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Atmospherics and Reception

STATIC, fading, atmospherics—these are terms on the lips of every owner of a radio set; they annoy him; he talks about them; yet, does he know just what he is talking about? The chance is that he does not, and it is probable that Mark Twain's saying: "Everybody talks of the weather when no one knows anything about it," is not without modern application.

Of all the natural phenomena which affect radio operations, static is perhaps the most important. Static has attracted the attention of radio engineers from the time the first "wireless" apparatus was set up, over 30 years ago. Static will always interfere with radio, so long as radio transmission consists in the sending out of electrical waves into the ether. Devices have been brought forward to overcome this annoyance: underground aërials, loop aërials, high frequency transmission, high resistances, filtration, and greater station power. All these are more or less useful in combating the trouble, but they are not in general use as either reception is distorted by them or they are too expensive to be generally employed.

No one can explain entirely the significance of static. That it is a form of stray electric charge, wave or current, entirely different from atmospheric electricity, is accepted by all, yet, through experiments with underground, and extremely high aerial, it has been shown that static is of atmospheric origin. It is not evenly distributed over the surface of the earth, being more frequent at the equator than at the poles, in summer than in winter, during the day than during the night. This fact is known to all, but perhaps its interpretation is not so commonly known.

The "Home" of Static.

Immediately above the earth there is a belt of air known to meteorologists as the "troposphere." This is the belt in which static occurs and as its upper limit rises to higher or lower elevations static will be more or less prevalent. Owing to the greater heat at the equator, and during the summer months the air expands, increasing the depth of the tro-

posphere. With the increased volume of the troposphere comes the increase of static, and the particularly bad reception of weak signals. These static impulses are several thousand times as powerful as the impulses or waves coming from a distant station. As static has no particular frequency it cannot be prevented from entering the set.

In the normal state air is an insulator, but when it is acted upon by sunlight, falling rain, or snowflakes, or when it contains numerous small globules of moisture deposited on particles of dust, part of the air molecules (extremely small bodies of which everything is composed) are broken up into positive and negative ions, or minute electric charges. When this happens the air is no longer an insulator, but a partial conductor of rather high resistance. Air thus made a conductor, is said to be "ionized" and when struck by radio waves acts as a metallic shield, or as a sponge. Weather conditions affect the ionization of the atmosphere. Whenever the moisture-content of the air is great, or when dust is excessive, ionization may be quite dense. Falling rain may produce great ionization due to the impact between the drops and their constant breaking and reforming. The drops themselves bring down to the earth considerable positive electricity, while the fine spray thrown off by the falling raindrops gives a negative ionisation.

From this it is seen that the atmosphere becomes filled with millions of small patches, or areas of atmospheric gas, which is ionised to some degree. Each area, therefore, has its individual electric charge. By the phenomenon known as induction each patch of ionized air, or charged cloud, if brought near enough to the ground, attracts an electrical charge of an opposite nature. It is as though a ball were held over a mirror, the ball being the ionized area, and the reflection the induced charge, but of course of opposite polarity.

Storms.

WHEN this charged atmosphere becomes excessive, a thunderstorm arises. This can be best explained by a simple analogy. Every person who has electricity in the home knows what

happens when, by accident, two electric wires, say of the iron cord, touch. A flash, a hiss, and the fuse at the switch board is burnt out. Here, precisely the same thing has happened as when two differently charged areas of ionized atmosphere come near enough to form a contact—a flash (lightning), and a hiss, or rather, a roar (thunder). Compare the length of flash on your iron cord to the length of the lightning flash, and some idea of the enormous power of electricity that effects radio will be arrived at. From what has been said it will be evident that flashes may occur between the ionized areas and the earth, or between the areas themselves. When the discharge occurs between the ionized area and the earth through the radio set by means of the aerial and the earth system, there is a severe crash—static.

Classification of Noises.

STATIC noises have been classified into a few different types: "grinders," "clicks," "hisses," etc., each classification denoting a different source—lightning, patches of drifting electrified atmospheric gas and hot, dry winds carrying highly charged dust.

Fading, in the main, is due to the movements of "ionized" atmosphere drifting past a transmission or receiving station and acting as a sponge to the waves.

Summing up the meteorological effects which stand out as most obvious we have:

1. Static produced by drifting and irregular densities of charged atmospheric gases coming in contact with the aerial.
2. Static caused by lightning.
3. Static produced through induction in the aerial and receiver because of a passing cloud connecting with an induced ground charge of the opposite nature.
4. Fading produced by drifting ionized masses in the atmosphere absorbing radio waves.
5. Good radio reception in clear, cold weather.
6. Poor reception during warm and cloudy weather.

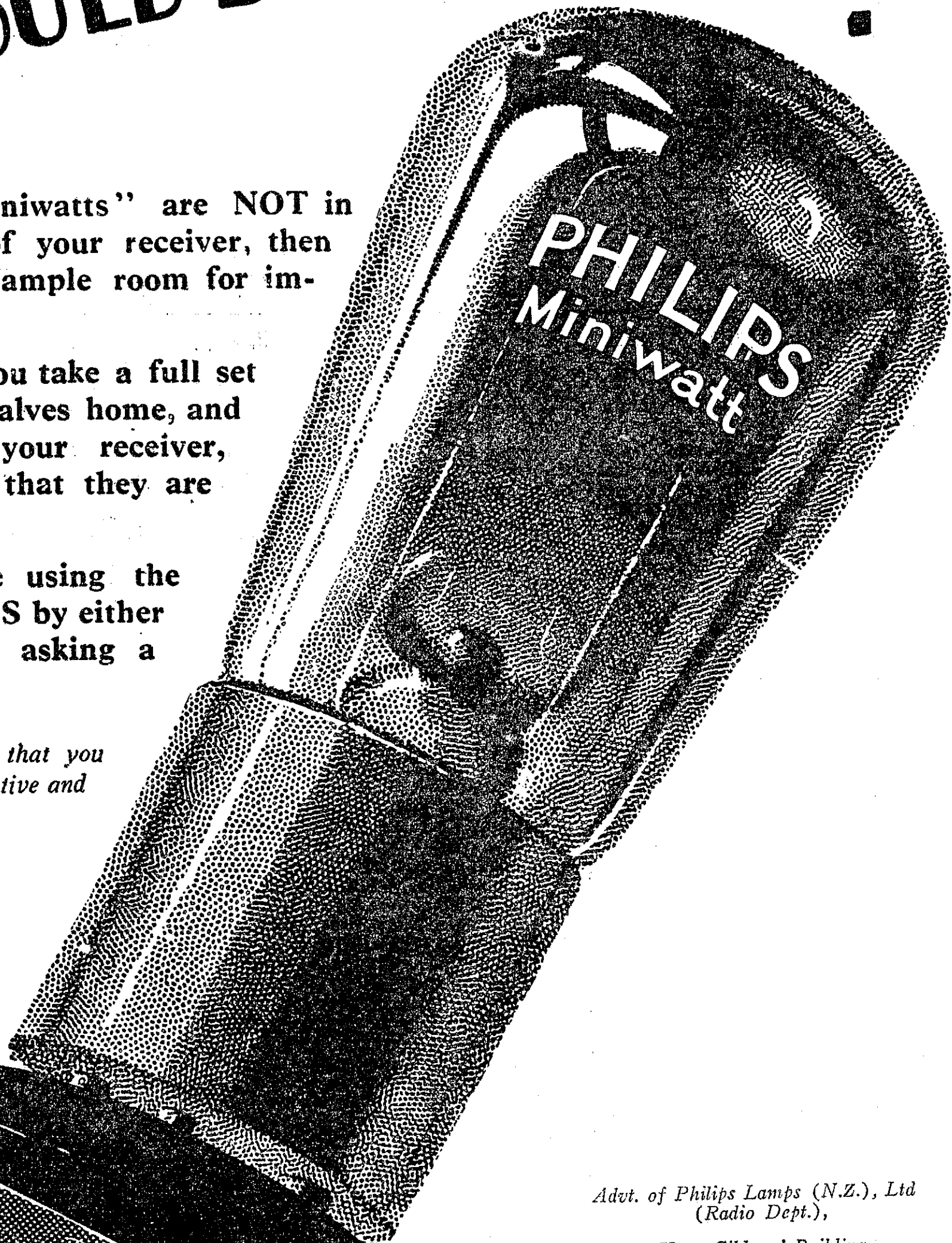
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Radio Round the World

IT is interesting to note that there are two stations in United States now broadcasting television, but results cannot be depended on. Television is now where radio was prior to 1920.

STRANGE as it may seem, there are many deaf persons to whom radio is audible. In fact ear specialists have even prescribed four or five-valve sets as a cure for deafness. This can be understood when one realises that a three-valve set amplifies vibration 15,000 times a second.

IN America 125,000 persons are employed by radio.

IN many ways the short wave bands will always be unsuitable for general broadcasting. For instance, there are times during which a station broadcasting on a certain short wavelength could not be received by any receiving station nearer than 600 miles. This would necessitate varying wavelengths which would naturally cause much annoyance to listeners-in.

THOSE who picture the North American Indian as a wandering, unlearned hunter of the plains, would be surprised to learn that a member of one tribe in South Dakota, houses in his tepee a \$45 radio set. He is a well-educated chief, a master mason, and owner of an 800-acre wheat ranch.

SHORT wave coils built into a vacuum tube and mounted on a standard UX basis are among the latest radio novelties appearing on the American market.

THE terms "antenna" and "aerial" do not have the same meaning, although usually applied to the one and same piece of apparatus. The term "aerial" refers to the air—certainly the broadcasting stations use aerials, so do most receiving stations, but these latter are not without exception. One hears of "loop aerials," and "underground aerials." Strictly speaking, these latter are not aerials as they do not project high into the air. The American has applied the general term "antenna" to any apparatus for receiving signals transmitted from the broadcasting stations' aerials. Thus it is more exacting to speak of aerial antennae, loop antennae, and ground antennae. This distinction is worth bearing in mind when reading American wireless publications.

CHICAGO has the reputation of being the centre of the world's most congested radio district, there being nearly 220 active broadcasting stations in the vicinity.

A DISCOLOURED ebonite panel can often be made to look like new by the application of a little lubricating oil rubbed in with the finger-tips and polished with a soft duster.

THE old story of the thoughtless boy who threw stones into the frog-pond is not without modern applica-

tion, especially where loudspeakers are concerned. It is possible to get tremendous power on a loudspeaker from a local station. If you wish for quieter reception, control your output, don't put the speaker on the window-sill so that the unwanted volume may float out on the still night air. A grand finale played at "10 p.m., studio time" by a full band, received at full strength on several valves, and put through a powerful speaker, would probably not be welcomed by a sufferer just dosing, or by the mother (perhaps the father) of a young waking baby. Make radio a joy not a torment, and think before the loud-speaker goes on the window-sill.

THE most satisfactory method of volume control is to use a high resistance potentiometer instead of a grid leak, the grid connection being made to the slider of the potentiometer.

IT is reported that 2000 neon valves, an essential of television, were sold in New England (U.S.A.) within two weeks of the first broadcast of television from a suburb of Boston.

WHEN constructing a set it is a good idea to keep handy a voltmeter or electric torch bulbs. With these the voltage on each point, or if bulbs only are available, on the filament points of the valve base can be checked before the valve is inserted. While the voltage on the valve filament and of the average torch bulb are about the same, there is a difference in price.

BROADCAST in Scotland is being designed to supplement work in the school classrooms. This takes the form of a series of special demonstration transmissions for the benefit of teachers attending the Summer School at St. Andrews.

TALKS on interesting geographical and social subjects have been arranged by the British Broadcasting Corporation. One of the latest talks was "Women's Life in New Zealand," specially addressed to the young would-be immigrant.

IF such a thing as "wired wireless" can exist, then it exists in America. The system is really quite simple. It consists in attaching a radio transmitter to the telephone lines and sending signals per this medium through the country. On account of the high frequency of the radio signals, they do not interfere with the ordinary use of the telephone. This system is gaining ground in several parts of the world, but that it can be merely supplementary to existing systems is obvious.

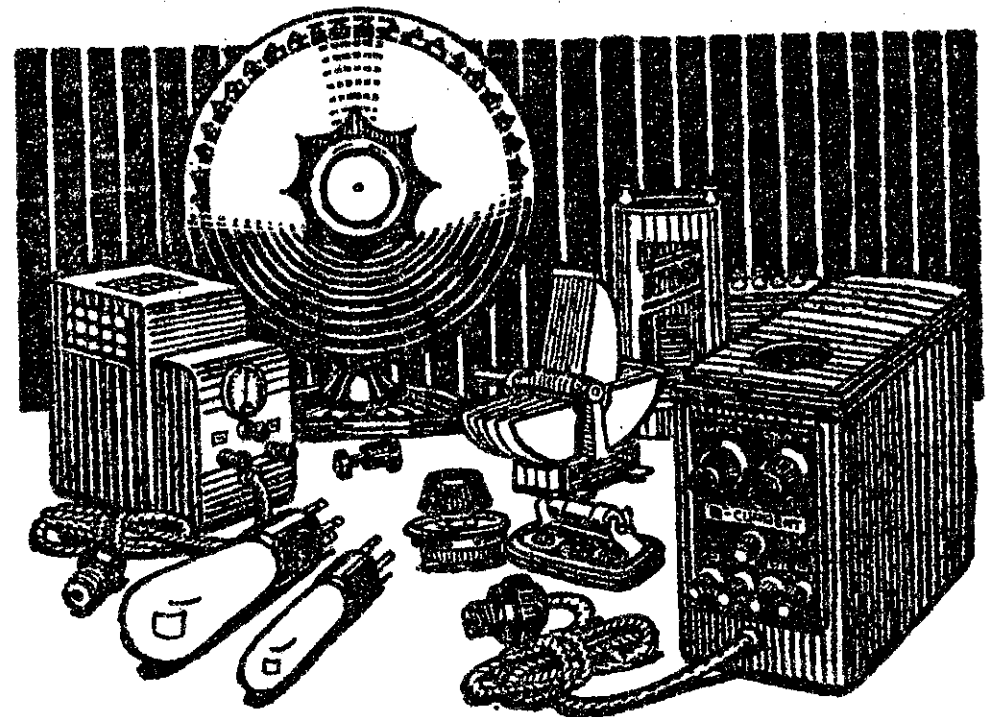
AN ultra sensitive seismograph (instrument for recording earthquakes), operated by radio, has been devised. As it is able to measure a displacement of condenser plates as minute as four-billionths of an inch great things are expected in the way

of recording and predicting earthquakes. in walls are easily made, but not so easily filled. Holes, especially in outside walls, do not improve the value of installing a radio set is that holes of a house.

A POINT worth remembering in installing a radio set is that holes of a house.

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Award in the Frequency Test

Decision made by M.I.R.E.

IN giving consideration to the award of the prize, it has been necessary to take into consideration various factors in order that all listeners throughout the Dominion should be on an equal footing.

1. The more distant listeners would require to use more valves in order to get reception and would therefore be handicapped with respect to those close to 2YA and especially to many in Wellington using a loudspeaker or head-phone crystal combination.

2. Obviously those happy individuals in possession of expensive equipment should be expected to get the best results.

3. In considering the results obtained and information gained by reason of the tests it has been necessary to take into account the different individuals technical knowledge as evinced by the subject matter sent in and give equal credit to the layman's observations and the useful technical comments forwarded by others obviously qualified so to do.

It has to be pointed out that any distortion or variation of sound intensity occurring in the transmission system of station 2YA can be discounted

equal disadvantage except those who were in a position where fading would cause trouble. A listener who lost the signals through this cause just at in that every listener would be at the critical point when he would ordinarily be straining to hear can be counted as unfortunate, but he should smile his acceptance of the fortunes of war—or wireless because fading is incurable in the light of present knowledge.

The human ear is not a standard and those whose ears are high-pitched are at an advantage in such a test as this. However, the winner did not show the best results but was a good average so that there need be no heart-burning on that score.

Taking an average of the results as shown by those returns considered reliable, the signals were loud up to 3000 and commenced to weaken rapidly after 6000 and were 'lost' at 8000. High-class equipments maintained touch to 10,000, but beyond this any results were freakish and probably due in

many cases to imagination. This statement will probably put to rest the lack of confidence in their equipment expressed by correspondents. Returns show a certain proportion of faulty equipment, but as far as can be judged the class of apparatus in use is generally good. Where really good designs of receivers and speakers were used the cut-off frequencies were obviously the limitation of aural response on the part of the listeners and cases were quoted where several people listening to the same equipment arrived at varying conclusions.

The number of charts which came in without comments was disappointing and many good results had consequently to be ignored. A great deal of irrelevant matter was also sent in, although of interest in other directions.

The decision in this matter was only given after careful consideration of the twenty contestants who were in the final selection and the other 19 can all be considered as close runners-up.—M.I.R.E.

The Winner's Report.

THE winning paper is adjudged to be that of Mr. R. Lake, 24 Leighton Street, Avonside, Christchurch. He uses a three-coil regenerative set with audio stages, one resistance, one transformer, and a gramophone attachment with a wide gramophone horn. He heard normal signals up to 1024 frequencies, after which a slight degree of fading, gradually intensifying, became apparent in the frequencies up to 7178. Frequencies were lost from 8192 on, although the generator hum was heard on 8192.

Mr. Lake's letter was as follows:—

I PROPOSE to divide my report on the frequency test carried out by 2YA into three sections, the first of these to deal with the results achieved on my own loudspeaker, the second with the general conclusions I have drawn from the test, including some remarks which will, I hope, mitigate to an extent the disappointment some listeners, probably most, may have felt in the performance, or lack of performance, of their speakers. The third section will deal with the broadcast itself.

May I, at the outset, stress the point that in all my remarks I am guided only by the position as it appeals to a layman in the theory of harmonics and overtones. Whilst, therefore, I lay myself open to correction on certain points, I feel, nevertheless, that sufficient excuse for rushing in where perhaps even angels may fear to tread is provided in the fact that the majority of listeners also view the position from a similarly non-technical standpoint, and if this is not sufficient excuse, then the "Record" must shoulder the blame, as it calls for reports from all and sundry.

A little elaboration of the notes made on my coupon (attached) is perhaps necessary. As this section is likely to be of small interest to the majority, dealing, as it does, with the results on one make of speaker only, it will be as short as possible. A few points, however, seem worthy of note, and it may be that the same conclusions may have been reached by others with different makes of speakers.

I BELIEVE it is very difficult for the human ear accurately to gauge the intensity of sound. One person hear-

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ing the same note sounded at two different intensities will say the sound is three times as loud as the first, another that it is twice as loud, whereas measurement shows it to be but half as loud again. When to this human aural disability is added the effect of the decreasing sensitivity of the ear to increasing sound vibrations, it becomes harder than ever to say definitely that a certain note is equal in intensity to a note an octave lower. Further reference will be made to this in my second section.

In marking all the frequencies except that of middle C on my coupon as fading, it must not, therefore, be assumed that I considered this fading was in any way excessive until near the limit of the frequency range of my speaker. To be absolutely faithful to my impressions, however, and to avoid exaggeration contributed to by pride of ownership of a certain speaker, I have, as stated above, confessed to a fading right from middle C. The word "fading" really needs qualification according to degree, and with this in view I have placed my crosses in the form of a curve which will give an approximate idea of this degree.

A POINT that surprised me—using a horn type speaker—was that the fading increased at a quicker rate above middle C than below it, vibration 2048 (3rd octave above middle C) being appreciably less in intensity than frequency 32 (3rd octave below middle C). In other words, although not having in an exponential horn, my speaker appears to deal better with low notes than with high ones. This is, I believe, contrary to the accepted theory governing the performance of horn speakers.

TO come now to the second section of my report. Assuming the result obtained from my speaker to be equivalent to the average—a fair assumption I think, as it is a speaker with a good reputation—many people may have been disappointed with their results. Before taking such drastic action as throwing them into the dustbin, however, it is as well to consider one or two aspects of the case which may not occur readily to the mind. One of these I touched on in my first section—the question of the sensitivity of the human ear. It was stated in the "Radio Record" that all the notes put out were of the same volume. Whether this means that the same power was used to produce them, or that the intensity of the produced notes, measured on recording instruments would have been the same, I do not know. Even in the latter case, however, I do not find cause to condemn a speaker because it will not produce a frequency of 4000 as loudly (apparently) as it will produce a frequency of 256. While this failing may be, and undoubtedly is, present in loudspeakers, I think some of the apparent lessening in intensity is due to the merciful natural law which decrees that our ears shall not respond so easily to extremes in sound frequencies. Imagine frequency 4000 sounding as loudly in the ears as does frequency 256. It would be comparable to standing beside a railway engine blowing off steam at high pressure through a whistle—little short of deafening.

I THINK, then, that in judging a speaker, one should endeavour to forget that a certain high or low-frequency note sounds less in intensity than a

middle frequency note, and try to judge the result impinged on the ear, by comparison with the actual sound, as remembered, of the instrument being broadcast. I think if the highest note on the violin were produced with as much intensity, recorded on a sound-measuring instrument, as, say, middle C or the first C above middle C, it would still be said in a concert hall that "it didn't sound so loud." Make allowance, therefore, for this human failing, if you care to call it that, though I think it would be more correctly described as a protective adjustment of nature.

Lest I should be deemed to have fallen into the manner of one who advances proved theories, let me here reiterate that all I have said in this question is a matter of opinion only on my part, and quite open to correction.

ON speakers themselves. The sound is produced roughly in the same fashion as it is received by the ear—by vibration of a diaphragm. Until something revolutionary occurs in speaker design, therefore, it is hardly

fair to blame them for having the same tendency as the ear, i.e., to quieten high notes, especially when one makes allowance, as one must, for the fact that mechanical disabilities cannot fail to add even more to this tendency, to the detriment of the speaker compared with the ear.

Moving-coil speakers are reputed to give the most natural reproduction. Even these fall short of perfection. They are also very costly. A cone or horn speaker at an average cost can, therefore, be expected to have failings. In view of all these points, and in spite of the fact that technically, my speaker reproduction may have been shown to be a dismal failure, I shall continue for the present to use it, satisfied that at to-day's stage of speaker development at a reasonable price I am obtaining as nearly perfect reception as possible.

OF the transmission itself I have little to say. The generator hum was rather in evidence on my speaker, and possibly this may have overpowered one or two of the lower high frequencies I failed to hear. Again

I will give my speaker the benefit of the doubt. It may be relevant here to say that perfect speaker reproduction can, of course, only be attained hand in hand with perfect transmission, and as the latter is admittedly not achieved yet, here is a further small argument in favour of the retention for the time being of the not-perfect speakers we already may possess.

THE following point I mention in view of the fact that repetition of this test is possible from other stations. After one or two of the very lowest frequencies had been sounded, mention was again made of the possibility of hearing the harmonic an octave higher, and mistaking it for the fundamental. Then the frequency an octave higher was sounded. In one case it seemed to me that the lowest frequency was a border-line case, that is, I could not be quite sure if I heard the fundamental and harmonics, or the harmonics only. Memory slightly faded during the musical director's remarks.

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WELLINGTON, AUGUST 17, 1928.

THE RACING AND TROTTING BAN.

THE exchange of correspondence between the Broadcasting Company and the secretary of the Racing Conference, as published in the daily Press, illustrates to listeners the weakness of the reasons advanced by the two Conferences for their action. Concern for the community's morals in the alleged undue encouragement of illegal betting is substantially abandoned and the complaint is made that the Broadcasting Company will not pay for the results of the "costly entertainment provided by the clubs for the public." What a fall is this! The public never was misled by the reasons advanced. Not only were those reasons weak and invalid, but from the point of view of the racing authorities themselves their advancement was extremely bad policy, as inviting the community to question racing itself, if broadcasts were so inimical! As a correspondent elsewhere in this issue says, the Government might fittingly accept the gage of the Conferences and say, "Well, if you are so keen to reduce the volume of betting, we will help you by reducing the occasion for it in authorising fewer meetings throughout the year." Such an attitude would follow naturally from the reasons initially advanced.

THE suggestion that these same racing authorities desired to economise the time of the business community by depriving them of the opportunity of listening to race broadcasts has as little to recommend it. It was palpably weak and inadequate. In practically withdrawing these reasons and raising the excuse that payment was not made for the right to broadcast, the authorities are being more candid, although not necessarily more impressive to the public. In its various replies, the Broadcasting Company has dealt trenchantly and vigorously with the "reasons" advanced by the authorities and on merit of argument carries the day.

THE immediate occasion of the correspondence was the desire of the racing authorities to prevent the broadcasting of any results at all during the day. This, quite rightly, the Broadcasting Company refused. To our mind it was an extraordinary request for the racing authorities to prefer, for it was obviously unfair and restrictive in that it penalised one medium of communication to benefit another. The suggestion of the secretary of the Racing Conference that the Press were entitled to this favouritism because of special services rendered to racing is hardly a worthy one. The Press both serves

and is served by race news. It gives and it gets. It benefits largely by race advertising and greatly by the sale of sporting news.

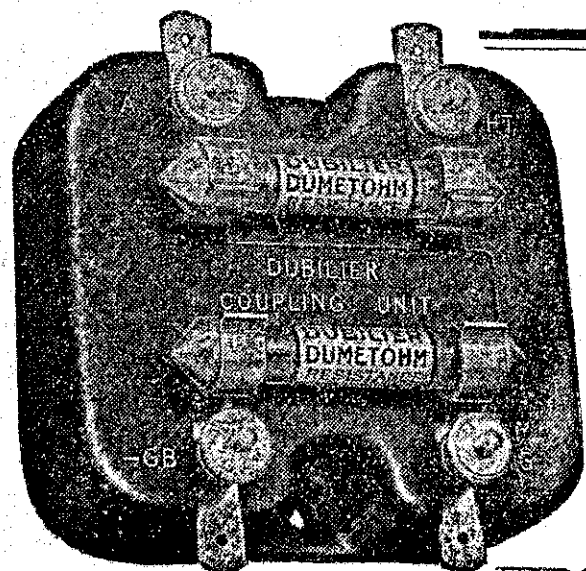
BROADCASTING as conducted in this Dominion is on a different basis. It is supported by the fees of listeners, and has no opportunity of specialised profit as has the Press. The racing authorities, in several references, have suggested that a rich private monopoly was profiteering from race news and meanly refusing to pay a cent for the service. The facts are far otherwise. How much of the listeners' money do the racing clubs want? The ban is a ban not so much of the company as of listeners. The gag is a gag imposed on the public. The loss is a loss inflicted on the public—and the public it is that is the chief supporter of racing. Look at it how one will, the attitude adopted by the authorities will never win public approval. Condemning monopoly, the Conferences are themselves flagrantly wielding monopolistic power, and that against their own chief patrons. Advocates of racing and trotting represent that they are conducted as contributories to the public interest and welfare. Why, therefore, should attempt be made to deprive the public of definite news of results at the earliest possible moment? The question reveals an extraordinary conception of the position of the public.

IN determining to give listeners the service to which they are entitled in respect of early news of matters of public moment, the Broadcasting Company has won the approval of all interested. The public likes fair play, and the favouritism sought to be perpetrated by the authorities was not fair. By temporary studios near the courses—accommodation that was readily proffered by many—the results of the Christchurch meetings have been given the public satisfactorily and expeditiously. Even while exercising its definite rights in this respect, however, it is to be noted that the Broadcasting Company has been mindful of the desires of the authorities, and, although it was quite feasible, has not so far given a running description of the races. This shows that the company is quite desirous of respecting the wishes of the authorities, but, in justice, it cannot deprive the public of legitimate news.

A MARKED contrast with the attitude of the racing authorities is offered by the testimony of the Otago Boxing Association as to the value of broadcasting. This association writes:—

"Thousands of listeners-in have taken advantage of the opportunity of listening to the special broadcasts from Dunedin, and many appreciative letters have been received by the O.B.A. in regard to the broadcasts. These broadcasts have not in any way affected the contest attendances, but, on the contrary, have not only created an increased interest in the sport throughout New Zealand, but has brought into the ranks of boxing-followers, many who had previously never taken any interest in the game."

