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THE RADIO RECORD

Published Weekly

REGISTERED G.P.O., WELLINGTON, N.Z., AS A NEWSPAPER

Price 3d.

VOL. I, NO. 10. WELLINGTON, N.Z., FRIDAY, SEPTEMBER 23, 1927 Per Annum, Post Free, 10/-; Booked 12/6.

Old World Carillon to Ring Out from 2YA

"The Wellington Carillon has been purchased in memory of our illustrious dead. The rich have given of their wealth, the poor have given of their poverty, and the bereaved have given in memory of their beloved, so that the bells may be used to bring sweetness into daily life, for the lifting of men's minds to high thoughts and noble purposes, for the comfort of the sorrowful and for the strength of all who need cheer."

In those words Dr. E. Marsden concluded an address from 2YA that was of more than ordinary interest to listeners. His subject was "Carillons" in particular relation to the erection of Wellington's War Memorial, which may take the form of a Campanile to house the Carillon. On completion 2YA will be able to broadcast these old world notes across the Southern Pacific to the delight of thousands of listeners.

Dr. Marsden opened his address by some general remarks on the theory of sound and the physical basis of music, that are of interest. The sensation of sound, he explained, was always associated with the vibratory motion of some sounding body. The blurred outline of such a sounding body while emitting sound was sufficient, as a rule, to convince us of its rapid to and fro motion, and immediately this motion was stopped by a touch of the finger the sound ceased, as, for example, in the case of a tuning fork, violin string, or the reed in a reed instrument

VIBRATIONS AND SOUND.

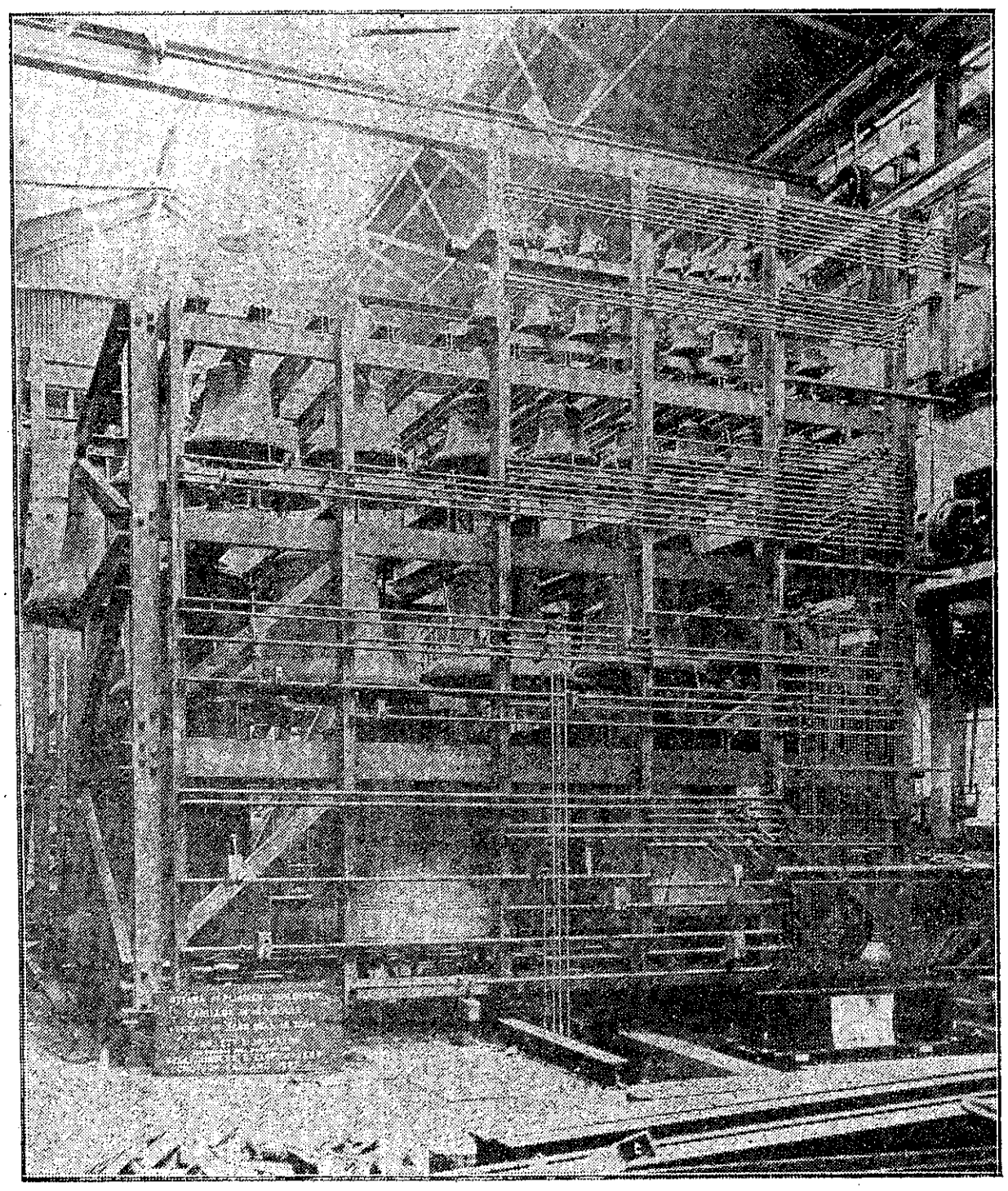
All vibrations did not mean sound, however, because the normal human ear was sensitive only to vibrations between 20 per second and 40,000 per second. The usual limits of the notes of a piano were from 33 per second to 2,000 vibrations per second. Persons differ like wireless sets in the range of frequencies they can tune to. Some persons could hear low frequency vibrations better than others, for example, the rumble of the local earthquake which exerted low frequency vibrations could be heard by some people and not by others.

After explaining that the sound waves needed a medium in which to travel —the ether—Dr. Marsden proceeded to explain the nature of a musical note. This, he said, had three characteristics: (1) **loudness**, or intensity, or extent of vibration, (2) **pitch**, or frequency of vibration, and (3) **quality**, or purity of vibration. We may have a piano string and a violin string principal or fundamental vibrating with the same frequency, say middle C, and, therefore, the same pitch, but the qualities of the notes are different, and we can distinguish the one from the other.

The reason is that we are seldom dealing with a note of a pure unadulterated single frequency. There is generally superimposed on it, or mixed with it, some other frequency which arises from another possible mode of vibration of the instrument or string giving rise to the sound. For instance, in a piano the basic, or fundamental note given out when we strike middle "C," for example, has mixed with it from the same string an almost equal component of frequency double, that is what we call an octave higher. With a violin string of the same principal note or frequency, the proportion contributed by this first harmonic or octave is smaller than with the piano; on the other hand there is a larger proportion of vibrations of very high frequencies. It is the addition of these partials or harmonics to the fundamental notes of the string that gives each instrument its own peculiar characteristic or quality, even when the same fundamental note is sounded.

THE SECRET OF MUSIC

With the music from a violin string or piano string these harmonics, or added notes have all frequencies which have a simple numerical relation to the fundamental, twice, three times, etc. I shall not attempt to explain how the same string manages to emit several notes at once beyond stating that they are produced because the string can vibrate not only as a single loop but in two, three or more loops with intervening notes, partly according to the position at which the string is struck or bowed. The result is that the note produced by a violin string or piano string is pleasing to the ear because after the short time interval corresponding to a single vibration of the fundamental, the vibrations of the overtones comes into the same time-relationship again, and the ear-drum, in its endeavour to reproduce the sound to the brain has only to follow and repeat rhythmically the relatively simple added effects of the various vibrations. With some instruments, and particularly with a bell which is not well-tuned, this is not always the case; for the various modes of vibration of the various parts of the bell, which occur simultaneously, may not have a simple relation to one another in their frequencies and the sound does not produce a simple rhythmic effect on the ear-drum, and we have a discord or a non-pleasing sound.



The illustration depicts a carillon of the class that is to be secured for Wellington.
(Block: "Evening Post.")

