, Miss Frances Hamerton: (a) "Nightingales and Passion Stirred" (Rameau), from "Hippolyte and Aricie."
 8.30: Overture, the band: "Pique Dame" (Suppe).
 8.38: Tenor solos, Mr. Russell Sumner: (a) "Take a Pair of Sparkling Eyes" (Sullivan); (b) "I'll Sing Thee Songs of Araby" (Clay).
 8.44: Humorous recitation, Mr. J. J. Flewellyn: "Monty on Bolshevism."
 8.49: Soprano and tenor duet, The Happy Duo: "The Swing Song" (Messenger).
 8.54: Weather forecast.
 8.56: Chorus, Light Opera Company: Gems from "H.M.S. Pinafore"—Zonophone record A317.
 9.6: Baritone solo, Mr. E. A. Dowell: "Schoolday Sweethearts" (Edwards).
 9.10: Selection, the band: "Norma" (Bellini).
 9.19: Soprano solos, Miss Francis Hamerton: (a) "Heffle Cuckoo Faire" (Martin Shaw); (b) "Forest Lullaby" (Baynon).

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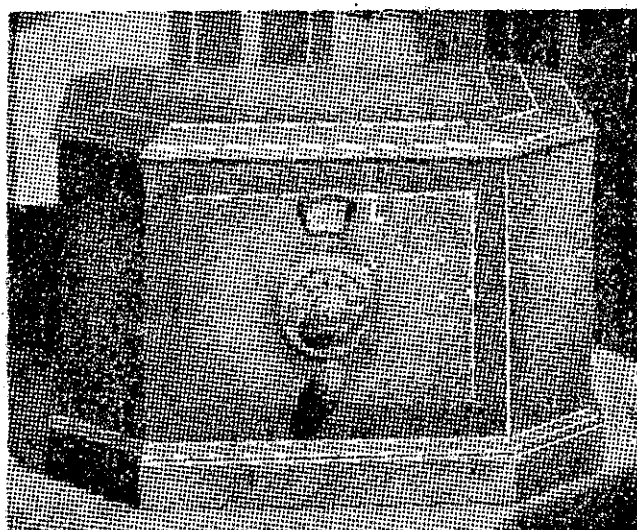
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- 9.23: Instrumental trios, Christchurch Broadcasting Trio: (a) "Romance" (Sibelius); (b) "Minuet" (Borrison).
 9.32: Tenor solos, Mr. Russell Sumner: "The Water Lily in the Woods" (Franz).
 9.36: March, the band: "Marche Militaire, No. 1" (Schubert).
 Cornet solo with band accompaniment. Soloist, Bandsman R. Barber: "Love's Old Sweet Song" (Bingham).
 9.47: Humour, Mr. J. J. Flewellyn: "An Embarrassing Situation."
 9.52: Soprano and tenor duet, The Happy Duo: "Greeting" (Mendelssohn).
 9.55: Valse military, the band: "Grenadiers" (Rimmer).
 March, the band: "Fearless" (Newbold).
 10.0: God Save the King.

4YA, DUNEDIN (463 METRES), SEPTEMBER 17

SILENT DAY

Tuesday, September 18

1YA, AUCKLAND (333 METRES), TUESDAY, SEPTEMBER 18.

- 3 p.m. Afternoon session.—Selected studio items.
 4.0: Literary selection by the announcer.
 4.8: Further selected studio items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour. Uncle George, assisted by the Mount Albert Grammar School Orchestra.
 7.15: News and market reports.
 7.30: Book review.
 8.0: Chimes.
 8.1: Overture, the Orchestra: "Poet and Peasant" (Suppe).
 8.10: Contralto solo, Miss Irene Frost: "Sink, Red Sun" (Del Riego).
 8.14: Organ solo: "A Brown Bird Singing" (Wood).
 8.18: Tenor solo, Mr. Arthur Ripley: "Serenade" (Schubert).
 8.22: Selection, the Orchestra: "Dance of the Hours" (Ponchelli).
 8.32: Soprano solo, Miss Marjorie Fair: "The Blackbird's Song" (Scott).
 8.36: Baritone solo, Mr. Leo O'Malley: "The Girls of Kildare" (Norton).
 8.40: Organ solo: "Schon Rosmarin" (Kreisler).
 8.44: Talk on Old New Zealand, Mr. A. B. Chappell, M.A.: "Early Agriculture."
 9.0: Weather report and forecast.
 9.1: Contralto solo, Miss Irene Frost: "My Prayer" (Squire).
 9.5: Selection, the Orchestra: "Mikado" (Sullivan).
 9.11: Presentation of excerpts from "Les Cloches de Corneville" (Plaquette), produced under the direction of Madame Irene Ainsley.
 Cast:
 Germaine, Miss Marjorie Fair.
 Serpolette, Miss Irene Rogers.
 Jean, Mr. Arthur Ripley.
 Marquis, Mr. Leo O'Malley.
 Germaine: "I May Be Princess."
 Jean: "On Billows Rocking."
 Jean and Germaine: "'Twas But An Impulse."
 Germaine and Chorus: "Legend of the Bells."
 Marquis: "With Joy in My Heart."
 Ensemble Chorus of Servants: "Such Conduct is Quite Sad."
 Germaine and Marquis: "'Tis She! Oh, Happy Fate."
 Germaine and Chorus: "The Cider Song."
 Jean: "Waltz Song."
 Germaine and Marquis: "My Lord, My Lord!"
 Finale.

2YA, WELLINGTON (420 METRES), TUESDAY, SEPTEMBER 18.

- 3 p.m.: Chimes of the General Post Office clock, Wellington.
 3.1: Selected gramophone items.
 4.30 and 4.55: Sports results to hand.
 5.0: Close down.
 6.0: Children's hour, conducted by Big Brother Jack and Cheerio Girls.
 7.0: News session, market reports and sports results.
 7.40: Lecture by representative of Agricultural Department: "For the Man on the Land."
 8.0: Chimes of the G.P.O. clock, Wellington.
 8.1: Relay of the concert of the Hutt Valley Choral Society, from the King George Theatre, Lower Hutt, assisted by 2YA Orchestra.
 Conductor—Mr. E. Douglas Tayler, F.R.C.O., A.R.C.M.
 Soloist, Mr. Harison Cook (bass). See pages 30 and 31.

- 8.5: Overture, the Orchestra: "Raymond Overture" (Thomas).
 8.15: Part songs, Hutt Valley Choral Society: (a) "Hither, Hither" (Lloyd); (b) "The Song of the Pedlar" (Williams).
 8.20: Bass solos, Mr. Harison Cook: (a) "The Water Lilies" (Addison Price); (b) "The Witch Flight" (Addison Price).
 8.30: Ode for chorus and orchestra, Hutt Valley Choral Society: "Blest Pan of Syrens" (Parry).
 9.0: Choral song (with orchestra), Hutt Valley Choral Society: (a) "My Land" (Wedde); (b) Motet—"Never Weather Beaten Sail" (Parry).
 9.10: Instrumental, the Orchestra: "Petite Suite de Concert" (Coleridge-Taylor); (a) "Caprice de Nanette"; (b) "Lettre D'Amour"; (c) "Tarantelle Fretillante."
 9.25: Part songs, Hutt Valley Choral Society: (a) "In Silent Night" (German folk song, arr. Brahms); (b) "The Fairies" (Stanford).
 9.30: Bass solo, Mr. Harison Cook: (a) "O Isis and Osiris" from "Magic Flute" (Mozart); (b) "Falstaff's Drinking Song," from "Merry Wives of Windsor" (Nicolai).
 9.40: Ballad for male voices and orchestra, Mr. Harison Cook and Hutt Valley Choral Society: "Recognition of Land" (Grieg).
 9.50: Sea Shanties, arr. for chorus and orchestra, Hutt Valley Choral Society: (a) "Haul on the Bowlin'" (arr. Bradford and Fagge); (b) "Sally Brown"; (c) "Rio Grande"; (d) "Capstan Bar"; (e) "Blow the Man Down"; (f) "Blow, My Bully Boys"; (g) "Shanandoah"; (h) "Whisky Johnnie."
 10.6: "God Save the King."

3YA, CHRISTCHURCH (306 METRES), TUESDAY, SEPTEMBER 18.

SILENT DAY.

4YA, DUNEDIN (463 METRES), TUESDAY, SEPTEMBER 18.

- 3 p.m.: Town Hall chimes.
 3.1: Gramophone concert.
 4.0: Needlework talk by Miss Marguerite Puechegud, under the auspices of the King Edward Technical College.
 4.15: Studio items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour, conducted by Big Brother Bill. The Happy Folks' Anthem. Riddles and jokes. The entertainment part of this programme will be arranged as a Peter Pan night. Songs will be sung by Master Eric Johnston, recitations by Master Ken. Russell, and Mr. Norman Scurr will play fairy music on the guitar. The story of Peter Pan will be told by Big Brother Bill.
 7.15: News session.
 7.30: A tourist talk by Mr. R. W. Marshall, manager Dunedin branch of Government Tourist Department.
 8.0: Town Hall chimes.
 8.1: Orchestral Overture.
 8.10: Bass solos, Mr. E. G. Bond: (a) "Bells of the Sea" (Colman); (b) "Sea Gipsy" (Willeby).
 8.16: Trombone solo, Mr. R. B. Hall: "Annabel" (Rimmer).
 8.21: Recitations, Miss Nancy Ayson: (a) "The Old Castle" (Duggan); (b) "Jim" (Belloc).
 8.30: Tenor solos, Mr. Chas. Edwards: (a) "I Heard You Singing" (Coates); (b) "Eleanore" (Mallinson).
 8.36: Violin solo, Miss Eva Judd: "Romance in G, Op. 26" (Svendsen).
 8.42: Contralto solo, Miss Wyn McPeak: "Slave Song" (Del Riego).
 8.45: Humorous address, Pastor W. D. More: "World Famous Ghost Stories Ghosts in Sorts and Sizes."

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- 9.0: Weather forecast and announcements.
 9.3: Baritone solo, Mr. R. B. Macdonald: "The Blue Dragoons" (Russell).
 9.6: Flute solos, Mr. Maurice Bleakley: (a) "The Brook in the Woods" (Wetzger); (b) "The Spring Song" (Mendelssohn).
 9.14: Bass solo, Mr. E. G. Bond: "When Bright Eyes Glance" (Hedgecock).
 9.17: Trombone solos, Mr. R. B. Hall: (a) "Parted" (Tosti); (b) "Reverie" (Schumann).
 9.22: Recitation, Miss Nancy Ayson: "The Squirrel" (Noyes).
 9.26: Tenor and baritone duet, Messrs. Edwards and Macdonald: "Love and War."
 9.29: Violin solos, Miss Eva Judd: (a) "Hungarian Dance No. 5" (Brahms); (b) "The Old Folks at Home" (Arr. Kreisler).
 9.35: Contralto solos, Miss Wyn McPeak: (a) "Just Awearying for You" (Bond); (b) "Trees" (Rashbeck).
 9.41: Flute solo, Mr. Maurice Bleakley: "Scherzo Capriccioso" (Sabathil).
 9.46: Baritone solos, Mr. R. B. Macdonald: (a) "The Banjo Song" (Home); (b) "Kamate" (Hill).
 9.52: Orchestral selection.
 10.0: "God Save the King."

Wednesday, September 19

1YA, AUCKLAND (333 METRES), WEDNESDAY, SEPTEMBER 19.

- 3 p.m.: Selected studio items.
 4.0: Literary selection by the announcer.
 4.8: Further studio items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour, conducted by Uncle Tom.
 7.15: Talk by "Gargoyle" on "Oil Colour."
 7.30: News and market reports.
 8.0: Chimes.
 8.1: Relay of Military Band selections by the Auckland Municipal Band, under the conductorship of Mr. Christopher Smith; the programme to conclude with the following items from the studio:—
 Selection, Orchestra: "Aida" (Verdi). H.M.V. record.
 Baritone solos, Mr. Frank Sutherland: (a) "Roadways" (Lohr); (b) "Captain Danny" (Loughborough); (c) "A Vagabond's Song" (Cundell).
 Suite, Orchestra: "Casse Noisette" (Tschaikowsky). H.M.V. record D-1214.
 10.0: "God Save the King."

2YA, WELLINGTON (420 METRES), WEDNESDAY, SEPTEMBER 19

SILENT DAY.

3YA, CHRISTCHURCH (306 METRES), WEDNESDAY, SEPTEMBER 19.

- 3 p.m.: Afternoon session (selected studio items).
 4.30: Close down.
 6.0: Children's hour—Uncle Peter and Mother Hubbard.
 7.15: Addington stock market report.
 7.30: News session.
 8.0: Chimes.
 8.1: Relay from Strand Theatre of Mr. Harry Elwood's String Quartet.
 8.7: Vocal quartet—The Dulcet Quartet, "Beleagured" (Sullivan).
 Baritone solos—Mr. A. G. Thompson, (a) "Wolfram's Romance" (Wagner); (b) "I Gave You Roses" (Aylward).
 8.18: Pianoforte solo—Miss Aileen Warren, "Melody" (Rachmaninoff).
 8.22: Soprano solos—Miss Hilda Hutt, (a) "Love and Music, These I Have Lived for," from "Tosca" (Puccini); (b) "Vilanelle" (Del'Acqua).
 8.30: Tenor and baritone duet—The Dolce Duo, "In This Solemn Hour" (Verdi).
 8.34: March—"Pomp and Circumstance," Part 1, in D (Elgar). H.M.V. Record, D 1102.
 Suite—"Coppelia Ballet" (Delibes), H.M.V. Record, D 1272.
 8.42: Contralto solos—Miss Nellie Lowe, (a) "The Silver Ring" (Chaminade); (b) "The Castilian Maid" (Lehmann).
 8.50: Pianoforte solo—Miss Aileen Warren, "Waltz in D Flat" (Dvorak).
 8.54: Tenor solos—Mr. T. G. Rogers, (a) "Onaway, Awake Beloved" (Coleridge-Taylor); (b) "All Hail Thou Dwelling" (Gounod).
 9.2: Vocal quartet—The Dulcet Quartet, "Annie Laurie" (Sample).
 9.6: Weather forecast.
 9.10: Relay of Christchurch Orchestral Society's concert.
 "God Save the King."