IT is this broadening and attractive influence represented by an exciting and interesting running description of the actual races which the racing and trotting authorities are apparently deliberately sacrificing. In seeking to force into their coffers a few extra shillings are they not losing the pounds and pounds that are to be gained by luring to the course new devotees? Broadcasting reaches an audience larger far than any individual newspaper, and constant flouting of that audience is not likely to benefit racing.



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IN order to remove a small misconception, the Broadcasting Company desires to correct a statement in last week's issue of the "Radio Record" referring to Mr. Harold Beck's newly-formed orchestra. It was made to appear that this orchestra would appear at 3YA twice a week. This should have read twice a fortnight.

AMATEUR RADIO SOCIETY OF WELLINGTON

A meeting of the Society will be held on the 21st August, 1928, at 8 p.m., in DOMINION FARMERS' INSTITUTE, FEATHERSTON STREET, WELLINGTON.

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RACE RESULTS BROADCAST PROMPTLY BY 3YA

OWING to the ban which the trotting and racing authorities have imposed on broadcasting, the Broadcasting Company was compelled to make arrangements off the course for the broadcasting of results.

Prior to the commencement of the racing the following announcement was published in the Christchurch Press and broadcast from 3YA.

"As is now well known to the public, the racing and trotting authorities offered the Broadcasting Company free admission to the course, a privilege which is always enjoyed by the newspapers, but the stipulation was made that in our case we should then not broadcast any results during the afternoon. The racing authorities, therefore, in addition to prohibiting broadcasting from the course, attempted further to restrict our service until the evening news session. As we could not agree to such a proposition, and cannot broadcast from the course, the Company made other arrangements for securing the results of the races. These results are public property, and the information necessary for broadcasting will be secured by the Company in a perfectly legitimate manner. Listeners will, of course, realise that the company's officers will be working under difficulties. However, every effort will be made to secure and broadcast at the earliest moment all the race information which listeners desire to know."

NO difficulties attended the broadcasting of the results. In the case of the trotting a temporary studio was arranged in a nearby house—the nearest of several that were offered the Company for the purpose—and the information concerning each race was brought from the course. Admission tickets were bought for all the Broadcasting Company's employees, even for those who did not need to enter the grounds.

IT was quite possible for a running description to have been given, but in consideration of the wishes of the trotting authorities the Broadcasting Company did not do it.

CRYSTAL CONTROL AT 2YA

MARKED IMPROVEMENT IN TRANSMISSION

A FEW weeks ago, when the announcement was made that 2YA had been changed to crystal control, the statement that frequency modulation of the carrier wave was detrimental to quality was questioned by a writer in a Wellington paper. He stated: "The accuracy of this argument is open to question. Frequency modulation, if it occurs, certainly cannot be detected where the signal strength is considerable, and at great distances where the wave is very weak its effect on the receiver will not be appreciably, if at all, different from that of amplitude modulation."

IT will be interesting, therefore, to read what other writers say on the subject. The following is by Mr. Carl Dreher, staff engineer to the National Broadcasting Company:—"It was found by Bown Martin and Potter, as well as by some investigations in England, that a certain type of distortion could be traced to a slight frequency wobble, inherent in the usual method of modulating broadcast transmitters. This rapid variation within the cycle of the modulating frequency manifests itself in wave form distortion at the receiver, sounding somewhat like tube overloading, only worse. Stabilisation of the radio frequency of the carrier and sidebands helps to eliminate this "night distortion," as the British call it. The method employed is to use a master oscillator with a 50-watt tube

which may be crystal controlled. The result is that the transmitter holds a constant frequency during modulation, and that distortion is reduced to selective fading which does not hash up the quality as badly as the frequency wobble aforementioned.

This is what Messrs. Bown Martin and Potter say on the subject. "It was suggested that present-day radio telephone transmitters leave something to be desired in regard to what we may



MR. J. M. BINGHAM,
Chief Engineer Radio Broadcasting Co.

call, for lack of a better term, their 'dynamic frequency stability.' A very large percentage of the transmitters in use throughout the world to-day produce amplitude modulation of the carrier by the action of modulating tubes directly upon an oscillating circuit.

BOXING AUTHORITIES APPRECIATE VALUE OF BROADCASTING

THE Otago Boxing Association writes to Station 4YA as follows:—

"Boxing fans throughout New Zealand and listeners-in generally have had a boon conferred upon them by the action of 4YA, Dunedin, in co-operating with the Otago Boxing Association, in broadcasting the series of professional boxing contests which have been held in Dunedin recently.

"To Mr. Webb, of 4YA, the thanks are due of the Otago Boxing Association for the willingness with which he has placed material at its disposal for the broadcast of the fights, and thus radio fans have had the pleasure of participating in what has been a veritable feast of boxing during the past few months.

"Thousands of listeners-in have taken advantage of the opportunity and many appreciative letters have been received by the O.B.A. in regard to the broadcast which has not in any way affected the contest attendances, but on the contrary has not only created an increased interest in the sport throughout New Zealand but has brought into the ranks of boxing followers many who had previously never taken any interest in the game."

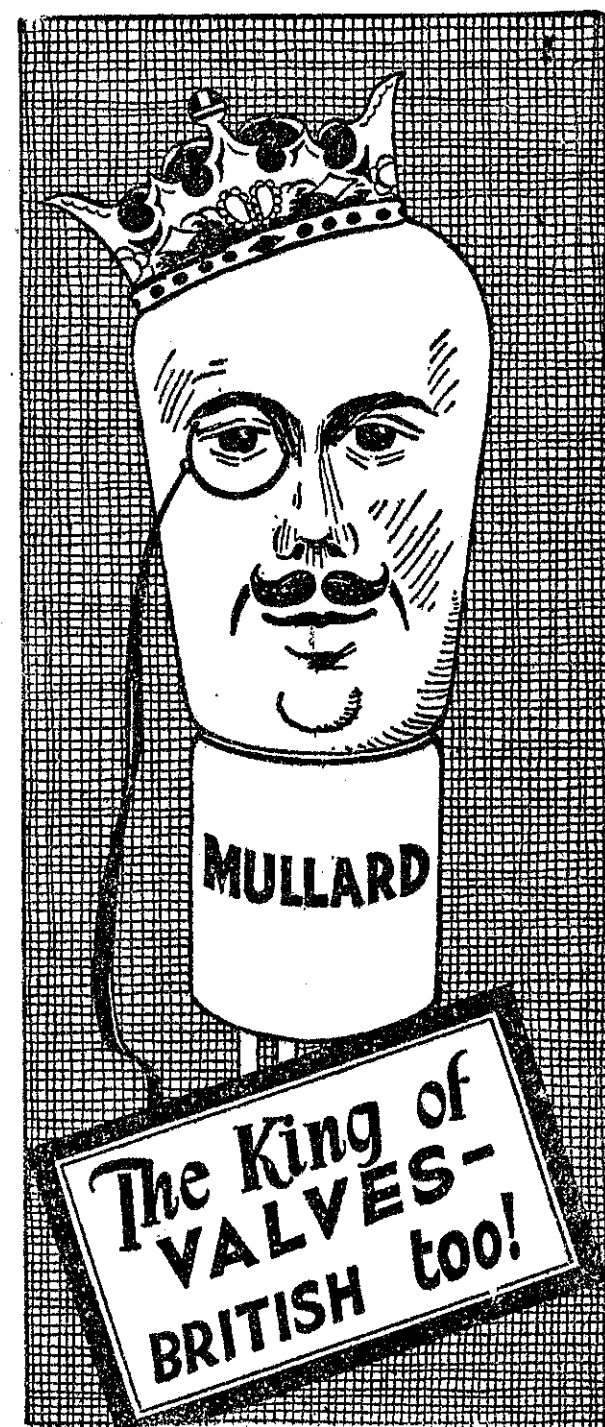
If it is to be expected that cyclic changes in circuit conditions occurring at the modulating frequency will have some cyclic effect on the absolute frequency of the carrier, and that this effect will be in the nature of a wobbling or rapid shifting back and forth in frequency of the amplitude modulated carrier. In other words, the carrier and side-bands, without change in their relative frequencies, would be subjected to "frequency modulation." What we have called "dynamic instability" is so rapid that it is difficult to observe by any aural method.

The same writers mention the effect obtained by stabilising the wave of a transmitter. The transmitter in this case was almost identical with 2YA. "Using the normal transmitter, night-time transmission as received at the test stations was seriously distorted. When the stabilising arrangement was employed; this distortion was apparently eliminated except at the minimum of fading."

IT may well be asked why this frequency modulation, since it produces such marked distortion at night in certain places, does not also give rise to distortion by day or in locations where transmission is steady. A full answer to this question would be far from simple. But in brief it is because the carrier and side-bands shift in absolute frequency, as a unit so that their relative or difference frequencies which determine the audio signal remain unchanged. However, since frequency modulation appreciably broadens the frequency band occupied by the radio signals, it is to be expected that the tuned circuits in the receiver would have some reaction on those louder portions of the signal for which the amplitude modulation, and therefore, the frequency modulation, is large."

So far as 2YA is concerned, change to crystal control has effected a marked improvement in the quality, and reports received from all over New Zealand indicated that the "night distortion" has now been reduced to an absolute minimum.—J.M.P.

ANY amount of beginners are in a quandary when it comes to selecting the wire for their aerials. It would be difficult to beat stranded enamelled 7-22 wire.



Obtainable at all Good
Radio Dealers.
Sole New Zealand Selling Agents:-
SPEDDING LTD.,
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Dominion Building, Wellington.
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Mullard
THE MASTER VALVE

Advt. The Mullard Wireless Service
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BROADCASTING ARRANGEMENTS FOR TRANS-TASMAN FLIGHT

LISTENERS-IN are looking forward to interesting broadcasts when Capt. Kingsford Smith and his companions set out to fly the Tasman Sea.

It is not known yet where the airmen will first land, and friendly rivalry exists between the cities in urging their claims for the honour.

AS far as the Broadcasting Company is concerned, it has offered all the facilities at its disposal for the purpose of assisting the airmen on their flight across the sea. One of the Company's stations will be used for the purpose of a beacon and its broadcast will be picked up by the aeroplane's own direction-finding apparatus.

THE Company no doubt will have all its four stations on the air from the time the aeroplane leaves Australia, and listeners throughout New Zealand will be kept advised all the time as to the progress of the airmen. Progress reports and summaries will be given at intervals.

When the "Southern Cross" arrives, a description of the scene and of the proceedings will be broadcast, and the airmen will be invited to speak. Australia will be listening in.

3YA CHURCH COMMITTEE

A MEETING of 3YA Church Service Committee was held at the Christchurch studio of the Radio Broadcasting Company of New Zealand, Limited, on Tuesday afternoon.

There were present: Rev. D. Gardner Miller (Congregational Church), chairman; Ven. Archdeacon Taylor (Anglican Church), Rev. T. W. Armour (Presbyterian), Rev. W. Greenslade (Methodist), Rev. J. Robertson (Baptist), Pastor J. Crawford (Church of Christ), Mr. A. R. Harris (general manager of the Radio Broadcasting Company), Mr. L. Slade (station manager 3YA), and Mr. C. S. Booth (of the administration staff).

Applications from the conference of Seventh Day Adventists for the broadcast of a service on December 16, and from Second Church of Christ Scientist, for the broadcast of a lecture on October 14, were received and deferred. It was reported that the morning service had been broadcast from the Church of England, Avonside, on the first Sunday in July. Archdeacon Taylor advised that his church was quite prepared to continue to broadcast morning services, and it was decided that the matter of making arrangements be left to Archdeacon Taylor and the Broadcasting Company.

In accordance with notice of motion Rev. M. Greenslade moved "That the rota of broadcasts be recast with reference to the census returns of the various denominations broadcasting." After some discussion the motion was carried.

Rev. Armour then moved that the broadcasts be arranged as follows:

	Per annum.
Church of England	16
Presbyterian Church	14
Methodist Church	9

The motion was discussed at considerable length and finally carried.

Rev. D. Gardner Miller then asked the committee to decide the number of broadcasts to be allotted the Baptist and Congregational Churches and the Church of Christ.

Archdeacon Taylor moved, and Rev. J. Robertson seconded: "That the Baptist and Congregational Churches and Church of Christ be broadcast three times per annum each."

Pastor J. Crawford moved an amendment: "That the Baptist Church be granted four, the Congregational Church three, and the Church of Christ two."

The Rev. Gardner Miller, however, declined to accept any more broadcasts than were allowed to the Church of Christ, and the amendment was withdrawn. The motion was then put and carried.

THE cable from New York that Chicago scientists think they have discovered a new factor in the causation of fading is of interest to all broadcast listeners. The suggestion is that a hitherto unsuspected strata some 200 miles above the earth may be a factor in causing the late arrival of certain signals or portions of them, and a contributory to fading. The knowledge of factors in fading is admittedly incomplete, and further information will be eagerly awaited.

£50 PRIZE OFFERED IN "MYSTERY NIGHT" AT 1YA.

UNDER the auspices of the IYA Musical and Dramatic Advisory Committee, a Mystery Night Programme is to be broadcast from 1YA on Wednesday, August 29, and a prize of an Edison Phonograph, valued at £50, is offered to the person who sends in the most correct information concerning the artists who are performing.

In next week's issue of the "Radio Record" the mystery night will be fully explained, but, broadly, the proposal is that, while the items will be announced, there will be no information given as to the performers. In several instances these "performers" will be electrically-reproduced phonograph records, and the problem facing listeners will be to tell whether they are records or the human voice.

With such a handsome prize as a £50 Edison phonograph, the IYA Mystery Night programme will arouse the keenest interest wherever IYA is heard.

The necessary coupons will appear in the next issue of the "Radio Record" and in the three Auckland papers of August 25.

1YA MUSICAL COMMITTEE

THE fourth meeting of the IYA Musical and Dramatic Committee was held on Friday last.

A letter was received from the Radio Broadcasting Company advising that arrangements for the "Mystery Night" programme on August 29 were completed, and that arrangements for the further "Mystery" programme on September 26 were well in hand.

The programme as completed for the "Mystery Night" was submitted to members of the committee and was discussed in detail, and it was decided to confirm this programme subject to including a further twenty-five minutes' gramophone selections in accordance with the company's suggestion, in order that an opportunity might be given to test reproductions of the various records.

The Broadcasting Company further advised that it was intended to advertise the "Mystery" programme and to publish posters throughout the City. Each advertisement will contain a coupon which listeners will require to send in with their answers, each coupon to be accompanied by the name and address of the entrant, together with the license number.

The company wrote asking for suggestions as to the form that the prize for the winning competitor should take, and after some discussion it was decided to leave it to the sub-committee, consisting of the chairman (Mr. K. Atkinson), Messrs. C. B. Plummer, S. J. Hayden, and D. Wrathall.

Mr. J. F. Montague brought forward a suggestion that artists should be requested to avoid the frequent performance of hackneyed items, and after some discussion it was finally decided to forward a recommendation to the company on the lines of Mr. Montague's suggestion.

Mr. F. McCallum suggested that the company might offer a prize for the best local effort in writing a play especially suitable for broadcasting purposes, and a recommendation to the company to this effect was decided upon by the committee.

Mr. McCallum further suggested the reading of short plays, together with accompanying comments, but the matter was deferred until further details could be obtained.

A suggestion was also made that the

Little Theatre Society might contribute one of their plays as a studio performance, and the matter was referred to Mr. McCallum to finalise with the station director at a later date.

The Broadcasting Company forwarded a letter received from a listener-in, suggesting that an amateur night might be held at the station as distinct from the regular engagements of professional artists. The matter was discussed at length, but it was felt that at the moment no opportunity existed for the presentation of such programme, and it was decided to forward a recommendation to the company on the lines of the discussion.

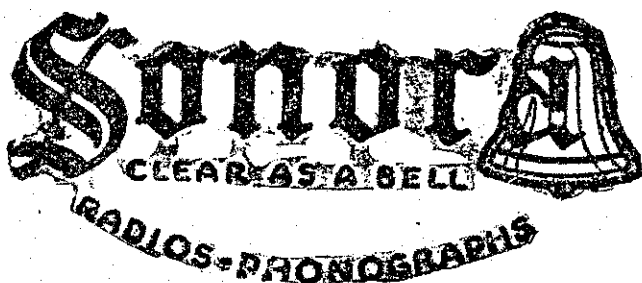
The committee decided to meet again on September 14, 1928.

Useful Text Books

STUDENTS for the amateur operator's certificate appear to experience some difficulty in selecting suitable text books, to aid them in their study of the subjects.

With a view to assisting amateurs in this direction, the Post and Telegraph Department advises that it regards the undermentioned books as suitable for the purpose for the purpose referred to. Students should, of course, understand that the examination syllabus is not necessarily confined to the field covered by these publications:—

- (1) Amateur Radio Handbook (Handy); issued by the Amateur Radio Relay League, U.S.A. Price, one dollar.
- (2) Wireless Valve Transmitters (W. James); issued by the Wireless Press, London. Price 10s.
- (3) Admiralty Handbook of Wireless Telegraphy; issued by the British Admiralty. Price 5s.



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Arrange for a demonstration TO-DAY

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Exide BATTERIES

MEAN DEPENDABILITY.
Installed at 2YA Wellington.

All sizes. From 9/- each.

EXIDE SERVICE STATION
79 Kent Terrace, WELLINGTON.

SONGS OF WARTIME

WHEN a programme reminiscent of war days was organised for 2YA on August 4, it could not have been fully realised how wonderfully successful it would be. Judging by the correspondence received, nearly every "Digger" from North Cape to Bluff must have listened-in. We will quote a few of the letters received:—

"I WISH to offer the best congratulations on the programme of Saturday evening last (August 4). There was not one dull moment from 8 o'clock till 10. I hope 2YA will give us some more of the like quality in the near future. Personally, this was the best evening's entertainment I have yet heard by radio from any station in Australia or New Zealand."—E.W., Wellington.

"I REALLY must write and thank you for the beautiful "Diggers" concert you put on the air for us last night. It was perfectly lovely to have all the old memories brought back to me. Each item was so realistic, as I spent five years with our dear boys, and knew so well all their little tricks and sayings. There was only one item left out. It was: "First offence, Sir." I was told by our sergeant-major that that was always a good chestnut to excuse them when brought before

their colonel. We laughed till we cried, and I am sure this letter will only be one of many thanking you for all the great trouble you must have spent in arranging such a programme. Of course, although I am writing expressly to thank you for the "Diggers" programme, please do not think we haven't appreciated all former concerts, as they have been a source of real delight and pleasure to us."—Ex-Sister, late N.Z.A.N.S.

"CONGRATULATIONS on Saturday's programme. As one whose family left its brightest and best on Gallipoli and in France, the silly wartime songs to-night brought to me a slight tightening of the throat, and—I admit it—a moist eye. All the peace talk and twaddle—all they write about the horrors of war—do not impress me, but your little programme made me realise how different 1928 is from 1916. I sat by my set and realised many things—the declaration of war, our boys on final leave, their last hand-clasps, and those telegrams—'Killed in action.' The humour—despite its fun and genuine sparkling wit, helped your programme drive home its lesson of the utter futility of war. Put on a programme like that every August 4, and you will earn the gratitude of everyone who hates war for the horror and useless slaughter it is."—K.H., Christchurch.

Hawke's Bay Notes

A GENERAL improvement has marked local reception conditions during the past week, there being a much appreciated absence of static, whilst interference from motors has been at a minimum in most quarters. This suggests that a lot of this interference has come from cool storage motors in the various fruit stores, for with the cold weather, these motors are not kept running.

AT the same time, there are a lot of other motors which are causing trouble and at present these are being made the subject of a search by the interference committee of the Hawke's Bay Radio Society. At the last meeting of the society this committee submitted an exhaustive report covering their search operations, and if the owners of the motors will meet the committee reasonably there is every hope of most of the interference being eliminated.

ALL the New Zealand stations have been coming through well, and once more top place goes to 3YA, Christchurch. Auckland comes next, but has been subject to a lot of fading. The Wellington station comes through with any amount of volume but is not by any means clear, and so often is it distorted that listeners begin to think their sets have "conked"—until they try Auckland or Christchurch and find everything O.K.

A WORD of praise is due to 4YA, Dunedin, for its broadcasts of recent boxing contests, but many sighed because 4YA did not have more power. Some nights it comes in fairly well, but generally it has been a case of listening hard to get it. In view of the great interest which is being taken in the boxing in Dunedin, it is a wonder 3YA has not made an attempt to re-broadcast the contests for the benefit of North Island listeners.

HAS 3ZC, Christchurch, gone on higher power? Usually this station has been audible under good conditions, but last Tuesday night it came through with good loudspeaker volume.

AT its last meeting, the Hawke's Bay Radio Society passed a resolution urging the New Zealand Racing Conference to reconsider its decision not to allow future running broadcasts of race meetings. The protest has been sent to the conference, the local M.P., and several other radio societies. If this broadcasting is cut out, radio will lose a lot of its charm for country people.

THE next meeting of the Hawke's Bay Radio Society will be its annual affair. It is hoped that all members and listeners will be present. The membership is now past the century, but only 85 of the total are financial. The sub. is only 2s. 6d., too.

ABOUT £94 is now in hand for the local Hospital Radio Fund, and lately collecting has been quiet. A big concert is being organised, however, and this should help things along.

THE new Auckland Salvation Army Congress Hall Band, under Adjutant H. C. Goffen, will provide brass

band selections during the latter part of the programme on Thursday, August 23. This will be the first appearance of the band at 1YA for over twelve months, and its return will be very welcome.

I HOPE the "Radio Record" will be inundated with letters of appreciation of the first-class entertainment provided by the "Diggers" on Saturday night. —Appreciative.

**THIS
Coupon
is
Worth 12/6**

A pound note and this coupon will bring to you by return mail a 45-volt "Tab" rechargeable Dry "B" Battery, post free.

Ordinarily priced at 32/6, plus postage, this is the most remarkable offer ever made in New Zealand, because you do not have to pay more for this 45-volt rechargeable dry "B" battery than you would for an ordinary battery, and therefore you can't possibly lose on the deal.

"Tab" is the only genuine dry "B" Battery on the market which can be recharged several times at the cost of a few pence.

It has as long an original life as, and a longer shelf-life than, any other dry "B" Battery of the same size and capacity on the market, and is really great value at the low price of £1.

The rechargeable claims made for the "Tab" Battery were tested and proved by the Canterbury College School of Engineering, therefore you should have no hesitation in sending for one or more to-day.

The further you live out of town the greater your need for a "Tab."

This coupon entitles you to buy as many "Tab" Batteries as you require for £1 each.

Send it To-day!

To E. G. SHIPLEY,
165 Manchester Street,
CHRISTCHURCH.

Please send me "Tab" Batteries at the price of £1 each, for which I enclose the

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Address

TUNNEY--HEENEY Fight Picked up by "COURIER" FOUR Direct from Ringside

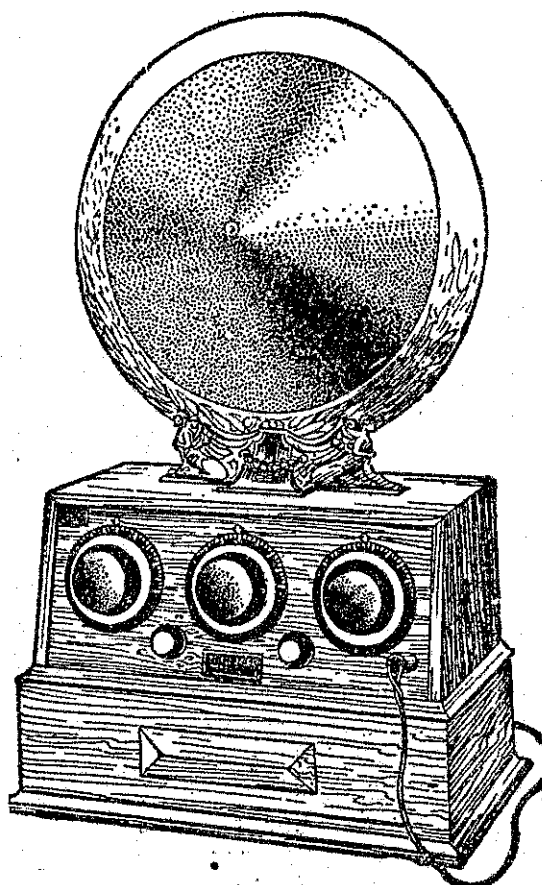
Already several users of "Courier" Four Sets have reported direct reception of the Tunney-Heeney Fight. Mr. S. Briden, of the Blenheim Club, Blenheim, receiving direct from the ringside, was able to let the local paper have a full description of the fight. Mr. R. E. Shaw, of Pukeroa, Hunterville, writes to say that he got the ringside description and heard the applause when Heeney entered the ring wearing the Maori mat.

**The Marvellous
4-Valve
"Courier"
£27/10/-**

If you cannot get the "Courier" from your dealer write to us and we will see that you are supplied.

Wholesale

J. WISEMAN AND SONS, LTD., Albert St., Auckland.



Sporting

Friday, August 17: Metropolitan Trotting Club Meeting—3YA.

Saturday, August 18: North v. South Island (Rugby)—3YA; C.J.C. Meeting (last day)—3YA; Auckland v. Wellington (Rugby)—2YA; Second League Test—4YA; Club Rugby—1YA.

Saturday, August 25: Auckland v. N.S.W. (Rugby)—1YA; Canterbury v. Otago (Rugby)—4YA.

BETTER RECEPTION

THE newly-formed North Shore Radio Club will hold a meeting at Daly's Hall, Hall's Corner, Takapuna, on Tuesday, August 21, at 8 p.m., when a special feature will be instruction to listeners in the control of regeneration and also fault-finding and elimination. Listeners are specially invited to bring sets that are giving any trouble, and have them attended to. This is a line of service that is capable of much development through such clubs, and it is likely to be followed by similar activity in other quarters.

Auckland Notes

1YA gave a good taste of its quality as a relaying station on Monday evening, when it picked up the Schenectady broadcast on short-wave from WGY, and put it over for local listeners in splendid style. The achievement is one which promises further good things for the future. There is quite a general wish among listeners that our station should endeavour, during the present period of excellent reception conditions, to allow crystal users to hear the fine Wellington orchestra. This body of instrumentalists is exceedingly popular here, and suffers nothing in comparison with the more recently formed orchestra of the New South Wales Broadcasting Company.

THE most keenly followed radio account of football that has yet been sent out by 1YA. This was the general verdict upon the fine description of the League test, England versus New Zealand, which the province heard on Saturday afternoon. It was, too, so the writer understands, the first appearance of Mr. W. Davidson before the microphone. He knows the code and the players, and his initial effect should be followed by others equally successful from Carlaw Park. It certainly gave the Northern Union game a big boost, that was reflected in the astounding mid-week gate for the Auckland game.

LISTENERS are glad that the Broadcasting Company has taken up the cudgels in defence of their privileges. The relaying of racing accounts here was universally popular, as neither Press nor pulpit had raised a voice against it. It was a general belief that the local racing authorities were in no way averse to the customary procedure, which brought to an ever increasing body an attachment to the sport of kings. In consequence the sudden application of the closure came as a shock. Radio opinion is strongly behind the company in its efforts to have the ban removed, and failing this, it will heartily approve of any other methods for securing what papers themselves regard as important news. Our broadcasting stations would miss their most important function if they failed to cater for the information which their supporters crave.

BROADCASTING has yet several spheres of usefulness to cover, if the remarks of a committeeman at a recent meeting of a district bowling executive are to be taken seriously. The committee had discussed the

amount of time occupied in paying official visits to local clubs, and it was suggested that the aid of radio be invoked, and that the fraternal greetings associated with the ancient game be conveyed over the air. This suggestion did not appeal to one Scotsman. The expense of a radio set and of a license were points that he urged against the proposal, but his clinching argument was, "How can a mon gi' a whuskey to a friend over the wireless?"