THE PROBLEM OF THE BELL

Thus, the great difficulty with a bell is that it must be so shaped and fashioned that it is in tune with itself; otherwise it cannot possibly be in tune with other bells. Every bell emits at least five tones at once—(1) the strike-note, (2) the nominal, which is above the strike-note in frequency, and (3) the hum-note, which is below. These three should be perfect octaves with each other if the bell is properly made and shaped. In addition, between the strike-note and the nominal, we have the tierce or minor third and the quint or perfect fifth, both of which make harmony with the fundamental. Consequently, for a carillon, the greatest care must be taken in the manufacture of the bells so that the sounding of each bell may be a chord of music in itself. It is the effect of the combination of these partial tones of the same bell which gives the special charm to the carillon. As the bell vibrates after being struck their relative intensity changes and gives the gradually changing quality to the note and gives the aereal haunting character to the music.

(Continued overleaf).

Old World Carillon To Ring Out From 2YA

Continued from Cover.

WELLINGTON'S COMING CARILLON.

The Carillon for Wellington, for which a contract has been let, will consist of 49 bells, i.e., the same number as was ordered for Sydney, except that the bells are heavier, the largest weighing 5 tons. It is hoped that, at a later date, four more bass bells will be added, making a total of 53. The housing of the bells is not yet definitely settled, but it is anticipated in some quarters that they will be placed in a campanile on Mt. Cook, forming part of a National War Memorial, Art Gallery, and Museum.

There are some 184 carillons in existence, distributed among the following countries:—Belgium 44, The Netherlands 63, France 25, England 7, Ireland 2, Scotland 1, United States 15, Canada 4, South Africa 1, Australia 1, Germany 10, other countries 11.

ALTERNATIVE METHOD

A carillon is played in two different ways. The first way is by an automatic attachment, using a great revolving drum with pegs, in the old carillons of the Netherlands, but perforated paper rolls in the modern ones as in other playing machines. In the second way the playing is done by a trained musician called a carillonneur, seated at a keyboard, and using both hands and feet. Played by the first and primitive method a carillon may be thought of as a gigantic music box. It can also be arranged to play tunes before the hour strikes.

But musically, of far greater importance is it when a carillon is played by the use of a keyboard somewhat resembling that of a piano or organ. At festivals, special anniversaries, and in mid-day or evening concerts, folk songs, popular airs, national hymns and a great variety of other tunes may be played. This playing by means of the keyboard is called a carillon concert or more properly a carillon recital. Each key of the keyboard is connected by lever and wire with the clapper of its corresponding bell. The bells of the lowest octave or two are connected also with a pedal board. This arrangement gives the player greater command of the resources of his instrument by allowing the use both of hands and feet, and so enables him to play music in three or more parts.

Fischer, writing in 1738, says to play well requires "a musician with a good knowledge of music, good hands and feet, and no gout."

THE CHARACTER OF THE CARILLON.

Every musical instrument possesses a character of its own, due to the partial tones mentioned earlier in my talk. To one who has heard it, this individuality is apparent in the carillon no less than in other instruments. Perhaps the best conception will be obtained by thinking of it as resembling an organ in majesty and a pianoforte in delicacy, but with harmonies aerial, etherial and unbounded.

The carillon is the finest musical instrument in existence for educating the people in, and cultivating their love for folk-songs and in teaching them great melodies of their fatherland. Classical music can, however, be well rendered on the bells.

—S. P. Andrew, photo.

DR. E. MARSDEN.

It cannot be repeated too often, however, in the excellent words of Richard C. Cabot, that: "Good carillon music reaches the public because it is simple and because it is (or should be) heard again and again. Melodies have to be simple and well-knit if they are to be effective in a carillon. They may be cheap or they may be noble, but they cannot be vague. Repitition is an absolute essential in the appreciation of good music. Yet how many concert-goers hear the concert pieces repeated often enough to grasp any but the more trivial of them? Very few. Carillon music, on the other hand, is expected to recur like the seasons and the hymns, until we learn to expect each note before it comes—as we always do do in the full appreciation of good music."

PROSPECTS IN WELLINGTON.

I think it is Handel who is credited with the statement that the bell is the English national instrument, though the carillon has developed more in the Netherlands, where each principal town for over 300 years has had its municipal carillon. At Malines, where the famous Josef Denyn sets the carillon of St. Rombold vibrating in music in the late afternoon air, as many as 60,000 people have assembled to listen.

The winds of Wellington are not so favourable to the use of carillon as the calm evenings of the Netherlands, yet, by curving and deflection, the wind will give the sound-waves a variation in expression which may not be displeasing. Even in a high wind, however, always it will be possible to reproduce the music of the carillon over the wireless so that the bells may serve a Dominion as well as a Wellington audience.

Finally these are the advantages of a carillon:—

1. It is made of bronze and therefore practically indestructible.
2. Once well installed, it requires substantially no attention to keep it in order.
3. It is a musical instrument, forever in tune.
4. It contributes daily to community enjoyment.
5. It leads inevitably toward a more cultivated musical taste.
6. It nobly serves assemblages of the peopl on all great municipal occasions.
7. It awakens affection for music among the younger portion of the community and recalls agreeably past memories to many of the older generation.
8. It gives delight to all, whether they are at leisure or engaged in arduous occupation.

Brilliant Instrumental Trio Engaged For 3YA

The development of the musical side of broadcasting in New Zealand, following quickly upon the appointment of the new Director of Music, Mr. W. J. Bellingham, is evident in the engagement of a studio trio for 3YA. Christchurch has reason to be congratulated on the talent secured. The Christchurch Broadcasting Trio, as it will be known, is composed of Mr. Harold Beck ('cello), Miss Irene Morris (violin), and Miss Aileen Warren (piano), three of the most talented musicians it is possible to secure. It would be difficult, indeed, to secure a better combination. Each one is an artist with a musical career. The trio will be heard at 3YA on Wednesdays, Thursdays, Fridays, Saturdays and sometimes on Sundays as well.

Photo, Webb.

MR. HAROLD BECK.

MISS AILEEN WARREN.

Photo, Webb.

MISS IRENE MORRIS.

The personnel of the trio is distinguished. Harold Beck is a 'cellist of whom his homeland should be proud. His recitals and performances while associated on tours with some of the world's best artists have achieved for him a distinct national fame. He has a splendid technique and much temperament, and his playing is distinguished by rare feeling and appreciation of tone values. Mr. Beck has achieved an eminence which entitles him to rank among the violoncello virtuoso of the world.

In a brief interview Mr. Beck said: I was born in Wanganui, my father being a well-known musician. I expressed some desire to learn the 'cello, but owing to my diminutive size my parents were sorely perplexed, as it was impossible to procure an instrument small enough, until my father, who has an inventive turn of mind, hit on the brilliant idea of putting a meat skewer into the bottom of a viola (which is the next largest in size of the violin family), thus converting it into a miniature 'cello. It worked happily, and so my musical education began. By the time I was seven or eight years of age I had ruined more 'cello strings, bow hairs and resin than my father had used in his entire profession. However, being good natured, he then obtained a small size 'cello for me. It evidently did me good, for within a year I was allowed to play at a concert given by my brother Haydn, who had by this time made quite a stir as a prodigy violinist. We gave concerts in various places, and finally went to England, making an appearance in London at the residence of Lord and Lady Malcolm, who arranged the concert to display their proteges.

"About this time it was decided to further my knowledge of decimals and simple fractions, and so I was banished (at least I thought so) to a school in Great Yarmouth, where I was regarded as quite a curiosity because of not being brown like a Maori. The officials evidently thought that I possessed a voice, for I was drafted off to become a hindrance to the choir of St. Nicholas Church (which was one of the largest parish churches in England), while my brother meanwhile went to study at the famous Brussels Conservatorium.

"My next course of study was with Mr. George Ellwood, the distinguished pupil of Gerardy—the celebrated 'cellist of Liege. I owe him a deep debt of gratitude for what I learnt—especially he taught me the importance of mental work, to think and thus express the artistic in music.