4YA, DUNEDIN (463 METRES), WEDNESDAY, SEPTEMBER 19.

- 7.0: Town Hall chimes.
 7.1: Request gramophone concert.
 7.40: News session, Burnside stock sales report.
 8.0: Town Hall chimes.
 8.1: Orchestral selections under the direction of Monsieur Henri De Rose, Mus.Bach., from the Octagon Theatre.
 8.12: Humorous songs at the piano—Miss Eileen Cooper, (a) "Catch Me" (Cooper); (b) "Agatha Green" (Cooper).
 8.19: Marimba solo—Mr. Hugh Dalziel, "Breezing Along with the Breeze" (Gillespie).
 8.21: Scottish song—Mr. J. Paterson, "The Boss o' the Hoose" (Lauder).

- 8.25: Novelty piano solos—Mr. T. V. Anson, (a) "I Want to Kiss and Make Up" (Hoyle); (b) "I'm a Little Bit Fonder of You" (Caesar).
 8.28: Humorous sketch—Miss Anita Winkel and Major F. H. Lampen.
 8.43: Popular song hits—Miss Jacqueline Burke, (a) "The Doll Dance" (Brown); (b) "I'm in Heaven When I am with You" (Pollock).
 8.50: Guitar duet—Messrs. Maitland and Tyrie, "Sunset Land."
 8.53: Popular song hit—Mr. Billy Gay, "There's Somebody for Everybody But Me" (Spier).
 8.57: Weather report and forecast.
 9.0: Orchestral music from the Octagon Theatre.
 9.10: Humorous song at the piano—Miss Eileen Cooper, "We've Got a Servant" (Weston and Lee).
 9.14: Marimba solos—Mr. Hugh Dalziel, (a) "The Whistler and His Dog" (Pryor); (b) "Wandering Time" (Milton).
 9.20: Scottish songs—Mr. J. Paterson, (a) "The Engineer" (Fyffe); (b) "I Think I'll Get Wed in the Summertime" (Lauder).
 9.28: Novelty piano solo—Mr. T. V. Anson, "Muddy Water" (Richman).
 9.32: Humorous sketch—Miss Anita Winkel and Major F. H. Lampen.
 9.42: Popular song—Miss Jacqueline Burke, "Leonora" (Silver).
 9.45: Guitar duets—Misses Maitland and Tyrie, (a) "Honolulu Moon"; (b) "Kohala March."
 9.52: Popular song hits—Mr. Billy Gay, (a) "Lilian" (Snyder); (b) "I Want You" (Lewis).
 10.0: "God Save the King."

Thursday, September 20

1YA, AUCKLAND (333 METRES), THURSDAY, SEPTEMBER 20.

- 3 p.m.: Afternoon session—Selected studio items.
 3.30: Talk by representative of Auckland Gas Company on "Gas Cooking."
 3.45: Further selected items.
 4.0: Literary selection by the announcer.
 4.8: Further studio items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour—Conducted by Peter Pan.
 7.15: Talk by Mr. N. M. Richmond on "Thinkers of To-day: Graham Wallas."
 7.30: News and market reports.
 8.0: Chimes. Vocal selections by the Savoy Octette.
 8.1: Overture, "William Tell" (Rossini), Zonophone record 2269/70.
 8.12: Opening chorus—The Savoy Octet, "Let Us Introduce Ourselves" (Goodwin).
 8.16: Tenor solo—"Queen of My Heart," from "Dorothy" (Cellier).
 8.20: Vocal quartet, "You Swear to be Good and True," from "Dorothy" (Cellier).
 8.25: Instrumental trio—The Auckland Trio, "Scherzo from Trio in B Flat" (Beethoven).
 8.34: Soprano solo and chorus, "Chon Kina," from "The Geisha" (Jones).
 8.39: Waltz chorus, "Light as Air," from "Faust" (Gounod).
 8.43: Recitation—Mr. J. F. Montague, "The Lady or the Tiger."
 8.48: Baritone solo and chorus, "Love Love," from "The Geisha" (Jones).
 8.53: Soprano solo, "Ave Maria" (Mascagni).
 8.57: Suite—Orchestra, selection from "Merchant of Venice" (Rosse).
 9.5: Weather forecast.
 9.6: Old English glee, "John Peel" (Williams).
 9.11: Quintet, "I Rejoice That It's Decided," from "The Sorcerer" (Sullivan).
 9.16: Cello solo—Miss Molly Wright, "As Once in Happy Days" (Popper).
 9.21: Contralto solo, "The Old Folks at Home" (Foster).
 9.25: Octette, "Blue Danube" (arr. Branscomb).
 9.30: Humour—Mr. J. F. Montague, "Pat-a-cake."
 9.36: Baritone and chorus, "When Britain Really Ruled the Waves," from "Iolanthe" (Sullivan).
 9.41: Instrumental trio—Auckland Trio, selections from "L'Enfant Prodiges" (Wormser).
 9.51: Soprano solo, "My Hero," from "The Chocolate Soldier" (Strauss).
 9.55: Finale—The Savoy Octette, "Now Our Entertainment's Ended" (Goodwin).
 10.0: "God Save the King."

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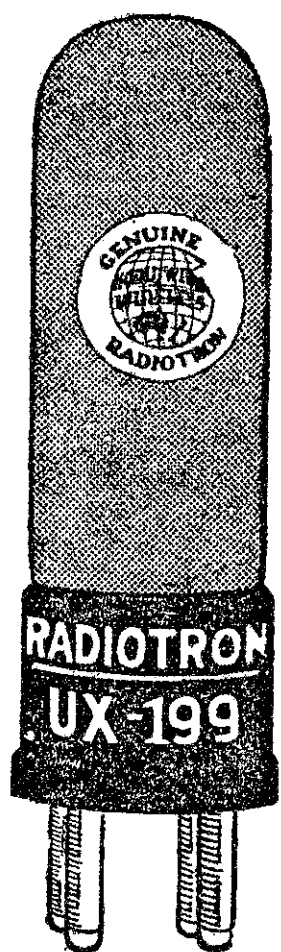
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WELLINGTON

2YA, WELLINGTON (420 METRES), THURSDAY, SEPTEMBER 20.

- 3 p.m.: Chimes of the General Post Office clock, Wellington.
 3.1: Selected gramophone items.
 4.30 and 4.55 p.m.: Sporting results to hand.
 5.0: Close down.
 6.0: Children's hour—Aunt Gwen and the Evans Bay Sea Scouts under Mr. H. Warren (by kind permission of Sea Scout Commissioner for New Zealand, Commander Young).
 7.0: News session, market reports and sports results.
 7.40: Lecturette—Miss Margaret O'Connor, "Modern Dancing."
 8.0: Chimes of the G.P.O. clock Wellington.
 Studio concert by the 1st Battalion Wellington Regiment Band (under the conductorship of Lieutenant B. J. Shardlow), assisted by 2YA artists.
 8.1: March—The Band, "Royal Australian Navy" (Lithgow).
 Selection—the Band, "H.M.S. Pinafore" (Sullivan).
 8.15: Vocal quartet—The Warblers, "A Mighty King is Wine."
 8.19: Tenor solo—Mr. W. E. Elliott, "Carmencita" (Merton).
 8.22: Humour—Mr. A. Stanley Warwick, "A Dutch Picture" (Longfellow).
 8.27: Cornet solo—Sergeant W. Bark, "Zelda" (Code).
 8.35: Baritone solo—Mr. Harry Matthew, "A King's Man" (Hilliam).
 8.39: Tenor solos—Mr. Stuart Nelson, (a) "Angel's Guard Thee" (Godard); (b) "Lolita" (Buzia-Peccia).
 8.47: Meditation—The Band, "Sanctuary of the Heart" (Ketelby).
 8.51: Bass solos—Mr. T. C. Wood, "Songs of the Open Country" (Easthope Martin); (a) "The Crown of the Year," (b) "The Wayfarer's Night Song," (c) "The Tune of the Open Country."
 9.1: Weather reports and announcements.
 9.3: Lecturette—Mr. Johannes Andersen, "Native Birds."
 9.13: Selection—The Band, "Our Miss Gibbs" (Caryll and Monckton).
 9.25: Tenor and quartet—Mr. W. E. Elliott and Warblers Quartet, "My Blue Ridge Mountain Home" (Robison).
 9.29: Humour—Mr. A. Stanley Warwick, "Knocking Down Ginger" (Thomas).
 9.35: Characteristic intermezzo—The Band, "Australia To-day" (Lithgow) (depicting the triumphal march of industry).
 9.41: Baritone solo—Mr. Harry Matthew, "On the Road to Mandalay" (Speaks).
 9.44: Tenor solo—Mr. Stewart Nelson, "Out of the Mist" (Saunderson).
 9.48: Selection—The Band, "Pirates of Penzance" (Sullivan).
 March—The Band, "On the Quarterdeck" (Alford).
 10.2: "God Save the King."

3YA, CHRISTCHURCH (306 METRES), THURSDAY, SEPTEMBER 20.

- 3 p.m.: Afternoon session, selected studio items.
 4.30: Close down.
 6.0: Children's hour. Chuckle and Aunt Pat.
 7.15: News session.
 7.30: Talk under the auspices of the Canterbury Progress League.
 8.0: Chimes.
Programme of Plantation Melodies.
 8.1: Rebroadcast of 2YA Wellington (conditions permitting).
 8.7: Vocal quartet, Grand Opera Quartet: "So Early in the Morning" (Traditional).
 Baritone solo, Mr. Clive Hindle: "Ma Curly Headed Babby"
 Tenor solo, Mr. Harold Prescott.
 (Clutsam).
 8.15: Violin solo, Miss Irene Morris: "Canzonetta" (D'Ambrosio).
 8.20: Soprano solo, Madame Gower Burns: "Such a Li'l Fellow" (Dichmont).

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- 8.23: Orchestral: "Amaryllis" (Air Louis XIII) (Thys). H.M.V. Record EA-240.
 8.27: Tenor solo, Mr. Harold Prescott: "Croon, Croon, Underneath the Moon" (Newnes).
 8.31: Instrumental Trio, Christchurch Broadcasting Trio: "Scherzo" (Arensky).
 8.38: Contralto solo, Mrs. Ann Harper: "Swing Low" (Fisher).
 8.42: Recitation, Miss Maiona Juriss: "The Slave's Dream" (Longfellow).
 8.47: Vocal Quartet, Grand Opera Quartet: "My Old Kentucky Home" (Glover).
 Duet, Madame Gower Burns and Mrs. Ann Harper: "Goodnight."
 8.51: Weather forecast.
 8.53: Overture, "Pomp and Circumstance," Part 2, in A-minor (Elgar). H.M.V. Record D-1102.
 9.3: Baritone solo, Mr. Clive Hindle: "O Dinah Dear" (Barnes).
 Contralto solo, Mrs. Ann Harper: "Deep River" (Fisher).
 9.11: Violin solo, Miss Irene Morris: "Cantilene" (Bohm).
 9.15: Vocal quartet and solo, Mr. Clive Hindle and Grand Opera Quartet: "The Camptown Races" (Foster).
 9.18: Orchestral: "Indian Love Call," from "Rose Marie" (Friml). H.M.V. Record EA-186.
 9.23: Soprano solo, Madame Gower Burns: "Creole Cradle Song" (Clutsam).
 9.27: Instrumental Trios, Christchurch Broadcasting Trio: (a) "My Lady Chloe" (Negro Serenade), (Clough-Leighton); (b) "Valse No. 6" (Coleridge-Taylor).
 9.36: Solo and chorus, Grand Opera Quartet and Mr. Harold Prescott: "De Comin' ob de King" (Holt).
 9.40: Cornet solos, Mr. W. Marquet: (a) "Goodbye" (Tosti, arr. Cope); (b) "Reverie No. 2" (Clay).
 9.50: Character sketch, Miss Maiona Juriss: "Chicken on the Brain" (Anon).
 9.55: Vocal quartet, Grand Opera Quartet: "Oh! Miss Hannah" (Deppen).
 10.0: "God Save the King."

4YA, DUNEDIN (463 METRES), THURSDAY, SEPTEMBER 20.

SILENT DAY.

Friday, September 21

1YA AUCKLAND (333 METRES), FRIDAY, SEPTEMBER 21.

- 3.0 p.m.: Afternoon session—selected studio items.
 4.0: Literary selection by the Announcer.
 4.8: Further studio items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour—Nod and Aunt Jean.
 7.15: News and market reports.
 8.0: Chimes.
 8.1: Overture—The Orchestra, "Raymond" (Thomas).
 8.10: Vocal Quartets—The Clarion Glee Singers, (a) "Opening Chorus"; (b) "Oft in the Stilly Night."
 8.15: Contralto solo—Miss Beryl Smith, "Sunday" (Brahms).
 8.19: Instrumental—Hawaiian Trio, "O Sole Mio" (Di Capua).
 8.23: Tenor solo—Mr. James Simpson, "English Rose" from "Merrie England" (German).
 8.27: Humorous Sketch—Miss Lynda Murphy, "Henry Edward's Mother."
 8.32: Song and chorus—The Clarion Quartet, "Maisie" (Wilde).
 8.36: Wurlitzer organ, "Trail of Dreams" (Klages).
 8.40: Orchestra—"Musical Switch" (Alford).
 8.50: Lecture-Recital—Miss M. Herald, B.A., L.R.A.M., "John Ireland."
 9.5: Instrumental—Hawaiian Trio: "My Hawaii" (Lewis).
 9.9: Bass solo—Mr. Duncan Black, "Chip of the Old Block" (Squire).
 9.13: Novelty Trio—The Snappy Three, (a) "The Blue Room" (Westen); (b) "My Heart Stood Still" (Rodgers).
 9.20: Humorous sketch—Miss L. Murphy: "One Month's Notice."
 9.25: Soprano solo—Miss Alma McGruer, "The Wren" (Lehmann).
 9.29: Reverie—The Orchestra, "The Answer" (Wolstenholme-Bellingham); waltz, The Orchestra, "Blue Danube" (Strauss).
 9.35: Vocal duet—Miss B. Smith and Mr. J. Simpson, "The Second Minuet" (Beasley).
 9.39: Wurlitzer organ: "It Made You Happy" (Donaldson).
 9.43: Novelty Trio—The Snappy Three, (a) "Anything to Make You Happy" (Valentine); (b) "Piano Jazz"; (c) "Breeze" (Hanley).
 9.51: Humour—Miss A. McGruer and Mr. D. Black, "A Bit of Irish."
 9.55: Vocal Quartet—The Clarion Quartet, "Sally in Our Alley" (Old English).
 9.59: Selection—The Orchestra, "Rose Marie" (Friml).
 10.4: God Save the King.