EVERY sporting activity, with the exception of racing, is now fully catered for by 1YA, and the efforts of its staff are earning the gratitude of licensees. When one realises that in the privacy of his own home he is kept au fait with all that goes on in the world of sport, and all that is of importance in the news of the world, every argument against investment in a receiving set vanishes. 1YA is rendering a big service to the community here, and it will not be long ere that service is duly recognised in the one and only correct way—a rapid influx of applications for licenses. At present we are noticeably in the transfer stage. The crystal owner, thoroughly satisfied that he is getting the service which he expects, is developing into the valve set owner. He wants to hear all that is on the air. When his persuasive influence is felt, as it very soon will be, there will be a sudden and merited increase in the number of licenses in the Auckland province.

A NEW LAST STAGE VALVE

A NEW valve has been developed by the Philips Laboratories on the new principle of utilising three grids. It is being designed expressly for last stage audio amplification.

This valve has the enormous amplification factor of 100 without adversely affecting the valve's ability to handle a large amount of undistorted power. The Philips B443 handles, it is claimed, three to four times the undistorted output possible from a single grid valve working under similar conditions. Previously last stage power valves have been made of low internal resistance in order to increase the amount of undistorted output that they would handle. This had the effect of causing the A.C. current passing through the loudspeaker to be less at high tonal frequencies than at low, with the result that these higher frequencies were glossed over. The special design of the B443 overcomes this without sacrificing the bass register.

The B443 is economical in operation for such a super-power valve, the nor-

mal plate current being 12 milliamperes, while the negative grid bias voltage is much less than usually required.

The filament consumption is but 0.15 ampere at 4 volts. The plate voltage may vary between 50 and 150, while the mutual conductance or slope is 1.8 m.a. per volt. The valve may be fitted into any ordinary set by connecting an extra wire from the B plus terminal to the screw connection provided on the side of the base.

An invitation is extended to every listener to a meeting of the Amateur Radio Society of Wellington, to be held in the Dominion Farmers' Institute, Featherston Street, Wellington, on the 21st August, 1928, at 8 p.m. Mr. W. M. Dawson, of the Technical Department, Phillips Lamps Co., is to give a lecture and demonstration on "Characteristics of Receiving Valves," which should prove interesting and beneficial to all "listeners-in."

MR. H. Kauper, who owns and operates station 5BG, Adelaide, an amateur outfit, is shortly to attempt picture transmission on 32 metres. Picture transmission probably means "stills," and does not require anything like the gear that moving scenes necessitate.

**BRITAIN'S
BEST
BATTERY**

**THE
ADICO**

*Will Outlast
any other Battery
of similar size*

Sub - Agents Required throughout New Zealand.

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**LEVIN & CO.
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WELLINGTON.

When the jewels of the air are presented—
"You're THERE with a Crosley."

The New Model Crosley Jewel Box

Operates from Light Socket—Gives the Most Perfect Tone
Try it in Your Home—That's the only way to buy a Radio.

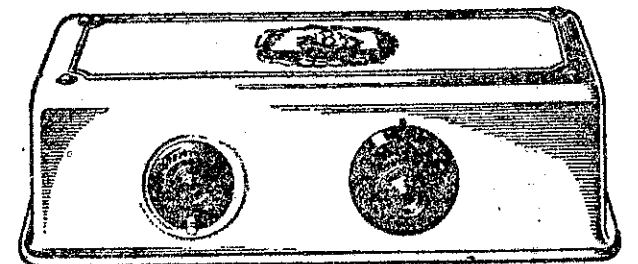
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ATWATER KENT RADIO

MODEL 35.



MANY millions of people now know the ease, the clarity, the mellow tone of ATWATER KENT reception.

These ATWATER KENT characteristics are the standards by which all radio is judged. Hear ATWATER KENT to-day.

MODEL 35, Powerful, six-valve, FULL VISION Dial receiver shielded cabinet.

C. & A. ODLIN & CO.,
LTD.
New Zealand Distributors
WELLINGTON

Children's Sessions

AT 1YA.

TUESDAY, 21—Uncle George in charge assisted by the Farmer's Boy with pumpkins and hay-carts complete. He will also give some of his humorous songs, and Cousin Moya will recite for us.

WEDNESDAY—Hurrah for Uncle Tom! More anecdotes and funny stories, and Cousin Frank will play the piano. Letters and birthday greetings.

THURSDAY—Welcome to the Bay-field Choir who haven't been to the studio for a month. Peter Pan will have stories and birthday greetings.

FRIDAY—What lucky boys and girls, for here is the Hotel Car-gen Orchestra again. Listen to each one say "Good Evening" on the different instruments, and then listen to the Nursery Rhymes and other popular airs. Nod will have good stories to tell as well.

SATURDAY—Cinderella has some clever little folk with her to-night who will entertain you with songs, duets and recitations. There will also be stories and birthday greetings.

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

AT 2YA.

MONDAY, AUGUST 20—Aunt Gwen and Uncle Jeff and the pupils of Mr. Stanley Warwick who will recite and play pianoforte solos. Birthday greetings to cheer little hearts from Aunt and Uncle. Stories and puzzle.

TUESDAY—Big Brother Jack will open with a song of greeting—and for your happy bedtime hour this evening there will be the pupils of Mrs. Mildred Kenny with their banjo and mandoline solos, and three little reciters—pupils of Mrs. Martyn Williams.

THURSDAY—Aunt Gwen to-night, children, with greetings, and story, and the Nelson Park School Choir under Mr. W. W. Johns, from Napier, whose singing and solos and recitations will give a great pleasure.

FRIDAY—Uncle Ernest, little ones, with his cheery travel talk. Greetings and story, and the Cheerio Girls with their chorus and songs. What more could you want before bedtime comes?

SATURDAY—Uncle Toby and Aunt Gwen will be there when six o'clock strikes. Party night to-night, so they greet all the little birthday people, and little Joan, Nancy, Gladys, and Pat will play, recite and sing for you.

SUNDAY—Uncle Ernest will conduct the Children's Song Service, assisted by St. Aidan's Sunday School, Miramar, under Mrs. Wallis.

AT 3YA

MONDAY, 20—At Scatterjoy's session to-night the "Radiant Three-oh" will make its debut, with "O Boatman Row Gently," and several bright solos. Scatterjoy will tell of "Curious Picnic places," and of "Butterflies, the flowers of the air." Cousins Kathleen, Joan and Ray will sing and recite.

WEDNESDAY—Here will be some fun and jokes for all the little folk, for Uncle Peter and Mother Hubbard are "on the air" to-night, ready to make you feel happy and bright.

THURSDAY—Chuckie and Aunt Pat with a merry band of singers from New Brighton will keep



Big Brother of 3YA—
Mr. E. J. McEldowney.
—Photo., Webb.

you all amused and entertained for to-night.

FRIDAY—Big Brother and the Edgeware Road Wolf Cub Pack will provide all the fun you could wish for to-night.

SATURDAY—Uncle Sam and his little helpers to the fore to-night, in stories, songs and music.

SUNDAY—The children's song service, which Uncle David will conduct, and the children from the Opawa Methodist Sunday School will sing hymns.

AT 4YA.

TUESDAY—To-night's a musical night. There's a banjo, and one of those dreamy guitars that play on the beach at Honolulu, and a violin, a set of drums, not forgetting the piano. In between Big Brother Bill's stories, riddles, jokes, letters and the radio postie, you will hear instrumental music. It certainly ought to be worth listening to; try it?

FRIDAY—About 30 boys and girls, no less, singing part songs. My! how they can sing, too. Brother Bill heard them in a concert, and straightaway invited them to sing to the family. He doesn't know whether the boys sing better than the girls, or the girls better than the boy

Miss Aileen Warren

VERY regretfully Aunt May of 3YA on Saturday evening said "au revoir" to a host of radio nephews and nieces. For nearly a year now Aunt May, who is Miss Warren, studio pianiste, has been Uncle Sam's able lieutenant, but she has at last found the tax on her time to be so severe that she has had to relinquish her children's work, although it is a work of which she is specially fond. What with attending every studio concert session, and taking rehearsals and auditions by day, the studio pianiste has a busy time, and now with the advent of an orchestra at 3YA Miss Warren's time is more fully occupied than ever. However, Aunt May's cheery voice and delightful playing, which have been a great pleasure to all, will be heard occasionally in future, so this bright microphone personality will not be lost to the 3YA radio family altogether.



Uncle Toby of 2YA—Mr. R. Walpole.
—Photo., Andrew.

"A Time Scooter"

A particularly useful adjunct to the children's session at 4YA is a "Time Scooter" and it has provided the children with some delightful entertainment. Now, what is the "Time Scooter"? Those who listen in to 4YA know. Big Brother Bill and Aunt Sheila have a really wonderful "scooter" that moves over the earth with the speed of light—186,000 miles a second; by turning a little wheel and pulling a little lever it moves backwards or forwards in time at the rate of 186,000 days a second. It is the most wonderful machine in the world and Big Brother Bill, Aunt Sheila, and their young listeners have been going some stunning trips on it this winter. They have been going all round the world.

Mother (reprovingly): "Oh, fie, Minnie! Do you know what becomes of little girls who tell stories?"

Romantic Minnie: "Yes, mamma, they grow up and get to be lady story-tellers over the radio."

AUDIBILITY TESTS AT HEREKINO

EQUIPPED with an audibility meter, the Broadcasting Company's "furthest north" official listener, Mr. H. W. Young, of Herekino, is at present engaged in the interesting work of recording the volume of reception at his far-distant post. The tests which Mr. Young is making supply much useful information to the company.

2ZM, GISBORNE

A CORRESPONDENT last week wrote complaining that 2ZM was received anywhere on his dial. He has raised quite an interesting point which will no doubt be appreciated by others who, being in a similar position, are inclined, and quite naturally to blame the broadcasting station rather than their own sets.

Our correspondent may be interested to learn that in Wellington, and in the neighbourhood of any powerful broadcasting station, the local station will interfere with the reception of other stations over a considerable portion of the condenser range. It will be observed that at one particular dial reading, the volume is at a maximum. This signifies that the condenser is set to the frequency of that particular station.

The range over which interference is experienced depends on:—

- (1) The selectivity of the receiver.
- (2) The power of the transmitting station.
- (3) The proximity of the receiver thereto.

Our correspondent should satisfy himself that his complaint is not due to the properties of the receiver he is using before laying the blame on the Broadcasting station. By using a wave trap or a more selective receiver it might be found that 2ZM keeps on its wave-length in fact it is almost impossible for a station to send out more than a limited band of frequencies. In practice, this band is approximately 20 kilocycles wide and its width is produced by the modulations of the carrier wave. A moment's reflection regarding the statement that 2ZM could be received from 0 to 180 (a 1000 kilo-cycles) would suggest that something is at fault and it is most probable that the broadness is that of his receiver e.g. the single valve receiver or crystal set is capable of the reception of quite a wide band of frequencies when the condenser is left on a fixed setting, or over a considerable range of the condenser setting when it is adjustable.

An indication of the constancy and the sharpness of the carrier wave of a broadcasting station may be obtained by listening to the purity and constancy of the characteristic whistle heard in the 'phones or in the loud-speaker.

The pitch of this whistle will depend on the difference between the frequency of the wave emitted from the broadcasting station and that generated in the receiving set.

If a pure note is produced, only one frequency is being received and not a band of frequencies, which would produce anything but a pure whistle in the 'phones.

The Woman's Point of View By "Verity"

The Annotations of Annabel

Books.

Fripperies

DEAREST:

Gaily the troubadour of spring twangs his harp in the air, and through clear atmosphere of August days are faintly detected the first thrilling whispers, those intimations of immortality that come with the recurring seasons, bringing with them a hope that lives eternal.

*Why do we mourn the days that go—
For the same sun shines each day,
Ever a spring her primrose hath,
And ever a May her may.*

*Do we not too return, we men,
As ever the round earth whirls?
Never a head is limned with grey
But another is sunned with curls?*

And, resolutely latching the door of our hearts against the wistful close of the old song—

*Ah, but alas for the smile of smiles
That never but one face wore.
Ah, for the voice that has flown away
Like a bird to an unseen shore....*

We forget there are soaking streets yet to be encountered, unkindly blasts to rattle our windows and our bones; and go forth convinced that our star will smile again.

SHOWS in the shops are still tentative in the matter of millinery, the new line of coat and gown remaining unexploited. The aftermath of sales drags itself out, but amid oddments and left-overs and duds of drapery are to be discovered some attractive garments for the 1928 willow-wand of girlhood. In black or some dim, sweet hue, fashioned of taffetas, flared from waist, with here and there an unexpected nosegay perched, sleeveless small frocks are to be had, if not exactly for a song of sixpence, for the by no means exorbitant price of a pound sterling. One such I acquired for Noreen, who is poor, pretty and seventeen, with plenty of wit, which is fortunate, as she will have to work her way in life. I suspect her, however, with all her

intelligence, of being deficient in the acquisitive sense, that greedy eye on the main chance; so she will probably be outstripped in the race by some blond and brainless Lorelei, who possesses the inestimable quality of Always Getting the Best of It.

IN England recently, one of society's youthful glad girls forsook the ancestral palace of peace, boldly challenged competition, and established herself in a shop in a big London thoroughfare, stocking it with elegant volumes de luxe, paper-bound thrillers, ancient and modern literature. A venture of considerable attraction, and some of us would fain follow in her footsteps. She is backed, however, by a sympathetic and generous relation, who, believing in her, is prepared to spend his ample income to finance her venture until such time as she makes good. So there's no particular risk, and all the fun of the fair; money, as usual, clearing the air, dissipating the clouds, scooping the pool.

OF the making of books there is no end, but a special welcome awaits such a one as the Memoirs of Judge Alpers. In the troublous days of youth a staunch, undismayed battler with the austerity of fate, in later years a treader of the path of high honour and achievement; the author has written a wise and witty chronicle of those years of breathless endeavour, incidentally telling many a good story of protagonists known and unknown to fame. Now the labourer's task is o'er; but he has left behind him a book of remembrance, which is an unconscious revelation of noble courage and endurance in the "fell touch of circumstances." Many a youthful struggler who has hitched his wagon to a star will tackle the fray with unflinching zest when he remembers this record of a man so brave and gay in the face of life and of death.

Your

ANNABEL LEE.

Jean of the Tussock Country.

(By Walter Smyth.)

MR. Walter Smyth, author of this typically New Zealand novel, who is a dweller in our Dominion—Christchurch, to be exact—is to be congratulated on his achievement. There is much deft description of the deep bush and flooding rivers of our lovely land; etched in with a true touch and seeing eye, that also does not fail to mark those oddities of character and conduct that prevail on an up-country sheep-station, where congregate much human flotsam and jetsam in search of a job. Gold and its acquisition, wrong suspects, a hot trail on the tracks of a stealer of nug-

FAREWELL

*NOTHING shall be the same
again;*

*Bright birds that sing
And flash a rainbow-coloured
wing*

*In hedgerows wet with April rain,
And every lovely thing
Shall be less beautiful*

*Since you,
Who were more beautiful than
these,*

*Have taken wing
And flown away, beyond the
silent seas.*

—S.L.M., in the "Irish Statesman."

gets are all here, together with the rough humour, horse-play and swearing of hectoring station hands; and a great description of a bush fire and magnificent horsemanship. The determined outlawry of English Jim, shut out from the devil-may-care camaraderie of life on the station, with its profanity, quick wrath, and primitive rewards and reprisals, are all factors in a stirring tale of fire and flood and field. The book is excellently printed, its bright wrapper illustrative of the most thrilling incident in a chronicle that rushes breathlessly along until the lovers find bourne in their happy moonlight rendezvous beside the sombre bush, from which comes the occasional hoot of a more-pork. New Zealand from start to finish.—R.U.R.

A Shining Light.

THEY had been discussing a friend—a quaint Victorian survival, or rather a throw-back, who refused on principle to render any assistance to a complexion which was not entirely flawless. It was Joan, the motoring enthusiast, who said the last word: "It's all a matter of taste, anyway. If she really likes her nose with a celluloid finish, why shouldn't she have it?"

The Return of the Blouse.

WITH the return of the coat and skirt to fashion, blouses are once more important, and the blouses which now make their reappearance all emphasise the march back to femininity.

A blouse may easily be too grand for its practical, tailor-made companions. It may also be too severe. With a low neck, it leaves the coat collar unadorned, hard in line, against the face. With a high neck it is a little prudish, or manly, and now that fashion is inclining towards a greater femininity this may be wrong.

It is safe to say that, with a plain cloth coat and skirt the blouse may be dainty and bright—in silk, satin, georgette, with embroidery, open-work stitching, incrustations, and something dainty about the neck and wrists, a lingerie collar and cuffs, a necktie, a jabot frill, anything soft and womanly; or, again, a plain silk blouse with high neck and neat tie may be worn smartly.

The jumper shape for a blouse is the most popular. It may have a trimmed front, but the shape is that of a jumper.

Sports Clothes.

EVEN such small though important accessories as bags must be in keeping with the sporting ensemble, and for a golfing outfit the tweed bags made from the same material as the suit are practical and also decorative.

These, of course, are only used in the way to the club and at lunch time, for during the game all "luggage" is more conveniently stowed away in a pocket.

Designed for the sportswoman this spring are useful felt pochettes with figures embroidered on the front in brightly coloured wool or insertions of felt.

For golf there is the figure of a woman golfer, a study in arrested motion at the top of a swing, the figure in scarlet on a beige ground, while the tennis bag has a white-clad girl with racket under her arm and an attractive border of coloured tennis balls.

The Scarf Vogue.

REMINISCENT of a pirate fashion are the new hats of shiny black straw with the crowns swathed with a vivid silk scarf in a plaid design, the ends falling at one side. To complete the gipsy effect a triangular scarf in the same pattern is worn, and the rest of the toilette should be severely plain.

Flower-Pot Workbox.

THE innocent, gilded flower-pot, holding the decorative posy of velvet roses and leaves, is a neat hiding place for a tiny workbox which secrets all the needle-woman's small necessities.

When the posy of crimson flowers is lifted a lining of crimson velvet, trimmed with gold galon, is revealed; and, nestling in its depths, is a crimson-covered box holding scissors, cottons, thimble, and needles.

When on a table in the bedroom or boudoir the posy in its gold pot is merely a decorative trifle, but when the flowers are removed its utility is shown.

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

The Woman's Point of View

Hints that Help In the Kitchen

Recipe for Full Mouse-Traps.

AS is well known, the smell of human fingers acts as a plain "danger-signal" to mice and rats. An alternative to setting traps for these little pests with gloved hands—one that positively attracts them!—is to smear literally one drop of brandy or whisky on the wood of the trap after setting. Since some drugs (the sweetened, highly-flavoured ones like syrup of figs, senna, etc.) are very attractive to mice (wood or corks soaked in them being greedily eaten), the plan seems adaptable to total abstainers' households also.

A Sure Cure for Stings.

FEW persons know the value of honey—that the honey the bee produces cures the sting it inflicts; but it is so. Every housewife should keep a little honey by, at all times. When stung by a bee, wasp, mosquito, or any other insect, just smear the affected part with some honey as soon as possible. If the flesh has got inflamed before the honey can be obtained, you will find it will reduce the inflammation as soon as it is applied. This never fails: blue-bags, soda, etc., are nothing in comparison.

Wool-Winding Hint.

IT is quite easy to wind wool so that it unwinds from the middle, which prevents the ball from rolling about. Wind the wool about 12 times round all four fingers; take these loops off, and wind wool twelve times round the lower half, leaving the top half free in a tuft. Continue winding fairly loosely in the ordinary way round the lower part, keeping tuft free and at the top all the time. Wind last two yards firmly round the ball's "waist." Then pull out the tuft, find the end, and start working with it.

"Mould" on Jam.

WHEN jam goes mouldy, it is probably from one of three causes: Keeping in a damp place, wet fruit, or not being sufficiently boiled. In any case, take off every scrap of mould, with a silver spoon if possible. Melt a little butter in the preserving pan, pour in the jam, and boil again for a few minutes, or longer if the jam be very liquid.

To Hold up a Pie Crust.

WHEN making a steak pie or fruit tart where much gravy or juice is desired, the crust is often spoiled by dropping into the liquid, even with a crust raiser. To avoid this, take four large wooden meat skewers, and place across the dish before putting on the crust. These can easily be pulled out before serving.

Devon Pasty.

CUT up finely half a pound each of tender steak and lean mutton. Also cut finely one or two small carrots, one turnip, one onion, and three medium potatoes. Mix all together with salt and pepper, then sprinkle with a tablespoonful of water mixed with a dessertspoonful of vinegar. Make pastry of six heaped tablespoons plain flour, half teaspoon baking powder, three-quarters of a cup of lard or dripping, and a pinch of salt. Rub dripping in till crumbly, then add cold water, to which has been added one teaspoon lemon juice. Mix into a stiff dough, and roll into two portions. Divide meat mixture in half,

"BETTER WAY" COMPETITION No. 3. MONTHLY PRIZES.

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

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

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

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

The August "Better Way" Competition closes on August 24, and the result will be announced on the women's page on Friday, August 31.

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

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and on each round of pastry place half the meat and vegetable mixture. Fold over pastry and pinch the edges. Prick the top with a fork. Place on greased baking tin and bake for three-quarters of an hour or an hour in an oven, first hot, then moderate.

### Wheatmeal Biscuits.

TAKE 1lb. wheatmeal, 2 tablespoons butter, 2 tablespoons sugar, pinch of salt, 1 teaspoon baking powder, 1 egg, grated rind of 1 lemon, ½ gill of milk.

Rub butter into meal, add baking powder, salt, sugar, grated lemon rind. Beat egg, add milk and pour into meal, etc. Turn on to board, knead well, roll out thinly, and stamp into biscuits. Place on greased oven slide, and bake in moderate oven half-hour or more.

### Coffee Essence.

PUT 1lb. coffee into a saucepan, stir over slow fire for a few minutes to warm, then add a quart of boiling water, and simmer for five minutes. Keep covered and allow to stand for about half an hour. Strain and bottle, ready for use.

### Delicious Prunes.

STEW prunes until tender. When done, split each prune and remove the stone, putting in its place a blanched almond. Serve six or eight prunes in a small fruit dish with whipped cream piled on the top.

### Drying Choice Flowers for Vases.

CHOICE flowers like gladioli, lilliums, irises, asters, roses, chrysanthemums, fuchsias, carnations, tulips, rhododendrons, etc., are easily "dry-preserved." Make some fine clean silver sand comfortably hot in oven. Spread inch layer sand at bottom of large shallow box. Arrange flowers naturally thereon, then cover every part with hot sand. Put several layers of flowers in same box. Place box in warm dry cupboard for a week,

### For the Invalid

An apparently useless revolving pedestal music stool makes a revolving table. Do away with the cushioned seat. Fix a wooden bracket to the winding screw to make it the required height, on this fix a round top of half inch match-boarding wood, say, 22 inches in diameter. Stain it all, replace the screw and top into the pedestal legs and it makes the revolving table. One is the greatest comfort to an invalid who cannot rise from her chair.

Invalids who are not fond of milky foods will find this a refreshing change and quite nourishing.

Mix a dessertspoonful (heaped) of Benger's Food with a tablespoonful of milk until quite smooth in a breakfast cup. Then add two teaspoonfuls of Bovril well mixed in. Heat either water (or milk if desired) almost to boiling point and mix gradually, stirring until the cup is full.

### For Unbroken Chilblains

2 drachms made mustard (very thick).

1 drachm glycerine.

1½ drachms spermaceti ointment.

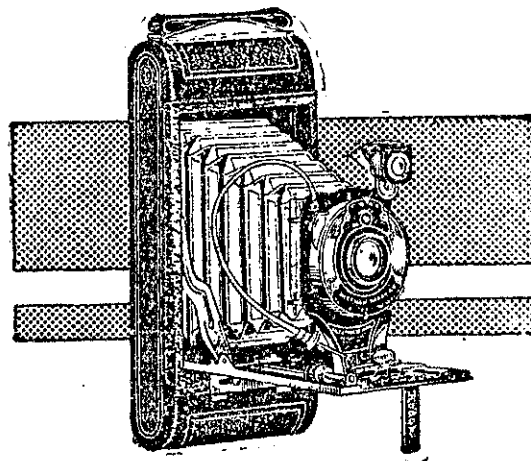
Mix in a slightly warmed jar and stir till cold. If it is not convenient to get the ointment, use cold cream instead (measuring with a dessertspoon), 2 spoons made mustard, 1 of glycerine, and 1½ of cold cream.

After bathing the feet or hands in hot water, massage slowly with the mixture.

Use cure for chapped hands (given above) morning and night. The constant application of an emollient will prevent chilblains from breaking.

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# Features of Next Week's Programmes

## Notes from 1YA

THE programme for Tuesday evening will include excerpts from Sir Edward German's famous opera, "Merrie England." This will be produced by Madame Ainsley's operatic party, under the direction of Madame Irene Ainsley, and will include all the principal quartettes and solos from the opera. A variety of ballads will also be rendered by various members of the quartette, which will include Miss Nancy Hanna, Madame Irene Ainsley, Mr. John Hogan, and Mr. Claude Suisted. Instrumental items will include various solos by Miss Ina Bosworth, selections by the Auckland Trio, and relays of orchestral music from the Majestic Theatre Orchestra.

"Maketu's Crime" is the interesting title of Mr. A. B. Chappell's lecturette in continuing his talks on "Old New Zealand" on Tuesday evening.

A programme which is always eagerly looked forward to by listeners is that of the Auckland Municipal Band, performing from the Auckland Town Hall on Wednesday. A fine popular and classical programme has been prepared by Mr. Christopher Smith, which will, no doubt, meet with the approval of all classes of listeners. Assisting the band will be the Hazell-Sutherland Duo, who will be heard in a number of contralto and baritone solos and duets.

VARIETY is the key-note of the programme for Thursday evening. That popular combination, the Clarion Glee Singers, will open their programme with a rousing opening chorus and humorous item, and then will continue with a wide selection of solos, duets, and quartettes. Also on the same programme will be the Bohemian Trio, in popular vocal and instrumental selections, while cornet solos will be performed by Messrs. Salthouse and Davies. Instrumental selections will also be played by the Auckland Trio, and Mrs. Charles Prime will be heard in pianoforte numbers.

FRIDAY'S programme will include solos, duets, and quartettes, performed by the members of Madame Mary Towsey's vocal Quartette. The "Wizard" will continue his interesting Word Wangles, and will do doubt again interest and confuse listeners with the word trickery and humour. The instrumentalists for the evening will be the Auckland Trio, Miss Molly Wright (cellist), and Mr. Fred Bowes (cornetist).

OUTSTANDING on Saturday evening's programme should be items performed by the Auckland Concertina Band. This combination will make its first appearance before the microphone, and its selections will no doubt be appreciated by all listeners. The popular "Snappy Three" will again be heard in popular solos and choruses, while Mr. Ralph Eskridge, whose return to 1YA will be welcomed, will sing tenor solos. The well-known Auckland soprano, Miss Christina Ormiston, whose voice has not been heard on the air for some time, will include

## Songs of Yesterday

IN response to requests, a programme of "Songs of Yesterday" will be presented by the Ariel Singers at 2YA on Monday. Such numbers as "Tom Bowling," "The Last Rose of Summer," "Maying," "Anchored," etc., should revive memories in older listeners-in of such famous singers of yesterday as Sims Reeves, Santley, Lloyd, Patti, Tetrassini, Albani and Kirkby Lunn.

among her soprano solos, "One Fine Day," from "Madame Butterfly" (Puccini). Following the studio concert, dance music will be relayed from the Dixieland Cabaret Orchestra, under Mr. Harry Neilson.

SUNDAY evening's church service will be broadcast from the Baptist Tabernacle, the preacher being the Rev. Joseph Kemp, and the organist and choirmaster, Mr. Arthur E. Wilson. At the conclusion of the church service, the Municipal Organ Recital from the Auckland Town Hall will be broadcast, Mr. Maughan Barnett being the organist.

## Notes from 2YA

ASSOCIATED with the Ariel Singers in Monday's popular programme will be Mr. A. Stanley Warwick, elocutionist, the Studio Trio (instrumental), and Mr. H. Temple White at the organ of Taranaki Street Methodist Church.