"I then had the good fortune to be offered tours with unsuspecting visiting concert artists. The first to be thus deceived was Carrie Lanceley, an English singer, and then Harry Dearth, one of the most popular baritones in London to-day, with whom I had an unrehearsed performance when motoring to Nelson, the wheel coming off our car and precipitating us over a bank! Being spared for further onslaughts I then gave recitals in various parts of the North Island. On the occasion of the first visit to New Zealand of the New South Wales State Orchestra, Henri Verbrugghen offered me a permanent seat in his orchestra, which I occupied until prior to his departure for America, where he is now conductor of the famous Minneapolis Symphony Orchestra. Verbrugghen was not only a great conductor, but a thorough musician, and from my association with him I learned much regarding interpretation. I also had a course of study with James Messeas, the 'cellist of the Verbrugghen String Quartet, for classical 'cello compositions and absorbed music played by this quartet, which gave regular weekly concerts. I gained a variety of experience with symphonic, operatic, and chamber music, and in this connection was fortunate in playing trios and quartets with organisations and musicians such as the Henri Staell String Quartet, Alfred Hill (the well-known New Zealand composer), Cyril Monk, Lawrence Godfrey Smith, and Frank Hutchins, besides playing for regular chamber music classes at the Conservatorium in Sydney. In addition the conductors of the Royal Philharmonic Society, Apollo Club, and Sydney Choral Society permitted me to draw a bow in their orchestras. The registrar of the Conservatorium was generous on several occasions by engaging me as soloist for the New South Wales Orchestra concerts. We toured regularly to the various States, giving musical festivals. Famous musicians who were associated in concerted work with the orchestra were artists such as Heifetz, Moiseiwitsch, Levitsky, Amy Evans, Dame Nellie Melba, and many others.

"All this only strengthened my desire for more music, and so I departed from Australia with the firm intention of proceeding to Europe. The gods, however, ordained otherwise, for on a visit to New Zealand I was induced to settle and teach in Christchurch, where I have remained ever since with occasional exceptions in the way of tours with eminent concert artists, the most recent being Stella Power, William G. James (the composer), and Stella Murray. Besides teaching and solo work in Christchurch I have held positions as musical director at the Grand Theatre and indulged myself as assisting conductor at Everybody's, Crystal Palace, and Liberty Theatres. Among my many pupils there are some who show great promise, and may some day be heard 'on the air.'"

A YOUTHFUL PRODIGY.

Miss Irene Morris will be remembered as quite a remarkable child prodigy some years ago. At three she was taught the pianoforte by her mother, formerly Miss Helena Buckley. Later from Herr Max Hoppe she had violin lessons. He, perceiving her talent quickly, brought her into public notice at concerts in Wellington. Subsequently Miss Irene Morris had musical tuition from many expert teachers, including the late Mr. F. M. Wallace. She is now resident in Christchurch, where she has been the leader of many musical organisations, including the Christchurch Professional Orchestra, Everybody's, the Grand and Greater Crystal Palace Theatres. She is also a well-known teacher and popular concert artiste, having appeared as soloist with the Christchurch Orchestral Society, The Male Voice Choir, the Eroica Club, etc., and has had the unique honour of being the only lady soloist to play for the Christchurch Liedertafel.

MISS AILEEN WARREN.

The pianiste of the trio is Miss Aileen Warren. She is credited with being one of the best accompanists in New Zealand. Miss Warren was five years old when she commenced her musical education. A particularly apt pupil, she absorbed knowledge so rapidly that, when 11 years of age, she played Beethoven's "Moonlight Sonata" at a concert and later passed every examination with honours that a student could. As an accompanist she has had a wide and varied experience. She toured with Miss Rosina Buckmann, and accompanied Osipoff and other artists. She has been accompanist to the New Plymouth Operatic Society for three years and to the Christchurch Operatic Society for one year.

THE AMPLIFICATION FACTOR OF RADIO VALVES IN RELATION TO IMPEDENCE

(By J. W. Muir, Borough Electrical Engineer, Palmerston North).

When the average man buys a radio valve, he is buying something he knows very little about. He will, naturally, think a valve with an amplification factor of 8 will amplify more than a valve with an amplification of 6. He buys the 8 factor valve, whereas he would, very probably, have got louder and clearer reception had he bought the 6 factor one.

Firstly, the valve is the means of coupling two electrical circuits together. The first circuit with its weak current flowing is by means of the valve reproduced exactly in the next circuit, but at higher current values.

There are two circuits or paths in the valves other than the circuit through the filament. See any simple diagram of a transformer coupled set.

No. 1.—From the secondary of the transformer to the grid across the space in the valve, to the filament and back to the secondary of the transformer, "called the grid circuit."

No. 2.—From the B battery terminal through the primary of the next transformer to the plate of the valve, across the space to the filament, and back to the neg battery terminal, "called the plate circuit."

You will note that in each case I have said "across the space." Current usually will not flow across space, but in a valve when the A battery is turned on, and the filament flows it gives off small particles of matter, and it is these that conduct the current across the space mentioned. Immediately you light your valves up, current starts to flow in the B battery circuit. This current will be a constant value until you tune in a current from the aerial that traverses the grid (No. 1 circuit). This causes an alteration in the conductance of the plate (No. 2) circuit, in exact relationship, but this circuit having a powerful B battery in it, consequently the strength of the current is greater than that in the grid circuit.

From this it should be quite clear that the valve amplifies the signal received. Each valve has an amplification factor which may be anything from 5 to 20 or even 30, and the average person would think that a valve with, say, an amplification of 8 will amplify 8 times, or give just twice as much volume as one with a factor of 4. This is not necessarily so. Probably this last valve will give the best amplification in an ordinary transformer coupled set, and to try and explain this is the main object of this article.

Every valve has an impedance factor, or resistance, which may be anything from 3000 to 20,000 ohms, and it is this factor as well as the amplification factor, that affects the amplification, especially in the audio stages of the ordinary transformer coupled set.

We will consider what takes place in each case with the following valves:—

No. 1 case, a valve with an amplifiation factor of 8 and an impedance factor of 12,000 ohms.

No. 2 case, a valve with an amplification factor of 6 and an impedance of only 4000 ohms.

No. 1 case.—The circuit is made up of valve impedance 12,000 ohms, and transformer impedance (on a given note) 10,000 ohms.

Now assume the incoming signal to the grid had a value of ½ a volt. In case 1 it would be amplified 8 times, making it 4 volts to expend in the plate circuit. 2.2 volts of this will be expended in the valve impedance and 1.8 volts in the transformer primary. It will divide in proportion to the impedance in each case. The transformer is, say, 3 to 1 and the useful signal passed on is now 5.4 volts. The amplification is from ½ a volt to practically 5½—a total amplification of 11 for the stage.

No. 2 case.—The circuit is made up of valve impedance 4000 ohms, transformer on same given note 10,000 ohms. The incoming signal had a value of ½ a volt. It would be amplified 6 times, making it 3 volts to expend in the plate circuit, for the reasons stated before, .8 volts will be expended in the valve and 2.2 volts in the transformer primary. The 3 to 1 transformer will pass on 6.6 volts to the next stage and the amplification for the stage is from 1½ volts to 6.6 volts, a total amplification for the stage of 13, against 11 for the other valve with a higher amplification factor. This example is of two well-known valves in general use, and not only will the valve with the lower impedance and amplification factor give higher or louder reception, but it will also give clearer reception, reception in which the lower base notes are not distorted—reception in which the drums of the band are audible.

The explanation of this can be quite easily understood. I will not attempt to describe it in full, as it requires graphs, curves and calculations. It will be sufficient to say that the transformer impedance alters with every note received because every note has a different frequency. The bottom line of the base cleft has a frequency of 100, while the C above the treble cleft has a frequency of 1000. The impedance of the transformer will vary in reproducing these two notes from approximately 4000 ohms, to 40,000 ohms, whereas the impedance of the valve practically remains the same It is quite apparent from this, that of the voltage expended in the plate circuit, the proportion expended across the transformer (which is the useful part) will be very much greater when the frequency is high than on the low frequency note, and the proportion expended on the valve impedance will be greater in ratio on the low frequency notes.