2YA WELLINGTON (420 METRES), FRIDAY, SEPTEMBER 21.

- 3.0 p.m.: Chimes of the G.P.O. clock, Wellington.
 3.1: Selected gramophone items.
 4.30 and 4.55: Sporting results to hand.
 5.0: Close down.
 6.0: Children's hour conducted by Uncle Ernest.
 7.0: News session, market reports and sports results.
 7.40: Lecturette—Colonel F. Burton Mabin, "The Home of the Big Game Fish."

- 8.0: Chimes of the G.P.O. clock, Wellington.
 8.1: Overture—The Orchestra: "Magic Flute" (Mozart).
 8.11: Soprano solo—Miss Amy Eaton, "Poor Wandering One" from "Pirates of Penzance" (Sullivan).
 8.16: Baritone solo—Mr. S. E. Rodger, "Toreador Song" from "Carmen" (Bizet).
 8.21: Selection—The Orchestra: "Brahmsiana" (Brahms-Langley).
 8.31: Contralto solos—Miss Hilda Chudley, (a) "Sylvan" (Ronald); (b) "Thou Standest Like a Flower" (Liszt).
 8.38: Pianoforte solo—Miss Helen Hart, L.A.B., A.T.C.L., "Rhapsody" (Dohnanyi).
 8.46: Humour—Mr. Doug. Stark, (a) "Where the Blue Bells Grow" (Fyffe); (b) "The Bird on Nellie's Hat" (Solman).
 8.53: Tenor solo—Mr. E. W. Robbins, "On With the Motley" from "Pagliacci" (Leonca allo).
 8.58: Weather report and announcements.
 9.0: Instrumental—The Orchestra, repeat item.
 9.8: Soprano solo—Miss Amy Eaton, "Scenes That are Brightest" from "Maritana" (Wallace).
 9.12: Vocal duet—Messrs. E. W. Robbins and S. E. Rodger, "Fickle Hearted Mimi" from "La Boheme" (Puccini).
 9.16: Light opera—The Orchestra, "The Student Prince" (Romberg).
 9.26: Humour—Mr. Doug. Stark, "Could Lloyd George Do It" (Lee) (by request).
 9.33: Baritone solo—Mr. S. E. Rodger, "A Bachelor Gay" from "Maid of the Mountains" (Fraser-Simpson).
 9.37: Wurlitzer organ solos: (a) "By the Blue Hawaiian Waters" (Ketelby); (b) "Leave Me Alone" (Dvorak); (c) "Songs My Mother Taught Me" (Dvorak). H.M.V. Record C-1459.
 9.44: Contralto solos—Miss Hilda Chudley, "I Love Thee" (Grieg).
 9.47: Cornet solo with orchestral accompaniment—soloist—Mr. H. Berry, "Elsa's Dream" (Wagner).
 9.53: Tenor solo—Mr. E. W. Robbins, "The Flower Song," from "Carmen" (Bizet).
 9.57: Orchestral suites—The Orchestra, (a) "Pas de Bohemien"; (b) "The Echo"; (c) "Valse du Ballet" (Pierne).
 10.7: God Save the King.

"Gisborne—Past and Present" will be the subject of a "talk" to be broadcast from 2YA on the evening of the 2-st inst. by Mr. W. D. Lysnar, M.P. Mr. Lysnar is familiar with the history of one of the most historically famous portions of the Dominion, and his address will be full of interest to all listeners. Mr. Lysnar will be "on the air" at approximately 9 p.m. on the 21st. inst.

3YA CHRISTCHURCH (306 M.TRES), FRIDAY, SEPTEMBER 21.

- 3.0 p.m.: Afternoon session—selected studio items.
 4.30: Close down.
 6.0: Children's hour—Big Brother.
 7.15: News session.
 7.30: Final talk by Mr. J. K. Moloney on "Rugby Football."
 8.0: Chimes.
 8.1: Rebroadcast of overture from 2YA Wellington (conditions permitting).
 8.7: Song cycle for contralto and bass—The Dinky Duo, "The Little Cactus Flower" (Woodforde-Finden); (a) Introduction; (b) "Come, My Beloved"; (c) "Dance"; (d) "Senorita" (e) "Though Your Tongue"; (f) "Invitation to the Dance."
 8.17: 'Cello solo—Mr. Harold Beck, "2nd Movement from Concerto in E Minor—Recitative and Allegro Molto" (Elgar).
 8.21: Soprano solos—Mrs. Ida St. Claine Graham, (a) "My Desert Flower" (Norton); (b) "A Memory" (Huntley).
 8.28: Instrumental Trios—Christchurch Broadcasting Trio, "Two Short Trios" (Coerne).
 8.35: Tenor solo—Mr. W. Bradshaw, "The Sailor's Grave" (Sullivan).
 8.39: Instrumental items with vocal refrain—Eyre's Social Instrumental Trio, (a) "Mellow Moon" (Hall); (b) "Sweet Hawaiian Girl" (Perry).
 8.47: Bird Imitations—Imioto, "Australian Bird Calls" (Record).
 8.55: Contralto solos—Miss Belle Renaut, (a) "Three Green Bounets" (D'Hardelot); (b) "Lullaby" (Keel).
 9.1: Weather forecast.
 9.3: Overture.
 9.12: Bass solos—Mr. T. D. Williams, (a) "The Pipes of Pan" (Elgar); (b) "Summer Roses" (Trevalsa).
 9.18: 'Cello solo—Mr. Harold Beck, "The Swan" (Saint-Saens).
 9.22: Humorous recitation—Mr. H. Instone, "The Swagger and the Tin Lizzie."
 9.29: Soprano solos—Mrs. Ida St. Claine Graham, (a) "Away in Athlone" (Lohr); (b) "Home Sweet Home" (Bishop).
 9.34: Instrumental Trios—Christchurch Broadcasting Trio, (a) "The Old Refrain" (Kreisler); (b) "Valse Bluet" (Drigo).
 9.43: Tenor solos—Mr. W. Bradshaw, (a) "Ailsa Mine" (Newton); (b) "The Star of Bethlehem" (Adams).
 9.51: Humorous Recitation—Mr. H. Instone, "Editing a Ladies' Paper" (Bernard).
 10.0: Contralto and bass duet—The Dinky Duo: "A Little More" (Messenger).
 10.3: Instrumental items—Eyre's Social Instrumental Trio, (a) "Ukulele Lady" (Whiting); (b) "Ukulele Dream Girl" (Law).
 God Save the King.

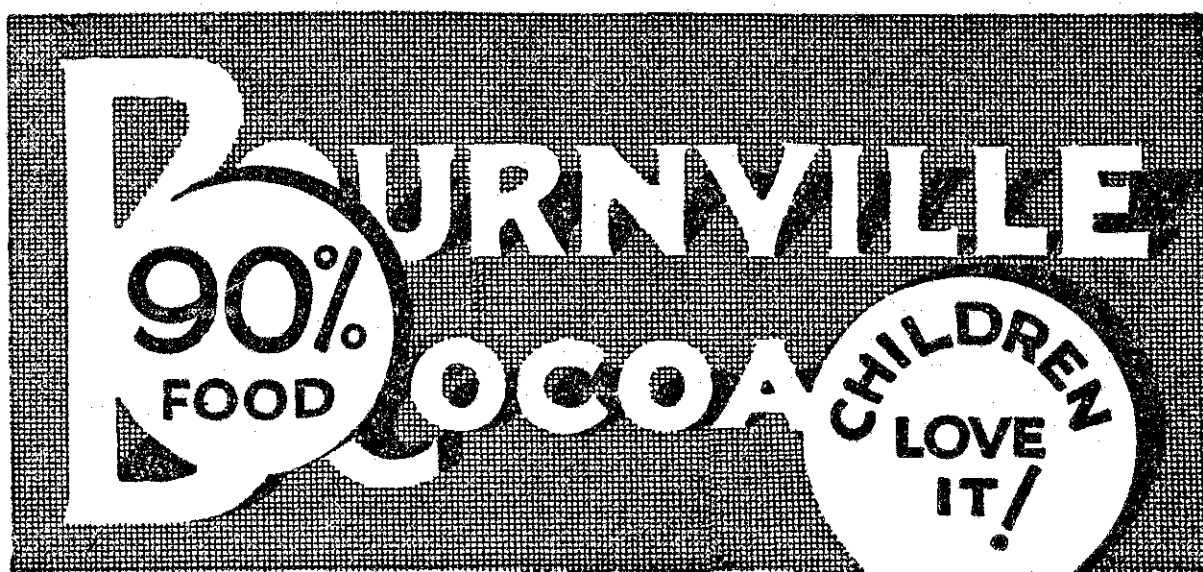
4YA DUNEDIN (463 METRES), FRIDAY, SEPTEMBER 21.

- 3.0 p.m.: Town Hall Chimes.
 3.1: Gramophone concert.
 3.30: Afternoon tea music from the Savoy.
 3.45: Studio music.
 4.0: Music from the Savoy.
 4.15: Gramophone items.
 4.25: Sports results.
 4.30: Close down.
 6.0: Children's hour conducted by Auntie Sheila and Big Brother Bill.
 7.15: News session.
 7.30: A review of the latest books by Mr. H. Greenwood, of the Athenaeum.
 8.0: Town Hall Chimes.
 8.1: Orchestral overture.
 8.10: Bass solos—Mr. Neil Black, (a) "Youth" (Allitsen); (b) "There Let Me Rest" (Green).
 8.18: Flute solo—Mr. Chas. Gibbons, "Intermezzo from Cavalleria Rusticana" (Mascagni).
 8.22: Contralto solo—Miss Dorothy Skinner, "The Blind Ploughman" (Clarke).
 8.25: Cornet solos—Mr. D. J. Robertson, (a) "Sweet Spirit Hear My Prayer" (Weide); (b) "The Better Land" (Cowen).
 8.32: Bass solo—Mr. Neil Black: "A Dream of Paradise" (Gray).
 8.37: Flute solo—Mr. Chas. Gibbons, "Der Frieschutz" (Weber).
 8.43: Contralto solos—Miss Dorothy Skinner, (a) "A Maori Slumber Song" (Te Rangi Pai); (b) "Melisande in the Wood" (Goetz).
 8.51: Piano solo—Mrs. Ernest Drake, "Two Preludes" (Chopin).
 8.57: Weather forecast and announcements.
 9.0: An hour's dance music by Alf Carey and his orchestra from the Savoy.
 10.0: God Save the King.

Saturday, September 22

1YA AUCKLAND (333 METRES), SATURDAY, SEPTEMBER 22.

- 2.45 p.m.: Relay of description of Rugby football match from Eden Park Auckland v. Taranaki.
 4.30: Close down.
 6.0: Children's hour, conducted by Cinderella, assisted by Sunny Jim.
 7.15: News and sports results.
 8.0: Chimes.
 8.1: Relay of overture from Majestic Theatre Orchestra, under the direction of Mr. J. Whiteford Waugh.
 8.10: Baritone solo—Mr. Arthur Briggs, "Star of My Soul" from "The Geisha" (Jones).
 8.14: Instrumental Trio—Auckland Trio, "Finale from Trio in E Flat" (Beethoven).
 8.22: Vocal duets—Mrs. Daisy Basham and Mr. Arthur Briggs, (a) "Alone and Yet Alive" (Sullivan); (b) "Tit-Willow" (Sullivan); (c) "There is Beauty" (Sullivan) from "The Mikado."
 8.30: Humour—Mr. F. W. Barker, character sketch, "Mr. Squeers Opens School" (Dickens).
 8.35: Violin solo—Miss Ina Bosworth, "Souvenir" (Drdla).
 8.39: Vocal—Mrs. Daisy Basham and Mr. Arthur Briggs, scene from "Rudigore," (a) "If Somebody There Chanced To Be" (b) "I Know a Youth"; (c) "There Grew a Little Flower" (Sullivan).
 8.48: Relay of musical interlude from Majestic Theatre Orchestra.
 8.56: Humour—Mr. F. W. Barker: (a) "The J.P." (Blascheck); (b) "Three Stages of Married Life."
 9.1: Weather forecast.
 9.2: Instrumental Trio—Auckland Trio, "Lilac Time Selection" (Schubert-Clutsam).
 9.10: Vocal—Mrs. Daisy Basham and Mr. Arthur Briggs, scene from "Patience" (Sullivan), (a) "Turn, Oh Turn"; (b) "Magnet and the Churn"; (c) "So Go To Him and Say" (Sullivan).
 9.19: Relay of dance music by Bendall's Collegians from Masonic Hall, under the direction of Mr. E. Bendall.
 11.0: God Save the King.