THERE are some very interesting numbers to be sung by the Orpheus Quartet on Tuesday evening. Worthy of special mention on the programme are five numbers written by Mr. J. W. Carr, a well-known Wellington amateur musician. A poem, "Zealandia," written by a brother, Mr. Clyde Carr (announcer at 3YA) and set to music by Mr. J. W. Carr, will be sung by the quartet, while Mr. Len Barnes will render "Eternal Youth," "Hedger and Ditcher," "The Store," and "The Open Road," four compositions from the same pen.

Other numbers on Tuesday's programme are "When the Budding Bloom of May," a quartet by Sullivan; "O Wert Thou in the Cauld Blast," duet by Mendelssohn, to be sung by the ladies of the party. Another duet of a humorous character, "Oo Loves Oo," from "The Girl Behind the Counter," will be given by Mrs. Alice Harris and Mr. Len Barnes. The former will sing "Far Away Lies a Land," by Ambrosio Thomas. Mr. Arthur Coe's solo is "Star of My Soul," and Miss Lily Mackie's, "Lie There, My Lute."

Palmer's Hawaiian Trio will present some more of their popular numbers on Tuesday evening. Mr. Doug. Stark will contribute humorous numbers, and Miss Ava Symons and Mr. Gordon Short will be associated in a sonata for violin and piano.

THE vocal portion of the programme on Thursday evening will be provided by the popular Lyric Quartet. The concerted numbers, which will be of the usual high standard and variety, will include that beautifully harmonious "Lovely Night," the old melody "Juanita," and that well-known plantation melody, "My Old Kentucky Home." In lighter vein will be sung the story of "The Tack," and, by special request of many listeners, "Simple Simon." The duet, "The Lovers," will also be rendered. The solo numbers will be of that high order for which these popular vocalists are noted.

Variety will be afforded on Thursday evening's programme by Mr. J. S. Webb, whose contributions will be of a humorous character, and by Mr. E. D. Bernstein, who will entertain with his concert zither. Mr. Johannes Andersen, whose talks on the bird life of the Dominion are greatly appreciated by listeners, will broadcast another of his interesting and informative lecturettes. Altogether, Thursday evening's should prove a very attractive programme.

A special feature programme is being arranged for Friday, when the Orpheus Musical Society, together with 2YA orchestra, will give the concert version of "The Rebel Maid," a comic opera written by Montague Phillips.

At the society's performance on August 4 there was great praise for the rendition of this work, and it will be greatly enhanced by the assistance of the orchestra. The performance is being conducted by Mr. Len Barnes, and listeners who heard the society's broadcast of "Maritana" a few months ago will be pleased to have the opportunity of again hearing this happy combination over the air. The score is rich in splendid choruses, full of melody and brightness, while the quartets, duets and solos are as beautiful as any written by this English composer. The principals are mostly well known to listeners. They are: Mrs. Alice Harris (soprano), Mrs. F. Press (mezzo), Mr. Will Hancock (tenor), Mr. Ray Kemp (baritone), Mr. John Pearson and Mr. Rupert Bennett in smaller roles. The pianiste is Miss Hazel Lowe, A.T.C.L. Altogether, with its brightness, humour and interesting plot, together with good soloists, chorus and orchestra, a fine evening is assured.

THE programme to be presented by the Melodie Four on Saturday evening includes light numbers which

are bound to appeal to those who, being tired after a strenuous week, seek a happy retreat in their wireless. In response to numerous requests the quartet will render "A Cornfield's Medley," introducing banjo, whistle and bell effects, and "Honolulu Moon." During the evening the artists will liberate four mosquitos, Zing, Zang, Zung, and Zoon, who will give a humorous description of their labours. The solo numbers include "In Cellar Cool," "The Cheerful" Vagabond," "A Song Remembered," and "Off in the Stilly Night." Gabussi's "The Fisherman" is sure to appeal to all.

## Notes from 3YA

MR. WALTER BRUNSDEN, basso profundo, who is singing from 3YA on Monday evening, August 20, was born at Brentford, Middlesex, and made his first public appearance as a singer at seven years of age. He was solo boy in the English Church till he was fifteen years of age. He has no recollection of his voice every breaking. Mr. Brunsden sang at most of the popular seaside resorts in which was known as the pier concerts. He came to Sydney and was associated with most of the leading singers and musicians of thirty years ago. He sang the bass solos in oratorio in Tasmania, Victoria, and other States. After coming to New Zealand, Mr. Brunsden sang with the "Liedertafel" in Dunedin for many years. He is now living in Timaru, where he carries on the business of a music shop, and is a member of the Timaru Savage Club.

BESIDES Mr. Brunsden, whose "A Hundred Fathoms Deep" and "In Cellar Cool" are certain to be two very popular items, other artists appearing on Monday evening will be Miss Dorothy Salter (mezzo-soprano), Miss Frances Hamerton, and Mr. A. R. Thompson.

One of the songs which Mr. Thompson will sing on Monday evening will be Salaman's "I Rise from Dreams of Thee," which was a great favourite forty years ago.

The band which will supply the instrumental music on Monday evening will be Mr. Derry's popular organisation, which will present a splendidly diversified programme.

Elocutionary items will be given on Monday by Miss Mavis Kinsella.

THE vocalists of the Dulcet Quartet will be providing the solos and concerted items for Wednesday evening's programme. The quartets include the "Soldiers' Chorus" (from "Faust"), and the favourite "Three Fishers went Sailing." Two songs which Mr. A. G. Thompson will sing are in striking contrast as to type. They are "Give a Rouse," a song of the rousing type, and "Boat Song." Mr. T. G. Rogers will be heard in two tenor solos.

THE beautiful "Hills of Donegal" will be one of the songs to be sung by Miss Nellie Lowe, and Miss Hilda Hutt will sing a solo



from "Cavalleria Rusticana" and Chaminade's "L'ete." The instrumental portion of the musical programme will be supplied by the Bohemian Quintet, Miss Irene Morris and Mr. Edward Gregg, the last-named being a clarinet player.

The Rev. B. Dudley, F.R.A.S., appears again on Wednesday in the dual role of lecturer and reciter. He will speak on "Sun Spots and the World Weather," and he will tell "How I Came to Order a Pig."

THURSDAY'S programme will be of a miscellaneous order, the vocalists being Madame Gower-Burns, Mrs. Ann Harper, Mr. Harold Prescott, and Mr. Clive Hindle. Solo and concerted items will be sung, the latter including "Mandalay" and the old favourite "A Perfect Day." The instrumental items for the evening will be contributed by Miss Aileen Warren, the Studio Trio, Mr. T. H. Amos (piccolo and flute) and Mr. Percy Reeves (trumpet).

Recitations to suit different tastes will be given by Mr. R. R. Wills, whose items will be "The Weather Fiend," "Be Fit," and "The Pipes of Lucknow."

A POPULAR programme—miscellaneous studio items and a dance session will be presented by 3YA on Friday evening. Vocalists to be heard will be Mrs. E. H. Davies, Miss Millicent Jennings, Mr. Russell Sumner, and Mr. T. D. Williams. Male voice duets will be a feature of the programme. A solo to be sung by Mr. T. D. Williams will be Elgar's "Songs from the Fringes of the Fleet," comprising four short songs on typical sea topics.

An elocutionist new to 3YA will appear on Friday. This will be Miss Pearl Noonan, a talented young lady. She will be heard in solo items and will take part with Mr. W. H. Moses in a sketch, "He Tried to Tell His Wife."

The members of the Williams Dance Band will supply various instrumental selections, solo and concerted.

MANY items are crowded into Saturday evening's programme, the usual radio vaudeville. There will be a great assortment of items, including classical and the latest popular songs.

There will be singing Miss Blanche Atkinson, Mrs. C. Du Lieu, the well-known Joyous Trio in their happy songs at the piano with ukulele, Mr. Sydney Armstrong (baritone), the Studio Trio, Mr. Geo. Bennett (accordion), Mr. Hiram Dunford (elocutionist), Mr. E. N. Trenberth (flugel horn), and a piano, and Mr. Cyril Avondale.

### Notes From 4YA

ON Sunday, as usual at 9 a.m., 4YA will announce the result of the All Blacks versus South Africa football match.

Following the children's song service from 5.30 p.m. to 6.15 p.m., Divine service will be relayed from St. Paul's Cathedral. The Rev. Canon Nevill will preach the sermon. Before the service commences Mr. E. Heywood, F.R.C.O., has arranged to broadcast a short organ recital for fifteen minutes, which owing to the type of music selected and the manner in which it is to be performed will be a real treat for listeners. A studio concert will follow the church service.

TUESDAY night's band concert will be undertaken by the St. Kilda Band, under the baton of Bandmaster James Dixon, and an interesting and popular programme will be heard. An outstanding number will be a selection from Donizetti's opera, "Lucia di Lammermoor," which was inspired by Sir Walter Scott's immortal novel, "Lucy of Lammermoor." Variety will be added to the band programme by a cornet solo, "In a Monastery Garden," and a cornet and euphonium duet, "Sweet Spirit Hear My Prayer," both numbers being accompanied by the band.

SUPPORTING the band items is an excellent programme of vocal and elocutionary works. Two ladies will contribute, Miss Wyn McPeak (contralto), with a group of modern ballad songs, and Miss Bertha Rawlinson (soprano), with a group of ballad numbers, including Alfred Hill's sweet, plaintive little melody, "Pokarekare." The male artists comprise Mr. Chas. Edwards (tenor), Mr. R. B. Macdonald (baritone) and Mr. E. G. Bond

(bass). Miss Madge Yates and Mr. Eric Hebden will each provide elocutionary numbers and together will present a humorous sketch.

WEDNESDAY night's programme will be for those who want bright cheerful entertainment. The programme will contain a great variety of vocal, instrumental and elocutionary numbers. Some of the outstanding vocal hits that will be heard are "Just a Memory," "There's a Cradle in Caroline" and "Momsy." These will be given by Miss Jacqueline Burke in her usual dainty style. Miss Billie Lorraine (comediienne) will sing "For My Sweetheart" and "Meadow-lark." "My Idea of Heaven," "Five Foot Two, Eyes of Blue" and "Brown Eyes Why are you Blue?" will be sung by Miss Vanda Duncan. Mr. T. V. Anson will play some clever jazz arrangements of popular hits.

A screamingly funny sketch will be enacted by Miss Billie Lorraine and Major F. H. Lampen, the latter also contributing an amusing humorous item. Mr. E. Heaney, clever exponent of the piano-accordion, and Mr. H. Dalziel with his marimbaphone will each give solos and duets. Orchestral music will be relayed from the Octagon Theatre at intervals.

THE first hour of Friday's concert session will be devoted to a programme of standard songs and instrumental music. A contralto setting of May Brahe's melodious song, "Down Here," will be given by Miss Dorothy Skinner, who will also sing other numbers. The old favourite "Off to Philadelphia," by Haynes, will be provided by Mr. Neil Black (bass), among other numbers. Mr. D. J. Robertson, with his cornet, and Mr. Chas. E. Gibbons (flautist) will entertain with good instrumental music. Liszt's "Liebestraume" No. 2 will be rendered on the piano by Mrs. Ernest Drake, L.A.B. Dance music will complete the second hour of the concert session, concluding at 10 p.m.

THE programme on Saturday night will be as usual of commendable quality, every artist on which is a well-known name on the concert platform in Dunedin.

Cowen's stirring "Border Ballad" will be sung by Mr. Arthur Lungley. Miss Agnes Guy (soprano), Miss Irene Horniblow (contralto), and Mr. James Ferguson (bass), will be the other

vocalists contributing. Mr. Harold Riddle, L.T.C.L. (violinist), Mr. P. J. Palmer ('cellist) and Mrs. Ernest Drake, L.A.B., will provide instrumental music, including trio arrangements of Schumann's "Traumerei" and "Berceuse de Jocelyn," from Godard's opera "Jocelyn." Miss Melly (soprano), F.T.C.L. (elocutioniste) will entertain with humorous and straight elocutionary numbers.

### Local Distortion

T. P., Island Bay, writes complaining of his reception from 2YA. Its failures are "to put it mildly, most exasperating," and he states that several similar receiving sets—five valvers—are having a like experience. Sunday, August 5, was a particularly bad night. Because Auckland and Christchurch came in much more clearly, "it would appear that the fault lies at 2YA."

[T.P.'s trouble is occasioned not by the station, but by the character of the set in use. In essence the trouble is caused by having two audio valves with the detector. This causes undue distortion on the local station, although giving perfect reproduction on distant stations. This is the general tendency, but of course it does not mean that all five valvers will distort on the local station. The difficulty can be easily remedied by employing a crystal in place of the audio and detector valves for the local station. A suitable switching arrangement could be improvised so that it would be possible to revert to the audio and detector when distant stations are required. Experience on the same evening with an amplified crystal shows that the transmission was in no way at fault—in fact it would be impossible for the station to transmit in the manner suggested.]

### Country Fading

IS it possible to make the Wellington station more satisfactory? When I tune in all right it will come too loud, and then it will fade away, so that it is impossible to hear it. —J.S. (Hawarden).

[The trouble here is beyond the control of either 2YA or the owner of the set. It is due to his locality. Beyond a certain distance from every station ("point blank range"), the signals reach the receiver indirectly. These indirect currents are strongly influenced by atmospheric conditions, hence fading.—Ed.]

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# Full Programmes for Next

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## Sunday, August 19

### 1YA, AUCKLAND (333 METRES), SUNDAY, AUGUST 19.

- 9 a.m.: Result of All Blacks' match in South Africa.  
 9.15: Close down.  
 3 p.m.: Afternoon session—Selected studio items.  
 4.0: Literary selection by the Announcer.  
 4.8: Selected studio items.  
 4.30: Close down.  
 6.0: Children's song service, conducted by Uncle Leo, assisted by cousins from St. John's Church Methodist Sunday School.  
 6.55: Relay of service from Pitt Street Methodist Church. Preacher, Rev. Lionel B. Dalby. Choirmaster, Mr. W. Leather.  
 8.30: Relay of concert by the Auckland Municipal Band, military band selections.  
 9.30: God Save the King.

### 2YA WELLINGTON (420 METRES), SUNDAY, AUGUST 19.

- 9 a.m. Result of "All Blacks" match in South Africa.  
 9.15: Close down.  
 11 a.m.: Relay of Sunday School Anniversary of Kent Terrace Presbyterian Church. Preacher, Rev. E. J. Orange. Organist, Mr. J. Standen. Choirmaster, Mr. E. C. Jack.  
 3 p.m.: Afternoon session, selected studio items.  
 6.0: Children's session, Uncle Ernest, assisted by Taranaki Street Methodist Sunday School Choir.  
 7.0: Relay of evening service from Church of Christ, Vivian Street. Preacher, Pastor W. G. Carpenter. Organist, Miss Iris Mason. Choirmaster, Mr. W. J. Mason.  
 8.15 (approx.): Relay of Band Recital of Port Nicholson Band from the Grand Opera House (Conductor, Mr. J. J. Drew).  
 God Save the King.

### 3YA, CHRISTCHURCH (306 METRES), SUNDAY, AUGUST 19.

- 9 a.m.: Result of All Blacks' match in South Africa.  
 5.30 p.m.: Children's song service—Uncle David, assisted by scholars of St. Peter's Presbyterian Sunday School.  
 6.30: Relay of evening service from St. Paul's Presbyterian Church, Cashel Street. Preacher, Rev. W. Bower-Black, LL.B. Organist, Mr. N. R. Williams. Choirmaster, Mr. H. Blakeley.  
 7.45: Devotional music will be relayed from the church after service, till 8 p.m.  
 8.0: Selected items from the studio.  
 8.15 (approx.): Rebroadcast of 2YA, Wellington (relay of band concert by Port Nicholson Band from the Grand Opera House, Wellington).  
 God Save the King.

### 4YA, DUNEDIN (463 METRES), SUNDAY, AUGUST 19.

- 9 a.m.: Result of all Black' match in South Africa.  
 5.30 p.m.: Children's song service, conducted by Big Brother Bill, assisted by children of the St. Andrew Street Church of Christ, Christian Endeavour Band.  
 6.15: Relay of organ recital from St. Paul's Anglican Cathedral. Organist, Mr. E. Heywood, F.R.C.O.  
 6.30: Relay of service from the Cathedral. Preacher, Rev. Canon Nevill.  
 8.0: Studio concert.  
 9.15: Close down.

## Monday, August 20

### 1YA, AUCKLAND (333 METRES), MONDAY, AUGUST 20. SILENT DAY.

### 2YA, WELLINGTON (420 METRES), MONDAY, AUGUST 20.

- 3 p.m.: Chimes of the G.P.O. clock.  
 3.1: Selected gramophone items.  
 4.30 and 4.55: Sports results to hand.  
 5.0: Close down.  
 6.0: Children's session—Aunt Gwen and Uncle Jeff, assisted by pupils of Mr. Stanley Warwick. Recitation, Cousin Ian, "The Front Rank" (Ogilvie). Birthdays, Aunt Gwen. Pianoforte solo, Cousin Olive, "The Curfew Hour" (Barratt). Recitation, Cousin Doris, "The Little Serving Maid" (Belloc). Birthdays, Uncle Jeff. Recitation, Cousin Ian, "The Sad Story of a Motor Fan" (Anon.). Pianoforte solo, Cousin Olive, "Impromptu in C Flat" (Schubert). Puzzle. Recitation, Cousin Doris, "Greyport Legend" (Bret Harte). Nursery rhymes. Story, Aunt Gwen. Good-night song.  
 7.0: News session, market reports, and sports results.  
 7.40: Lecture—Mr. F. J. Cave (technical expert of Shell Petroleum, Australia), "The Tractor."  
 8.0: Chimes of the G.P.O. clock.  
 All vocal items on this programme rendered by the Ariel Singers will be songs which were popular 25 to 30 years ago.  
 8.1: Overture—The Orchestra, "The Barber of Seville" (Rossini).  
 8.9: Vocal quartet—Ariel Singers, "Sleep, Gentle Lady" (Bishop).  
 8.12: Instrumental trio—Studio Trio, "Trio in C" (Brahms).  
 8.22: Recitals—Mr. A. Stanley Warwick, (a) "They Never Quarrelled" (Anon.); (b) "The Way of Wooing" (Gilbert).  
 8.30: Baritone solos—Mr. John Prouse, (a) "Honour and Arms" (Handel); (b) "I Will Not Grieve" (Schumann); (c) "My Fairest Child" (Hill); (d) "There's a Land" (Allitsen).  
 8.42: Violin solo (with orchestral accompaniment)—Miss Ava Symons, "Kol Nedrei" (Max Bruch).  
 8.46: Soprano solo—Miss Jeanette Briggs, L.A.B., "Waiting" (Millard).  
 8.49: Relay of organ solos by Mr. H. Temple White, (a) "Melody in F" (Rubinstein); (b) "Marche Solennelle" (Maily).  
 8.59: Weather forecast.  
 9.1: Bass solo—Mr. J. M. Caldwell, "Anchored" (Watson).  
 9.5: Instrumental—The Orchestra, request number.  
 9.13: Vocal duet—Miss Jeanette Briggs and Mr. Roy Hill, "Maying" (Nevin).  
 9.16: Recital—Mr. A. Stanley Warwick, "On Being Asked the Way" (Caine).  
 9.23: Mezzo-contralto solo—Miss Ngaire Coster, "The Last Rose of Summer" (traditional).  
 9.26: Tenor solos—Mr. Roy Hill, (a) "Tom Bowling" (Dibden); (b) "My Pretty Jane" (Bishop).  
 9.32: Instrumental—The Orchestra, (a) "Legende" (Wienlawski); (b) "Aubade Printiniale" (Lacombe).  
 9.42: Vocal duet—Misses J. Briggs and N. Coster, "O, Wert Thou in the Cauld Blast" (Mendelssohn).  
 9.45: Bass solo—Mr. J. M. Caldwell, "The Old Brigade" (Barri).  
 9.49: Instrumental—The Orchestra, "Chopinania, Part 2" (Friml).  
 10.1: God Save the King.

### 3YA, CHRISTCHURCH (306 METRES), MONDAY, AUGUST 20.

- 3 p.m.: Afternoon session—Selected studio items.  
 4.25: Sports results.  
 6.0: Children's session—"Scatterjoy." Vocal trios by the "Radiant Three-oh," "Oh, Boatman, Row Gently" and "Rondo." Ukulele Duo, music by Cousins Wayne and Ken. Stories by "Scatterjoy," "Curious Picnic Places" and "Butterflies: Flowers of the Air." Birthday greetings and verses. Recitations by Cousins Joan and Ray. Good-night song, "The Land of Nod."  
 7.15: News session.  
 7.30: Talk on "Books," Mr. E. J. Bell.  
 8.0: Chimes.  
 Programme by Derry's Military Band and assisting artists.  
 8.1: March and valse moderato—Band, (a) "Tent City" (English); (b) "Charmaine" (Rapee).  
 8.11: Bass solos—Mr. Walter Brunson, (a) "A Hundred Fathoms Deep" (Hatton); (b) "In Cellar Cool" (Old German).  
 8.17: Contralto solos—Miss Dorothy Salter, (a) "Evening Song" (Schumann); (b) "The Valley and the Hill" (Quilter).  
 8.22: Selection—Band, "Reminiscences of Wales" (Godfrey).  
 8.34: Soprano solos—Miss Frances Hamerton, (a) "Johnnie" (Stanford); (b) "Skylark and Nightingale" (Ireland).  
 8.39: Tenor solo—Mr. A. R. Thompson, "An Evening Song" (Blumenthal).

# FADA

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# Week-all Stations-to Aug. 25

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- 8.43: Recital—Miss Mavis Kinsella, "Tisn't Worth It."  
 8.47: Allegro moderato—Band, "Ke Sa Ko" (Chapins).  
 Three-step—Band, "Birds of Spring" (Williams).  
 8.59: Soprano and contralto duet—Dolce Duo, "How Lovely is the Face" (Handel).  
 9.3: Weather forecast.  
 9.5: Overture.  
 9.9: Tenor solos—Mr. A. R. Thompson, (a) "Nell O'Neill" (Silva); (b) "I Arise from Dreams of Thee" (Salaman).  
 9.16: Soprano solos—Miss Frances Hamerton, (a) "Sometimes I Feel" (Burleigh); (b) "Go Down, Moses" (Burleigh).  
 9.20: Humorous descriptive sketch—Band, "A Southern Wedding" (Lotter).  
 9.32: Mezzo-contralto solos—Miss Dorothy Salter, (a) "A Soft Day" (Stanford); (b) "The Second Minuet" (Besley).  
 9.39: Recitals—Miss Mavis Kinsella, (a) "Little Moccasins" (Servide); (b) "She Powders Her Nose" (Guest).  
 9.44: Soprano and mezzo-contralto duet—Dolce Duo, "Laurinda and Clorinda" (Clarke).  
 9.59: Fox-trot—Band, "Forgive Me" (Yellen-Ager).  
 March—Band, "Social Life" (Bohme).  
 God Save the King.

4YA, DUNEDIN (463 METRES), MONDAY, AUGUST 20.

SILENT DAY.

## Tuesday, August 21

AUCKLAND (333 METRES), TUESDAY, AUGUST 21.

- 3 p.m.: Afternoon session—Selected studio items.  
 4.0: Literary selection by the Announcer.  
 4.8: Selected studio items.  
 4.25: Sports results.  
 4.30: Close down.  
 6.0: Children's session—Uncle George. Song, The Farmer's Boy, "Listening-in" (Archtop). Recitation, Cousin Moya, "Johnny, Me and You." Letters and birthdays. Duet, Farmer's Boy and Cinderella, "The Telephone Girl." Song, Cousin Moya, "Fairies' Umbrellas" (Arundale). Sketch, Farmer's Boy, "The Rest of the Day's Your Own." Stories.  
 7.15: News and market reports.  
 7.30: Book review.  
 8.0: Chimes.  
 8.1: Relay of orchestral overture from the Majestic Theatre Orchestra, under the direction of Mr. J. J. Whitford Waugh.  
 8.11: Baritone solo—Mr. John Hogan, "Wayfarer's Night Song" (Martin).  
 8.15: Instrumental trio—Auckland Trio, "Allegro" from "Trio in A" (MacFarren).  
 8.23: Contralto solo—Madame Irene Ainsley, "Beloved, It Is Morn" (Aylward).  
 8.27: Flute solo (record)—"Air" from "Norma" (Bellini).  
 8.31: Tenor solo—Mr. Claude Suisted, "Songs of Araby" (Clay).  
 8.35: Violin solo—Miss Ina Bosworth, "Minuet in G" (Beethoven).  
 8.40: Talk—Mr. A. B. Chappell, M.A., "Old New Zealand: Makeut's Crime."  
 8.55: Flute solo (record)—"Nocturne, Op. 9, No. 2" (Chopin).  
 8.59: Evening forecast.  
 9.0: Relay of musical interlude from Majestic Theatre.  
 9.8: Soprano solo—Miss Nancye Hanna, "Lack a Day" (Crampton).  
 9.12: Instrumental trio—Auckland Trio, selection from "Lohengrin" (Wagner).  
 9.21: Excerpts from "Merrie England" (German), produced under the direction of Madame Irene Ainsley.

The story of "Merrie England" is laid in the glorious days of Queen Elizabeth, who, together with those famous personages of her reign, the Earl of Essex and Sir Walter Raleigh, appear in the opera, the scene of which is laid in the heart of mediæval England, by the Thames, near Windsor.

Cast:

Bessie ..... Miss Nancye Hanna  
 Jill .....  
 Queen Elizabeth ..... Madame Ainsley  
 Raleigh ..... Mr. C. Suisted  
 Essex ..... Mr. J. Hogan

Vocal quartet—"Love is Meant to Make Us Glad."  
 Earl of Essex—"She Had a Letter from Her Love."  
 Sir Walter Raleigh and Bessie—"When True Love has Found a Maid."

- Earl of Essex—"Who Were the Yeomen?"  
 Chorus—"God Save Elizabeth."  
 Jill—"O, Peaceful England."  
 Quartet—"It Is a Tale of Robin Hood."  
 Quartet—"In England, Merrie England."  
 Sir Walter Raleigh and Elizabeth—"It is the Merry Month of May."  
 Sir Walter Raleigh—"Oh, Who Shall Say that Love is Cruel?"  
 Finale—"Robin Hood's Wedding."  
 10.0: God Save the King.

2YA, WELLINGTON (420 METRES), TUESDAY, AUGUST 21.

- 3 p.m.: Chimes of the G.P.O. clock.  
 3.1: Selected gramophone items.  
 4.30 and 4.55: Sports results to hand.  
 5.0: Close down.  
 6.0: Children's session—Big Brother Jack, assisted by pupils of Mrs. Martyn Williams and Mrs. Mildred Kenny. Opening song, Big Brother Jack. Mandolin and ukulele, Cousins Joyce, Kenneth, and Kohe, "Marche des Petits Pierrots" (Hudson). Recitation, Cousin Jean, "My Teddy Bear" (MS.). Birthdays, Big Brother Jack. Guitar and ukulele, Cousins Naomi, Bernard, and Jack, "Sleepy Eyes" (Rogers). Monologue, Cousin Alison, "Cows and Fishes" (MS.). Mandolin and ukulele, Cousins Joyce, Kenneth and Kohe, "Hattie Waltz" (Grennop). Story, Big Brother Jack. Monologue, Cousin Phyllis, "Little Mary Fawcett." Guitar and ukulele, Cousins Naomi, Bernard, and Jack, "Forget-me-Not."  
 7.0: News session, market reports, and sports results.  
 7.40: Lecturette—"For the Man on the Land," by a representative of the Agricultural Department.  
 8.0: Chimes of the G.P.O. clock.  
 8.1: Descriptive overture—Orchestra, "Chal Romano" (Gipsy Lad) (Ketelby).

This overture opens with a broad theme, (a) in the style of a Gipsy folk-song of strongly-marked character. A plaintive melody (b) which follows (given to the clarinet and oboe) suggests the sadness of the rejected lover; at (c) the key changes to the Tonic Major, and the melody develops into a passionate love-theme. The Gipsy folk-song (d) suggesting Fate, interrupts the conclusion of the love theme, and leads into a dance tune (e), first played as violin solo and then developed at some length, descriptive of the light-hearted nature of the Gipsy girl; the love-theme is now heard again (in a quicker tempo than previously) with scraps from the girl's dance tune interwoven in it. A kind of recitative (f) for 'cellos suggests the lover pleading with the girl, but the gipsy folk-song heard immediately after expresses the hopelessness of his appeal, and she dances away to join the Gipsy revels (g) which (with a final FF reference to the Gipsy folk-song just before the end) brings the overture to a conclusion.