It is this unequal ratio effect that causes the low notes to be imperfectly reproduced, and you will be able to reason that the lower the loss, in the valve impedance, it naturally follows that there will be less difference in ratio between, the useful part of the voltage expended, and the wasted voltage in the plate circuit over the full range of frequencies, and consequently clearer reception over a wider range.

These low impedance valves are called power valves by some makers, I suppose because they will pass on more powerful current fluctuations or signals without distortion, but a considerable number of makers sell these low impedance valves as ordinary valves.

SEA ALTERS WAVE-LENGTH

Variations of the transmitter of station WCGU, at Sea Gate, U.S.A., are due to the rise and fall of the tides, according to Richard W. Daniels, chief engineer of the station. Tests with a laboratory oscillator showed, he said, that during ebb tide the wavelength decreased to 210 and a fraction metres and that midway between this and flood tide it decreased from two to four half-kilocycles, thus increasing the wavelength to 211.6 metres, which is more than the wavelength prescribed for the station by the Federal Radio Commission.

The aerials of WCGU are 75 feet from the breakers. This, combined with the fact that the sand, when wet, becomes an excellent conductor of high frequency, according to Mr. Daniels, adds capacity to aerial while reducing its effective height. Operators are obliged constantly to check the wavelength of the station because of this peculiar condition.

When building a set it is always advisable to wire the filament circuit first. The filament circuit can then be tested out and any breaks in it fixed without having numerous wires to interfere with the finding of the break. By laying the filament wires first it is also possible to avoid any parallelism between a plate or grid wire and a filament wire.

The Chit-Chat Club—

Points from Papers Put "Over the Air."

(Set Down by "Telanother")

"Well," said Hargost, "you can believe it or not as you like, but I tell you my secret is worth £1,000,000," and leaning forward in his chair, he blinked behind his huge horn-rimmed glasses in the way in which had earned for him the nickname "Blinks."

"You wouldn't be here to-night if it were," said Harrison, trying hard to hide his curiosity.

The "wireless bugs" of the X club were seated round the fire discussing the iniquities of artists and announcers when Blinks gave vent to his astounding statement.

"It's rotten of Blinks to go upsetting us like that," said Winton Thribs, "just when we were nice and cosy too. If your secret is any good you'd better tell it to us, and we may be able to do something with it."

"Poor old Winton," said Blinks derisively. "Can't get the 'vot am I' touch out of him. Got visions of floating the 'Thribs Terrific Tempter' company, or something I suppose. My secret was given over the wireless."

"Well, what the Devil use is it?" said the oldest member irascibly. "You don't think you're the only fool with a wireless set do you? If every idiot has heard it...."

"The asylums will be making huge profits," chipped in Harrison. "I suppose you thought you were going to be in on it, you old sinner... At your age, too. You should be thinking of higher things."

"The secret," said Blinks, determined to be impressive still, "was given in a lecture by Mr. Stanley S. Bull, a member of the London Authors' Society. His lecture dealt with the choosing of a career for your son."

"Good Lord," said Harrison, "I heard it myself. I might have known you were pulling our legs. What did you think of it?"

"Well," said Blinks judicially, "I liked it, and I didn't, if you can understand."

"Oh, yes, perfectly clear—just like mud," said the oldest member contemptuously, delighted to have the opportunity of getting one back on a tormentor.

"What I mean," said Blinks, "is that the address on the whole was a very good one, but it seemed a little padded in places. Of course, I daresay there would be plenty of people who enjoyed every word, and certainly the ideas were sound enough."

"Where does the £1,000,000 come in?" asked Thribs, who still apparently had visions of adding an honest penny to his income.

"I'm coming to that," retorted Blinks. "Mr. Bull said that the most awful thing in the world to-day was the number of fellows who were square pegs in round holes."

"By jove, he's right there," said Thribs. "Every time I look round my office staff, I think there's half of them like that."

"He said that parents always worry a great deal about their boys and what they are to become, and very often force them into uncongenial occupations, or asked the schoolmaster. After all the poor schoolmaster has enough to do to teach them, and he really doesn't, or rather shouldn't, know them as well as a parent. And another thing he said, with which I quite agree, was that the kids with the wealthy parents started off with a handicap."

"Oh, I don't know about that," said Thribs, who had followed his father into a well-established business, and who was on the way to having more than his fair share of this world's goods himself.

"When I look at you I think he was," said Harrison, which silenced Thribs for the time.

"What about that infernal million?" said the oldest member, who thought he was being cheated out of something.

"He summed it up in one word," said Blinks.

"And the word?" queried Larton.

"HEALTH!"

"He's perfectly right," said Brenton, who was a keen physical culturist, "and we know the way to get it."

"Oh..." said the oldest member disgustedly. "What the Devil's the use of that information? I've got health, but I'm cursed if I've got a million."

"I've had a fair bit of ill-health myself when I was younger," said Blinks, "and I reckon as long as a chap has his health he hasn't much to worry about. Bull's idea is to leave Nature alone and let her guide the boy to his future, but try and give him HEALTH. Get him in a healthy state of mind and body and his future will be sound."

"It's a problem knowing what to do with a boy these days, though," said Harrison.

"Let Nature decide, and I do believe, like Mr. Bull, that things will be O.K." said Blinks.

"Talking of present day problems," said Wishart, "reminds me of that second address that Captain Fellowes, that British Air Ministry chap, gave from 2YA, This airship business and the speeding up of our communications is a problem in itself."

"It's going to be a great help to our Empire," said Drexter, who was ever a firm patriot. "With quicker communication between the Dominions and the Motherland, we will each be able to keep in better touch with the other."

"I can't quite understand why this airship question has just sprung into prominence," said Blinks. "They must have developed them pretty rapidly."

"No, most people have that impression, too," said Wishart, "but the second address dealt with that part of it, and showed that there has been a very steady development since pre-war years. It is only recently that the 'powers that be' have realised that the airship with its accommodation for numbers, offered the best means of passage for air traffic. Airships were written down during the war, to discount the Zeppelin danger, and they had to be produced too fast to make the improvements safe from the viewpoint of civil aviation.

"But they haven't made any big sensational flights in airships," said Blinks.

"Oh, yes, they have," retorted Wishart, "In 1927 a German airship flew 4,200 miles in 96 hours, right to East Africa, travelling over hostile country much of the way, and in 1919 a British airship flew the Atlantic in 108 hours. Two or three noted German airships have made long flights and carried thousands of passengers, and in 1924, the United States airship, the Shenandoah, flew 8,100 miles in 22 days, and moored for a time at a mast in each city she visited. Because of the accidents which happened to some of these airships, the British Government appointed committees of experts to investigate the various problems. Experiments costing several hundred thousand pounds were undertaken and as a result of these airship travel between England and the Dominions will shortly be possible."

"We weren't meant to leave the ground," said the oldest member.

"And according to you we weren't meant to have wireless either," said Blinks. "It'd be a great world if we were never to progress."

"Wireless sets—nothing but spluttering contraptions...." started the oldest member.

"With the advantage of being able to shut them up when you want to," interposed Blinks, effectually stopping the flow.

"Talking of programmes," said Drexter, who prided himself on taking an interest in art, "I heard a very good address on Byron last week—given by Mr. Stanley Bull, the chap with Blinks' million pound secret."

"He was a profligate if you like," said the oldest member severely, "and even worse than some of you modern young fellows."

"Yes, he certainly was an absolute rotter," agreed Drexter, "but from what Bull said you can see that it was partly hereditary, and partly his early training that were respectable. Anyway you can't get away from it—the man was a genius. Mr. Bull ranked him next to Shakespeare.

"I'd put Kipling above him," said Blinks, who was an ardent admirer of all Kipling verse, and never discriminated between a genius and a born poet and songster. "I never could stand the way these chaps like Byron ambled on through about a hundred verses."

"His verse out to be barred," said the oldest member fiercely. Immoral, that's what it is—and so was he."

"The evil that men do...." said Harrison.