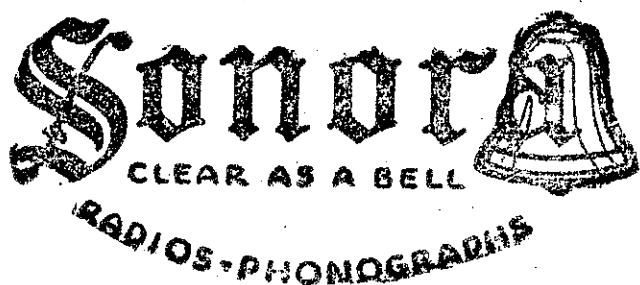


2YA WELLINGTON (420 METRES), SATURDAY, SEPTEMBER 22.

- 3.0 p.m.: Chimes of the G.P.O. clock, Wellington.
 3.1: Relay description of Rugby football match—New South Wales v. Maoris, from Athletic Park.
 6.0: Children's hour—Aunt Gwen, Uncle Toby and pupils of Mrs. E. Mackay.
 7.0: News session, market reports and sports results.
 7.40: Lecturette by Professor E. A. Hunter, W.E.A. Director, "The W.E.A. Summer School."
 8.0: Chimes of the G.P.O. clock, Wellington.
 8.1: Overture—The Orchestra, "Popular Songs" (D'Hardelot).
 8.11: Quartet—Melodie Four, "The Two Snails" (Bridge).
 8.15: Tenor solos—Mr. Sam Duncan, (a) "Somewhere a Voice is Calling" (Tate); (b) "Because I Love You Dear" (Forster).
 8.22: Humour—Mr. George Titchener, "Lawyer's Language" (Edwards).
 8.29: Folk song—The Orchestra: "Londonderry Air"; dance—The Orchestra, "Hungarian Dance" (Brahms).
 8.37: Duet for two tenors—Messrs. S. Duncan and F. Bryant, "The Day is Done" (Lohr).
 8.41: Bass solo—Mr. W. W. Marshall, "The Last Call" (Sanderson).
 8.46: Instrumental—The Orchestra, repeat item.
 8.54: Quartet—Melodie Four, "Song of Hawaii" (Bories).
 8.58: Weather report and announcements.
 9.0: Selections from "The Gondoliers" by Sullivan: (a) "From the Sunny Spanish Shore"; (b) "In Enterprize of Martial Kind"; (c) "O Rapture When Alone Together"; (d) "There Was a Time," His Master's Voice Record D1337.
 9.8: Humour—Mr. Geo. Titchener, "The Operatic Policeman" (Newman).
 9.15: Selection—The Orchestra, "Stop Flirting" (Gershwin).
 9.25: Baritone solo—Mr. R. S. Allwright, "The Devout Lover" (White).
 9.30: Waltz—"Sunset Down in Somerset" (Evans), Zonophone Record EE96. Fox trot with vocal chorus—"You Don't Like It, Not Much" (Miller), Zonophone Record EE96.
 9.38: Tenor solo and chorus—Mr. S. Duncan and Melodie Four, "The Image of the Rose" (Reichardt).
 9.42: Novelty—The Orchestra, "The Mouse and the Clock" (Whitney).
 9.47: Tenor solo—Mr. F. Bryant, "Roadways" (Lohr).
 9.50: Instrumental—the Orchestra, dance numbers.
 10.0: Dance programme.
 11.0: God Save the King.

3YA, CHRISTCHURCH (306 METRES), SATURDAY, SEPTEMBER 22.

- 2.45 p.m.: Relay description from Lancaster Park of final Rugby football match.
 6.0: Children's hour—Uncle Sam.
 7.15: News session.
 7.30: Sports results.



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- 8.0: Rebroadcast of 2YA Wellington—vaudeville programme and dance music.
 11.0: God Save the King.

4YA, DUNEDIN (463 METRES), SATURDAY, SEPTEMBER 22.

- 2.45: Description of Inter-provincial football match, Southland v. Otago.
 7.15: News session.
 7.30: An address under the auspices of the Workers' Educational Association.
 8.0: Town Hall chimes.
 8.1: Orchestral music under the direction of Mr. L. D. Austen from the Strand Theatre.
 8.11: Mezzo-contralto solos—Miss Irene Horniblow, L.R.A.M. (a) "O Peaceful England" (German); (b) "I Know a Bank" (Shaw).
 8.18: Cello solo—Mr. P. J. Palmer, "Harlequinade" (Squire).
 8.23: Humorous recitals—Miss Molly Gallagher, F.T.C.L.: (a) "A Trip Tomorrow" (Anon); (b) "But He Didn't"; (c) "Love and Arithmetic."
 8.32: Bass solo—Mr. J. Ferguson, "The Standard on the Braes o' Mar" (Dewar).
 8.36: Piano solo—Mrs. Ernest Drake, "Etude" (Chopin).
 8.40: Instrumental Trio (violin, cello, and piano), "Andante from G Major" (Haydn).
 8.46: Mezzo-soprano solos—Miss Agnes Guy, (a) "I Did Not Know" (Trotter); (b) "Four Leaf Clover" (Willeby).
 8.52: Violin solos—Mr. Harold Riddle, (a) "1st Gavotte" (Bohm); (b) "Le Cygne" (Saint-Saens).
 8.58: Baritone solo—Mr. Arthur Lungley, "Serenade" (Schubert).
 9.1: Weather forecast and announcements.
 9.3: Orchestral music from the Octagon Theatre.
 9.13: Mezzo-contralto solo—Miss Irene Horniblow, "My Dearest Heart" (Sullivan).
 9.16: Cello solo—Mr. P. J. Palmer, "Salut d'Amour" (Elgar).
 9.21: Recitation—Miss Molly Gallagher: Scene from "The School for Scandal" (Sheridan).
 9.28: Bass solos—Mr. J. Ferguson, (a) "Sea Fever" (Ireland); (b) "Duna" (McGill).
 9.34: Instrumental Trios—(a) "Valse" (Schutt); (b) Quintet from "The Master Singers" (Wagner).
 9.44: Mezzo-soprano solo—Miss Agnes Guy, "Lilac" (Cadman).
 9.47: Violin solo—Mr. Harold Riddle: "Romance in B Flat" (Light).
 9.52: Baritone solos—Mr. Arthur Lungley, (a) "Uncle Rome" (Homer); (b) "Elegie" (Massenet).
 10.0: God Save the King.

Sunday, September 23**1YA AUCKLAND (333 METRES), SUNDAY, SEPTEMBER 23.**

- 3.0 p.m.: Afternoon session—selected studio items.
 4.0: Literary selection by the Announcer.
 4.8: Further studio items.
 4.30: Close down.
 6.0: Children's song service, conducted by Uncle Leo, assisted by Cousins from Beresford Street Sunday School.
 6.55: Relay of service from Prince Edward Theatre by Beresford Street Congregational Church. Preacher: Rev. Lionel Fletcher. Choirmaster: Mr. William Gemmell.
 8.30: Relay of Municipal Organ Recital by Mr. Maughan Barnett.
 9.30: God Save the King.

2YA WELLINGTON (420 METRES), SUNDAY, SEPTEMBER 23.

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

3YA CHRISTCHURCH (306 METRES), SUNDAY, SEPTEMBER 23.

- 3.0 p.m.: Gramophone recital.
 4.30: Close down.
 5.30: Children's song service, conducted by Uncle David.
 6.30 to 7.0: Special chimes of the Bells of St. Barnabas Anglican Church, Fendalton, by Bellringer, Mr. Claydon.
 7.0: Relay of evening service from St. Barnabas Anglican Church, Fendalton. Preacher: Rev. H. S. Leach. Organist and choirmaster: Mr. Alfred J. Merton.
 8.15: Gramophone recital.
 9.30: Close down.

4YA DUNEDIN (463 METRES), SUNDAY, SEPTEMBER 23.

- 5.30 p.m.: Children's Song Service, conducted by Big Brother Bill. Assisted by scholars from the Central Mission Sunday School.
 6.15: Relay of organ recital by Mr. E. Heywood, F.R.C.O.
 6.30: Relay of evening service from St. Paul's Cathedral. Preacher: Rev. Canon Nevill. Organist: Mr. E. Heywood, F.R.C.O.
 8.0: Studio concert.
 9.15: Close down.

Notes and Comments

By "Switch"

THE story is going the rounds in Melbourne that an up-country settler has a tame cockatoo which clearly enjoys broadcast listening and has picked up the words "3LO, Melbourne," so frequently called by the announcer at that station.

THE writer has seen a cat suddenly evince keen interest in a loudspeaker when a certain listener was whistling imitations of certain native birds of New Zealand. The cat was apparently asleep in front of the fire when the bird imitations commenced. She immediately jumped up and ran towards the loudspeaker, into which she sat gazing while her tail switched from side to side with suppressed excitement.

A RADIO acquaintance has a dog who appears to enjoy radio reception, for when the music starts from his loudspeaker the dog paws at the back door for admittance. The dog is allowed to enter and when "Spot" has coiled himself comfortably under the radio table he lies almost motionless for hours. But there is one instrument which upsets his equilibrium, and that is the violin. As soon as a violin solo commences "Spot" joins in with blood-curdling howls. "Spot" is then promptly put out of doors, but as he can hear the music in the background he continues his dismal vocal performance until the item concludes.

THE flickering of his valves described by a correspondent is due to either a faulty battery cord or connection or the battery itself is "sick." In the latter case the battery should be sent without delay to a battery service station for prompt testing and treatment.

WHEN static is intense it is far better to refrain from listening in. Heavy crashes of static spoil the music, sometimes strain the loudspeaker, and if you have visitors it gives them a wrong impression of broadcast listening. The wise man will discreetly close down his set and entertain his visitors in other ways.

UNDER the "chain" system of broadcasting in the United States very often several stations throughout the country are broadcasting the same programme. As there are upwards of 500 broadcast stations in the States the ether has become overcrowded and much trouble is being experienced by one station heterodyning with another. That is to say that their waves are so close in length that one station causes a shrill whistle on top of another's transmission. With crystal control now in vogue, which keeps a station dead on its proper wavelength, an American writer suggests placing all the stations of a certain "chain" on one frequency would preclude placing other stations on the same frequency at that time. Thus, the "heterodyning" and clashing of sidebands, now noted on certain frequencies, and which are caused by the operation of station on slightly-differing frequencies or with too short a geographical distance between them, would be eliminated.

HOW is the speech or music conveyed from the studio of a broadcast station to the listener's aerial and receiving set. The voice or music sound waves enter the transmitter and cause the transmitter to send out waves in the ether that vary in exact response to the variations in the strength and pitch of the waves that come from the voice or musical instrument. The ether waves meeting the receiving aerial cause electric oscillations to be set up in that aerial; also the variations in strength of the ether waves cause these oscillations to vary in strength. But the ether waves vary exactly in response to the voice or musical instruments, so the strength of the oscillations in the aerial vary exactly in response to the voice or instruments.

LISTENERS who absorb the music from cabarets broadcast by the Australian stations may have noticed two chords played by the pianist after certain items. A correspondent states that he has observed that the two chords are a signal to the broadcast station that there is to be a brief interval so that a gramophone record can be put on from the studio.

IN the new system of electrical recording of gramophone records the sound collector is a microphone such as is used in broadcasting. All troubles introduced by the horn are eliminated at once. The microphone is so constructed that it is almost equi-sensitive for all frequencies. To be sure, the diaphragm has resonance points, but they can be damped out to any desired extent. And they are. Low volume of output is of no consequence, for it can be amplified. In the old-fashioned mechanical recording all the volume possible must be preserved, for it cannot be amplified. Volume by resonance is denuded on largely. The microphone is subject to one difficulty. The very high notes are picked up with about twice normal strength. But that is only a momentary difficulty. The output of the microphone then is a faithful electrical copy of the sound that fell on the diaphragm. But it is weak. It is necessary to amplify it, and for that a high quality audio amplifier is used. The construction of an audio amplifier which will preserve the relative intensities of the high, the middle and the low notes is simple. This is not one of the problems of electrical recording.

THE Melbourne "Listener-In" says: "There is no lack of musical talent in Tasmania, and when 770 is firmly established under its new management, there is a possibility that there will be interchanges of artists between Tasmania and mainland broadcasting stations."

THE electrons which flow from the filament of a valve to the plate are calculated by scientists as being so small that a million million of them, if placed in a row would occupy only one-sixteenth part of an inch. Yet this ultra-microscopic particle is

responsible for the music and speech which ultimately comes from our loudspeakers or headphones.

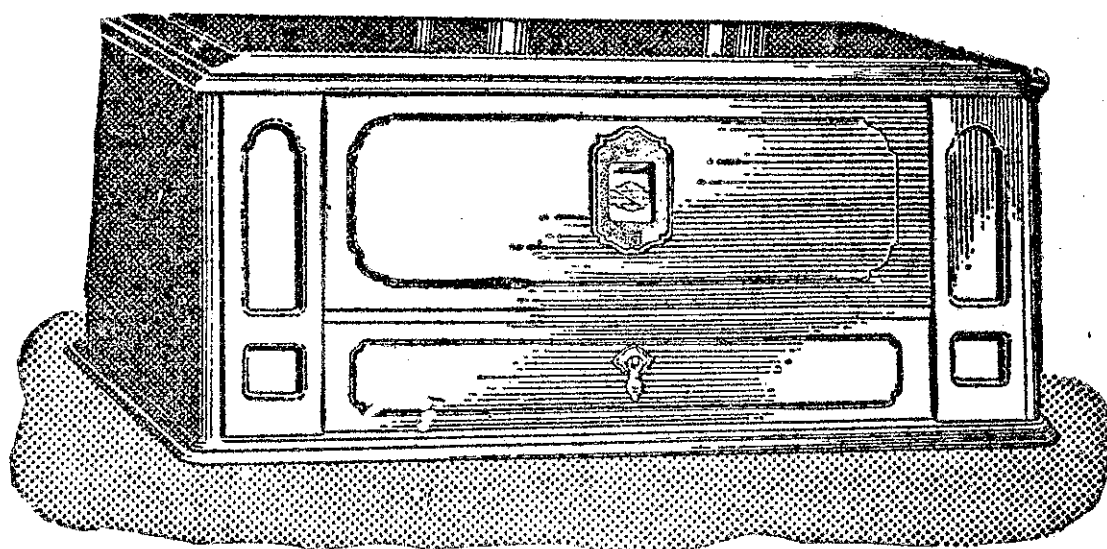
THE actual diameter of an atom is estimated by scientists as about or two-hundred and fifty millionth part of an inch. Yet an atom is sixty thousand times larger than an electron which is contained in an atom. To give one an idea of the appearance of an atom of hydrogen, the lightest of gases, imagine a football to represent the positive electron in the centre of the atom, and one and three-quarter miles from this imagine a golf ball, representing a negative electron, revolving round the football. The negative electrons revolve around the positive electron just as our earth revolves around the sun.