- (a) "Andante pesante e rubato."  
 (b) "Poco piu mosso."  
 (c) "A tempo."  
 (d) "Andante."  
 (e) "Allegro scherzando."  
 (f) "Andante quasi recitativo."  
 (g) "Presto."

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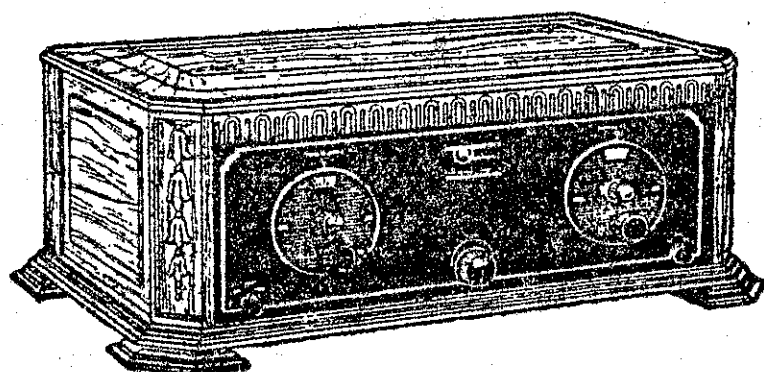
- 8.8: Vocal quartet—Orpheus Quartet, "When the Budding Bloom of May" (Sullivan).
- 8.11: Violin and piano solo—Miss Ava Symons and Mr. Gordon Short, "Sonata for Violin and Piano" (Dohnanyi).
- 8.19: Humour—Mr. Doug. Stark, (a) "A Drama" (Harris); (b) "The Tobermory Treasure" (Cairns).
- 8.25: Suite romantique—Orchestra, "Reveil d'Amour" (Ketelby).
- 8.37: Contralto solo—Miss Lily Mackie, "Lie There, My Lute" (McGunn).
- 8.40: Trios—Palmer's Hawaiian Trio, (a) "Red Lips, Miss My Blues Away" (Dixon and Stept); (b) "Coral Sands of Hawaii" (Heagney).
- 8.46: Tenor solo—Mr. Arthur Coe, "Star of My Soul" (Jones).
- 8.49: Instrumental—The Orchestra, "In a Persian Market" (Ketelby).  
The camel-drivers approach gradually—the cries of beggars for "backsheesh" are heard—the beautiful princess enters, carried by her servants (she is represented by a theme given at first to clarinet and 'cello, then repeated by full orchestra. She stays to watch the jugglers and snake-charmer. The Caliph now passes through the market and interrupts the entertainment—the beggars are heard again—the princess prepares to depart, and the caravan resumes its journey. The theme of the princess and the camel-drivers is heard faintly in the distance, and the market-place becomes deserted.
- 8.56: Soprano—Mrs. Alice Harris, "Far Away Lies a Land" (Thomas).
- 8.59: Weather forecast.
- 9.1: Instrumental—The Orchestra, request number.
- 9.9: Vocal quartet—Orpheus Quartet, "Zealandia" (Carr).
- 9.12: Trios—Palmer's Hawaiian Trio, (a) "Hawaiian Memories" (Heagney); (b) "Who?" from "Sunny" (Kern).
- 9.18: Baritone solos—Mr. Len. Barnes, (a) "Eternal Youth" (Carr); (b) "Hedger and Ditcher" (Carr); (c) "The Stork" (Carr); (d) "The Open Roadway" (Carr).
- 9.28: Instrumental—The Orchestra, "By the Blue Hawaiian Waters" (Ketelby).  
After a short, dreamy introduction a vigorous movement illustrates the well-known Hawaiian "Hula Dance." This is succeeded by a mysterious passage, representing the arrival of the native lover. He plays his native love-call (given by the clarinet), which is then taken up by the violin, etc. This leads into the "Song of the Hula Girl." It gradually dies away, and is succeeded by the "Dance of the Betrothal Ceremony," which brings the piece to a lively conclusion.  
(a) "Hula Dance."  
(b) "The 'Kahaka' Lover Appears."  
(c) "Song of the Hula Girl."  
(d) "Dance of the Betrothal Ceremony."
- 9.36: Vocal duet—Mrs. Alice Harris and Miss Lily Mackie, "O, Wert Inou in the Cauld Blast?" (Mendelssohn).
- 9.39: Instrumental—The Orchestra, "Musical Jig-Saw" (Aston).
- 9.49: Humour—Mr. Doug. Stark, "Could Lloyd George Do It?" (Lee).
- 9.55: Vocal duet—Mr. Len. Barnes and Mrs. Alice Harris, "Oo Loves Oo" (Talbot).
- 9.58: Instrumental—The Orchestra, dance numbers.

3YA, CHRISTCHURCH (306 METRES), TUESDAY, AUGUST 21.

SILENT DAY.

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4YA, DUNEDIN (463 METRES), TUESDAY, AUGUST 21.

- 3 p.m.: Town Hall chimes.
- 3.1: Gramophone recital.
- 3.30: Social notes and news.
- 3.40: Studio music.
- 4.0: Address on "Art Needlework," by Miss Marguerite Puechegud (under the auspices of the King Edward Technical College).
- 4.15: Gramophone music.
- 4.30: Close down.
- 6.0: Town Hall chimes.
- 6.1: Children's session—Big Brother Bill. Greetings and "Happy Folks' Anthem." The musical part of the programme will be provided by the South Dunedin Young Men's Orchestra.
- 7.15: News session.
- 7.30: Address on "Tourist Resorts," by Mr. R. W. Marshall, of the Government Tourist Office.
- 8.0: Town Hall chimes.  
Concert by the St. Kilda Band, under the conductorship of Mr. James Dixon, and assisting artists.
- 8.1: March—Band, "Boulder City" (Hume).
- 8.5: Contralto solos—Miss Wyn McPeak, (a) "Lie There, My Lute" (McGunn); (b) "When Song is Sweet" (Sans-Souci).
- 8.10: Recital—Mr. Eric Hebden, "Hindoo's Paradise."
- 8.14: Cornet solo (with band accompaniment)—"In a Monastery Garden" (Ketelby).
- 8.20: Baritone solo—Mr. R. B. Macdonald, "The Riderless Steed" (Hussell).
- 8.23: Soprano solo—Miss Bertha Rawlinson, "Sweet and Low" (Johnson).
- 8.26: Selection—Band, "Lucia dia Lammermoor" (Donizetti).
- 8.40: Tenor solos—Mr. Chas. Edwards, (a) "I Wept, Beloved" (Hume); (b) "Five Little Piccaninnies" (Antony).
- 8.45: Recital—Miss Madge Yates, "Infant Prodigies."
- 8.49: Waltz—Band, "Casino Tanze" (Gungl).
- 8.59: Weather forecast.
- 9.2: Bass solos—Mr. E. G. Bond, (a) "The Trumpeter" (Dix); (b) "Out of the Deep I Call" (Martin).
- 9.8: Humorous sketch—Miss Madge Yates and Mr. Eric Hebden, selected.
- 9.18: Cornet and euphonium duet (with band accompaniment)—"Sweet Spirit, Hear My Prayer."
- 9.23: Contralto solo—Miss Wyn McPeak, "Break, Break, Break" (Carey).
- 9.26: Baritone solos—Mr. R. B. Macdonald, (a) "Coalin'" (Anon.); (b) "Nivana" (Adams).
- 9.32: Fantasia—St. Kilda Band, "Military Church Parade" (Hume).
- 9.38: Soprano solos—Miss Bertha Rawlinson, (a) "Pokarekare" (Hill); (b) "You've Got Your Mother's Eyes" (Drummond).
- 9.41: Humorous recital—Mr. Eric Hebden, "Love and Arithmetic" (Rose).
- 9.45: Hymns—Band, (a) "Fierce Raged the Tempest"; (b) "Abide With Me."
- 9.50: Bass solo—Mr. E. G. Bond, "A Sargeant of the Line" (Squire).
- 9.53: Recital—Miss Madge Yates, "Blind" (Galsworthy).
- 9.57: March—Band, "The Umpire" (Greenwood).
- 10.0: God Save the King.

**Wednesday, August 22**

1YA, AUCKLAND (333 METRES), WEDNESDAY, AUGUST 22.

- 3 p.m.: Afternoon session—Selected studio items.
- 4.0: Literary selection by the Announcer.
- 4.8: Selected studio items.
- 4.25: Sports results.
- 4.30: Close down.
- 6.0: Children's session—Uncle Tom. Opening chorus, Uncle Tom. Piano-forte solo, Cousin Frank, "Impromptu" (Schubert). Story for tiny tots. Letters and birthdays. Record. Pianoforte solo, Cousin Frank, "Rhapsodie Mignon." Bedtime stories. Closing Chorus, Uncle Tom.
- 7.15: Talk by Gargoyle on "Lubrication."
- 7.30: Market news and reports.
- 8.0: Chimes.
- 8.1: Relay of Auckland Municipal Band concert in "Military Band Selections," assisted by the Hazell-Sutherland Duo, who will perform the following items from the studio:—  
Contralto solos—Miss Phyllis Hazell, (a) "Longing for You" (Fisher); (b) "I Only Know" (Cramer).  
Baritone solos—Mr. Frank Sutherland, (a) "A Castilian Lament" (Del Riego); (b) "The Bachelors of Devon" (Day).  
Vocal duets—Hazell-Sutherland Duo, (a) "Won't You Buy?" from "The Girl Behind the Counter" (Johnson and Barrett); (b) "Come, Sing to Me" (Thompson).
- 10.0: God Save the King.

2YA, WELLINGTON (420 METRES), WEDNESDAY, AUGUST 22.

SILENT DAY.



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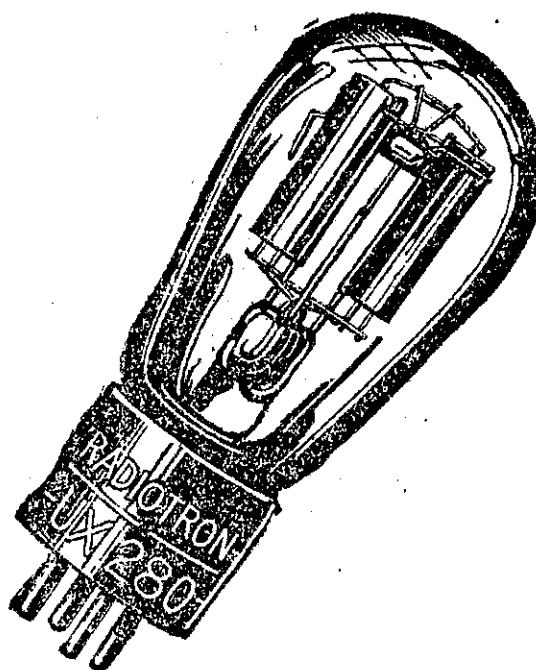
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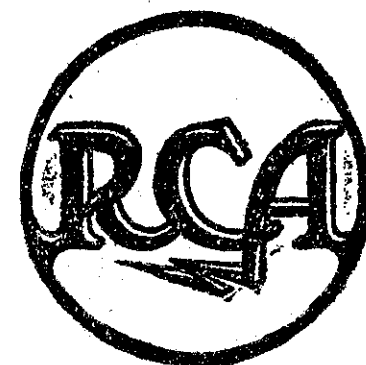
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WELLINGTON

**3YA, CHRISTCHURCH (306 METRES), WEDNESDAY, AUGUST 22.**

- 3 p.m.: Afternoon session—Selected studio items.  
 4.25: Sports results.  
 4.30: Close down.  
 6.0: Children's session—Uncle Peter and Mother Hubbard. Stories and legends, Uncle Peter. Songs and music, Mother Hubbard. Recitations, Cousin Colin. Birthday greetings. Good-night song, "God that Madest Earth and Heaven."  
 7.15: Addington stock market reports.  
 8.0: Chimes.  
 8.1: Overture—Relay from Strand Theatre Orchestra, under the conductorship of Mr. Harry Elwood.  
 8.7: Tenor solos—Mr. T. G. Rogers, (a) "Come into the Garden, Maud" (Balfe); (b) "Bombardier" (Rawlins).  
 8.15: Violin solo—Miss Irene Morris, "Berceuse" (Cui).  
 8.19: Recital—Rev. B. Dudley, "How I Came to Order a Pig" (MS.).  
 8.24: Vocal quartet—Dulcet Quartet, "The Soldiers' Chorus" (Gounod).  
 8.29: Clarinet solo—Mr. Edward Gregg, "Beneath Thy Window" (Le Thié).  
 8.34: Contralto solos—Miss Nellie Lowe, (a) "Hills of Donegal" (Reilly); (b) "Fallen Roses" (Tate).  
 8.42: Instrumental quintets—Bohemian Quintet, (a) "Waltz" (Taylor); (b) "Gavotte" (Rameau).  
 8.50: Lecturette on astronomy—Rev. B. Dudley, F.R.A.S., "Sunspots and the World Weather."  
 9.5: Weather forecast.  
 9.6: Overture.  
 9.12: Baritone solos—Mr. A. G. Thompson, (a) "Give a Rouse" (Arnott); (b) "Boat Song" (Ware).  
 9.19: Violin solo—Miss Irene Morris, "Allegretto" (Boccherini-Kreisler).  
 9.24: Soprano and contralto duet—Misses Hilda Hutt and Nellie Lowe, "Angelus" (Chaminade).  
 9.29: Instrumental quintets—Bohemian Quintet, (a) "At the Theatre" (Foulds); (b) "Evening in the Forest" (Foulds); (c) "Fiddler's Fancy" (Foulds).  
 9.41: Soprano solos—Miss Hilda Hutt, (a) "Mother, You Know the Story," from "Cavalleria Rusticana" (Mascagni); (b) "L'Ete" (Chaminade).  
 9.48: Clarinet solo—Mr. Edward Gregg, "Drink to Me Only With Thine Eyes" (Smith and Holmes).  
 9.55: Vocal quartet—Dulcet Quartet, "Three Fishers Went Sailing" (Hullah). God Save the King.

**4YA, DUNEDIN (463 METRES)—WEDNESDAY, AUGUST 22.**

- 7 p.m.: Town Hall chimes.  
 7.1: Request gramophone concert.  
 7.40: News session—Burnside stock report.  
 8.0: Town Hall chimes.  
 8.1: Relay of orchestral music from Octagon Theatre.  
 8.10: Popular songs—Miss Vanda Duncan, (a) "My Idea of Heaven" (Johnson); (b) "Five Foot Two, Eyes of Blue" (Henderson).  
 8.17: Marimba solos—Mr. H. Dalziel, (a) "Billy Possum Rag" (Thurban); (b) "Silver Sands of Waikiki" (Ruoso).  
 8.23: Popular song—Mr. Billy Gay, "Usen't You Use to be My Sweetheart" (Wedding).  
 8.27: Jazz piano solo—Mr. T. V. Anson, "Birth of the Blues" (Henderson).  
 8.31: Humorous sketch—Miss Billie Lorraine and Major F. H. Lampen, "The Little One."

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- 8.40: Popular songs—Miss Jacqueline Burke, (a) "Just a Memory" (Henderson); (b) "There's a Cradle in Caroline" (Ahletter).  
 8.47: Piano-accordion solos—Mr. E. Heaney, (a) "London Waltz" (with variations); (b) "Light Cavalry Overture" (selection), (Suppe).  
 8.54: Popular songs—Miss Billie Lorraine, (a) "For My Sweetheart" (Donaldson); (b) "Meadow Lark" (Firrito).  
 9.1: Weather forecast.  
 9.3: Relay of orchestral music from the Octagon Theatre.  
 9.12: Popular song—Miss Vanda Duncan, "Brown Eyes, Why Are You Blue" (Meyer).  
 9.16: Jazz piano solos—Mr. T. V. Anson, "Nothin'" (Handman); (b) selected.  
 9.24: Popular songs—Mr. Billy Gay, (a) "I Told Them All About You" (Friend); (b) "Take Your Finger Out of Your Mouth" (Yellowman).  
 9.32: Humorous sketch—Major F. H. Lampen, selected.  
 9.40: Popular song—Miss Jacqueline Burke, "Monsey" (Ringle).  
 9.45: Piano-accordion and marimba duets—Messrs. Heaney and Dalziel, (a) "Our Bungalow of Dreams" (Verger); (b) "Great Little Army" March (Alford).  
 9.52: Relay of orchestral music from the Octagon Theatre.  
 10.0: Close down.

## Thursday, August 23

**1YA, AUCKLAND (333 METRES)—THURSDAY, AUGUST 23.**

- 3 p.m.: Afternoon session—Selected studio items.  
 3.30: Talk on "Gas Cooking," by a representative of the Auckland Gas Company.  
 3.45: Selected studio items.  
 4.0: Literary selection by the Announcer.  
 4.8: Selected studio items.  
 4.25: Sports results.  
 4.30: Close down.  
 6.0: Children's session—Peter Pan, assisted by Bayfield Choir, in choir items, songs, duets and recitations; letters and birthdays; bedtime stories.  
 7.15: News and market reports.  
 8.0: Chimes.  
 8.1: Relay of orchestral overture from the Rialto Theatre Orchestra, under the direction of Mr. Henry C. Engel.  
 8.11: Vocal quartet—Clarion Glee Singers, opening chorus and humour.  
 8.19: Cornet duo—Messrs. Salthouse and Davies, "Friendship" (Loosey).  
 8.23: Tenor solo—Mr. James Simpson, "The Minstrel Boy" (traditional).  
 8.27: Instrumental trio—Auckland Trio, "Trio, Op. 8" (Pleyel).  
 8.35: Vocal duet—Miss B. Smith and Mr. D. Black, "May Day Morn" (Slater).  
 8.39: Wurlitzer organ record—"Estrellita" (Ponce).  
 8.43: Soprano solo—Miss Alma McGruer, "By the Blue River" (Clarke).  
 8.47: Vocal and instrumental—Bohemian Trio, (a) "Serenata" (Toselli); (b) "Ain't That a Grand and Glorious Feeling" (Ager).  
 8.55: Bass solo—Mr. Duncan Black, "Ho! Jolly Jenkin" (Sayer).  
 8.59: Evening forecast.  
 9.0: Relay of orchestral entr'acte from Rialto Theatre.  
 9.10: Vocal quartet—Clarion Glee Singers, "In the Wood" (Mendelssohn).  
 9.14: Pianoforte solo—Mrs. Charles Prime, "Capriccio" (Longo).  
 9.18: Contralto solo—Miss Beryl Smith, "My Ain Folk" (Lemon).  
 9.22: Cornet duos—Messrs. Salthouse and Davies, (a) "Oh, That I Would Love" (Mendelssohn); (b) "In the Garden of My Heart" (Dorel).  
 9.30: Vocal duet—Miss McGruer and Mr. Simpson, "I Love the Moon" (Rubens).  
 9.34: Wurlitzer organ record—"La Paloma" (Yradier).  
 9.38: Vocal and instrumental—Bohemian Trio, (a) "My Idea of Heaven" (Morse); (b) "Just Wondering" (Donald).  
 9.46: Instrumental trio—Auckland Trio, selection from "Monsieur Beaucaire" (Rosse).  
 9.55: Vocal quartet—Clarion Glee Singers, "The Long Day Closes" (Parkes).  
 10.0: God Save the King.

**2YA, WELLINGTON (420 METRES), THURSDAY, AUGUST 23.**

- 3 p.m.: Chimes of the G.P.O. clock.  
 3.1: Selected gramophone items.  
 4.30 and 4.55: Sports results to hand.  
 5.0: Close down.  
 6.0: Children's session—Aunt Gwen and Nelson Park School Choir (under Mr. W. W. Johns). Part-song, the Choir, "The Fairy Queens" (Fletcher). Recitation, Cousin Iris, "Yussouf" (Lowell). Unison song, the Choir, "The Vagabond" (Dunhill). Unison song, the Choir, "Wigwam Song" (Rowley). Birthday greetings, Aunt Gwen. Song, Cousin Alexa, "The Fairy Laundry" (Phillips). Part-song, the Choir, "In Derry Vale" (arr. Shaw). Double duet, four Choir girls, "Lullaby" (seventeenth century). Poem, Aunt Gwen: Round, the Choir, "Homing" (Anon.).  
 7.0: News session, market reports, and sports results.  
 8.0: Chimes of the G.P.O. clock.  
 Studio concert by Wellington City Salvation Army Band (under the conductorship of Mr. B. J. Dutton), and assisting artists.



- 8.1: March—Band, "Liverpool" (Salvation Army, London).  
 Morceau—Band, "Say It With Music" (arr. Scotney).  
 8.14: Tenor solos—Mr. Chas. Williams, (a) "By Celia's Arbour" (Mendelssohn); (b) "Gondola Song" (Mendelssohn).  
 8.20: Vocal quartet—Lyric Quartet, "O, Lovely Night" (Shwatal).  
 8.23: Concert zither solo—Mr. E. D. Bernstein, "Merry Troopers' Favourite March" (Herrlinger).  
 8.27: Humour—Mr. J. S. Webb, "The Stror 'at Coot" (Dennis).  
 8.31: Bass solos—Mr. W. Binet Brown, (a) "Last Call" (Sanderson); (b) "King Solomon" (Cooke).  
 8.37: March—Band, "Heavenward" (arr. Scotney).  
 Chorus—Band, "Heavens are Telling," from "Creation," by Hayden (arr. Hawkes).  
 8.51: Vocal quartets—Lyric Quartet, (a) "Juanita" (Norton); (b) "The Tack" (Sprague).  
 8.58: Weather forecast.  
 9.0: Lecturette—Mr. Johannes Andersen, "Native Birds."  
 9.12: Selection—Band, "Elijah" (Mendelssohn, arr. Hawkes).  
 9.24: Duet—Messrs. Chas. Williams and Will Goudie, "The Lovers" (Lane Wilson).  
 9.27: Concert zither solos—Mr. E. D. Bernstein, two old-time dances, (a) "The Merry-makers" (Ebele); (b) "The Charming" (Mildner).  
 9.33: Dutch character-study—Mr. J. S. Webb, "Did you Effer" (Spencer).  
 9.38: Vocal quartet—Lyric Quartet, "Simple Simon" (Macy).  
 9.41: Song—Band, "A Song of the Homeland" (Sullivan).  
 9.46: Baritone solos—Mr. Will Goudie, (a) "The Garden Where My Soul Was Born" (Coningsby Clarke); (b) "Clothes Props" (Charles).  
 9.52: Vocal quartet—Lyric Quartet, "Kentucky Home" (Foster).  
 9.55: March—Band, "The Victory."  
 God Save the King.

### 3YA CHRISTCHURCH (306 METRES)—THURSDAY, AUGUST 23.

- 3 p.m.: Afternoon session—selected studio items.  
 4.25: Sports results.  
 4.30: Close down.  
 6.0: Children's session—Chuckie and Aunt Pat—Opening chorus, "How-do-you-do, Everybody?" Storytime, "Alice in Wonderland" and "The Young Fur Traders"; choruses by the New Brighton Juvenile Choir, "Laugh and the World Laughs With You"; "A Frog He Would A-wooing Go," "The Animals' Band," "Twilight Lullaby"; song by Cousin Sally; recitation by Cousin Gwen; violin solo, Cousin Roma; birthday greetings; goodnight song, "Come Along You Little Ones."  
 7.15: News session.  
 7.30: Talk—(under the auspices of the Canterbury Progress League).  
 8.0: Chimes.  
 8.1: Overture—rebroadcast of 2YA, Wellington (conditions permitting).  
 8.7: Tenor solo—Mr. Harold Prescott, "Eleanore" (Taylor).  
 8.11: Pianoforte solos—Miss Aileen Warren, (a) "Volga Boat Song" (Schutt), (b) "Wedding Day" (Op. 65, No. 6) (Grieg).  
 8.19: Contralto solo—Mrs. Ann Harper, "Deserted" (Macdowell).  
 8.23: Instrumental trio—Christchurch Broadcasting Trio, "Prelude and Minuet" (Parker).  
 8.32: Soprano solos—Madame Gower-Burns, (a) "The Bird" (Fiske), (b) "By the Waters of Minnetonka" (Lieurance).  
 8.39: Recitals—advice and humour—Mr. R. R. Wills, (a) "Be Fit" (Kipling), (b) "The Weather Fiend" (m.s.).  
 8.47: Baritone solos—Mr. Clive Hindle, (a) "The Last Song" (Rogers), (b) "A Spirit Flower" (Tipton).  
 8.54: Piccolo solo—Mr. T. H. Amos, "Falling Stars" (Le Thiere).  
 8.59: Contralto solos—Mrs. Ann Harper, (a) selected; (b) "To a Wild Rose" (Macdowell).  
 9.4: Weather report.  
 9.6: Overture.  
 9.10: Vocal quartet, followed by soprano—Grand Opera Quartet and Madame Gower-Burns, (a) "Mandalay" (Damrosch), (b) selected; (c) "The Voice of Spring" (Leigher).  
 9.22: Flute solo—Mr. T. H. Amos, "The Ashgrove" (Le Thiere).  
 9.27: Tenor solos—Mr. Harold Prescott, (a) "Night Idyll" (Loughborough); (b) "Sylvia" (Speaks).  
 9.34: Trumpet solos—Mr. Percy Reeves, (a) "Robert La Diable" (Meyerbeer), (b) "The Immortal Choir" (Lotter).

- 9.42: Recital—Mr. R. R. Wills, "The Pipes of Lucknow" (M.S.).  
 9.47: Baritone solo—Mr. Clive Hindle, "Inter Nos" (MacFadyen).  
 9.51: Instrumental trios—Christchurch Broadcasting Trio, (a) "Love Song" (Cadman), (b) "Serenade" (Herbert).  
 9.59: Vocal quartet—Grand Opera Quartet, "A Perfect Day" (Bond, arrgd. Newton).  
 God Save the King.

### 4YA DUNEDIN (463 METRES)—THURSDAY, AUGUST 23.

SILENT DAY.

## Friday, August 24

### 1YA, AUCKLAND (333 METRES), FRIDAY, AUGUST 24.

- 3 p.m.: Afternoon session—selected studio items.  
 4.0: Literary selection by the Announcer.  
 4.8: Selected studio items.  
 4.25: Sports results.  
 4.30: Close down.  
 6.0: Children's session, conducted by Uncle Nod, assisted by Hotel Cargen Orchestra, in nursery rhymes and popular airs. Letters and birthdays. Stories.  
 7.15: News and market reports.  
 8.0: Chimes.  
 8.1: Orchestral selection—"Hungarian Rhapsody, No. 2" (Liszt).  
 8.9: Tenor solo—Mr. John McDougall, "Bells of the Sea" (Solman).  
 8.13: Cornet solo—Mr. Fred. Bowes, "Lucille Caprice" (Code).  
 8.18: Soprano solo—Madame Mary Towsey, "Three Fishers" (Hallah).  
 8.22: Instrumental trio—Auckland Trio, "Trio, No. 3—First Movement" (Beethoven).  
 8.31: Baritone solo—Mr. John Bree, "Drink to Me Only" (Quilter).  
 8.35: Guitar solo (record)—"Because I Love You" (Berlin).  
 8.39: Contralto solo—Miss G. Evans, "Love's Old Sweet Song" (Molloy).  
 8.43: Cello solo—Miss M. Wright, "Traumerel" (Schumann).  
 8.48: Boy soprano and chorus—Master George Asher, "Hear My Prayer" (Mendelssohn).  
 8.53: Orchestral selection—"Turandot" (Puccini).  
 9.1: Weather forecast.  
 9.3: Novelty—The Wizard, "Word Wangles."  
 9.23: Soprano solo—Madame Mary Towsey, "Absent" (Metcalf).  
 9.27: Cornet solos—Mr. F. Bowes, (a) "Serenade and Allegro," from "Don Pasquale" (Hartman); (b) "Cavatina" (Meyerbeer).  
 9.36: Baritone solo—Mr. John Bree, "Genevieve" (Tucker).  
 9.40: Guitar solo (record)—"My Rose" (Bright).  
 9.44: Contralto solo—Miss G. Evans, "Out on the Rocks" (Santon Dolby).  
 9.48: Instrumental trio—Auckland Trio, "Springtime" (Drumm).  
 9.57: Vocal quartet—Madame Mary Towsey's Quartet, "The Rosary" (Nevin).  
 10.0: God Save the King.