"Childe Harold is one of the most wonderful things in the English language," said Drexter. "Byron's weaknesses have been the subject of endless books. He certainly was highly temperamental, but surely we can accept his genius now. His life was a sad one and so was his end. He lived with a crowd of wonderful poets and writers and numbered among his friends Shelly, Tom Moore, Campbell, Wordsworth and Sir Walter Scott. What a galaxy of genius—and Byron towered above them all."

"But you can't get away from the fact that he was a spoilt society darling," said Blinks.

"For a time, yes" said Drexter, "but he died alone, and almost forgotten. He travelled in Europe and Asia and after writing some of his finest poems returned to England to be lionised. But when he went East again he gradually fell from bad to worse, and eventually died almost without a friend. It's all very well to harp on his vices, but time should have softened the memory of those."

"After all," said Brenton, the outdoor fiend, "poets have only limited uses. Give me the explorer. What is Byron compared with Drake, Hawkins, Frobisher, and those men who have carried the English flag to every corner of the world?

"Everyone can't be an explorer," said Thribs.

"Nor an exploiter either," said Blinks, with a sly glance at Winton whose "ten per cent. principles," as Blinks called them, were well known to the X club members.

"There's a jolly fine series of lectures 'on the air' just now, by Lieutenant Gordon Burt," said Brenton. "He was a member of the British Antarctic expedition under Commander Worsley in 1925. He has already given one address dealing with early attempts at arctic exploration, and if his others are anything like the first, I'm going to make a bird of them."

By this time the hour had advanced so far that it was time for the members to be wending their way to their several homes, so after 'just one more' they bid each other a cheerful good night and departed for dinner and the evening programme of listen-in.

Just for You

"ARCTIC EXPLORATIONS."

"CONQUESTS IN THE AIR."

"A SECRET WORTH £1,000,000."

"BYRON—THE PROFLIGATE GENIUS."

REV. B. DUDLEY.

The Rev. B. Dudley was born in London, and lived there for 26 years, when he came to New Zealand. He has been interested in astronomy from his boyhood, and become a member of the British Astronomical Association in 1911, and was elected a Fellow of the Royal Astronomical Society in 1913. He has done a good deal of lecturing with and without a lantern on the subject, and also written much thereon, mainly in the daily papers. He has also contributed articles to scientific journals occasionally.

Mr. Dudley's lectures on astronomy from 3YA have been very popular and informative.

"WIRED RADIO"

Rumours heralding the coming of broadcasting over electric power lines—"wired radio"—have cropped up periodically during the last four years. To regard it as a menace or a really dangerous competitor is over-stating its immediate potentialities, according to New York Radio Retailing. Each time that a statement appears in the Press regarding "wired wireless" radio men seek to learn if it means the eventual doom of their business,

The largest and most active organisation interested in the transmission of programmes over electric power lines is Wired Radio Inc. This company has conducted an experimental public service in Staten Island, New York, undertaken to gain practical experience with the system of wired wireless. Details of equipment and programmes have been worked out with meticulous care and the radio trade may reasonably expect announcement that wired broadcasting will be undertaken in some city. No one is ready to say at the present moment whether it is a matter of months or of years.

The equipment required to impress programmes on the city's wire lines is expensive and elaborate, the publication points out. The power companies are not likely to rush in with a huge investment to make the wire programmes available on a national scale without first having ample evidence that the public will neglect radio reception and be satisfied with the choice of two or three programmes which wired radio will offer them.

Revolutions in radio are a thing of the past; it is only a nervous attitude on the part of the radio industry which regards the coming of new influences and factors as revolutionary. Having no possibility of commercial broadcasting support, the wire programme system must have many thousands of subscribers at a minimum charge of two dols. (eight shillings) a month. This will limit it to larger cities for many years, making national coverage a prospect of the remote future.

"Only in the most popular areas is it likely to be possible to obtain sufficient revenue to meet the cost of wire programme presentation," the publication holds. "Such areas are already served by well-established broadcasting, with considerably greater programme choice than any prospective system of wire programme service can offer. Consequently, although wire service may be an excellent adjunct to increase the standard of programmes available through the radio receiver, it cannot, on account of its limited programme choice, displace it."

THE NEW ZEALAND Radio Record

PUBLISHED WEEKLY.

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

LITERARY MATTER.

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

SUBSCRIPTION RATES.

Rate of Subscription: Single copies, 3d.; Annual Subscription (if booked), 12/6, post free; normal rate, cash in advance, 10/-, post free.

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

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

WELLINGTON, SEPTEMBER 23, 1927.

KEEN INTEREST IN SHORT-WAVE POSSIBILITIES.

The glamour of short-wave possibilities continues to attract public attention. Disappointment has certainly been occasioned by the comparative failure of Gerald Marcuse's effort at Empire broadcasting. The public, however, can fairly well assess the reasons for that failure. The accident to the condenser was in every way regrettable, and the interference of the amateurs, in spite of his earnest request to them to "keep off the air" at the time of the broadcast, certainly prevented reception during the few minutes in which he was operating. The real cause, however, of the failure of the experimental effort is undoubtedly the low power and equipment on which Mr. Marcuse is compelled to operate at this stage. It is all very well for the British Broadcasting Corporation to say that the time is not yet ripe for successful initiation of short-wave broadcasting, but the fact is that a private company in Holland is operating a low wave station with a very considerable degree of success. Its broadcasts are received regularly in New Zealand, and it is very little to the credit of the Empire whose overseas interests are so vast that the way should be led by others in this fashion. The Broadcasting Corporation suffers from no lack of funds, and a much more progressive attitude would have been to make available the power and finance for the necessary experimental work. The short wave era has come. 3LO Melbourne, from its healthy financial resources, has progressively led the way, and has given Britain the first full programme by means of an Empire broadcast. This was successfully received, and opens up immense possibilities.

The prospective inception of daylight saving (on passage of the Bill by the Upper House) has an interest for listeners. The practical efforts of our altering the clock will be to make it possible to secure the full New Zealand evening programmes, and on their termination start in at 10.30 and hear 8 o'clock strike in Sydney and Melbourne, and follow on with them so long as the humour lasts. Another effect will be a prolongation of the daylight influence on the New Zealand transmission. This will particularly apply to distant and overseas reception. A further influence will be a probable intensification of the demand for portable sets—that is, if the expectation of the daylight enthusiasts is justified, that seaside resorts and fresh air pusuits will benefit. The experiment will be watched with interest.

NEW DIRECTOR FOR 1YA

MR. TREVOR STRINGER APPOINTED.

It is announced that Mr. Trevor Stringer has been appointed station director in charge of 1YA, Auckland. He will probably take charge at the end of this month. Mr. S. J. Hayden, who has been in charge for some time, is being transferred to Wellington to strengthen the staff under Mr. J. L. Davies, director of 2YA.

Mr. Stringer has taken a keen interest in broadcasting from the listeners' point of view, and has, in fact, been secretary of the Auckland Listeners' League. His appointment may be taken as a compliment to his personality, and the interest taken in furthering radio. He brings a cultured experience to his new post, and enters upon it with the best wishes for success from his former associates.

Born at Christchurch and educated at Christ's College and Waitaki Boys' High School, Mr. Stringer left for the front with the Main Body, attached to the Fourth Waikato Mounteds, and served throughout the war. After some farming experience on his return, he was appointed associate to his father, Mr. Justice Stringer. At one time he held office as Dominion vice-president of the New Zealand R.S.A., and was also chairman of the special committee set up by the association to consider land matters.

RELIGIOUS SERVICES

STUDIO OR CHURCH?

SUGGESTION FOR MINISTERS.

The development of radio broadcasting in New Zealand has been very rapid, and a great deal of work is being done in order that the best service in all departments may be rendered to listeners. One aspect to which the company is now directing attention is in regard to the broadcasting of church services in the hope that these, too, may be further improved.

In this connection the general manager, Mr. A. R. Harris, makes the following statement:—

It is recognised that religious services hold an important place in broadcast programmes, for they meet a need which has been very much felt, especially in the country and by those who, for various reasons, are unable to attend the churches. The Radio Broadcasting Company, as a public utility, recognises the value of broadcasting religious services, and feels that the time has arrived when improvement might be effected in this branch of its work.