FLEX leads have a way of fraying out at the ends, but this is a habit which is by no means incurable. If you do not mind spending a little time and trouble on the leads, you will do best to solder the strands together. Twist up the strands, put a spot of flux on them, and roll them about in the blob of solder on the soldering iron. Finish off by binding the end of the insulation with a few turns of cotton or silk. For temporary connections soldering is hardly worth while. But however tightly you twist up the flex strands, the head of a terminal will be almost sure to catch one of them and become jammed as you screw it down. Put a

flat washer on the top of the flex, between it and the terminal head, and you will have no more trouble with loose strands.

ONE particular point on which the electro-dynamic loudspeaker unit is superior to other types is that there are no pole pieces to stop the vibration of the armature coil. Thus even on the loudest passages and the lowest tones the unit will not chatter. In other words no volume is too great for the electro-dynamic loudspeaker.

IN the Ohio (U.S.A.) state penitentiary good-behaviour prisoners are permitted to have their own radio sets. A visitor to the gaol writes:—"If one were to walk through the long, cheerless corridors of the cell block, the first thing to attract the eye would be hundreds of aeriels stretched from the prisoners' cells to the wall of the hall some twenty-five or thirty feet away. With short aeriels, nine or ten feet apart, it is to be expected that there is considerable interference, noise and disturbance. Yet the men never complain. They do the best they can, and, under favourable atmospheric conditions, tune in their favourite stations with ease. I hear one prisoner say, 'That little 'box' may make a lot of racket; but it helps me while away the long hours, keeps my mind far removed from my imprisonment, my troubles, and above all, it keeps me in touch with the outer world.'"



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Otorohanga,
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"In reference to the Bremer-Tully Counterphase Eight Receiver, the first evening we tried it out we logged 27 stations, including two Japanese and one in Manchuria.

"The next evening two American stations were logged."

Blenheim,
27/8/28.

"I had great results with the Bremer-Tully Counterphase Eight last evening and logged the following American stations:—KNRC, KFON, KGO, KFJM, KFWB, KHJ, KNX, KPO, KFI, KFSO, KFRC, KTBI, WENR."

As the B-T "Counterphase Eight" gives such wonderful results on American stations, it can readily be realised how efficient it is on reception from New Zealand and Australian stations.

Read
what
these
two
Owners
say—

Radio Frequency, Amplification and Selectivity

A Few Points on the Subject

By Megohm



RADIO amplification is obtained from two factors, the step-up in the valve, and the step-up in the r.f. transformer.

In some circuits there may be no step-up in the transformer, which will in such a case have a ratio of only 1 to 1, so that the total amplification of a stage will then be only that of the valve, and this is the case in the tuned plate type of circuit.

The theoretical amplification factor of the valve must not be taken too literally as an indication of the amount of amplification it will give in a practical circuit, as in actual use the amount is usually considerably below the theoretical value, and depends to a great extent upon the circuit used, more particularly that portion directly connected to the plate of the valve.

WHEN signal voltage is applied across the grid and filament of a valve, variations are caused in the plate current, that is, in the B battery current. There are two impedances in the plate circuit, the impedance of the valve and the impedance of the external plate circuit. The fluctuating plate current develops voltages across the external impedance, and these voltages are transferred to the grid of the next valve either through a coupling condenser, which is the method adopted in the tuned plate circuit, or through a r.f. transformer coupling, which latter method should give some step-up. In an efficient Browning-Drake receiver this step-up may be as high as 20 to 1—so an American authority has stated.

To obtain the full theoretical amplification of the valve, the external impedance must be very high, and the voltage is then all developed across it, and very little in the valve itself, but attainment of this ideal is practically

impossible, as there are other factors working against such perfection, so that the usual compromise has to be made, just as in many other parts of a radio circuit. This compromise is rendered necessary on account of the damping effect which is introduced into the circuit by the valve itself. If a resistance is shunted across a tuned circuit, it has the effect of making the tuning unselective and this is what the presence of the valve tends to cause, for it is the equivalent of a shunted resistance across the circuit. If the external impedance is high, amplification is high but selectivity is poor, so that a separate means of obtaining selectivity is necessary, or else a compromise must be made between amplification and selectivity that in the case of the tuned plate circuit, does not give the most desirable result.

A SOLUTION of this difficulty lies in the adoption of the r.f. transformer with primary and secondary windings, whereby it is possible to sacrifice a certain amount of amplification from the valve by decreasing the external impedance of the circuit, thereby gaining selectivity, and then more than make up for this sacrifice by the step-up in amplification gained from the transformer, at the same time reducing the damping effect of the valve by, in some cases, tapping it across a portion of the circuit only, whereby the coupling effect is propor-

tionately reduced. The best condition when the damping introduced by the valve is equal to that of the external circuit, and by adjusting the position of tapping this condition can to some extent be adjusted.

Effect of Resistance.

ONE of the effects of resistance in r.f. circuits is usually to flatten the tuning. This is surprisingly shown if measurements are taken of the current passing through the circuit at resonance point (that is, when tuned for the best reception of a given wave) and at points a little off the tuning point. In one case where the tuning was on 350 metres, with little resistance in the circuit, an alteration of the tuning 2 metres above or below the 350 reduced the current in the circuit to one-half its best value; this shows how sharp was the tuning in the low-resistance r.f. circuit.

In a higher resistance r.f. circuit, however, tuned for 350 metres, the best current was only about one-half the best value in the above case, and furthermore it required a de-tuning of 30 metres on either side of the 350 to reduce the current in the circuit to one-half of its own best value. Thus the tuning was "flatter," and this illustrates why, with a flat-tuned circuit, wave-lengths near the desired wave-length come in with very nearly the same intensity, whilst with a sharply tuned circuit, if another wave-length is the least amount off the desired value, its intensity of reception is reduced to a small fraction of that of the desired wave-length.

Aperiodic and Tuned Transformers.

SOME types of radio-frequency transformers employ "aperiodic" coupling, which does away with the necessity for tuning each stage, but one great advantage of employing tuned circuits is that selectivity is thereby increased, and the wanted signals therefore amplified to a much greater extent than the unwanted ones, or atmospheric disturbances. Some modern types of r.f. amplifier, employing three stages, can give an amplification of 1000 or more at certain definite wavelengths, and of 400 to 800 at any wavelength over a certain range. But it must be remembered that the factors in favour of amplification are to a great extent against selectivity.

Laboratory measurements of two three-stage transformer-coupled r.f. amplifiers supposed to be identical, and manufactured from the same specifications, have shown one to give less than one-third the amplification given by the other, which goes to show that not everything is yet known about this class of amplification.

THE wave-length of a broadcasting is subject to "side band" fluctuations, between the limits of audio-frequency, on either side of the carrier.

Thus, the carrier wave of a 300-metre station has a frequency of 1,000,000 cycles per second. Speech may cause variable side frequencies between about 990,000 and 1,010,000 cycles. To receive broadcast transmission the resonance curve must be sufficiently flat to cover the band 10,000 cycles either side of the carrier without noticeable distortion. This is the reason why a highly selective receiver may cause distortion or light-note loss by cutting off or unduly weakening amplification of the sidebands.

Using Reaction.

WHEN we work up a weak and distant signal by applying a good deal of reaction we may, without always realising it, render the set so selective by making good the damping losses that a certain amount of cutting of the outer sidebands takes place, with considerable detriment to the quality: too little in such circumstances is heard of the treble; speech sounds rumbly and music is drummy.

You will always get the best quality, particularly from the loudspeaker, when the set is working well within itself, that is, when signal strength could be made greater if it were desired to do so.

The resistance of a wire to r.f. currents increases with the frequency, so that other things remaining equal, the aerial circuit resistance, and therefore the need for reaction, is greater on the short waves. The band of frequency variation due to modulation remains the same (10,000 cycles either side), and so the proportion of this to the whole frequency (which is much increased on short waves) is less, so that we can work nearer to oscillation point and obtain better amplification by reaction without serious distortion. Reaction is therefore more necessary, more effective, and less distorting on short waves.

Stability.

NOTHING has yet been said regarding stability, which is indispensable in any r.f. circuit, and in order to ensure it, considerable amplification has often to be sacrificed.

The Double-Roll Speaker.

THIS speaker, built to the dimensions given, is the equivalent of a 26-inch cone. The paper used for the diaphragm should be rather heavier than that used for the cover of the Government telephone directory, which forms a handy standard of comparison. The omniphone unit for this speaker is also stocked by the Rodger Importing Company, 159 Manchester Street, Christchurch, at 30s.

Field Current for Coil-Driven Speakers.

A PARAGRAPH in "Radio Broadcast" states that for the excitation of coil-driven speaker magnets requiring six volts, this can be adequately supplied by many of the popular trickle chargers with a Tube A block connected across its output to eliminate hum. This combination, it is stated, is altogether satisfactory, not a trace of a.c. hum being perceptible in the speaker, which functions at full efficiency, referring specially to the Jensen and Magnavox types.

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Radio-Frequency Chokes

WHEN in circuits such as the Reinartz we alter the value of a condenser in series with an inductance so as to vary the amplitude of the radio-frequency currents passing through that inductance, the condenser itself prevents the passage of the direct current to the plate circuit. It is necessary, therefore, to feed the plate circuit with direct current from the B battery by a parallel path, and if this path allows any radio-frequency current of appreciable magnitude to pass, the variable condenser designed for reaction control becomes useless, as the radio-frequency current will simply pass round the alternative path.

For this reason, in the Reinartz circuit it is essential to take steps to prevent any radio-frequency currents passing through the telephone or transformer circuit, and thus we introduce a coil of wire of sufficiently high in-

bottle, the bulk of small chips being about half that of the acetone liquid. The cement is applied to joints with a small sharpened stick, and dries solid in two or three hours if not too thickly applied.

Two strips of celluloid are cut $\frac{1}{2}$ in. wide by 4 in. long, and one strip $\frac{1}{2}$ in. wide by 4 in. long. For a base a piece is cut the shape shown, $\frac{1}{2}$ in. wide and $1\frac{1}{2}$ in. from point to point. The diagram of parts is given full size so that the celluloid may be placed over it and the lines scratched in with a sharp point. The corners of the notches should be rounded as shown so that the wire will not catch on the edge when winding.

Two holes are shown in the base through which $\frac{1}{2}$ in. screws can be placed to hold the choke in position. The position of the upright strips is shown by dotted lines.

The two $\frac{1}{2}$ in. strips are to be cemented to the centre of the inch strip, one on each side, cement being placed along each side of the joint. To do this the $\frac{1}{2}$ in. strip can be supported on edge by a strip of wood each side, the top edge cemented and the inch strip put in place, supported level by strips of cardboard packed underneath. The other $\frac{1}{2}$ in. piece is then cemented on and similarly propped up. When the cement is partly set, the supports may be taken away and the upright cemented to the base and left to dry.

A useful choke for broadcast wavelengths is made by winding 200 turns in each set of notches, making 1000 turns in all. Thicker wire may be soldered on at the ends for connecting up. A useful gauge of wire is 34's or 36's.

For short-wave a good choke can be made by omitting the notches and space-winding 30's enamelled wire about 30 turns to the inch, so that 100 turns occupy nearly the whole length of the former. If desired, the turns can be secured by a little cement applied where the turns cross the edge of the celluloid.

Value of Short Wave

THE chief characteristic that must be looked for in a short-wave valve is that it shall not be noisy, either in operation, nor by reason of its generation of a hum due to microphonic action. Bright-emitter valves are, generally, better in this regard than the dull filament kind; but the glowless, or semi-glowless valves have now been developed to such an extent that the microphonic noise can be usually reduced to almost nothing by the use of a good non-microphonic valve holder.

Incidentally a properly made holder of this type will also have a low capacity across the sockets, which helps greatly in a short-wave receiver. Unfortunately, however, the use of an anti-microphonic holder that is very free in its springs will bring another trouble in its train when the set is being used on 20 metres and below.

Swinging Detector Valve.

THE detector valve will start swinging as the tuning dial is revolved and will continue to swing, with the result that there is a continuous small change in capacity. This is quite sufficient to set up a kind of "high-speed fading" that will make distant and

faint telephony stations very difficult to read. It has not so bad an effect when the receiver is oscillating for the reception of morse signals; but when the detector is nearly on the point of oscillation quite small capacity changes will affect it badly.

The cure for this trouble is to "damp" the valves by means of small pieces of cotton wool, placed so that they will stop the swinging without bringing back the microphonic noises.

With regard to noisy working, that is a matter of test. Valves that are of the same make and class often differ quite a lot one from another.

In most cases a valve that is suited for a particular position in an ordinary receiver will work quite well in the same position in a short-wave set. For leaky grid rectification any valve with an internal resistance of from 11,000 to 20,000 ohms will do quite well.

Smaller Grid Condenser.

IT is usual, however, to use a rather smaller grid condenser than is normal to the broadcast receiver, and to put up the value of the grid resistance

very considerably. Up to 10 megohms can be used with effect and a high-resistance connected to the positive side of the filament will often be effective in reducing or removing the annoying "grid howl" that sometimes completely spoils reception by bursting out when the set should be most sensitive.