### 2YA, WELLINGTON (420 METRES), FRIDAY, AUGUST 24.

- 3 p.m.: Chimes of the G.P.O. clock.  
 3.1: Selected gramophone items.  
 4.30 and 4.55: Sports results to hand.  
 5.0: Close down.  
 6.0: Children's session—Uncle Ernest and the Cheerio Girls. Song, Cheerio Girls, "Old Man Moon" (Amy Hill). Recitation, Uncle Ernest. Song, Cousin Maxine, "Colonel of the Crimson Hussars" (Jacobi). Birthdays. Song, Cheerio Girls, "Captain Baby Bunting" (soloist, Cousin Maxine), (Helf). Song, Cousin Zena, "Odds and Ends" (Drummond). Trip to distant lands, Uncle Ernest. New Zealand National Anthem, "God Defend New Zealand," Cheerio Girls.  
 7.0: News session, market reports, and sports results.  
 8.0: Chimes of the G.P.O. clock.  
 8.0: Special presentation of "The Rebel Maid" (Montague Phillips) by the Wellington Orpheus Musical Society, under the conductorship of Mr. Len. Barnes, assisted by the 2YA Orchestra.

Cast:

Lady Mary (The Rebel Maid), soprano ..... Mrs. Alice Harris  
 Abigail—her maid )  
 Dorothy ) mezzo-soprano ..... Mrs. Margaret Press  
 Percy, tenor ..... Mr. Will Hancock  
 Derek (commander of the rebel cutter, Curlew), baritone ..  
 Mr. Ray Kemp

Bunkle (an innkeeper) )  
 Lord Milverton (Derek's father) ) ..... Mr. Jno. Pearson  
 Stephen, baritone )  
 Solomon (Derek's servant), baritone ..... Mr. Rupert Bennett  
 The action occurs in 1688 on the eve of the landing of William, Prince of Orange (afterwards crowned William III) at Torbay in Devonshire. Lord Milverton, a Devonshire adherent to the cause of the Stuart King, James, is celebrating the arrival of his nephew, Sir Stephen Crespigny, who has been appointed to the dignity of Royal Commissioner for the suppression of the anti-Stuart plot. Among Lord Milverton's guests is the young and high-spirited Lady Mary Trefusis, a near neighbour,



who is secretly concerned in the conspiracy. Another of the conspirators against King James is Lord Milverton's own son, Derek Lanscombe, who, after an absence from England of three years, arrives on the Devonshire coast in his cutter, the Curlew, to prepare for the safe landing of the Prince of Orange's fleet. Lady Mary, suspecting Derek's participation in the conspiracy, tries to win his confidence, but Derek, despite his love for her, remains faithful to his pledge of secrecy, and in this lack of mutual understanding Sir Stephen finds opportunity for setting the lovers at cross-purposes and of thwarting their respective plans.

Lady Mary is known to the fisher-folk, who sympathise with the plot to overthrow King James, by the name of "Snow Bunting." She has been instructed to set a signal for the guidance of the invading fleet on a high point overlooking Torbay. Finding this place in the occupation of Sir Stephen's Redcoats, she sets a red light to warn the ships of danger. Sir Stephen, who has discovered her secret by intercepting a letter containing her instructions, takes down the red light and substitutes a green one, which is the appointed "all clear" signal of safety. Derek Lanscombe on the Curlew is thereby lured into an ambush, from which he narrowly escapes with his life, and is led by Sir Stephen to believe that Lady Mary is the treacherous cause of his betrayal. With the help of the fishermen, however, he escapes, but, recklessly returning in the third act of the opera he discovers the truth, and is again captured and is on the point of being shot as a rebel when the Prince of Orange, having landed from his fleet, opportunely arrives in time to restore the lovers to safety, love, and happiness.

## Act. I.

Introduction and opening chorus—"This English Land."

Duet (Dorothy and Percy) and chorus, "In 1688."

Song (Derek), "Home Again."

Song (Mary) and chorus, "Sunshine and Laughter."

Quartet and Gavotte (Mary, Dorothy, Percy, and Derek)—"Shepherdess and Beau Brocade."

Song (Derek) and chorus—"Unavailing Little Lady."

Song (Mary)—"When a Dream of Love You Cherish."

Finale (principals and chorus)—"But Stay, Confession I Should Make."

## Act II.

Song (Bunkle) and male chorus—"We've Searched the Countryside."

Song (Abigail)—"I Want My Man to Be a Landlord."

Madrigal (chorus)—"How Strange This Tumult."

Song (Mary)—"The Old-fashioned Cloak."

Chorus of serving-maids—"Serving-Maids, Merry."

Duet (Solomon and Bunkle) and male chorus—"Ho, Lo! Diddle Dum."

Song (Mary) and chorus—"Are My Lanterns Shining?"

Finale (principals and chorus)—"Now Hold, Can We Not Save?"

## Act III.

Jig—The Orchestra.

Opening chorus—"When the Heart is Blithe and Jolly."

Song (Derek) and chorus—"The Fishermen of England."

Song (Mary)—"Sail, My Ships."

Madrigal (chorus)—"Wisdom and Folly."

Duet (Mary and Derek)—"Now Stand We on the Summit of the Hill."

Finale—"They Have Come from over the Seas."

God Save the King.

## 3YA, CHRISTCHURCH (306 METRES)—FRIDAY, AUGUST 24.

2 p.m.: Afternoon session—Selected studio items.

4.25: Sports results.

4.30: Close down.

6.0: Children's session—Big Brother. Opening chat and story for the Tiny Tots by Big Brother. Chorus by Edgeware Road Wolf Cub Pack, "Waltzing Matilda." Fairy tale in music and story, Miss Appoggio, "Jack and the Beanstalk." Recitation, Cousin Ray, "Going to the Dentist." Chorus, Wolf Cub Pack, "A Sad, Sad Story." Health Game Talk by the Captain. Birthdays. Recitation, Cousin Ray, "You'll Get Heaps of Lickin's." Chorus by Cubs, "My Old Mas-sarum." Story for the Big Boys by Big Brother. Pack calls by the Cubs—"African Jungle Call," "Maori Haka," "Cub Yells." Closing chorus, "Merrily We Roll Along."

7.15: News session.

7.30: Talk, "Football Review," Mr. J. K. Moloney.

8.0: Chimes.

8.1: Overture (rebroadcast of 2YA, Wellington, conditions permitting).

8.7: Vocal duet, followed by contralto solo—The Yeomen Duo and Mrs. E. H. Davies, (a) "Tenor and Baritone" (Wilson), (b) "Sunshine and Rain" (Blumenthal).

- 8.15: 'Cello solo—Mr. Harold Beck, "To a Wild Rose" (Macdowell).  
 8.20: Tenor solos—Mr. Russell Sumner, (a) "Caro Mio Ben" (Giordini), (b) "Would God I Were the Tender Apple Blossom" (Fisher).  
 8.27: Instrumental trio—Christchurch Broadcasting Trio, "Romance and Minuet" (Bremner).  
 8.36: Baritone solos—Mr. T. D. Williams, "Songs from the Fringes of the Fleet" (Elgar).  
 8.45: Recital—Miss Pearl Noonan, "Music in the Bush" (Service).  
 8.50: Mezzo-soprano solos—Miss Millicent Jennings, (a) "Dabbling in the Dew" (traditional), (b) "Oh, No, John!" (traditional).  
 8.56: Weather forecast.  
 8.58: Overture.  
 9.3: Vocal male duet, followed by contralto solos—Yeomen Duo and Mrs. E. H. Davies, (a) "Soldiers and Comrades" (Jacobs), (b) "A Bowl of Roses" (Clarke), (c) "Lay My Head Beneath a Rose" (Falkenstein).  
 9.13: 'Cello solo—Mr. Harold Beck, "March On" (negro spiritual) (Benjamin).  
 9.17: Tenor solos—Mr. Russell Sumner, (a) "A Fareweell" (Liddle), (b) "Pretty Creature" (Wilson).  
 9.23: Instrumental trios—Christchurch Broadcasting Trio, (a) "Vienoise March" (Kreisler), (b) "Chanson Triste" (Tchaikowsky), (c) "Syncopation" (Kreisler).  
 9.33: Mezzo-soprano solo—Miss Millicent Jennings, "Country Night Song" (Phillips).  
 9.37: Hawaiian fox-trot (xylophone solo)—Mr. S. Morrish, "Dreamy Paradise" (Van Alstyne).  
 9.40: Sketch—Miss Pearl Noonan and Mr. W. H. Moses, "He Tried to Tell His Wife" (MS.).  
 9.50: Saxophone, bells, and vocal—Messrs. Wilkinson, Morrish, and Williams, "Castaway" (slow waltz) (Easton).  
 9.56: Dance music—Eastern Fox-trot, Williams's Drance Band, "Blue Egypt" (Cobb) (refrain by marimba and effects).  
 Williams's Drance Band will dispense music at intervals until 11 p.m.  
 11.0: God Save the King.

## 4YA, DUNEDIN (463 METRES)—FRIDAY, AUGUST 24.

3 p.m. Town Hall chimes.

3.1: Gramophone music.

3.15: An address.

3.30: Relay of afternoon-tea music from the Savoy.

3.45: Studio music.

4.0: Relay of music from the Savoy.

4.15: Gramophone music.

4.25: Sports results.

4.30: Close down.

6.0: Town Hall chimes.

6.1: Children's session—Aunt Sheila and Big Brother Bill—Happy Folks Antham. The musical part of the programme will be provided by the Forbury School choir.

7.15: News session.

7.30: Review by Mr. H. Greenwood (Dunedin Athenaeum) of the latest books.

8.0: Town Hall chimes.

8.1: Orchestral selection.

8.10: Bass solos—Mr. Neil Black, (a) "Off to Philadelphia" (Haynes), (b) "A Bowl of Roses" (Clarke).

8.17: Flute solo—Mr. Chas. E. Gibbons, "Dans les Bois au Printemps" (Chandoir).

8.23: Contralto solo—Miss Dorothy Skinner, "When All Was Young" (Gounod).

8.26: Cornet solos—Mr. D. J. Robertson, (a) "Chant d'Amour" (Forestein), (b) "Maritana" (Wallace).

8.34: Pianoforte solo—Mrs. Ernest Drake, "Liebestraum No. 2" (Liszt).

8.38: Bass solo—Mr. Neil Black, "Doreen" (Agate).

8.42: Flute solo—Mr. Chas. E. Gibbons, "The Nightingale" (Barsotti).

8.48: Contralto solos—Miss Dorothy Skinner, (a) "Down Here" (Brahe), (b) "My Prayer" (Saulre).

8.54: Cornet solo—Mr. D. J. Robertson, "Wiemen Volkslied" (Brandl).

8.58: Weather forecast.

9.0: An hour's dance music relayed from the Savoy.

10.0: Close down.

## Saturday August 25

## 1YA, AUCKLAND (333 METRES)—SATURDAY, AUGUST 25.

1.30 p.m.: Relay description of representative Rugby football match, Auckland v. New South Wales (Announcer, Mr. W. J. Meredith).

6.0: Children's session conducted by Cinderella. Song, Cousin Dawn, "When Irish Eyes are Smiling." Recitation, Cousin Ngaere, "Dolly's Lament." Letters and birthdays. Duet, Cousins Dawn and Ngaere, "Lullaby Land" (Prival). Recitation, Cousin Ngaere, "Greedy Little Girl." Jokes, Cousin Freddy. Song, Cousin Dawn, "Jolly Little Eskimo." Stories.

7.15: News and market reports.

8.0: Chimes.

8.1: Relay of orchestral overture from Prince Edward Theatre Orchestra under Mr. Ernest Beachem.

8.11: Soprano solo—Miss Christina Ormison, "One Fine Day" (Puccini).

8.15: Banjo solo, record, "Sunflower Dance" (Neat).

8.19: Vocal trios—Snappy Three, (a) "Breeze" Henley), (b) "Nothin'" (Turk).

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## AUCKLAND SUNDAY SCHOOL UNION

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AUCKLAND.



- 8.26: Tenor solos—Mr. Ralph Eskrigge, (a) "I Heard You Singing" (Coates), (b) "My Dearest Heart" (Sullivan).  
 8.34: Instrumental—Auckland Concertina Band, (a) "Let 'Er Go!" (Wood), (b) "Songs of the Past" (MS.).  
 8.42: Humour—Record, "Why Every Married Man Should Have a Wife."  
 8.46: Relay of orchestral entr'acte from Prince Edward Theatre.  
 8.56: Soprano solos—Miss C. Ormiston, (a) "Down in the Forest" (Ronald), (b) "Ma Curly-Headed Babby" (Clutsam).  
 9.3: Weather forecast.  
 9.4: Banjo solo—Record, "Devil May Care."  
 9.8: Vocal trios—Snappy Three, (a) "You Went Away Too Far" (Bryan), (b) Piano Jazz Solo, (c) "A Bungalow and You" (O'Hagan).  
 9.16: Tenor solos—Mr. R. Eskrigge, (a) "An Eriskay Love Lilt" (McLeod), (b) On with the Motley" (from "Pagliacci"—Leoncavallo).  
 9.24: Instrumental—Auckland Concertina Band, (a) "Over the Waves" (Ivanovici), (b) "The Lost Chord" (Sullivan).  
 9.31: Humour—Record, "Do Film Actresses Make Good Husbands?"  
 9.35: Relay of dance music from Dixieland Cabaret Orchestra, under the direction of Mr. Harry Neilsen.  
 11.0: God Save the King.

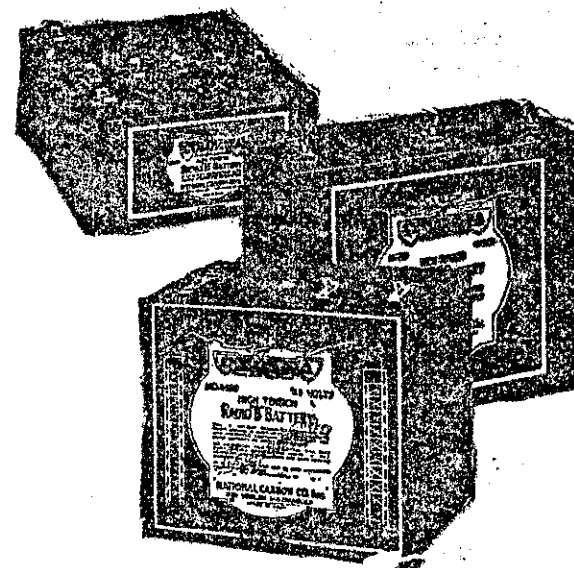
**2YA, WELLINGTON (420 METRES), SATURDAY, AUGUST 25.**

- 3 p.m.: Chimes of the G.P.O. clock.  
 3.1: Relay description of football match from Athletic Park. Mr. Chas. Lamberg, announcer.  
 6.0: Children's session—Aunt Gwen, Uncle Toby, and Cousins Joan, Nancy, Gladys, and Pat. Pianoforte duet, Cousins Joan and Nancy, selected. Recitation, Cousin Gladys, "Don'ts" (Anon.). Birthdays, Uncle Toby. Song, Cousin Pat, "The Land of I Dunno Where" (Sidey). Birthdays, Aunt Gwen. Pianoforte duet, Cousins Joan and Nancy, selected. Song, Uncle Toby, selected. Recitation, Cousin Gladys, "Half-past Eight" (Anon.). Song, Cousin Pat, "It's Tulip Time in Holland" (Whiting). Story, Aunt Gwen. Good-night song, Uncle Toby.  
 7.0: News session, market reports, and sports results.  
 7.40: Lecturette—Mr. H. G. Miller, M.A., "Wakaroa, the King-maker."  
 8.0: Chimes of the G.P.O. clock.  
 8.1: Overture—The Orchestra, (a) "The Crown of Chivalry" (Fletcher); (b) "The Jolly Musicians" (Muscat).  
 8.11: Vocal quartet—Melodie Four, "The Ladies" (MacKenzie).  
 8.14: Banjo-mandolin solos—Mr. Laurie Mills, (a) "The Double-Eagle March" (Wagner); (b) "La Marguerite" (Monk).  
 8.20: Baritone solos—Mr. R. S. Allwright, (a) "The Cheerful Vagabond" (Hearne); (b) "Wimen, Oh, Wimen" (Phillips).  
 8.26: Humour—Mr. R. Walpole, "Egbert on the All Blacks" (original).  
 8.31: Tenor solos—Mr. Frank Bryant, (a) "A Song Remembered" (Coates); (b) "Friend o' Mine" (Sanderson).  
 8.37: Instrumental—The Orchestra, (a) "A Japanese Sunset" (Deppen, arr. Zamecnik); (b) "A Rickshaw Ride" (Niemann).  
 8.46: Sketch—Glad Idlers, "Mixed Wireless" (original).  
 8.52: Vocal quartets—Melodie Four, "Honolulu Moon" (Lawrence), (by request).  
 8.55: Instrumental—The Orchestra, request number.  
 9.3: Weather forecast.  
 9.5: Bass solos—Mr. W. W. Marshall, (a) "Drinking" (traditional); (b) "My Friend."  
 9.11: Humour—Mr. R. Walpole, "Monty on 'Every Married Woman Should Have a Husband'" (Hayes).  
 9.16: Tenor solos—Mr. Sam. Duncan, (a) "A Dream" (Bartlett); (b) "Offing the Stilly Night."  
 9.22: Trombone solo, with orchestral accompaniment—Mr. Harold Oakes, "The Firefly" (Moss).  
 9.27: Sketch—Glad Idlers, "Summer-time" (original).  
 9.33: Banjo-mandolin solos—Mr. Laurie Mills, (a) "Mill Dam Galop" (Baab); (b) "The State Band Patrol" (Sanders-Papworth).  
 9.38: Vocal quartets—Melodie Four, (a) "Cornfields Medley" (arr. Holloway); (b) "Mosquitoes" (Bliss), (by request).  
 9.43: Novelty—The Orchestra, "A Southern Wedding" (Lotter).  
 9.49: Vocal duet—Messrs. S. Duncan and R. S. Allwright, "The Fishermen of England" (Gabussi).  
 9.52: Instrumental—The Orchestra, dance numbers, with vocal choruses by the Glad Idlers.  
 10.2: Dance programme.  
 11.0: Close down.

**3YA CHRISTCHURCH (306 METRES), SATURDAY, AUGUST 25.**

- 2.45 p.m.: Description of Rugby football from Lancaster Park.  
 6.0: Children's session—Uncle Sam—Stories and birthday greetings, music and songs by Uncle Sam and his young helpers.  
 7.15: Sports results.  
 7.30: News session.  
 8.0: Chimes.  
 8.1: Overture—rebroadcast of 2YA, Wellington, conditions permitting).  
 8.7: Baritone solo, Mr. Sydney Armstrong, "Because" (D'Hardelot).  
 8.12: Mezzo-soprano solos, Miss Blanche Atkinson, (a) "The Heart's Fancies" (Thomas), (b) "The Roumanian Mountains" (Lohr).  
 8.16: Flugel horn solos, Mr. E. N. Trenberth, (a) "Queen of the Earth" (Pinsuti), (b) "At Break of Day" (Hume).  
 8.24: Happy songs at the piano (with ukulele), The Joyous Trio, (a) "My Ohio Home" (Donaldson), (b) "Every Little Thing I Do" (Hackforth).

- 8.32: Instrumental trio, Christchurch Broadcasting Trio, "Adagio—Allegro" (Hayden).  
 8.41: Humour, Mr. Hiram Dunford, "The Owl Critic" (MS).  
 8.46: Accordion solo, Mr. George Bennett, "Whispering Pines of Nevada" (MS).  
 8.50: A piano and Cyril Avondale, "A Good Little Boy and a Bad Little Boy" (MS).  
 8.55: Soprano solos, Mrs. C. Du Lieu (a) "An Erisky Love Lilt" (Fraser), (b) "A Night Idyll" (Loughborough).  
 9.1: Weather forecast.  
 9.3: Talk by Mr. Pegg (Physical Instructor at the Y.M.C.A., Christchurch)—semi-humorous and topical. Overture.  
 9.18: Baritone solos, Mr. Sydney Armstrong, (a) "Every Roadway" (Wood), (b) "Little Town in Old County Down" (Sanders).  
 9.25: Mezzo-soprano solos, Miss Blanche Atkinson, (a) "Impatience" (Schubert), (b) "Buy My Strawberries" (Oliver).  
 9.30: Instrumental trios, Christchurch Broadcasting Trio, (a) "Once Upon a Time" (Lind), (b) "Three-Fours Waltz" (Taylor).  
 9.39: Happy songs at the piano (with ukulele), Joyous Trio, (a) "Ramona" (Wayne), (b) "Oh, Doris!" (Kahn).  
 9.46: Accordion solos (with vocal refrain), Mr. Geo. Bennett, (a) "The Last Rose of Summer" (MS), (b) "Moonlight and Roses" (MS).  
 9.52: Soprano solo, Mr. C. Du Lieu, "The Restless Sea" (Hamblin).  
 9.57: Humour, Mr. Hiram Dunford, "Courting Under Difficulties" (MS).



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- 10.2: Novelty piano duets, Misses Dorothy Johnson and Muriel Johns, (a) "Nothin'" (Handman), (b) "There's One Little Girl Who Loves Me" (Whiting).  
 10.8: A piano and Mr. Cyril Avondale, "The Other Department, If You Please" (MS).  
 God Save the King.

#### 4YA DUNEDIN (463 METRES), SATURDAY, AUGUST 25.

- 2.45 p.m.: Relay description of Inter-provincial football match—Canterbury v. Otago, from Carisbrook ground.  
 4.30: Close down.  
 7.15: News session.  
 7.30: Conclusion of the series of talks by Mr. Lloyd Ross, M.A., on "The Story of England" (under the auspices of the Workers' Educational Association).  
 8.0: Town Hall chimes.  
 8.1: Relay of orchestral selections.  
 8.12: Mezzo-soprano solos, Miss Agnes Guy, (a) "I Passed By Your Window" (Brahe), (b) "Morning" (Speaks).  
 8.18: Cello solo, Mr. P. J. Palmer, "Madrigal" (Squire).  
 8.23: Baritone solo, Mr. Arthur Lungley, "Annie Laurie" (Traditional).  
 8.27: Recitals, Miss Molly Gallagher, F.T.C.L. (a) "The Highway Man" (Noyes), (b) "Katie's Answer" (Anon).  
 8.36: Instrumental trio (violin, cello and piano), "Traumerel" (Schumann).  
 8.41: Contralto solos, Miss Irene Horniblow, L.R.A.M., (a) "When Flora Smiles" (Ford), (b) "When First I Saw" (Ford).  
 8.46: Pianoforte solos, Mrs. Ernest Drake, L.A.B., "Prelude in C Sharp" (Rachmaninoff), (b) "Refrain De Berceau" (Palgrem).  
 8.53: Bass solo, Mr. J. Ferguson, "Mine Enemy" (Rudd).  
 8.58: Weather report.  
 9.1: Relay of orchestral selections.  
 9.10: Mezzo-soprano solo, Miss Agnes Guy, "The River of Years" (Marzials).  
 9.14: Cello solo, Mr. P. J. Palmer, "Scherzo" (Tabb).  
 9.20: Baritone solos, Mr. Arthur Lungley, (a) "The Border Ballad" (Cowen), (b) "Loch Lomond And You" (Drummond).  
 9.27: Violin solos, Mr. Harold Riddle, L.T.C.L. (a) "First Gavotte" (Bohm), (b) "Le Cygne" (Saint-Saens).

- 9.33: Humorous recital, Miss Molly Gallagher, "John Tibbey's Dispute."  
 9.38: Instrumental trios—(a) "Coronation March" (from "Le Prophete") (Meyerbeer), (b) "Berceuse De Jocelyn" (Godard).  
 9.49: Contralto solo, Miss Irene Horniblow, "Hark The Echoing Air" (Purcell).  
 9.52: Violin solo, Mr. Harold Riddle, "Romance in B Flat" (Light).  
 9.56: Bass solos, Mr. J. Ferguson, (a) "Mountain Lovers" (Squire), (b) "Megan at the Fair" (Drummond).  
 10.2: Close down.

## Sunday, August 26

### 1YA, AUCKLAND (333 METRES)—SUNDAY, AUGUST 26.

- 9 a.m.: Result of "All Blacks" match in South Africa.  
 3 p.m.: Afternoon session—Selected studio items.  
 4.0: Literary selection by the Announcer.  
 4.8: Selected 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 Auckland Baptist Tabernacle. Preacher, Rev. Joseph Kemp; organist and choirmaster, Mr. Arthur E. Wilson.  
 8.30: Relay of Municipal Organ Recital from Town Hall. Organist, Mr. Maughan Barnett—Grand organ selections.  
 9.30: God Save the King.

### 2YA, WELLINGTON (420 METRES), SUNDAY, AUGUST 26.

- 9 a.m.: Result of All Blacks' match in South Africa.  
 3 p.m.: Afternoon session—Selected studio items.  
 6.0: Children's Sunday service, conducted by Uncle Ernest, assisted by St. Aiden's Sunday School Choir.  
 7.0: Relay of service from Terrace Congregational Church. Preacher, Rev. Ernest R. Weeks. Organist and choirmaster, Mr. H. Brusey.  
 8.15 (approx.): Relay of band recital of Wellington Municipal Tramways Band from His Majesty's Theatre (conductor, Mr. T. Goodall).  
 God Save the King.

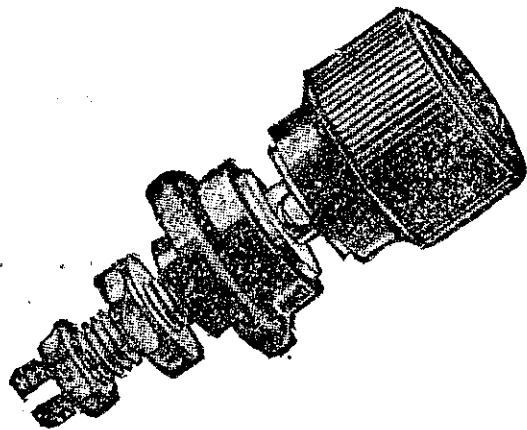
### 3YA, CHRISTCHURCH (306 METRES)—SUNDAY, AUGUST 26.

- 9 a.m.: Result of "All Blacks" match in South Africa.  
 3 p.m.: Afternoon session.  
 An organ recital by Mr. Ernest Firth, F.R.C.O., played on the Durham Street Methodist Church organ, will be interspersed during the afternoon session at 3.15 p.m. and 3.45 p.m.  
 4.30: Close down.  
 5.30: Children's song service conducted by Uncle David, assisted by children from Opawa Methodist Sunday School.  
 6.30: Relay of evening service from Durham Street Methodist Church. Preacher, Rev. W. T. Bright, B.A.; organist and choirmaster, Mr. Ernest Firth, F.R.C.O.  
 8.15 (approx.): Rebroadcast of band concert by Wellington Municipal Tramways Band, relayed from His Majesty's Theatre, Wellington.  
 God Save the King.

### 4YA, DUNEDIN (436 METRES)—SUNDAY, AUGUST 26.

- 9 a.m.: Town Hall chimes.  
 9.2: Result of "All Blacks" match in South Africa.  
 9.15: Close down.  
 5.30: Children's song service conducted by Big Brother Bill, assisted by children from the Trinity Church Methodist Sunday School.  
 6.30: Relay of service from the Methodist Central Mission. Preacher, Rev. W. Walker; organist, Mr. Chas. A. Martin.  
 8.0: Studio concert.  
 9.15: Close down.

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## ANSWERS TO CORRESPONDENTS.