At one station the step has been taken of broadcasting special children's services from the studio before relaying the usual evening service from the church, and this session is proving very popular—letters of appreciation having been received from many listeners, both in the back country and in the cities.

In some quarters it is felt that the most satisfactory procedure would be to broadcast from the studios all except special services, such, for instance, as anniversaries, which could still be relayed from the churches as is done at present.

On the other hand, some contend that the relay of a service from the church itself is preferable, as they consider listeners get the church "atmosphere," which adds to the interest, and which cannot be reproduced in the studio.

The Broadcasting Company feels that it shares with the churches a common interest in this subject, as both have the same end in view, namely, the rendering of the highest possible service to listeners.

It is evident that in this, as in other matters, there are many points of view, and it is proposed therefore, that representatives of the different churches be invited to meet the officers of the company in conference, in order that the broadcasting of religious services may be discussed from all sides, and that a definite plan may be evolved which will be a help both to the churches and to the company, and will render this branch of broadcasting of greater value to the community.

CHILDREN'S SESSIONS

The development and organisation of the children's sessions will be the subject of a statement by the general manager next week.

IN A GLASS HOUSE

A writer in an Auckland paper, posing as an authority on pronunciation of words, makes the following comment: "Thank goodness we at last have an announcer whose purity of English is most satisfying to we fathers of school children." This is indeed satisfying to we! How annoying of those old-time teachers of grammar who foolishly taught us to say "us."

MUSIC IN OUR NATIONAL LIFE

THE PART TO BE PLAYED BY BROADCASTING

Mr. W. J. Bellingham, the newly appointed Director of Music to the Broadcasting Company with responsibilities covering the four stations, arrived in Wellington last week in connection with the policy of development and organisation. One of Mr. Bellingham's initial acts in Christchurch was the formation of a high-class permanent instrumental trio which will regularly be heard from 3YA. Much the same policy will be offered by Mr. Bellingham in Wellington, Auckland and Dunedin as opportunity permits. Mr. Bellingham brings to his task of development a sound taste and business experience in his field and listeners may expect a steady advancement as his policy bears fruit.

As to the importance of radio in influencing the musical life of the people Mr. Bellingham is fully seized. "I can conceive of no greater medium," he said in conversation, "for the intellectual and artistic uplift of the nation than broadcasting. It is in the universality of its appeal, in the fact that whasoever is broadcast reaches the most cosmopolitan audience in the world that wireless is blessed, or burdened, with its outstanding power to influence the lives and character of the people. Radio is destined to become one of the most potent influences affecting the development of the human race.

"Music," continued Mr. Bellingham, "is the one language that is common to all nationalities. Education authorities throughout the world have long recognised its power to develop and to refine character. Our own Government has taken an important step in this direction in the appointment of a director of music to supervise and control the study of music in the primary schools. Radio presents the best means for the continuation of this study in after life, firstly, because it will be the cheapest possible form of musical entertainment, providing music for the great mass of the people virtually free of cost; and secondly, because it will make possible the employment of permanent professional musicians.

The Value of a Permanent Market.

"It is from this angle that, as director of music of the Radio Broadcasting Company, I propose to tackle the difficult question of programmes. Not everyone realises the great service that some of our leading picture orchestras have been to music. Owing to the fact that the pictures have enabled orchestral musicians to be permanently engaged, large numbers of musicians have reached a standard of efficiency in performance which was undreamt of a few years back. Whereas in the past our orchestral societies would require months of hard practice to prepare an hour's programme of music, the present picture theatre orchestras are able to read the same music satisfactorily at sight and present a weekly change of music, the programme lasting from two to three hours. This means that the public hear an infinitely greater amount of music to-day than was ever heard in the past and, in addition, at a lesser cost.

"The work of the Broadcasting Company is, however, a much more serious task than that of the picture orchestra. Some 1080 different programmes have to be provided and broadcast annually in New Zealand by it.

Cultivate Professional Talent.

"A task of this magnitude could hardly have been imagined by the entertainers of the past. It follows that in order to get efficiency it will become necessary to develop a number of highly trained professionals, as has been done in the case of picture orchestras, who will be able to read at sight and intelligently and artistically interpret the whole range of music from classical to modern times. This is the policy which will be followed by the Broadcasting Company.

"As radio must inevitably become most direct, popular and efficient means of developing the public appreciation of good music, it is manifestly essential that the utmost care shall be exercised in supervising the class of music selected for broadcasting. While all good music must have a refining and elevating influence, it cannot be overlooked that certain music is apt to have the reverse effect. As an example of the harm that may be done to the community by music, I would point to the hold which jazz has had on the American people. I do not mean to say that all music commonly called jazz is bad, and I do think that in the course of years a style may possibly develop from the present American jazz which may be a distinct contribution to musical progress. At the present time, however, jazz music has excluded the better forms from the knowledge of the great mass of the people, and this is distinctly harmful.

A Wide Appeal to Enthusiasts.

"It is our aim to entertain and educate. That is to say, while we will not lose sight of the entertainment factor, we will endeavour to eliminate that which is harmful. In order to obtain the best possible results, the Broadcasting Company authorities need the assistance of every sincere musician. Our municipal authorities, local musical societies, and leading musicians should join in assisting towards the attainment of a high standard of music. It must be recognised that the Broadcasting Company is not purely a commercial enterprise and that service in its widest sense is the real aim of the company. Such a service, properly directed, must result in the greater degree of musical appreciation among the mass of the people, and will encourage rather than hinder the individual study of music. This will be a direct benefit to the teaching profession and musical societies, and will prove a potent factor in the development of national character."

4YA DUNEDIN TO BE IMPROVED

ENLARGEMENTS PUT IN HAND IMMEDIATELY

The general manager of the Radio Broadcasting Company, Mr. A. R. Harris, paid a visit to Dunedin last week to look into matters connected with station 4 YA, and as a result the announcement is made that considerable improvements are to be made at the station. The programmes are to be developed and a Saturday session is proposed.

"Since the opening of the Wellington station," said the general manager to the Christchurch representative of the "Radio Record," "I have been reviewing the position of the Dunedin station. It has presented a problem. The public's response to the broadcasting service rendered there has not been encouraging. For a long while, during the Exhibition, Dunedin had the best station in New Zealand, yet it was not taken advantage of by the people to the extent that was expected. When compared with Auckland and Christchurch, which had poorer services at the time, the response was very disappointing. At the opening of the Exhibition, the plant taken over from the previous owner was remodelled on up-to-date lines. An entirely new speech input, alves, and other equipment were specially imported. It became a first-class plant, and from our subsequent experience with the latest equipment we know that the transmission was very efficient, with the added advantage of the attractive programmes provided by the Exhibition authorities. This plant was, on the closing of the Exhibition, removed to its original site and the service continued with local talent. Although this new plant has been in operation for two years, the response has not been very encouraging. The explanation is—in fact, can only be—that the real value of broadcasting is not realised by the people in this part of New Zealand. This is difficult to understand, for a visit to Dunedin greatly impresses one. There is a general appearance of thrift and solidity. The shop windows are well dressed, better, in fact, than in some other cities, and the latest developments in most things are well displayed. There is no doubt that the people in Dunedin keep abreast of the times. It is generally understood that they are a home-loving community, too. So, on the face of it, Otago and Southland present a greater potential field for the sale of radio sets than does the rest of New Zealand which has been more fully developed. Once the people realise the value of radio, every house will have a receiving set. Radio is no longer a luxury. It is a necessity. No farmer can now afford to be without a set, and one is equally necessary to the town dweller."

The radio dealers of Dunedin met Mr. Harris in conference on Thursday evening, Mr. Grey being in the chair. There was a very representative attendance. The position relating to 4YA was fully discussed in a friendly atmosphere.

Mr. Harris dwelt on the company's experience with Dunedin, and the disappointing results which had come from an excellent service during the Exhibition.