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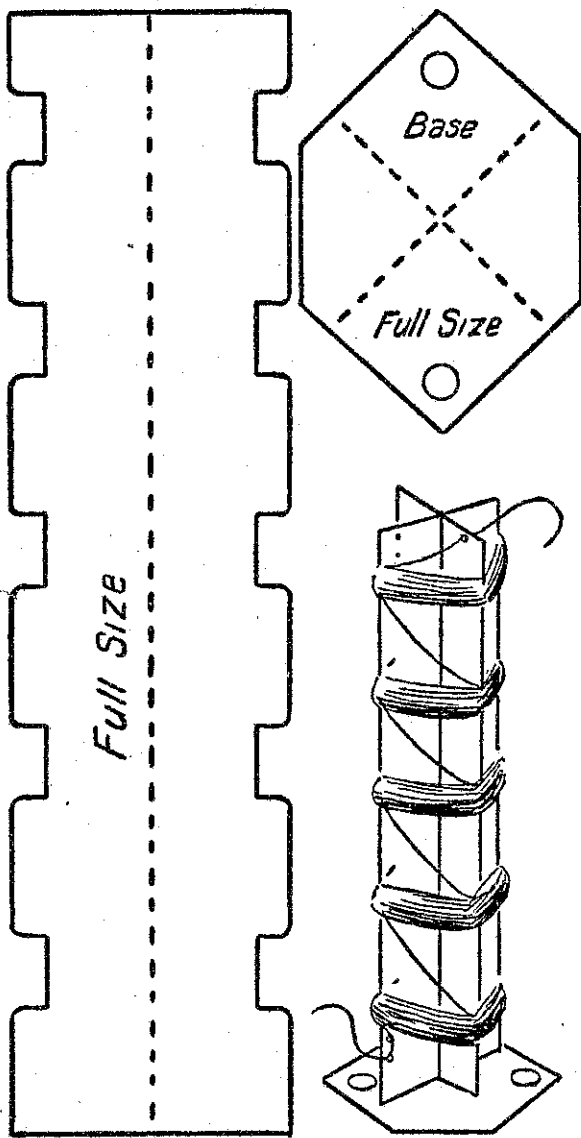
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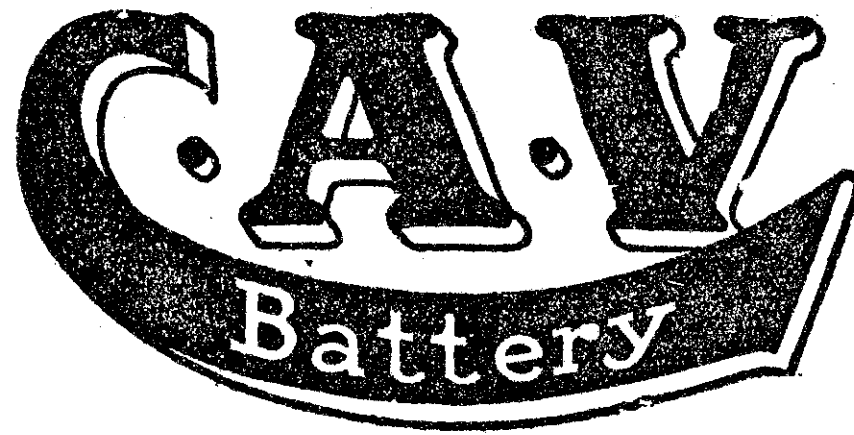
AUCKLAND



Radio-Frequency Choke

ductance and low self-capacity to obstruct the passage. Unfortunately, it is impossible to design any coil to have no self-capacity, and every radio-frequency choke possesses this property in some measure. Bearing this in mind, it will be seen that any radio-frequency choke consists of an inductance shunted by a capacity (Which latter, however, may be very small indeed), and is thus a circuit capable of resonance, provided the ohmic resistance is not too high. The d.c. resistance must be reasonably low, otherwise it would unduly restrict the passage of the direct current to the plate from the B battery.

A good r.f. choke can be made on a celluloid frame constructed from strong motor-hood celluloid joined with cement made by dissolving chips of the celluloid in liquid acetone which may be obtained from a chemist. The cement should be of a creamy consistency, and is best made in a small



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- ATWATER-KENT RADIO** .. Frank Wiseman, Ltd.
170-172 Queen Street, Auckland.
- ALTONA & HAMMARLUND.** Johns, Ltd.
Chancery Street, Auckland.
- ROBERTS SETS.**
- AMPLION LOUDSPEAKERS** . All Radio Dealers.
- BREMER-TULLY RADIO** .. Superadio, Ltd.,
147 Queen Street, Auckland.
- BURGESS RADIO BATTERIES,** All Radio Dealers.
- CE-CO VALVES** .. All Radio Dealers.
- FADA RADIO** National Electric & Eng. Co., Ltd.
Customs St.; Radio Supplies, Symond St.
- FEDERAL, MOHAWK, GLOBE** Federal Radio House,
8 Darby Street, Auckland.
- FERRANTI RADIO COM-
PONENTS** A. D. Riley and Co., Ltd. Anzac
Ave., Auckland, and all leading dealers.
- GILFILLAN AND KELLOGG** . Harrington's, Ltd.,
138-140 Queen Street, Auckland.
- GREBE RADIO** Howie's,
Dilworth Building, Custom st., Auckland.
- MARCONI ECONOMY VALVES** All Radio Dealers.
- MULLARD VALVES** ... All Radio Dealers.
- RADIOLA RECEIVERS** ... Farmers' Trading Co., Ltd.,
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- RADIOTRON VALVES** All Radio Dealers.
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COUNTRY TOWNS

- BROWNING-DRAKE SALES AND SERVICE** J. H. Sinclair,
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Ltd. Cuba Street, Palmerston North.
- CROSLEY RADIO SALES AND SERVICE** D. A. Morrison and Co.
The Avenue, Wanganui.
- GAROD, CROSLEY, RADIO AND ACCESSORIES** The Hector Jones Electrical Co.
King and Queen Streets, Hastings.
- GILFILLAN, FEDERAL, STANDARDYNE AND GARRARD ELECTRIC RADIO — ALL ACCESSORIES** W. M. Pitcher and Co.
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140 The Avenue, Wanganui.
- ROLA CONE SPEAKERS** J. B. MacEwan and Co., Ltd.,
Federal Radio Dealers, New Plymouth.
- PHILIPS VALVES AND APPARATUS** All Good Radio Dealers,

Glossary of Wireless Terms

From week to week we give here a section of the glossary of wireless terms from the "Listener's Guide."

NEGATIVE.—Every cell or battery of cells has two electrodes or poles, a positive and a negative, which are usually clearly marked respectively "+" and "-". The positive pole is often further distinguished by red paint, and the negative by black or blue paint. In any instrument or compound employing a permanent magnet (such as a telephone receiver) polarity is generally indicated and should be observed. Positive, or +, corresponds with the north pole of the magnet, and negative, or -, with the south pole.

NEUTRODYNE.—Originally an American circuit in which, by the use of tiny adjustable condensers, the inherent capacity existing between the internal electrodes of the valves is neutralised. Properly used, a neutrodyne receiver is much more manageable for long-distance, ordinary broadcast wave reception than a set in which such neutralisation precautions are not taken.

OHM'S LAW.—A fundamental electrical law, conceived by George Simon Ohm (1787-1854), an electrician of fame, affording computation of one of the following:—Resistance, voltage, current—if the figures for the other two are known. According to Ohm's Law: Current (in amperes) equals voltage divided by resistance (in ohms); resistance (in ohms) equals voltage divided by current (in amperes); voltage equals current (in amperes) multiplied by resistance (in ohms).

OSCILLATING VALVE.—A valve so operated that it will produce oscillations. This is usually accomplished by means of a reaction coil coupled back from the plate circuit to the grid circuit, thus sending back properly timed impulses capable of exciting the grid of the valve and thereby sustaining the action and reaction effect indefinitely, energy being drawn from the batteries or current generators in use. An improperly operated receiving set, unless it is correctly neutralised or balanced by neutralising condensers, will cause the detector wave to oscillate and thus energise the aerial, occasioning interference with other listeners. A definite test is to turn the tuning dial or dials of the receiver slowly, and if the station being listened to moves smoothly from minimum to maximum and minimum again without a sound of a whistle which alters in tone precisely in step with the movement of the dial, then the receiver is clear of interfering effects designed to distort or ruin the reception of signals either on the set in question or others in close proximity.

A good rough-and-ready test for oscillation is to wet the finger and touch the aerial terminal with it. If a loud "click" is heard every time the finger both touches and leaves the aerial terminal, you can be certain the set is oscillating and causing interference with other listeners.

OSCILLATING CURRENT.—Has the same characteristics as alternating current, but takes place at a radio frequency. See "Alternating Current."

Tips and Jottings

Crystal and Amplifier.

A RUNANGA (Greymouth) constructor, who is a beginner, has built the crystal receiver with amplifier described on July 6, using a Harlie crystal, and reports getting 2YA on several nights as his first station. This correspondent inquires as to the maximum capabilities of the receiver, but this cannot be given, as there are so many factors to take into consideration. A receiver such as this is quite capable of sometimes receiving Australian stations, conditions all being favourable, but no guarantee of any kind can be given. Several experiments showed that the specified number of aerial turns gave best results.

The Last Valve.

IF it is suspected that the power valve may be losing its emission, the point can easily be settled by any listener who owns a milliammeter reading up to 20 or 30 milliamps. A reading should be taken when the valve is new by placing the meter in the plate circuit, and if the indication agrees with the plate current stated on the manufacturer's leaflet at the particular voltage, all is well. Readings taken at subsequent intervals should show the same reading under the same conditions, and when a drop is recorded, if plate voltage is correct, the valve may be at fault.

Drilling Ebonite.

A DIFFICULT thing to do is to drill ebonite with a hole over 1/8 in. in diameter, and finish with the hole in the exact spot required. The shape of a Morse twist drill at the point makes it very inclined to cut more to one side than the other, pulling the drill from centring on the punched

mark, and thus displacing the hole from its true position. After punching a mark with the centre-punch, a small drill may be used to enlarge the depression, and give the larger drill a start. This depression should have a diameter not less than the straight portion on the point of the large drill to be used. A rose countersink can sometimes be used to advantage to enlarge the punched mark before drilling. Some such precaution is very necessary when drilling a set of holes such as may be required to take four contact pins for a short-wave secondary and tickler.

Aerial Stays Not Insulated.

IT is not necessary to use insulators in aerial stays unless the aerial is only a few yards from a transmitting aerial. In such a case the insulators are inserted not for the benefit of the broadcast aerial or reception, but to prevent them from absorbing energy that should radiate further afield from the transmitting aerial. The stays of transmitting aeriels are equipped with insulators for the same reason. There can be little gain by inserting an insulator in the centre of a stay, the top of which is connected to an iron mast whose lower extremity is buried in the ground.

Amplification Factor of a Valve.

THE amplification factor is the measure of the control exercised by the grid upon the plate current, and is very easily found from characteristic curves. If the readings obtained show that a rise of .5 milliampere in the plate current is produced by an increase of 10 volts in the plate voltage, and that with the plate voltage steady a similar rise can be obtained by making the grid 1 volt more positive, then changes in the grid voltage have ten times the effect of changes in the plate voltage and the amplification of the valve is 10.

Servicing of Sets.

ONE of the most misconstrued terms in radio phraseology is "the servicing of sets." On purchasing a set most dealers instal and leave it in thorough working order. If anything goes amiss they ask that the purchaser communicate with them. In most cases no charge is made for adjustment only, but it must be borne in mind that free service costs the dealer something, even if it involves only a few minutes' work.

Some distressing episodes are told of purchasers who have for some considerable time worried their dealer in taking him, sometimes a great distance, to turn on a switch, to connect the aerial or earth, or to replace a battery.

Nearly every man in the trade can tell of long journeys to do some such simple operation. To suggest a fee, even his bare time, brings wrath and indignation upon his head.

It is the duty of every set owner to acquire at least an elementary knowledge of his set, and to learn to do these simple jobs for himself.

The Set.

THOSE who purchase a set and have it installed will do well, once it is going, to leave it alone. Don't fiddle or allow anyone else to fiddle with your set. Hundreds claim to be experts, but the number who are truly expert are very few, and the listener, in engaging such a person must expect to pay for his service. One visit from such an expert is worth all the service that "others" can ever render.

Certain factors outside the actual set require attention, and this can be done only if the owner knows something about his set.

The Aerial and Earth.

IN many installations a switch is provided connecting the aerial with the set on one side, and on to the earth on the other to safeguard against lightning risks.

Everyone likely to operate the set should make certain that they understand the working of the switch. In the event of the set failing, first look to this factor. If it is not known which is off or on no harm can be caused through moving the lever to try and decide.

In other cases there is no switch, the aerial and earth wire being connected directly to their respective terminals. It is the practice of some to disconnect the aerial before leaving the set, and quite often another wishing to use it may wonder why it will not work. Don't call the dealer; look for the aerial terminal (usually marked ANT, for antenna), and connect the free end to it.

Care must be taken to connect the aerial to the aerial terminal and the earth to its terminal. The two wires should be marked in some way, for although an error would not do any damage it would impair reception if not prevent it altogether.

A Corner for Beginners

— By Observer —

Those unacquainted with their sets and who are often troubled with quite simple problems will find in these columns from week to week notes on the elements of radio.

Batteries.

PROBABLY more trouble is caused through faulty batteries than through any other single factor. Batteries in some ways are to be preferred to eliminators; they give a steadier current, and are very reliable, but they don't last for ever.

Provision is usually made for the regular recharging of the A (filament) battery, by a trickle charger or by taking the accumulator to a service station to be recharged regularly. The former is the more economical, and is to be preferred.

With the B (plate) battery, however, this is not the case. The voltages required are fairly high, requiring a very elaborate accumulator, so that the "dry" type usually are relied on. The life of these is governed by their use, but, if in regular use they require renewing about every six months.