Curious, Invercargill.—What you heard was 1YA rebroadcasting WGY, Schenectady, New York, as received on short-wave. The Radio Listeners' Guide (price 2s. 6d. at dealers, or 2s. 9d. posted from ourselves) gives a voluminous list of overseas stations, wave-lengths, etc.

Listener-in, Eastbourne.—The giving of weather reports immediately after the church service, and before the commencement of the Sunday evening concert, is a service to country listeners, a number of whom have asked for early transmission of weather forecasts. That information is of great value to them, as they do not wish to wait up till the end of the concert.

P.A.M.—No address.—For your information regarding dogs, please communicate with Miss M. S. Christmas, canine nurse, 11 Regent Street, Wellington.

E.V.K.A. (Te Kuiti) reports hearing a station which gave a call sounding like "4ZL Sydney," but all New South Wales stations are allotted the figure 2. He may have heard a minor Dunedin station.

"R.A.W." should mention the type of circuit he is using in his set.

## Souvenir Number.

I WISH to congratulate you on the very fine souvenir number and the varied and valuable information contained therein. I have a five-valve portable set 15in. x. 10in. when closed, imported from England, and use no aerial and get 2YA generally quite clearly, particularly last Saturday p.m. with no

## 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.

fading whatever, and never have statics. Your programmes are a treat to listen to, and I congratulate the company in obtaining such talented artists.—H. J. Capper (Te Puke).

## Not Suitable for Sunday.

I WOULD like to enter my protest—this I may say represents a number of listeners in this district—to the programmes broadcast on Sunday evenings after church services from 2YA. I refer to the band concerts given in His Majesty's Theatre. We consider they are not in keeping with Sunday services. I am not thin-skinned, and other listeners who make no profession, are disgusted and switch off. Programmes broadcast should be in keeping with the day. The company should aim at a high standard. There are six days for secular items. Surely Sunday should be respected. We used to get good after service programmes from 3YA. Now His Majesty's Theatre concerts from 2YA are relayed. I trust the company will see their way to alter their plans.—Jas. Trewin, Cambridge.

## Growl Turns to Praise.

JUST a line or two to let you know what I thought of the programme of 2YA last night 4th. If the company would put more of this class of performance on I think it would be well received by listeners. This one was one out of the box, and I think as I am always on the growl about the stuff put over this will be quite a change from me. The show was quite a free and easy in every way and quite easy to listen to. As an old Digger, I thank the company, and in the same breath say encore. I can hear other listeners say Mee tooo. I had a house full of visitors and all said "Good."—J.K., Upper Hutt.

## Motor Talks.

I MUST congratulate the Broadcasting Company on arranging for a series of weekly motor talks. Good speakers, provided they know their subject, are, I think, enjoyed every bit as much by the average listener as the standard musical or elocutionary items. With over 100,000 motorists in the Dominion, and over 300,000 people directly or indirectly interested in motoring, I think Mr. Edwards's weekly talks could quite easily go on during the 8 to 10 session. Mr. Johannes Anderson and Professor Taylor were always enjoyable, and I think that Mr. Edward would be equally so. I would like other readers to express their opinions as to whether motor talks should be included in the 8 p.m. to 10 p.m. session.—Wanganui.

## Quality of Announcements.

A NEWSPAPER correspondent signed "Femina" touches upon a very real evil in the announcements from 2YA. Her letter might with justice have been made much stronger. The hearers to the radio include not only children but many imperfectly educated persons, and it is most important that all words should be properly

pronounced and not slurred. For example, "The Governor and his suite" was the other night transmitted as "The Govenor and his 'soot'." Latin and French words are continually mispronounced. "July 9" might better be stated as either "the ninth of July" or as "July the ninth." In pronunciation listeners are entitled to the best. I have intended many times to draw attention to the matter, and am pleased that "Femina" has done so, though I object generally to newspaper anonymous correspondence.—William Ferguson (Wn.).

Even the British Broadcasting Company are not authority on pronunciation, as they are preparing a pronouncing dictionary for their staff which, when completed, will contain pronunciations which will be contentious in some quarters.

[If most of the French words were given a correct Parisian pronunciation. New Zealand-taught French scholars would probably not understand the phrase, and Southern French would no doubt say the phrase was mispronounced. New Zealand incorporates quite a lot of Americanisms, unfortunately, and "soot" is Yank. However, the announcer does not wish to offend. Further, many mistakes are through nervousness or through sight-reading.—Ed.]

## Fewer Meetings Will Reduce Gambling.

REGARDING the ban on the broadcasting of racing and trotting meetings by the Racing Conference, it appears to me that their reason "that it facilitates and encourages betting with bookmakers," is only a blind to cover the real reason—namely, the clubs are frightened of losing a few pounds. If it was not for the betting, where would these racing clubs be? It brings bread and butter to many associated with the turf, and if the Government turned around and said, "Well now, seeing you are trying to stop betting with bookmakers, we will help you by cutting down the number of race meetings held annually by each club, say, by three-quarters, allowing each club only one or two meetings a year." What howls of rage would we hear from the racing clubs, and how they would harp on the fact that it affected those concerned with the clubs, etc. We would hear a different tale then, I'll warrant, and nothing in that tale would "facilitate and encourage betting with bookmakers."

Let me suggest a way of getting past the "ban." Several years ago 2FC, Sydney, used to broadcast races, the announcer being situated in a building outside the course. Could not a similar thing be done at the main New Zealand meetings? Say, a small tower on a lorry, or from the roof of a building overlooking the course. The racing club would have no control of that and could not say a word against it. Anyhow it would be worth a trial.—A Sport (Lower Hutt).

## Japanese Stations.

IN May last you were good enough to publish two rather lengthy letters of mine reporting reception of the six 10kw. Japanese stations. I have this day received a card from Tokio Central Broadcasting Station verifying my report of reception of JOAK, and I thought the following might be of interest. The card is in the form of a picture postcard, and on one side, in addition to the design, is pasted a photograph of the station. Hours of transmission are given: 6 p.m., children's hour; 6.30 p.m. language course; 7.10 p.m. news; 7.25 p.m. talks, music, etc.; 9.30 p.m. (approx.), time signal and weather forecast. On the reverse of the card is the address, the DX acknowledgement, and some particulars regarding the station, including the station call, which is given as, "JOAK, JOAK. Kochirawa, Tokio, Chuwo-Iiosokyoku de arimasu" (I wonder which call sounds the most peculiar; a listener in New Zealand hearing the above or a listener in Japan listening to, "This is station 1YA broadcasting from Messrs. George Court and Son's Building, Karangahape Road, Auckland"?). The acknowledgement is signed by S. Ikawa. I would strongly advise those listeners who are in the habit of tuning in the Japanese stations regularly to make a point of tuning in JOAK at 6.30 p.m. (Japanese time) for a few evenings, and they may be able to learn to duly appreciate

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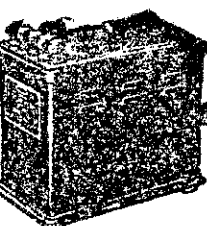
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## I've Been Thinking it Over



£10-10-0 UP

Is radio worth while after all with all this recharging of batteries which seem to run out almost immediately—worry—trouble and expense?

It's not! But there is no need to give up radio. I've decided to give up the trouble instead, and buy an EMMCO "B" Battery Eliminator and run my set direct from the lightning mains.

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ate what they hear later. I should shortly be receiving verification cards from the five other stations, all of which were written to either at the same time as JOAK or shortly afterwards.

A fortnight or so ago I received a letter (the envelope bearing eight postage stamps) from Radio, KZRM, Manila Hotel, Manila, verifying my report of reception of that station and forwarding a schedule of hours of transmission and details of programmes.

In reply to the query of "DX" (Te Aroha), in last week's "Record," as to the identity of station "2FZL," logged by him on July 16. I would suggest that this was station 4ZL Dunedin, whose wavelength the announcer gives as 271.25 metres. On referring to my log I find that on the above date I logged 4ZL at 7.45 p.m., and again at 10.50 p.m. I have logged this station on several occasions lately, and sometimes the station is still on the air at midnight. Volume is far greater than that of 4YA, and (I don't think I am exaggerating) about half the strength of 3YA.

I would like to add to the many letters already received, my appreciation of the efforts of the Broadcasting Company in connection with the Tunney-Heeney fight. Also the rebroadcast on Monday evening last of WGY Schenectady, by station 1YA, the speech from New York being heard very clearly indeed (was this rebroadcast "put over" by 1YA just to show listeners that they could rebroadcast if conditions were favourable?). I hope the Broadcasting Company realise that nowadays rebroadcasts of WGY, PCJJ, etc., can provide New Zealand listeners with real entertainment, and that the "novelty" stage has been passed.—Guy C. Holmes (Masterton).

#### See Town Only Once a Year.

**J**UST a few lines to say how much we appreciate the company's many efforts to serve us listeners. You will understand how much we do enjoy the concerts when I say we only see town once a year, and months pass between seeing a white woman. We get all New Zealand stations perfectly, including Palmerston North and Gisborne. It is something to work for, something new to discuss, apart from work out here in the backblocks. We get Australian stations quite well, but prefer our own. We received the Pacific flight, and are eagerly awaiting the Tunney-Heeney fight, as we get the New Zealand boxing contests quite well, although at times it is rather hard to hear results owing to enthusiasm of the audience. We are using a six-valve set. The "Record" is of great value to us.—T.E.W. (Pipiriki). P.S.—The Tunney-Heeney fight came through splendidly; it was a great treat, and we all heartily congratulate you. We also received the Morse code from Germany and the station 2XAD. Thanking you all.—T.W.

#### Suggestions From the Country.

**M**Y second issue of "N.Z. Radio Record" to hand, and I would like to congratulate you on your publication. Apart from being able to choose one's programme, there is much information that is both interesting and helpful. I would also like to heartily congratulate 1YA, and all the artists associated with the comedy, "Mary, Mary, Quite Contrary." The performance was a great success, and one for which all concerned deserve full credit. It is interesting to peruse the letters in the mailbag column and see the other chap's troubles. While some of the "growls" seem to me to be quite in order, many also seem to be the outcome of bad reception. Undoubtedly, good reception is the essence of "radio."

Indifferent reception, through the set not being up to the mark, and poor loudspeakers, of which there are many, would spoil the best music put on the air. I think 2YA is out in the right direction to remedy this with their test for sets on July 24, and I would suggest going even as far as starting a column in "Radio Record" in which could be given from week to week short articles telling how to get their sets in order and keep them so.

[Some excellent standard articles are available in our "Listeners' Guide," and other matter is published from time to time.—Ed.]

Now, Sir, I do not wish to join the Growlers' League, only to be helpful, so I will make a few suggestions from a country subscribers' point of view:

1. Cut out half of news and reports session and start musical programme half an hour earlier. As at present it is too late for country folk, who have to be up early. Many of them now only get the first half.

2. In the musical programmes more items such as flute, cornet, banjo-mandolin, and Hawaiian music would lighten and vary the programme.

3. An alteration of the Saturday afternoon programmes would be very acceptable to many. Football from all the stations, all the afternoon, is to many an affliction. Why not two music and two sport? The local games in each centre are only of interest to a certain proportion of the population of that centre, most of whom manage to get to the matches. In any case, excepting, of course, the big matches, which are of general interest through New Zealand. Many whom I have spoken to on this subject are of the same opinion.

4. The humour on the first half of the programme would be preferable if put on early for the young people who have to get to bed early.

5. Though this "remit" may be out of order it is nevertheless badly in need of being put through. Co-operate with the license-holders and try and get something done to put Morse splashing where it will not hurt us. Many of 2YA's afternoon concerts and also in the evenings for three-quarters of an hour at a time are spoiled by a Morse station sending out a soft sibilant hiss. This station upsets the radio reception, so that there is nothing but distortion, and it always seems to pick a time when there is a particularly good item on. Congratulations from this household for your children's sessions, and also to the uncles and aunts and cousins. I know of many homes here where old and young alike join at the fireside for a really happy hour; and for the bright, happy nature of the sessions I think the uncles and aunts deserve all the popularity they get.—"Radio" (Havelock N.).

#### Better than Australia.

**W**ITH regard to the concerts being broadcast from New Zealand stations, I would like to say that these concerts compare more than favourably with the Australian stations. At one time we used to anxiously await the closing down of New Zealand stations so that we could listen-in to Australian stations. The general average of the concerts being broadcast now is higher than Australia, although as yet we do not hear from New Zealand stations such artists as Alfred O'Shea (tenor), Arthur Ellis (baritone), and others I could mention (all the same, a very fine baritone is singing at Christchurch).

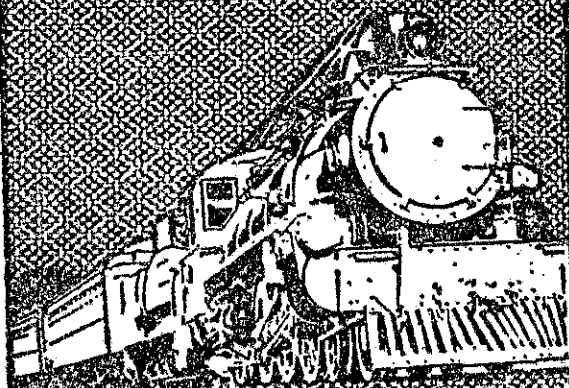
I have noticed one or two advocating more jazz music. Now would this be quite fair, not more than one in a hundred of those who have listened in here preferred jazz to good music (a lot of the jazz one hears nowadays is not music, it is only a medley of sounds), it would therefore seem that supporters of jazz are being well enough catered for. Just a word in praise of the orchestra at Wellington. I think it will be generally admitted that this orchestra can quite easily hold its own with anything in Australia. If the programmes continue to improve the way they have done during the past two years, listeners-in will have nothing to complain about.—E.M.N. (Omimi).

#### Appreciation of Wireless.

**W**E do enjoy the music so much, and it is a great pleasure to just tune in when one has friends, no need to entertain them otherwise. I think the pipe organ is the most beautiful, we get every note so clearly, and being the king of instruments, we are glad to hear it sometimes; others again may not appreciate it, but others do. I am not going to criticise anything. If one does not like a certain piece, one can just tune in elsewhere. Special mention may be made of Christchurch Municipal Band. They have played one hymn, during all their evenings, as various subscribers have asked; other bands do sometimes. We are not "wowzers," but as a gentleman remarked, a hymn appeals to one's finer feelings, and is uplifting. The wireless is almost a miracle, and to those who perform "we thank them all," and very many of the items that come through are unspeakably beautiful.—"Radio" (Taranaki).

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Concession Tickets will be issued from 16th to 25th August, inclusively, and they will be available for return journeys until 15th September.



# The Frequency Test from 2YA

## Some Additional Notes

(By "Meghom")

**L**AST week some notes were given regarding the frequency test, which has aroused a considerable amount of interest amongst listeners generally. Quite a number of sets in Wellington gave audible signals up to 12,000, but apart from this fact there is no guarantee that in every case the standard of reproduction throughout the ordinary musical range would be of a very desirable quality, or that the low notes would be adequately dealt with. Although every effort should be made by constructors to reach the possible limits of reproduction at both ends of the audio-frequency scale, it is very evident that the presence of the deep, strumming bass notes are of far more importance to reproduction than are the ultra high frequencies that chiefly serve to fine up the characteristic sound of certain instruments with a tone that is distinctly their own. Certainly, the deep notes will be more readily missed than the high frequencies above, say, 10,000 cycles, that if present at all, must be so faint that on actual test, their presence or absence would probably be indistinguishable to the average ear.

**A** LISTENER accustomed to hearing the deep notes reproduced by his own receiver, quickly notices their absence in one that does not deliver them, and the effect appears thin, weak and unsatisfying. Great effort has been made recently to bring about the necessary amplification and better reproduction of bass notes, especially in transformer-coupled amplifiers, where they were more inclined to be lost, and by making loudspeakers capable of reproducing such notes from any receiver.

The editor states that quite a number of readers are not clear as to the purpose of the recent test, so a brief explanation will be given before going further.

### Object of the Frequency Test.

**M**USICAL sounds are measured by the number of vibrations they produce per second. A single vibration is a movement of the air in one direction, and a complete vibration is the movement away and return to the original position. This complete vibration is more often referred to as a "cycle" or "frequency." The method of causing the air to vibrate varies in different instruments. Each note has its "fundamental" or strongest frequency, but the characteristic quality of the particular instrument is conveyed by higher though weaker frequencies known as "harmonics" or "overtones," set up at the same time, and having a frequency in some kind of agreement with the fundamental frequency, double, three times, and so on.

The fundamental of notes on the piano ranges from 26 cycles for the lowest bass note, and 4096 for the highest treble note. Other instruments come within this scale, but mostly have a much reduced range, omitting an octave or two of either the high or low notes. But all instruments have the above-mentioned overtones, and for the higher notes some of these have a frequency above 20,000.

**I**N order to obtain good reproduction of music, a receiver should be capable of reproducing frequencies much higher than those of the fundamentals of the highest treble notes of the piano; and at the same time should be capable of reproducing notes well down in the scale, this point being variously fixed at 32, 40 and 60 cycles. As a rule, conditions that favour the frequencies at one end of the scale are unfavourable to those at the other end, and tend to suppress them, so that a radio receiver is necessarily a compromise between high and low notes, and is good or poor according to whether its range of reproduction from high to low is extensive or narrow. The fre-

notes of a pipe organ, from pipes 32 feet in length, or their equivalent, made by closing the end of a 16ft. pipe.

### Reproduction of Speech.

**T**HE broadcast receiver has to handle a fair amount of speech, and no better test of good reproduction is to be had. Many listeners complain that they get indistinct and "woolly" reproduction of speech, and in such cases the fault is usually in the receiver, and not in the loudspeaker. Depending upon the type of receiver, there may be reaction distortion, transformer distortion, general cut-off of high frequencies in the amplifier, or excessive condenser capabilities in the amplifier,

amount of amplification should be equal on all notes, whether deep or high, that is, whatever their frequency. When this is done, a big task has been accomplished, for many constructors are heavily handicapped from the commencement. Very often their receivers are built up gradually, a stage of audio added, not always with the most suitable components or value, sometimes because the required makes are not obtainable.

One of the causes of distortion is found in the tendency of the audio amplifier to oscillate, when a reaction effect is obtained which undoubtedly tends to strengthen certain notes more than others. It is in a great measure due to this tendency that not more than two stages of transformer coupling are recommended. In this respect audio circuits seldom receive the same attention as do the high-frequency, though both are equally important.

**S**OMETIMES such oscillation is incipient, or hidden, and in addition to affecting note reproduction, as mentioned above, may be sufficient to give a "coarse" quality to reproduction. In some amplifiers there is trouble from tendency to "motor-boating." A choke-condenser output-filter arranged so that one side of the loudspeaker is connected to A negative, will very often prove a cure for this type of trouble.

There have been rare cases in which such oscillation has manifested itself as a rhythmic increase and decrease of signals very like fading. In a transformer-coupled circuit, reversing primary connections on one transformer will sometimes effect an improvement. If a B eliminator is used, the size of its smoothing condensers can be increased. High resistance in old B batteries can cause audio oscillation, which is easily cured in such a case by substituting a new battery. A 2 mfd. condenser across the full B battery and another across the detector voltage is an advantage.

### Transformer Coupling.

**T**HIS is the most popular form of audio coupling, and it is at the same time the system productive of the most varied results. The poor quality of many transformers on the market is responsible for a great proportion of the poor reproduction from both home-built and factory-made receivers.

In order to obtain throughout the musical scale the even amplification mentioned above, it is necessary that the lower or bass notes must be suitably amplified. And these low notes are more difficult to amplify than high ones, because it takes 2500 times the energy to produce a definite sensation at 100 cycles as it does at 1000, and the lower we go in the scale, the more this proportion rises. This is because the sensitivity of the human ear falls off rapidly on the lower notes. Now this amplification can only be obtained by having a comparatively high impedance primary winding on the transformers, or at least on one of them, preferably the second.

High impedance is obtained by increasing either the number of turns of wire or the cross-section of the iron

Continued on page 29.

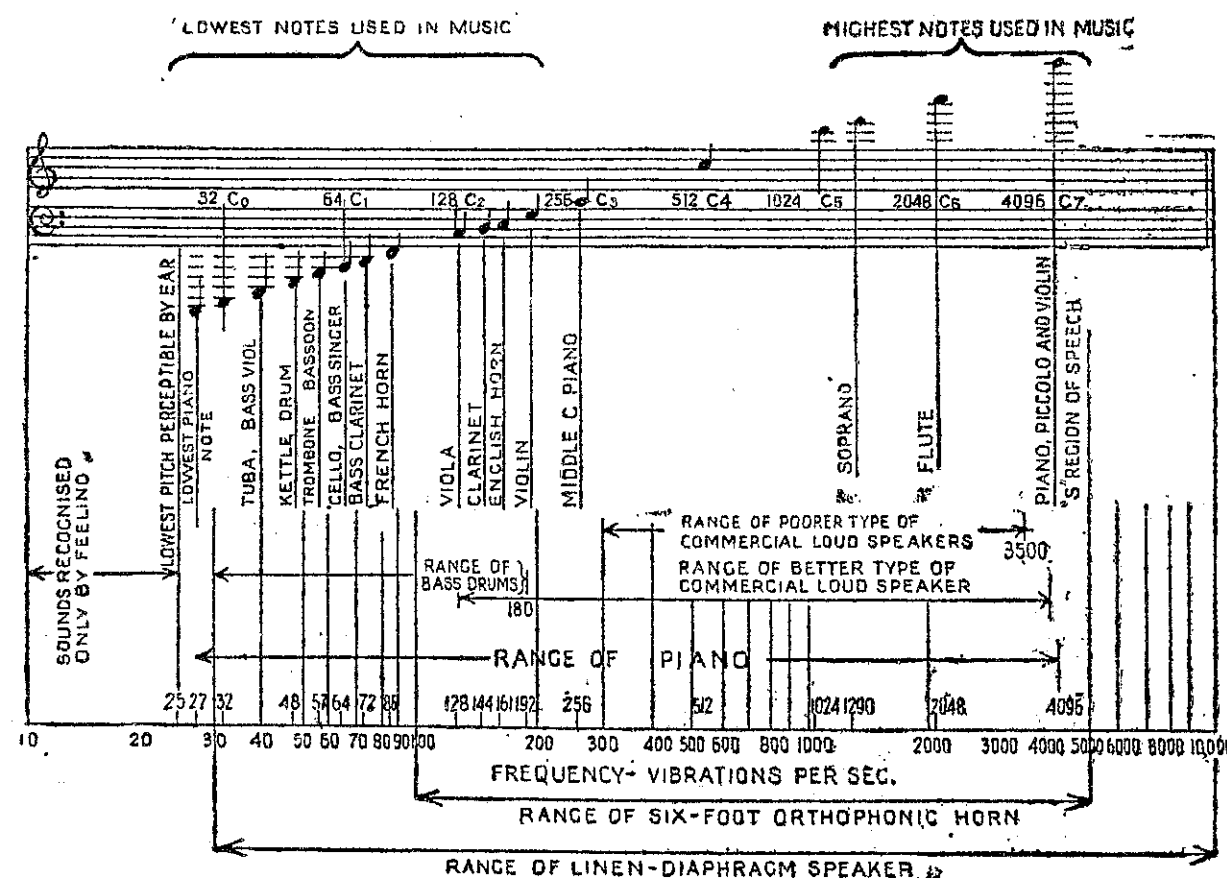


Diagram of Frequency Ranges

quency test was given to enable listeners to find just what range their receiver would actually cover.

A diagram is given showing the actual range of the piano, orchestral instruments, and speech.

### The Diagram.

**A** SCALE of frequencies from 10 per second to 10,000 is shown, giving on the left the lowest note of various instruments, and on the right, the highest notes, a soprano singer and several instruments. The range of two classes of loudspeaker is also given, but a few outstanding makes give a much greater range than is indicated in the diagram, as certain makes are capable of reproducing frequencies throughout, and also above the ordinary musical scale.

The average human ear perceives frequencies down to about 25 per second, and below this notes are "felt" rather than heard. This fact is made evident by the vibrations of the lowest pedal

or each of these contributing its share to the general distortion.

The highest speech frequencies are contained in the sounds th, f, s and z, the highest being about 6400 cycles, so if our outfit reaches this frequency, it is capable of reproducing speech with full clarity, other conditions in the receiver being favourable. The writer's receiver performs particularly well in this respect. A receiver cutting off above 4000 cycles would fail badly on the above sounds, and the final s would disappear, sounding more like z, though generally speaking, the speech might be quite intelligible if not too weak in volume.

### Improving the Receiver.

**T**HE chief point for attention in the receiver will be the audio amplifier. It is essential that this, as a whole, should have an amplification characteristic that is independent of frequency. That is to say, that the

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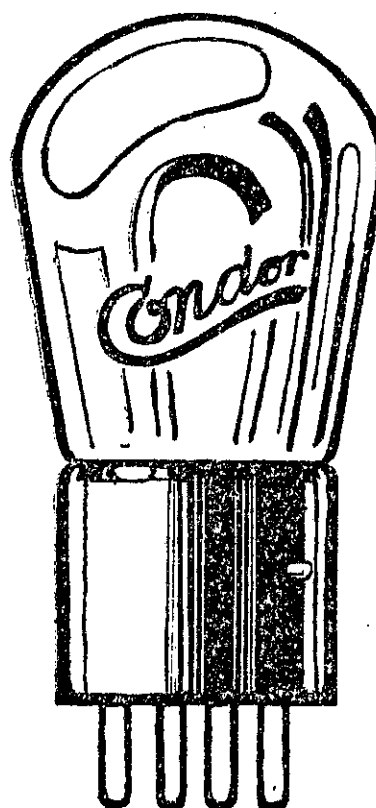
PR50 4-volt Power Valve

PR51 3-volt Low Consumption

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PR54 6-volt: Audio Frequency and  
Detector Valve

PR55 6-volt Radio Frequency and  
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(Continued from page 27.)

core, or both. A transformer with high primary impedance is of low ratio, 3 or 3½ to 1, and there is less chance of distortion from a low ratio than from a high. The high impedance primary of a well-known transformer contains a mile more wire than the windings of the ordinary type. Now, if a transformer gives high amplification of the low and middle frequencies, it should also amplify the high notes equally well. If it is of good design, it will do this, and its peak or highest amplification may be around 4000 cycles, after which amplification will fall off. The small and cheap type of transformer has a high amplification peak on the high frequencies, but falls off rapidly lower in the scale, so that the lower frequencies weaken rapidly, and the lowest are entirely lost. Sometimes this is not always quite a disadvantage, for a poor type of horn speaker would not properly reproduce the low notes if they were there. To obtain good quality amplification at high frequencies, it is necessary that the windings should be divided up into sections in order to prevent loss through internal capacity.

#### Fixed Condensers.

A PART from the indispensable impedance coupling condenser in the first audio stage, the writer has no tone controlling or other condensers in his amplifier. The only other condensers present are the one built in the Ferranti A.F.3 transformer and one in series with the horn speaker to suppress low notes. Many constructors will find that by shunting condensers of different values across the loudspeakers, they will be able to settle upon one that gives best results and may be incorporated in the circuit permanently. Tone control units have been constructed for the purpose, giving facilities for switching in different condenser values. The effect of such shunting condensers is to soften or subdue the high notes. If a resistance is placed in series with the speaker, it reduces the low tones more than the high.

THE fixed condensers across the primary windings of the first and second audio transformers have a considerable influence upon the range of notes passed. Increasing their capacity reduces the high notes, so that a "screechy" or "tinny" effect may be subdued by their increase. A shunting condenser may not always be necessary across the second primary, and is not always absolutely essential across the first, especially in the Reinartz circuit and its modifications, but it will pay to conduct a few experiments in this direction. An attempt should also be made to remove the conditions that necessitate such modification by adding capacity.

#### Valve Influence.

THE last valve plays a highly important part in reproduction, and only a power valve of suitable characteristics can satisfactorily handle the output of an efficient circuit employing four or more valves. To run such a valve properly, there must be no lack of B current. The plate current is the equivalent of power, not because of the steady plate current, but because the fluctuations of that current, caused by the impulses on the grid, are what actuate the speaker. Signals on the grid affecting the flow of plate current cannot reduce it to more than zero, so that the greater the current, the more can

the variation or fluctuation be. There is a wide range of volume in most music, which cannot be properly handled by a set that has been designed chiefly with a view to B battery economy.