Mr. Harris said the company proposed to at once put in hand the work of renovating and refurnishing the studio to bring it into line with the studios in the other centres. A new generator would be installed to make the power of the plant equal to that at Christchurch and Auckland. The staff at the station would be augmented in order that more time could be given to the organising of the programmes. The running hours would be increased and a Saturday night session would be introduced. The work of renovating the station has already been put in hand and except for the generator, which will have to come from overseas, the work of remodelling 4 YA will be completed by the end of this month.

SPORTING

NEXT WEEK'S FIXTURES

ALL BLACK TRIALS.

Wednesday, September 28—South Island Probables v. Possibles—3YA.

Saturday, October 1—North v. South Island—2YA and rebroadcast by 3YA.

PICKING THE ALL BLACKS

TRIAL GAMES REVIEWED

FULL BROADCASTS COMING.

The sports organiser of the Broadcasting Company, Mr. A. R. Allardyce, thus sums up the significance of next week's Rugby fixtures:—

During the next few weeks listeners throughout New Zealand will have the opportunity of hearing running descriptions of the various major trials in connection with the selection of the All Black team to go to Africa next season.

Most readers will appreciate the difficulties surrounding the selection of a really representative national side, and the New Zealand Rugby Union are to be complimented on arranging such an extensive series of eliminating games.

Although the trials will entail a certain amount of hardship on some of the players, especially those who are left in towards the finish, the strenuous nature of these games and the number of them will all be to the good of the cause, and should give Dominion-wide confidence that no one worthy has been overlooked.

Some trial games in smaller centres have already been played, but this week sees what is really the serious stage entered upon, for there are trials in Wanganui, Auckland, and Dunedin. The games at Dunedin and Auckland on Saturday, September 24, will be broadcast by stations 4YA and 1YA respectively.

On the following Wednesday, the 28th instant, 3YA will broadcast the game in Christchurch—South Island Possibles v. Probables; and on October 1 at Wellington we come to the inter-island fixture. On the following Wednesday, October 5, the final trial of all New Zealand Probables v. Possibles will be played in Wellington, and as there are twenty-nine players to make the trip, it is reasonable to suppose that the majority of players in this game will be included in the team of 1927.

The team, which has to leave New Zealand early next year, will be definitely selected after this game, and the selection will be anxiously awaited by people in all parts of New Zealand.

The selectors have an unenviable task as they have undoubtedly a national responsibility, but as they are all men who have the confidence of players, the public can rest assured that parochial interests will not cloud their judgment.

The tour is probably one of the most important a New Zealand team has ever undertaken, as in the eyes of the Rugby world the question of supremacy lies between Africa and New Zealand. The tour of the Springboks in 1921 proved that they were foemen worthy of our steel, and the result of the tests left honours easy. It is felt that 1928 will be merely a continuation of that duel.

The tour outlined is a very strenuous one. Playing under strange conditions at varying altitudes, and on harder grounds than obtain here, the New Zealand team will be severely tested. The only line the critics have to go upon is the successful tour of the New Zealand Army team through Africa in 1920, and the improvement in New Zealand play since 1921. These factors tend to make the prospects of New Zealand's success fairly bright, and if all the players available can make the tour, we can rest assured of our side being a worthy one.

It is felt that the broadcasting of football generally, and representative and trial games in particular, cannot fail to arouse an added interest in the minds of listeners, and that the general interest in the 1928 selection will be greater than ever in the history of the game in New Zealand, and that the interest in the doings of the team will be heightened to a greater extent than hitherto.

BROADCAST WHISTLING

NOVELTY AT 3LO.

3LO Melbourne recently conducted a championship of Australia whistling competition. Hundreds of competitors came from different parts of Victoria, New South Wales and Tasmania, and as the standard of their efforts was uniformly high the task of the judges was by no means easy.

An interesting feature of the competition was the fact that many of the competitors were ladies—the second prize being awarded to Mrs. Daphne Whitehead.

The judges, in announcing the awards, said that they were astonished at the general excellence of the efforts of the competitors. So many of the whistlers produced, simply by the use of lip and tongue, most beautiful melodies and clever imitations of birds that 3LO Melbourne should now have a huge source from which to draw new and novel items for broadcasting.

ORGAN RECITAL

1YA's PROGRAMME, SEPTEMBER 23.

The following is the organ programme to be given by Mr. Arthur E. Wilson from 1YA on Friday, September 23, in his special hour, starting at 9.5 p.m.

"Anapaest," by Wasley.
"Legend," by Federleiu.
Soprano Aria, "Rejoice Greatly," from "The Messiah," Mrs. F. Kendall.
"Canzone," by Spedding.
"Impromptu in A Minor," by Taylor.
"Melodie D'Amour," by Engleman.
Soprano Solo, "All Joy be Thine," by Sanderson, Mrs. F. Kendall.
"Valse Triste," by Sibelius.
"March Militaire," in G (No. 2), by Schubert.

INTERFERENCE BY MORSE

QUESTION FOR WORLD CONFERENCE

New Zealand listeners who are worried with ship's morse while listening to broadcast programmes may obtain relief through the decisions at the International Radio Conference to be held at Washington, U.S.A., in October.

News from Washington states that interference with land broadcasters by radio operators at sea will be the subject of negotiations at the forthcoming International Radio Conference, according to an announcement by Orestes H. Caldwell, of the Radio Commission. Any adjustment of wave-lengths at sea requires the co-operation of some forty nations, he said.

The interference caused by radio transmission at sea was dealt with in a letter addressed by Mr. Caldwell to Louis W. Southgate, of Worcester, Mass., who complained of interference in that city.

In his letter to Mr. Southgate, the Commissioner said that such interference was undoubtedly due to ships operation on a 600-meter wave-length, which was removed by only a short interval from the broadcasting band. Mr. Caldwell wrote in part:

Ship Wave-lengths.

"It will be very desirable to shift this SOS and calling band to a new location further removed, but such shifting will require the co-operation of some forty nations and actual re-equipment of 30,000 ships. The matter will be brought up at the coming International Radio Conference, but at best it will require some years before the transfer can be made.

"The Commission has repeatedly pointed out to American broadcasters that the interference caused by ship transmitters on these high waves is very objectionable along the coasts, and that for this reason the best broadcasting channels are those near the centre of the broadcasting band.

Clash With Broadcasting.

"The kind of interference you refer to is experienced all up and down the whole Atlantic Coast, especially at Boston, Cape Cod, Long Island, New York City, and Atlantic City, and has been the means of spoiling many wonderful programmes put out by some of the leading stations operating in the 600 and 700-kilocycle range.

"Transmission to ships and safety of life at sea is a paramount use for radio, but it is unfortunate that the rapid development of broadcasting has not made it possible to further separate these services so that both broadcasting and ship communication might proceed without mutual interference."

ERECTING AN AERIAL

SOME HANDY HINTS.

In erecting an aerial where one end of it is fastened to a pole or a tree that will move in the wind certain precautions must be taken, otherwise poor reception or a broken wire will result. Poor signals from an aerial strung from a tree can usually be traced to absorption by the branches and leaves. Keep the aerial at least three feet from the nearest branches, walls, or other structures.

A broken aerial is caused by the swinging of a pole or tree. There is one method of eliminating this trouble. Fasten the aerial to an insulator and fasten the insulator to a wire that is fairly long. Then on the movable support string a pulley with a bit of heavy wire. Through the wheel portion of the pulley run the wire running from the aerial insulator. To the end of this insulator fasten a window weight.

If this weight is not sufficient to keep the aerial taut, then add a stone or another window weight. When the proper weight is found the aerial will be safe in any storm.

In the case of the aerial that is strung between two immovable supports there is a method that will eliminate fussing with the aerial continually to keep it taut.

In each end of the aerial insert a large turnbuckle. Get the kind that has a five-inch take-up. Installing the turnbuckles in an aerial is an easy job and is well worth the money and time spent on it. Insert the buckles between the insulator and the support. Be sure that they are extended full length before fastening. Then fasten the aerial as tight as possible to the turnbuckle. By turning the centre part of the turnbuckle the aerial can be made extremely tight. Therefore, when the wire starts to slack up a turn or two in the buckle will keep it at the proper tension.