The C battery, the smallest in the set, uses but little current, and requires renewal less often than the others. This battery gives a negative charge to the grid of the valve in order to control the flow from the other batteries.

Careful arrangement of the voltages of B and C batteries is necessary to give good results, and if the B is allowed to fall too low the correct relationship between it and the C is lost, and distortion is the result.

Voltages of the Batteries.

NORMALLY B batteries are made up in blocks of 50 volts. Some sets use as many as four or five of these blocks, but the average five or six valve set will work from three, giving a total emission of 150 volts.

These will work satisfactorily until they fall to about 38 volts in each block, when the relationship between them and the C is so disproportioned as to give badly distorted reception. In addition, volume will so decrease that many stations may be entirely lost.

If the B batteries are kept in proper order the C must not be neglected. If allowed to run until very low while the B is maintained at good strength, distortion will result.

Measuring Voltage.

A GOOD voltmeter is essential to all set owners, and should be in constant use. To measure the potential of a battery it is necessary to place one terminal of the voltmeter on each of the battery terminals (positive and negative), but this is not all.

The following precautions must be observed:—

(1) The maximum voltage of the voltmeter must be greater than that of the battery block. A voltmeter, made to register 20 volts, would be ruined if placed on a fully charged 50-volt block.

(2) The positive terminal (marked + or coloured red) of the voltmeter should be applied to the positive terminal of the battery which is connected to the set. There are several positive tappings each marked with a number and the positive sign. If fully charged, this and the reading of the voltmeter should agree.

(3) The negative (—) terminal of the voltmeter, usually on flexible wire, should be placed on the battery negative terminal, and the indicator will register the voltage.

(4) Do not attempt to measure the accumulator (A battery) in this manner. A special hydrometer, which tests the density of the liquid, should be employed.

Connections.

THE greatest care must be taken to ensure that the connections are kept clean. Badly distorted reception, sometimes completely failing, may result from unclean terminals. This applies especially to the accumulator. The acid, if not cleaned from the terminals, will corrode them, and cause a faulty connection.

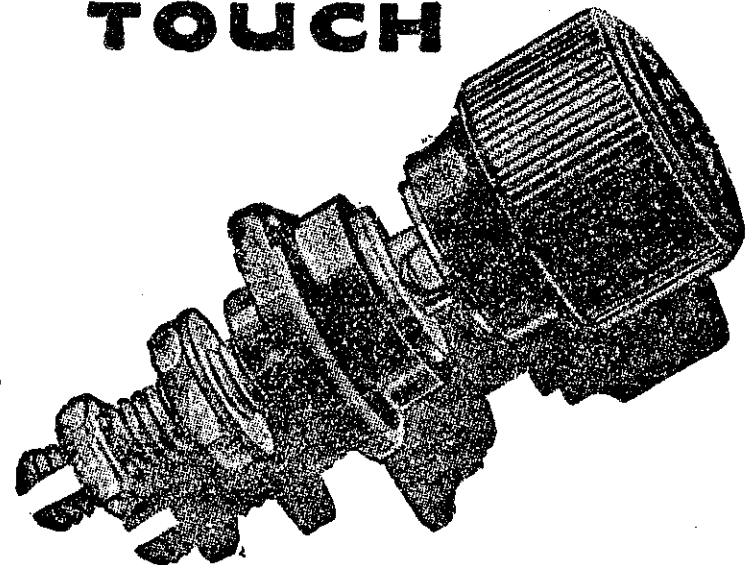
Periodically these and the clasps attaching them to the set should be scraped and made as clean as possible. Ensure that firm connections are made. A loose connection will give continual trouble.

This applies to all connections. The aerial and earth wires, entering the set, should be periodically scraped and cleaned. The B and C batteries will require constant care in this respect, but it is not advisable to try cleaning any of the wires inside the set. Leave this to someone who knows what he is doing.

Speaker plugs need an occasional scraping.

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**BELLING-LEE
TERMINALS**

Concert by Hutt Valley Choral Society

The Hutt Valley Choral Society was founded in 1923, and for three seasons was conducted by Mr. Robert Parker, who resigned in 1926. The present conductor is Mr. E. Douglas Tayler. The society numbers about sixty voices, but is prepared to increase its membership.

The concert to be broadcast on Tuesday, September 18, is quite representative of the society's present aims, inasmuch as it consists of a very varied selection of the finest choral music, both unaccompanied and with orchestra; vocal solos and orchestral items. The vocalist will be Mr. Harison Cook, well known as one of New Zealand's leading baritones, and the instrumental part will be supplied by 2YA Orchestra, augmented.

The outstanding choral item will be "Blest Pair of Sirens," a magnificent setting of Milton's ode, "At a Solemn Music," by the English composer, Sir Hubert Parry. The words of the poem are printed elsewhere. This is one of the most dignified and beauty choral works of modern times, and bids fair to become a classic. The greater part of it is in eight-part harmony.

Another item of special importance is Grieg's ballad, "Landerkennung" (Recognition of Land), for male chorus and orchestra, with baritone solo by Mr. Harison Cook. The ballad tells picturesquely of Olav Trygvason's voyage

over the North Sea to recover his kingdom of Norway, from which he had been taken as an infant to save him from his enemies.

There are also unaccompanied part-songs—grave, gay, and sentimental—including Parry's fine five-part motet, "Never Weather-beaten Sail," two dainty numbers by Lloyd and Stanford, the jocular "Song of the Pedlar" from Shakespeare's "Winter's Tale," and Brahms's arrangement of the tender little German folk-song, "In Silent Night." Interest attaches to a new choral song called "My Land," by a New Zealand composer, Mr. A. A. Wedde, which will receive its first performance with orchestral accompaniment. It is a fine, broad melody, and breathes lofty aspiration and love of country. The words are by an anonymous poet.

Mr. Harison Cook contributes two songs by Addison Price, and operatic selections from "The Magic Flute" and "The Merry Wives of Windsor." The orchestra will play Coleridge-Taylor's popular "Petite Suite de Concert," and the concert will conclude with a rollicking set of old sea-chanties, arranged for chorus and orchestra, in the refrains of which radio listeners will be invited to join. The conductor will make a few explanatory remarks before certain of the items.

"HITHER! HITHER!" (By C. H. Lloyd.)

Hither! Hither! O, come hither,
Lads and lassies, come and see,
Trip it neatly, foot it featly
O'er the grassy turf to me.
Here are bowers hung with flowers,
Richly curtained halls for you,
Meads for rovers, shades for lovers,
Violet beds and pillows, too.

Purple heather you may gather,
Sandal-deep in seas of bloom,
Pale-faced lily, proud sweet-willy,
Gorgeous rose and golden broom;
Odorous blossoms for sweet bosoms,
Garlands green to bind the hair,
Crowns and kirtles weft of myrtles,
Youth may choose, and Beauty wear.

Brightsome glasses for bright faces
Shine in every rill that flows,
Ev'ry minute you look in it,
Still more bright your beauty grows;
Banks for sleeping, nooks for peeping,
Glades for dancing smooth and fine,
Fruits delicious for who wishes,
Nectar, dew, and honey-wine.

Hither! Hither! etc.

—Osme's song from "Sylvia," by George Darley (1795-1846).

"SONG OF THE PEDLAR." (By Lee Williams.)

Will you buy any tape
Or lace for your cape,
My dainty duck, my dear-a?
Will you buy any thread,
Any toys for your head,
Of the new'st and finest wear-a?
Come to the Pedlar;
Money's but a meddler

That doth utter all men's ware.

—Autolycus's song from Shakespeare's "Winter's Tale."

"BLEST PAIR OF SIRENS." (By Parry.)

Blest pair of Sirens, pledges of Heaven's joy,
Sphere-born harmonious sisters, Voice and Verse.
Wed your divine sounds, and mixed power employ
Dead things with inbreathed sense able to pierce;
And to our high-raised fantasy present
That undisturbed song of pure consent
Aye sung before the sapphire-coloured throne
To Him that sits thereon,
With saintly shout and solemn jubilee,
Where the bright seraphim, in burning row
Their loud uplifted angel-trumpets blow,
And the cherubic host in thousand choirs
Touch their immortal harps of golden wires,
With those just spirits that wear victorious palms,
Hymns devout and holy psalms

Singing everlastingly:
That we on earth, with undiscording voice
May rightly answer that melodious noise;
As once we did, till disproportioned sin
Jarred against Nature's chime, and with harsh din
Broke the fair music that all creatures made
To their great Lord, Whose love their motion
swayed

In perfect diapason, while they stood
In first obedience, and their state of good. . . .
O may we soon again renew that song
And keep in tune with Heaven, till God ere long
To His celestial concert us unite,
To live with Him, and sing in endless morn of
light.

—"At a Solemn Music," by John Milton.

"MY LAND." (By A. A. Wedde.)

Dear Land, that of all lands to me art the
fairest,
Land where the fern in its loveliness grows,
Girt with the ocean and crowned with thy
snows,
Richly thy beauty with me thou sharest,
God-given bounty to me thou bearest.

Fair Land that of all lands to me art the dearest,
Great is the joy that thy children may feel,
Deep the devotion they owe to thy weal;
While thy sons love thee, nothing thou fearest;
God make our service bravest, sincerest.

O Land of my home, I will love thee for ever,
Live to thine honour and guard thee from
wrong,
Make thee yet fairer with labour and song;
Loving thee truly, strong my endeavour,
Onward and upward, failing thee never.

—Anon.

"NEVER WEATHER-BEATEN SAIL." (By Parry.)

Never weather-beaten sail more willing bent to
shore,
Never tired pilgrim's limbs affected slumber more
Than my wearied sprite now longs to fly out of
my troubled breast,
O come quickly, sweetest Lord, and take my soul
to rest.

Ever blooming are the joys of Heaven's high
Paradise;
Cold age deafs not there our ears, nor vapour dims
our eyes;
Glory there the sun outshines, whose beams the
blessed only see—
O come quickly, glorious Lord, and raise my sprite
to Thee.

—Thos. Campion, from "Songs of Farewell."

"IN SILENT NIGHT." (arr. Brahms.)

In silent night, with moonbeams white,
I hear a voice despairing,
The sighing breeze above the trees,
Its plaintive murmur bearing;
Ah, bitter woe, that none may know,
My heart in pity weepeth,
My tears bedew the flow'et blue,
That on my pathway sleepeth.

The lady moon is hidden soon,
In grief her beams concealing;
The stars aglow, do fade and go,
To realms supernal stealing.
No song is heard, no waking bird,
In gloomy forest crying;
The night wind's moan I hear alone,
In answer to my sighing.

"THE FAIRIES." (By Stanford.)

They're sleeping beneath the roses, O kiss them
before they rise,
And tickle their tiny noses, and sprinkle the dew
on their eyes;
Make haste! the fairies are caught!
We'll put them in silver cages, and send them full
dressed to court,
And maids-of-honour and pages shall turn the poor
things to sport.
Be quick! be quicker than thought!
Their scarfs shall be pennons for lancers, we'll tie
up our flowers with their curls,
Their plumes will make fans for dancers, their
tears shall be set with pearls.
Be wise! make the most of the prize!
They'll scatter sweet scents by winking, with
sparks from under their feet,
They'll save us the trouble of thinking, their voices
will sound so sweet.
Oh, stay! They're up and away!

—William Cory.

"RECOGNITION OF LAND." (By Grieg.)

Olav Trygvason (A. D., 964-1000) was taken
from Norway as an infant to save him from his
enemies. In manhood he returned as King to
take possession of his Fatherland, into which he
introduced Christianity; sailing across the North
Sea from Britain, as here described.

And it was Olav Trygvason, sailing o'er the North
Sea wide,
Bearing the hope to found a kingdom far on the
other side.
Yonder the cliffs appearing, like a battlement loom,
their dark crest rearing.
And it was Olav Trygvason, found he ne'er a spot
to land;

Even like the waves, the royal desire shattered upon the strand.
 "See!" cried the bard, upleaping, "yonder snow-covered peaks o'er cloud-banks peeping!"
 And it was Olav Trygvason, suddenly he seemed to sight
 Towering temples, domes and spires, glistening in virgin white;
 Then vowed the king, undaunted, with his followers to tread that land enchanted.
 Onward he went; the rushing streams heralded the coming spring,
 Swayed in the stormy wind, the forest strangely was murmuring;
 Sounds as of church bells, chiming; and then spake the king—spake as though dreaming:
 "Here the spot to found our kingdom: Hell, these temple walls defy thee!
 Hearts are swelling, souls are yearning; God, to Thee alone be glory!
 Be, my faith, as yonder mountains; root as deeply, shine as purely;
 And as these my faith strive upward, on to Him, the All-Creator!"
 Olav's prayer be ours to utter, as we near the throne of mercy;
 Hearts are swelling, souls are yearning; God, to Thee alone be glory!
 Be, my faith, as yonder mountains; root as deeply, shine as purely,
 And, as these, my soul shine upward, unto Him, the All-Creator!
 On to God! On to God!

"OLD SEA-CHANTIES."

(arr. by Bradford and Fagge.)

(Note.—Words in brackets are repeated in subsequent verses.)

Haul on the bowlin'
 The bully ship's a-rollin'
 (Haul on the bowlin')

Haul away, jo!
 Heave, heave her up,
 We'll either break or strand her,
 Away, haul away,
 Haul away, jo!)
 Haul on the bowlin'
 The skipper he's a-growlin', etc.
 Haul on the bowlin',
 The main-top-gallant's howlin', etc.

I love my gal across the water
 (Weigh! aye! roll and go!)
 She's good old Sal, yet Sally's daughter.
 (Spend my money on Sally Brown!
 O Sally's teeth are white and pearly,
 Weigh! aye! roll and go!
 Her eyes are blue, her hair is curly,
 Spend my money on Sally Brown.)
 For many years I courted Sally,
 She called me Boy, and Dilly-dally, etc.