Where dry batteries are used, better output may often be obtained from the last valve by increasing the plate voltage, provided that the speaker will stand the extra direct current. An output filter provides against any possible trouble in that direction.

Actual tests show that lowering the resistance of the output valve in any way increases the lower notes in strength, but may not seriously increase the high notes if the output circuit is adjusted to have a high impedance, in which case the full increase of power may be obtained with the tone unimpaired.

#### Filter Control of Tone.

WHERE a choke-condenser output filter is employed, if the lower notes are too predominant, the coupling condenser between choke and speaker may be reduced. If the high frequencies are too prominent, some of them can be shunted away by means of a condenser of small value placed across the choke coil, thus allowing these frequencies to pass through the condenser instead of setting up voltages across the choke.

NOTHING has been mentioned about grid-bias, for although it has a great influence upon quality it does not come within the scope of this article. The whole movement is towards better reception in every way, and without correct grid-bias no two-stage amplifier can function satisfactorily for loudspeaker volume.

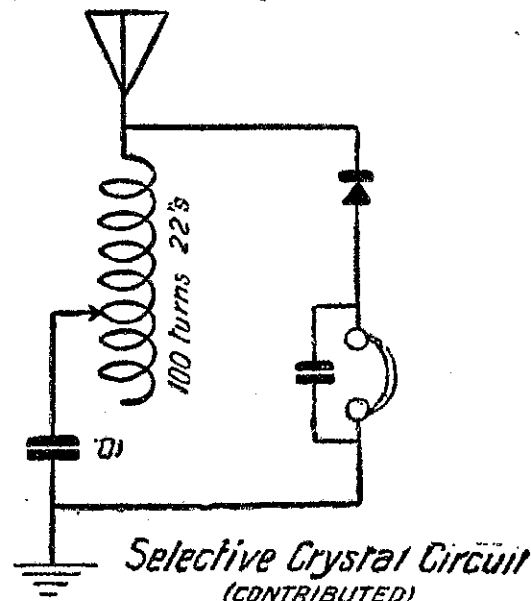
Some listeners would no doubt think they were hearing the lowest notes of the frequency test when they were only hearing the overtone an octave higher. The writer found the crystal a handy check in this connection, switching off the B eliminator and listening to the crystal with headphones.

One experienced constructor writes to say that whereas he was only able to hear frequencies up to 4000, his wife could hear up to 8000.

In last week's article it was stated that the frequency of high harmonics would reach as high as 30,000 cycles. This should have been 16,000 cycles.

#### A Crystal Circuit

A WELLINGTON reader interested in crystal circuits sends the following, recommending it for selectivity.



The circuit is tuned with a slider or similar arrangement, no variable con-

denser being necessary. Selectivity is gained by a fixed .01 condenser in series with the inductance of 100 turns on 3in. former. Other parts required are 2 terminals, 2 'phone terminals, crystal, and 1lb. 22's enamelled wire. The condenser (.001) across 'phones is optional.

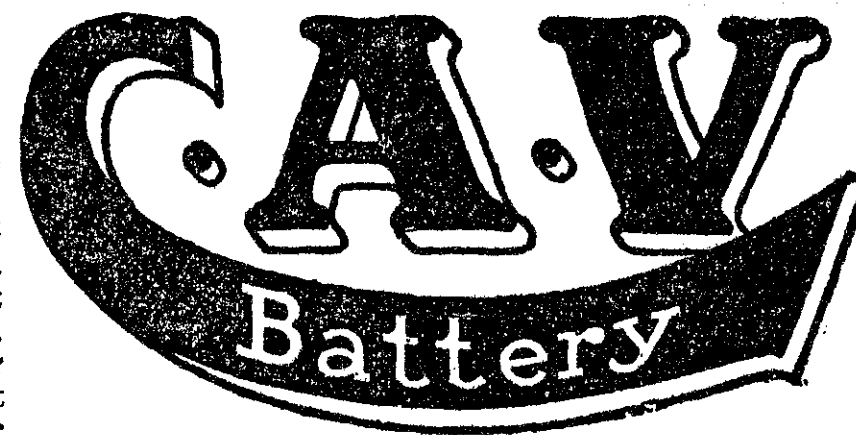
#### Linen-Diaphragm Speaker.

THIS is undoubtedly a fine type of speaker, giving a wider range of frequencies than the majority of speakers. A Wellington firm, Messrs. J. A. Smyth, 71 Victoria Street, has on order to arrive next month a shipment of these speakers knocked down ready for assembly by the purchaser. Everything necessary is included, frame, unit, silk diaphragm, "dope" for same, and even the tacks. The large and small diaphragm is the pattern, which appears to be the one most generally adopted. The price of the kit is to be

£4 10s. A supply of extra units has also been ordered.

#### Power Line Interference.

AN American claims to have solved the problem of getting quiet reception in close proximity to high-voltage power lines. He has erected a 60-foot pole with 3ft. L-piece at top and diagonal supporting brace like a gallows. From the bracket is suspended an ordinary five-wire cage aerial with rings six inches in diameter, with lead-in from the lower end, the total length of the cage portion being 20 feet. Outside the end rings of the cage are suspended two aluminium rings, a foot in diameter. Six wires connect these two rings, and the wires join at the top to form a suspension above the top of the aerial. The lower end of the ring arrangement is connected to earth by a suitable wire. The actual length of the outside cage or screen from ring to ring is given as 12 feet. This is giving good results within 100 yards from a 60,000-volt line.



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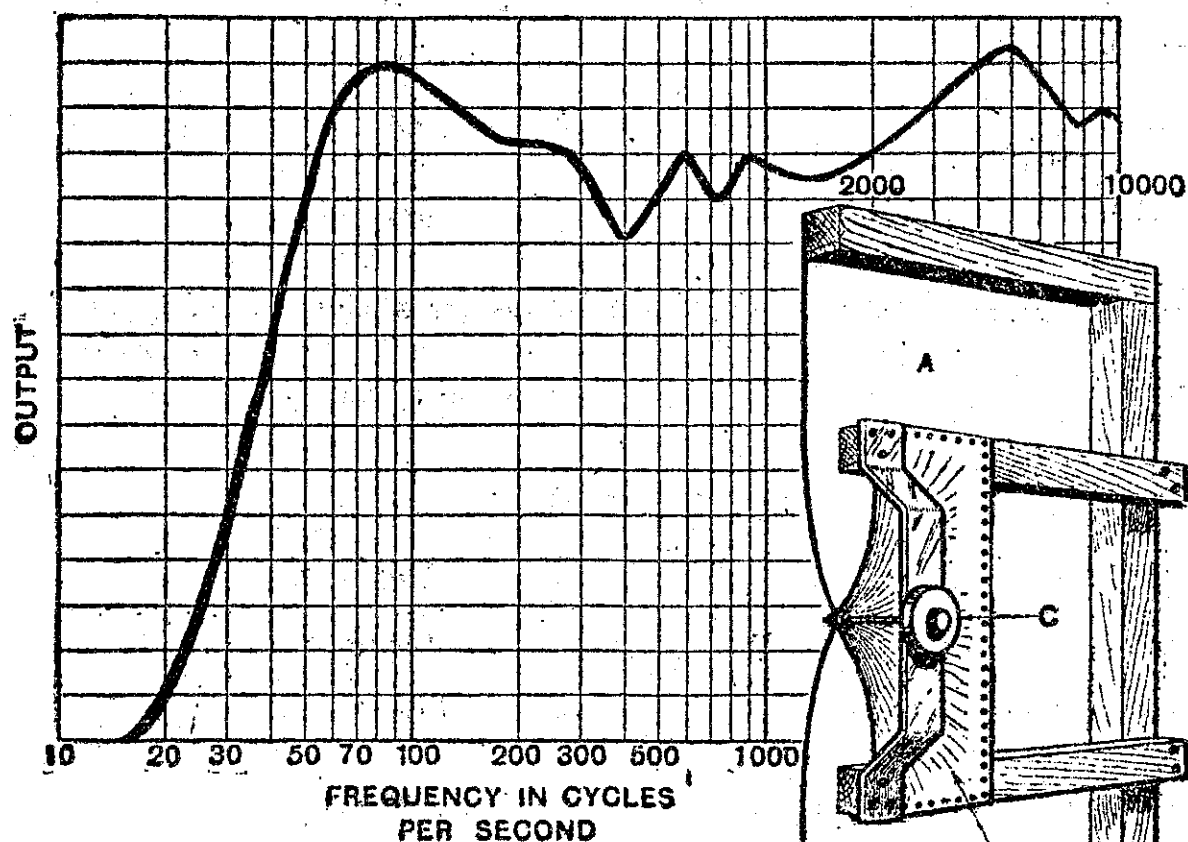
AUCKLAND,  
Phone 45-696.

## The Linen Diaphragm Loud Speaker

BELOW is printed the response curve for the linen-diaphragm, and in comparison with the average loudspeaker it is exceptionally good, as variations in proportional output between about 50 and 10,000 cycles are hardly sufficient to be perceptible to the ear. Resonances which seem to be due to the fact that the natural time periods of individual membranes are incompletely suppressed are not so marked as to be in any way objectionable.

The loudspeaker may be mounted in a cabinet with its front covered in tapestry. Its performance depends largely on the use of suitable material for the stretched diaphragms, and on the mounting of these in such a way that their tension is correct, and will remain so.

Some constructors are mounting the small frame with a screwed rod in each corner, so that in order to tighten both diaphragms, it is only necessary to tighten a nut at each corner, then adjusting the nuts on the driving spindle.



A response curve and (inset) a sectional sketch showing the mounting of the two vibrating membranes. A, working diaphragm; B, balancing diaphragm; C, driving unit.

## Condor Valves

PARTICULARS of Condor valves came to hand too late for inclusion in the "Listeners' Guide," so they are given below for the convenience of readers. Messrs. John Chambers and Son Ltd. are the New Zealand distributors. The price is 13s. 6d. with the exception of the PR50, which is 15s. and the PR52, 10s. The double grid valves are not listed.

| No.      | Purpose. | Fil. Volts. | Fil. Amps. | B. Volts. | Amp. Fac. | Impedance. |
|----------|----------|-------------|------------|-----------|-----------|------------|
| PR31     | HDA      | 1.2         | 0.07       | 40-135    | 10        | 25,000     |
| PR45     | HAL      | 1.2         | 4.15       | 40-135    | 5         | 6,600      |
| PR33, DG | HDAL     | 1.2         | 0.07       | 4-20      | 5         | 6,200      |
| PR46     | HDA      | 1.8         | 0.07       | 40-135    | 10        | 20,000     |
| PR47     | DAL      | 1.8         | 0.15       | 40-135    | 5         | 5,000      |
| PR49, DG | HDAL     | 1.8         | 0.07       | 4-20      | 5         | 6,200      |
| PR35     | HDA      | 3.0         | 0.06       | 40-135    | 10        | 28,000     |
| PR36     | DAL      | 3.0         | 0.06       | 40-135    | 6         | 17,000     |
| PR43, DG | HDAL     | 3.0         | 0.07       | 4-20      | 5         | 6,200      |
| PR53     | HDA      | 3.6         | 0.07       | 40-135    | 30        | 3,700      |
| PP37     | HDA      | 3.6         | 0.07       | 40-135    | 10        | 25,000     |
| PR48     | HDA      | 3.6         | 0.07       | 40-135    | 10        | 12,500     |
| PR41     | HDAL     | 3.6         | 0.1        | 40-135    | 6         | 6,000      |
| PR50     | L        | 3.6         | 0.15       | 40-135    | 3.5       | 3,500      |
| PR44, DG | HDAL     | 3.6         | 0.07       | 4-20      | 5         | 6,200      |
| PR55     | HDA      | 5.8         | 0.06       | 40-135    | 9         | 6,000      |
| PR54     | DAL      | 5.8         | 0.1        | 40-135    | 5         | 3,125      |
| PR51     | DAL      | 3.0         | 0.06       | 40-135    | 6         | 17,000     |
| PR52     | HDAL     | 5.0         | 0.25       | 40-135    | 8         | 6,600      |

H. RF. D. Detector. A. Audio. L. Loudspeaker. DG, Double-grid. English and American bases. Double-grid, English base only.

## Tips and Jottings

### The R.R. Selective Crystal Set.

A PETONE reader states that he has made up ten different types of crystal set and finds the R.R. the best. With a 100-foot aerial 30 feet high and a water-pipe earth, the set has frequently to be tuned down when using 'phones. A Brandes table speaker can sometimes be heard in every room. This correspondent writes with the object of getting a crystal circuit that will beat the above. We have not come across one yet, but when we do it will be worth publishing. A Dunedin reader can cut out 4YA any night and receive 2YA, using the R.R. selective.

### What Causes Oscillation Interference?

WHAT actually causes the noise in neighbouring receiving sets when reaction is applied to the aerial in such a way as to make it oscillate?

The receiving set then acts as a transmitter, and sends out a continuous wave. As the set is tuned to a broadcasting wave-length, this wave will be very near to the frequency of the carrier wave used for broadcasting. Either of these waves alone would be inaudible, but when they are present in a receiver simultaneously beats are formed between them which occur at a audible frequency, and which give rise to a note in the 'phones. If the tuning condenser is turned so as to bring the wave-lengths nearer to each other, further from one another the beats will alter in frequency and the received note will rise or fall accordingly, giving rise to the all-too-familiar "chirps" associated with oscillation.

### Exponential Horns.

A CONSTRUCTOR recommends that corners be joined with the light aluminium angle strips that are used on the running-boards of motor-cars. This is soft and can be easily bent to shape and fixed with 1/4 in. screws, staggered, making a strong job. The idea seems quite good. It must be remem-

bered that the inside of joints must have a fillet of glue or secotine run in to make absolutely airtight.

### Reaction "Plops."

THE cause of reaction coming in and out with a "plop" (backlash) is generally owing to incorrect potentials on grid and plate. If the rheostat is in the positive lead and the grid return is connected to A positive, then there is an excessive positive potential on the grid of the detector. In such a case the grid return should be connected to the negative side of the valve filament. Rheostats are best placed in the nega-

### QUERIES BY CORRESPONDENCE.

1. Every communication enclosing queries is to be addressed to "Megohm," Box 1032, Wellington, and must be accompanied by a stamped addressed envelope for reply by post, otherwise no reply.

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

3. Queries regarding articles that have appeared in this page will have first attention.

4. Owners of bought receivers and apparatus should communicate with the dealer or agent in case of trouble arising.

tive lead. Detector plate supply should be easily variable, and the correct value found by experiment, to give smooth reaction. Another cause may be that there are too many turns on the tickler. If the tickler is adjusted for a certain voltage and a dry B battery gradually falls off in voltage, a time will probably come when a further adjustment must be made to compensate for the reduced voltage. Stray capacities can also help to introduce backlash, and its presence in a receiver makes it more liable to cause interference.

## ANNOUNCING

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Glossary of Wireless Terms

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

**H.T.B.**—Short for high tension battery. See "B Battery."

**HAND-CAPACITY.**—An effect which interferes with the tuning of a receiving set, created by the proximity of the hand to a variable tuning condenser. To prevent this trouble, firstly, see that the moving plates of the tuning condenser are connected to earth. Keep the condenser as far away from the hand as possible, if necessary using an ebonite rod for a tuning spindle. If these precautions do not eliminate the trouble it may be necessary to shield the back of the panel with copper sheet, taking particular care that no part of the set comes in contact with it except the earth terminal to which it should be connected.

**HARMONICS.**—In radio, harmonics refer to the incidental waves mostly noticeable in undamped ("spark") wave operation, although sometimes very pronounced in broadcast reception. These harmonics differ in length and frequency from the true and original operative wave of such transmitters. At times, listeners will hear the harmonics of high power long wave stations, while their tuners are set for much shorter waves. The harmonics of the 600 metre wavelength in general use for ship Morse communication are as follow:—

|                 |      |        |
|-----------------|------|--------|
| Second harmonic | 300  | metres |
| Third           | 200  | "      |
| Fourth          | 150  | "      |
| Fifth           | 120  | "      |
| Sixth           | 100  | "      |
| Seventh         | 85.7 | "      |
| Eighth          | 75   | "      |
| Ninth           | 66.6 | "      |
| Tenth           | 60   | "      |
| Etc., etc.      |      |        |

It will be observed that the first variation from the original wavelength is called the "second harmonic," and so on. To ascertain, say, the eighth harmonic of a station operating on, for instance, 400 metres, divide 400 by 8, and the result, 50, gives the wavelength of the harmonic.

**HEATER TUBE OR VALVE.**—A valve specially designed for sets driven direct from A.C. mains, has a heater which is electrically separate from the filament, but heats the latter mechanic-

ally and causes it to perform its usual functions.

This is a high pitched note when the beats are rectified to render them audible. It is this action which is the explanation of "howling" between an oscillating receiver and a broadcast transmitter, or between two oscillating receivers.

When receiving signals from a broadcast transmitter by the heterodyne method, the beats are produced at an inaudible frequency, and the detector valve used rectifies the "beats," and renders the music, etc., audible. Such a receiver is known as "superheterodyne."

Thus, if the wave from the incoming station has a frequency of 30,000 per second, and the locally produced oscillations are produced at 31,000 per second, the "beat" or "heterodyne" note will be 1000 per second.

**HENRY.**—The unit of self-inductance, being that inductance which will so retard any change in the value of a current that it takes 1 second for 1 volt to raise the current in a circuit by 1 ampere. In tuning circuits the Henry is too big, and measurements are usually reckoned in terms of milli- or micro-henries.

**HETERODYNE.**—A system for the reception of continuous wave signals. The receiving circuit is artificially supplied with oscillations at a frequency slightly different from that of the incoming waves. The two series of oscillations alternately add and subtract as they come into or go out of step with one another. This produces pulsations of amplitude at an audible frequency, known as "beats." A similar effect can sometimes be observed if two adjacent notes on a piano are struck simultaneously.

**HERTZIAN WAVES.**—Electro-magnetic waves (the basis of radio transmission and reception), named after their discoverer, Prof. Heinrich Hertz.

**HIGH FREQUENCY (H.F.) OR RADIO FREQUENCY.**—A term applied to alternations or waves which occur at frequencies too high for audibility; sometimes called "Radio Frequency." High frequency may be taken to include all frequencies above 10,000 per second.

RADIO DIRECTORY

What to Buy and Where

AUCKLAND

- ATWATER-KENT RADIO .. Frank Wiseman, Ltd.  
170-172 Queen Street, Auckland.
- ALTONA & HAMMARLUND-ROBERTS SETS. Johns, Ltd.  
Chancery Street, Auckland.
- 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 ..... Radio Supplies,  
251 Symonds Street, Auckland.
- FEDERAL, MOHAWK, GLOBE Federal Radio House,  
8 Darby Street, Auckland.
- FERRANTI RADIO COMPONENTS ..... A. D. Riley and Co., Ltd. Anzac  
Ave., Auckland, and all leading dealers.
- GILFILLAN AND KELLOGG . Harrington's, Ltd.,  
133-140 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.,  
Hobson Street, Auckland.
- RADIOTRON VALVES ..... All Radio Dealers.
- RELIANCE BATTERIES . Reliance Battery Mfg. Co., Ltd.,  
96 Albert Street, Auckland.
- T.C.C. CONDENSERS ..... A. D. Riley and Co., Ltd. Anzac  
Ave., Auckland, and all leading dealers.

COUNTRY TOWNS

- CROSLEY ELECTRICAL AND BATTERY MODELS ..... The Forrest-Crosley Radio Co.,  
Ltd. Cuba Street, Palmerston North.
- CROSLEY RADIO SALES AND SERVICE ..... D. A. Morrison and Co.  
The Avenue, Wanganui.
- FEDERAL AND AIR PATROL RADIO ..... J. B. McEwan and Co., Ltd.,  
New Plymouth.
- GAROD, CROSLEY, RADIO AND ACCESSORIES ..... The Hector Jones Electrical Co.  
King and Queen Streets, Hastings.
- GREBE, CROSLEY AND RADIOLA SERVICE ..... E. Dixon and Co., Ltd.,  
Hawera.
- RADIOLA DEALER AND SERVICE ..... G. C. Carrad.  
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- PHILIPS VALVES AND APPARATUS All Good Radio Dealers.

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**MR. F. W. SELLENS** (Northland) writes:

The German short-wave station that was often heard here in the early morning using the call sign AFK (pronounced "Ah-eff-kak") on about 52 metres, is now reported to be on 37.65 and 67.65 metres. This station is located at Doberitz. The transmission hours for the latter wave-length are as follow:—Monday, Wednesday, and Friday, 9.30-10.30 p.m., and on Tuesday, Thursday, and Saturday, 5.30-6.30 a.m. New Zealand time.

A new Spanish short-wave station is "on the air." The call is EAM, wave-length 30.7 metres.

Although there is a number of Continental telephony short-wave stations operating, no many have been heard in New Zealand.

Correspondents have often asked me what sort of an aerial I use. It consists of a single wire, 30ft. high, 40ft. between poles, with lead-in about 37ft.; well insulated and kept taut by a weight at one end adjusted on a pulley to allow for shrinkage and expansion of the ropes caused by the weather. It is necessary to keep the aerial as taut as possible with safety for short-wave reception or signals will be unsteady during windy weather.

THE following extracts from an article by an English amateur re short-wave aerials and earth may be of interest:—"High-frequency radio energy, even from long distances, can be gathered in by most inadequate collectors. It is, for instance, possible to hear the short-wave transmissions from KDKA, with nothing more than a few feet of wire stretched across the room for an aerial. Also it is common knowledge amongst those who work in the high-frequency bands that really strong signals, from quite a considerable distance, can often be received with no aerial or earth connection to the set at all.

"Reception without an earth. There is, however, a good deal of misconception about these 'no aerial and earth' receptions. Reception without an earth is common. In fact, it is the rule,

## 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.

rather than the exception, when working below 50 metres. But we must not lose sight of the fact that the mere disconnection of the set from the aerial change-over switch is not the same as receiving without an aerial. High frequency radio energy has some extraordinary properties when it comes to magnetic or capacitative coupling, and the tuned grid coil of the set will pick up energy from the aerial itself, or rather the lead-in, or from the switch metal, even when it is removed to a distance of several feet.

"There is no doubt that the best aerial is a single wire of 12 SWG or 14 SWG enamelled copper. Height and length do not seem to be of great importance when reception only is concerned. The ordinary aerial for broadcast reception will serve quite well, down to about 15 metres, provided that it is well put up and does not sway in the wind."

RECEPTION during the week has been about the average. New stations have not been heard of late. 5SW, Chelmsford, now comes in at better strength earlier in the morning. Not many amateurs have been heard recently on telephony.

A test between the 2nd (Wellington) and 3rd (Canterbury) radio districts, on telephony had been arranged, but at the time of writing, very few amateurs have been heard on this test. One, a Wellington operator, has been very persistent with "C.Q. Christchurch," without being rushed with answering calls.

My log is a "bit patchy for the week.

### Saturday, August 4.

3 p.m. 2XAD was R5 with dance music. They suddenly went off the air in the middle of an announcement at about 3.18 p.m.

With one or two slight interruptions they carried on till 3.32 p.m. Strength about R6 when closing down. PCJJ was tuned in as soon as 2XAD closed down. They commenced with the Wembley Military Tattoo after playing the National Anthem. Strength 3 3—4. They were strongest about 4 p.m. at R5 and decreased to R3 at 6.30 p.m. A strong hum and morse QRM spoilt reception.

### Sunday, August 5.

2BO and 2BE Wellington, and 3CM and 3AU Canterbury were testing during the day, 2XAF were R 4—5 with dance music relayed from New York.

### Monday, August 6.

3LO was very weak. Not much more than the carrier was audible.

During the evening a special transmission was heard from 2XAF on 31.4 metres. They were tuned in first at 8 p.m., when tests were being carried out. Gramophone records were heard at R 4—5, slightly unsteady.

IT was announced that Judge Rutherford of the International Bible Students' Association was going to speak at Detroit, Michigan.

The same talk that was given on the day previous was broadcast by a chain of 96 stations.

In introducing Judge Rutherford, the speaker said that the lecture was special for New Zealand, Australia, and Tasmania. He stated that the time was 4 a.m. Eastern standard time.

The judge commenced by reading a declaration signed by members of the Convention of the International Bible Students' Association then sitting at Detroit.

About 95 per cent. of the lecture was heard at about R4 on the speaker.

In closing the station, the announcer said that "daylight is just breaking (6.53 a.m. Eastern daylight-saving time). We wish you good-night, but it is good morning to us here."

The amateurs, 2BO, 2AH Wellington, and 3AC Christchurch, were heard testing.

### Tuesday, August 7.

AT 7 a.m. on about 40 metres a station was heard at about R2—3. Music and talk were on. Could not stay long enough to identify.

### Wednesday, August 8.

PCJJ was held from 5.30 till 7.40 a.m., when they closed down. Strength was best from 6.30 a.m. till 7 a.m. at about R7. Modulation as usual was excellent. There was fading, slight, at about two second intervals.

### Thursday, August 9.

5SW, R3 (experimenting with 625 screen grid).

### Friday, August 10.

PCJJ, 5.30 a.m. till 7.40 a.m. R4 at first to R6 at 6.30 a.m., reducing to R3 at finish.

Three transmissions were announced for Saturday, two being the usual, the extra one being from 00.00 till 03.00 G.M.T., or 11.30 a.m. till 3 p.m. Saturday here.

5SW at 5.30 a.m. was R3, increasing to R5 at 7.30 a.m., when the Greenwich time signal was heard. At 11 p.m.,

with a screen grid, their signals were R1—2; orchestral music could just be heard, and some sign of talk, but too weak to read.

The above strengths, except where stated, are with the usual detection and two stages of audio.

### Canadian Short-Wave Heard.

I picked up 2XAD on Saturday last, the 14th inst., at 1 p.m., for the first time for some months. By 1.30 p.m. this station was coming in at good loud-speaker strength, relaying a "Palmolive" programme through WGY. The time signal was given by this station at 11 hours 1 minutes 15 seconds, E.D.S.T., after which a programme was given from 2XAD studio. (2.30 p.m. N.Z.S.T.) On Friday, June 22, at 6.15 p.m., I picked up what was, to me, a new station. I heard one gramophone record, "La Paloma," and then the announcement, "H.P., Manitoba, Canada, on 27 metres," then advertising matter. The station closed down at 6.24 p.m. with the announcer telling "Bill" to "turn her off." I have listened for this station each Friday since, but have not heard him again. Have any of your readers? I have delayed reporting this station hoping to have heard more of him. My congratulations to 1BC on his Sunday tests. They have been splendid.—H. A. Steadman.

### Another Report.

THE Schenectady New York station, 2XAD, was on the air again on Saturday, 14th. I did not listen in till about 2 p.m., when the above station was logged. At that time he was good 'phone strength, using detector and 1 audio, and from then onwards till they closed down at 3.30 p.m., New Zealand time, the power increased to good speaker strength in their last hour. I should say. I hope this station will perform on July 27 as well as it did on Saturday.

WLW, Cincinnati, was heard after 2XAD signed off with his usual jazz items, but not as loud as usual. Signing off 11.31 p.m. E.S.T., 4 p.m. New Zealand time.

On looking over the "Record's" Mail Bag column in this week's, a small paragraph is headed "Sanity First." It seems to me some wag appreciated Mr. Stout's letter published in the "Radio Record" a little time back. Evidently "Observer," as he signs himself, is wishing to stir up another argument in the S.W. Corner. It is a pity these wags will keep bobbing up and have a dig at S.W. fans. Why don't they go into politics or join some argumentative society.—A. P. Morrison.

IT will be welcome news to New Zealanders that an endeavour is being made, as an Australian writer puts it, to put 7ZL Hobart, "really on the air." The Tasmanian station has been somewhat of a disappointment to New Zealanders. It has never actually had much of a "punch," despite its excellent location with regard to New Zealand, being almost on the edge of the Tasman Sea.

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## Some things that people don't know

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