Where are you going to, my pretty maid?
 (Weigh, heigh-ho!)
 O where are you going to, my pretty maid?
 (We're bound for the Rio Grande!
 Then away, heigh-ho, away heigh-ho!
 Sing fare you well, my bonny young girl,
 For we're bound for the Rio Grande!)
 Jolly our ship and jolly our crew,
 O jolly our mate, our good skipper, too, etc.

Walk her round, for we're rolling homeward,
 (Heave, my boys, together!)
 The old bully ship is a-lying wind'ard,
 (Heave, my boys, away!)
 We're taut and trim and the wind's a-blowing,
 Snug up aloft and the ship's a-going.
 (Heave her, for we'll strand her, and the old ship's a-rolling home).
 Walk her round, for the wind a-blowing.
 Now heave her, boys, for the ship's a-going;
 So blow, ye winds, for Bristol city
 Where the gals are fine and pretty, etc.

(Blow the man down, blow the man down),
 Weigh, heigh, blow the man down,
 Haul her up, we're bound for to go.
 Give me some time to blow the man down.
 The mack'el was singing "I'm king of the sea"
 (With a weigh, heigh, blow the man down.)
 Give her a pull, we're bound for to go
 (Give me some time to blow the man down.)
 As I was a-walking down Rotherhithe Street
 (To my weigh, heigh, etc.)
 A pretty young girl I chanced for to meet, etc.

We're all afloat in a very fine clipper,
 (Blow, boys, blow.)
 Taut and snug, a very fine ripper,
 (Blow, my bully boys, blow.)
 Haul, my lads, and haul her over,
 Give her a shake and bowl her over.
 Soon we'll be in London City,
 With the gals all dressed so pretty,
 Soon we'll hear the skipper shouting,
 "Grog, lads, grog!" for that we're waiting.

Shanadoah, I love your daughter
 (Away, ye rolling river!)
 Shanadoah, I long to hear you
 (Away we're bound to go 'cross the wide Mis-souri.)
 Shanadoah, a gale is blowing.
 The anchor's weighed and sheets a-flowing,
 Shanadoah, I'll ne'er forget you,
 Till I die I'll love you ever.

O whisky killed my brother Tom,
 (O whisky, Johnnie!)
 And I'll drink whisky hot and strong
 (Then whisky for my Johnnie!)
 O, I'll drink whisky all day long,
 Then haul her up and bowl along.
 As we scud o'er the waters blue,
 A good old pull and strong and true;
 For 'tis a wind the sailors love,
 It blows the royals out above.

A Radio Miscellany

A LISTENER has forwarded a letter in which he formulates the theory that when static is not heard during daylight but becomes terrific when night sets in, it is from a very distant source. He claims that the poor conductivity of the ether during daylight prevents the static from being audible at a long range. Anyhow, we all have observed on many nights that static increases as the night progresses.

DURING those extremely rare occasions when Wellington has been visited by a thunderstorm the writer has tested the effect of a flash of lightning as heard from the loudspeaker. When the lightning was relatively close a sharp and loud clap came from the loudspeaker. The sound differed somewhat from the ordinary static, and might be likened to a highly magnified effect of switching on an electric light in one's house. The latter action will cause a sharp snapping sound to emit from the loudspeaker.

SOME creditable relaying was accomplished by 3YA, Christchurch, recently. In the morning the British short-wave broadcast station, 5SW, was rebroadcast by 3YA, in the writer's opinion, more successfully than any previous attempt in New Zealand. In the evening 3YA raked in the Australian stations, one after the other, with astonishing clarity and volume. Indeed, one could hardly imagine 2FC, Sydney, was being rebroadcast from Christchurch, so loud and free from parasitic sounds was reception.

WELLINGTON is extraordinarily happy in the rarity of thunder-

storms. Take Brisbane as the antithesis. The Queensland capital experiences scores of thunderstorms in a season, and not infrequently the display of lightning is almost continuous for an hour or more. The lightning has often struck forest giants within three or four miles of the city. Listening-in for long-distance stations while a thunderstorm is raging around Brisbane is practically futile.

IN Australia, pigeon racing is carried out on a large scale, and frequently the stout-hearted homing pigeons meet their doom through flying against a radio aerial. The homing pigeon societies have appealed to listeners, in certain districts, to attach corks here and there along their aerials to render the latter more easily visible to the pigeons. Many listeners have received the suggestion in the right spirit and have followed it.

THE wireless operator of a steamer which visited Wellington a little while ago had a monkey pet who took a keen interest in the radio apparatus, and was of necessity kept on a chain to prevent him getting busy among the radio gear. When broadcast reception was put on a loudspeaker the monkey used to put his head into the speaker to investigate matters, and then shake it to see whether he could dislodge the "devil" within. One day Mr. Mon-

key got his fingers across the loudspeaker terminals and received an electric shock which scared him to such an extent that thenceforth nothing could induce him to venture within six feet of the loudspeaker.

A STRIKING proof of the importance of absorption in wireless reception may be gained by the city listener if he takes his receiver to some country position. He will find an enormous increase in the signal strength of all the distant stations he could hear in the city, and in addition he will generally hear many stations that could never be heard in the city. The reason for this is that the buildings, telegraph lines, and electric light lines of the city have a marked shielding effect, which greatly reduces the intensity of wireless waves near them.

MANY people are troubled by the question whether dry batteries suffer from not being kept "right way up." The natural assumption is that the terminals are supposed to be at the top, but sometimes the batteries will not fit conveniently into the available space in that attitude, or are not readily accessible. There need be no hesitation about the matter; dry batteries will work equally well in any position. Those who advocate that they should always be kept with the "top" of the zinc casing uppermost,

overlook the fact that the outside of a B battery block gives no indication of the way the cells are packed inside. In many heavy duty batteries the cells lie horizontally when the case is placed with the terminals uppermost. Both A and B dry batteries may be arranged in any convenient way.

FIXED condensers of a larger capacity than about 0.05 may be tested by connecting each side for a moment across a 100 to 200-volt B battery or accumulator. This charges the condenser, which is discharged by placing a short piece of wire to connect both ends of the condenser, both battery leads having been removed. If a spark is seen on connecting across, the condenser is intact. A high grade condenser will hold a charge for hours. A condenser that will not hold its charge for a minute is no use for coupling a resistance amplifier.

IF you are situated near to a broadcast station which you find difficult to cut out, a wave-trap is the first improvement. Greater facility in cutting out the local is gained by shortening the aerial, as the pick-up is thereby lessened, but the shortening should not be overdone, as the volume of distant signals will be decreased. Shielding the set with copper is a great help in cutting out the local station, and in conjunction with a simple wave-trap, leaves little to be desired.

A SMALL piece of thin fuse-wire, twisted into a spiral, makes an ideal "cat's whisker."

Round the World on Short Wave

Notes of special value to short-wave enthusiasts are contributed weekly to the "Radio Record" by Mr. F. W. Sellens, Northland, Wellington. Observations from others are welcomed.

Mr. F. W. Sellens writes:—

Mr. Gerald Marcuse, the owner of 2NM (the first Empire short-wave broadcaster) has recently been granted an extension of his license by the Postmaster-General. The latest advice from Mr. Marcuse gives his regular times of transmission as follows: Sundays, from 5.30 p.m.; Mondays, from 4.30 p.m.; Thursdays and Saturdays, 9.30 a.m. till 11.30 a.m., New Zealand time.

A few weeks ago a select party of distinguished radio men from New York were shown by Senatore Marconi, at the Bridgewater beam station, how he could receive ordinary broadcast transmission from Montreal, using the same apparatus and aerial, at the same time, as was being used for the usual morse telegraph. No trace of morse interference was noticed whilst the dance music rattled through.

Future of Short-Wave Certain.

MR. HUGO GEONSBACH, editor of "Radio News" (U.S.A.), says:—"And as time goes on, the interest in short-waves is becoming greater and greater. It may well be said that we have as yet not scratched the surface. Technicians believe that in due time all broadcasting will be done on the short waves; everything seems to point that way. Already many stations are operating two transmitters simultaneously; one on the upper wave-band, and the other in the lower wave-band. These stations in doing so are simply staking out their claims for what is to come in the future; and the recent scramble for short waves for television purposes points unmistakably in the same direction.

"It will not surprise me at all if, during the next five years, the broadcasting of both sound and sight will be done completely on short waves; and the upper wave-channels from 200 to 600 metres gradually abandoned, as fast as we learn more about the short waves.

"At the present time, the only thing that stands in the way of universal adoption of short waves is the skip-distance effect. Take, for instance, 2XAL, broadcasting on 30.91 metres: within 200 miles of New York, the reception is poor. Beyond this distance it becomes better and better, the further you get away from the transmitter. This is one of the problems that has yet to be solved and, when it has been solved, there is little doubt that all stations will move down into the short-wave part of the spectrum."

A CHRISTCHURCH correspondent says he stayed up for the relay of the signing of the Peace Pact by 5SW, and although strength was good only parts were clear enough to understand. This is better than Wellington reception.

tion. A suggestion of speech was all that was audible here. Reception on the short waves appears to be better as a rule in the south compared with Wellington.

A German station has been heard several times during the week on just over 40 metres. When the station is on the air, between talks, a clock ticking can be distinctly heard. The call has not been heard; each talk commences with "Achtung! Achtung" (Attention).

RFM (Russia) has been heard again after a silence of some weeks.

2ME, 28.5 metres, has been heard several times broadcasting the programmes of the Eucharistic Congress in Sydney. Reception has been strong and clear, with bad fading at times, but always readable.

Saturday, September 1.

At 6.30 a.m. 5SW was R5. Rapid fading spoilt reception.

KDKA, 27 metres, was tuned-in at 1.45 p.m. at R2-3.

2XAD at 1.45 was R4-5. The programme was supplied by the National Broadcasting and Concert Bureau, 711 Fifth Avenue, New York City.

At 2.30 p.m. the transmission was continued from Reilly's Habe House, Saratoga Springs, New York. Amongst the dance items were "Oh, Baby" and "What Do You Say?" Reception was excellent, 100 per cent. readable and very steady at good loudspeaker strength.

PCJJ was first heard at 1.30 p.m., but too weak to be readable, about R2. "Hullo" and "Philips" about all that was heard. Later announcements were heard in a foreign language. English not being spoken. At 3.55 p.m., after giving his last foreign call, Australia and New Zealand were called. Strength R7. Maximum volume was attained at about 5 p.m., decreasing to about R4 at 6.30 p.m., when I left them to try Australia for news of the Tasman flight.

2AJ, Wellington, was testing on 'phone on about 31 metres.

Sunday, September 2.

2ME was broadcasting the service from St. Mary's Cathedral. Although volume was very good, howlers spoilt reception.

KDKA was R2 at 12 p.m. Could not find them after dinner.

2XAF was spoilt by howlers nearly all through. A dance programme was

being relayed from the Crystal Room, Hotel, Albany, New York. Strength was up to R8. When closing they gave their frequency as 9550 kilocycles (31.4 metres).

The Crosley Radio Corporation's station WLW was then tuned-in at R2-3, increasing to about R5 at 4.30 p.m., when they signed off. There was slight static. Rapid fading spoilt intelligibility.

2ME relayed the ceremony at St. Mary's Cathedral. Cardinal Cerretti and other speakers, including Archbishop Redwood, of Wellington, were clearly heard.

2FC, on 31.7 metres, were transmitting a studio programme. Morse QRM was bad.

RFM was heard for the first time for quite a while. When tuned-in at 9.50 p.m. an orchestral item was received at good strength.

2AJ, Wellington, and 3CM, Christchurch, were among the amateurs heard on telephony.

Monday, September 3.

3LO, 32 metres, was up to R8-9, but faded badly. An announcement was made about 2ME on 28.5 metres broadcasting the proceedings of the Eucharistic Congress for overseas stations to rebroadcast.

RFM was heard transmitting talk and music. Strength R9.

5SW, 11 p.m., Big Ben struck the half-hour. Rapid fading spoilt chance of hearing any announcement.

Tuesday, September 4.

5SW was R5 at 6 a.m. with rapid fading. A lady gave a lecture, but could not be understood. After the time signal at 7.30 a 15-minute interval was announced.

Fritz on about 40 metres was heard calling "Achtung" at about R6.

Wednesday, September 4.

PCJJ at 6 a.m. was R8-9, with slight fading at about one second intervals. A good programme of gramophone items was heard. Strength remained fairly even till after 7 a.m., when it decreased.

5SW were transmitting a talk at 6.10 a.m. The title was not heard, but the talk was about money as a means of exchange. Every word could be clearly heard at R8. The Wireless Military Band was heard later.

2ME was heard at 6 p.m., and again later in the evening. Strength very good, with some fading. Static was very bad on the higher wave lengths.

Thursday, September 6.

5SW was tuned-in just before 6 a.m., when rapid fading was bad. Strength R6. A talk was given about the pottery districts of Staffordshire. The musical programme following, it was announced, was being broadcast by all stations. Later a lecture on "Craftsmanship" was heard.

From 9.30 p.m. 2ME was again "on the air." All speakers at the congress were very clear. Reception full speaker volume.

Big Ben was heard at 11 p.m., R3. Announcement not readable, but orchestral item fair.

Friday, September 7.

At 5.28 a.m. 5SW opened with the call and said they were now going over to London for the evening programme. 5.30. Big Ben followed by "London calling" was quite clear at R7. Mrs. — gave a talk, which rapid fading spoilt. Strength was steady till 7.30 a.m.

PCJJ was very good, strength R7 at 5.30 a.m., increasing slightly. 100 per cent. readable.

Fritz was R6. Clock ticking clearly audible between talks.

2ME broadcast a lecture from the Australian Hall, Elizabeth Street, Sydney. Reception very good, except for fading.

5SW was the best yet for the evening transmission. Big Ben followed by orchestral, vocal, and organ items were heard quite well several feet from the speaker. At 11.30 p.m. the Greenwich time signal was heard. This would be noon, Greenwich mean time.

RFM was talking, as is the usual custom.

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