FADING INQUIRY

SEPTEMBER 26-27.

KEEN INTEREST TAKEN.

Readers are reminded that the combined fading investigation is fixed to take place on the evenings of September 26 and 27. Charts were published in last week's "Record" for the convenience of listeners, whose co-operation is sought. Monday, the 26th, is Auckland's silent night, so that conditions should be good for concentrating on 2YA. Readers are also asked to report on the reception of the 27th. Some experimental adjustments will be made for that evening, and a comparison of reports will be of value. Reports should be sent in as soon as possible, addressed "Fading," P.O. Box 1032, Wellington.

GOVERNMENT CONTROL

BRITISH AUTHORITIES TOO SLOW.

A Melbourne writer says:—"A very pretty position seems to have arisen in England over world-broadcasting. The British Broadcasting Company, now covered with all the dignity of a Government Department, has announced that it is making researches into the best method of bringing about this desirable and interesting end. Government departments move with irritating slowness, and research itself is a very slow thing. Take two naturally slow things mutually dependent on each other's energy, and you have the world's worst example of procrastination.

"Meantime an amateur has been busy on the problem and has applied to the Postal Department for a license for world-broadcasting. This is opposed by the British Broadcasting Co., which points out that it would be a very harmful proceeding to begin such an important thing before everything was certain. It seems that the protest of the British Broadcasting Co. will naturally appeal to its brother department of the Post Office.

An Object Lesson.

"Herein lies an object lesson for Australia. As between a **slow-moving** public department and an enthusiastic amateur, free from the shackles of red tape it is a good bet that the amateur is likelier to achieve success in bringing to fruition a new process. Government controlled monopoly, however, is bound to look with conservative jealousy on such success and to put obstacles in the way of its use. Those who would like to see broadcasting in Australia put under the aegis of the Government may lay this lesson to heart. The British Broadcasting Co. have not taken the attitude that the amateur who is seeking this world license has failed. They take the easy line that success is more achievable by themselves, with a 'big pot' as **chief engineer, and all the time** in the world to ripen their scheme, rather than by a fellow who is probably tinkering at a device with pliers and a pocket-knife as his only tools. That attitude would smother any private ambition and make radio a close preserve."

AMATEURS AND MUSIC

The Commonwealth Director of Postal Services (Mr. H. P. Brown) intends to take steps to stop amateur wireless transmitters from broadcasting musical items as part of their experimental work. This appears to be a retrograde step, and requires some explanation.

Anent the above the Melbourne "Argus" says: "Aat present half a dozen or more very fine amateur stations are regularly combining their experiments with the transmission of first-class programmes, which are used by thousands of broadcast listeners. These programmes are particularly valued by listeners because they are broadcast at a time when the main stations are nto transmitting. The amateur stations are, therefore, a valuable adjunct to the A class and B class stations in Melbourne. How far the Postmaster-General's Department intends to carry the threat to see that these stations do not combine musical programmes wih their experiments has not been announced, but if any attempt is made to limit the present operations of the stations there will be protests from thousands of listeners."

An experiment in healing human ailments by radio was made in New York recently, when Louis J. Lewis, Christian Science practitioner, armed with letters asking for treatment, appeared before the microphone of WGL. Only individual cases were treated, and no names of persons asking for treatment were mentioned.

THE LOOP AERIAL

REMARKABLE PECULIARITIES

It has been pointed out that radio waves are an invisible sort of light waves. They travel outward in all directions from the transmitting station just as the light from a powerful beacon reaches to all quarters of the horizon. For broadcasting purposes this is a great advantage, since it enables the radio waves to cover all the territory around the transmitting station practically impartially. (There are some regions around a transmitting station which may be partially shielded from the radio waves by great groups of steel buildings, hills containing metallic ore deposits and the like, but otherwise the waves travel fairly indifferently in all directions and are capable of rendering equally good service at all points which are at the same distance from the transmitting station). It is this feature which gives radio broadcasting its peculiar adaptability for covering an area in contradistinction to wire communication, which, by its nature, is readily adaptable to the connection of two fixed points on land. While it is possible to transmit radio messages, particularly on the higher frequencies or shorter wave-lengths, in particular directions, so that they can be received readily only within certain regions or sectors.

Can Receive From Any Point

In view of the way in which radio waves travel in all directions, it is possible for an ordinary receiving station using a wire antenna to receive messages coming from any point of the compass. Every broadcast listener has noted and appreciated the fact that the concerts from cities in all directions can be received equally well on occasion. He has, however, also noticed that messages coming, say, from a land or ship spark station in one direction can easily interfere with concerts on a nearby frequency or wave-length coming from a different direction. If one had available a form of radio receiver which could receive messages from a desired direction, instead of being open to reception of messages from all directions, it might be possible to eliminate undesired signals, and not, as usual, by tuning only, but by the use of this directional receiver.

The Simplest Loop Aerial.

Such a receiver, which would broadly receive messages from a definite direction and fail to respond at all to messages from some other direction, would be a convenient kind of "radio telescope" and would have interference-reducing capabilities. The simplest form of such a radio telescope is the loop or coil aerial. It consists of a number of turns of wire wound, generally, in square form for convenience and mounted on a frame which can be readily rotated. The side of the square is from about one foot to as much as five or six feet, but the smaller sizes are by far the more convenient. The terminals of the coil are connected in place of the "antenna" and "ground" connection, but an ordinary receiving set will generally not be satisfactory for use with coil aerials, because it is not sufficiently sensitive. As a matter of fact, the signal strength which can be delivered by a coil is only a small fraction of what can be obtained by a suitably proportioned antenna system of the straight-wire type, and the difference must be made up by the use of additional amplification in the form of several more radiotrons, since otherwise strong signals will not be obtained.

Directional Effects.

Let it be supposed that the signal comes from the north. When the loop points north the signal is loud; and as the loop is rotated to the east the signal dies down until, when the loop points due east, the signal in a well-designed and properly used set of this type has almost entirely disappeared. As the loop is again turned to the south the signal comes back with full strength, to disappear once more when the loop is turned to the west. Three facts are at once evident:

Points for Operation.

1. The loop receives the strongest signals when it points in the direction of the incoming waves (which, at times, and especially in city locations, may not be the direction of the station which is being received, since the incoming waves may be swung out of a straight line of travel by obstacles or reflection).
2. The loop receives little or not at all when it points at right angles to the direction of the incoming waves.
3. It is possible to tell only the line of direction of the incoming waves from the loop direction, but not the actual direction. Thus one can tell in the case just described that the signals are coming from the north or the south, but one cannot tell whether the true direction is north or south. Generally this indefiniteness will not cause any practical difficulty.

For Loudest Reception.

Accordingly, the simplest way to get a station loudly, as a matter of practical operation after having picked it up, is to swing the loop until the desired signal disappears, and then to swing it exactly at right angles to the disappearing position. This will be found a little more definite and positive than the more obvious method of pointing the coil by trial in the direction giving the strongest signal. In order to get rid of an undesired station the loop is merely swung until the undesired signal disappears. If the undesired signal comes from a very different direction this method will work; but if the desired and undesired signals come from nearly the same direction, this method of reducing interference will not be effective. Of course, normal tuning is also used to get rid of the undesired station.

The coil aerial receiver has the advantage that no antenna wires need be strung, either outdoor or indoor. This simplifies the installation of the set and enables it to be used in almost any desired location. In steel-frame buildings it is advisable to keep such sets near the windows and not in back of steel columns or long sections of wall. Stronger signals are generally obtained in the more open locations. Coil aerials also enable portable sets to be readily employed and transported, with minimum delay and inconvenience in setting them up and using them.

Loops Get Distant Stations.

Another interesting point in connection with loop receivers is that it has been found possible by actual trial to listen to stations many hundreds of miles away, operating on practically the same frequency or wave-length as a powerful local broadcasting station by utilising the difference of direction only. We thus realise not only "tuning selectivity" of the ordinary kind, but also "directional selectivity."

Baffling Effects.

A few rather curious and interesting effects will be found in the use of such receivers. In the interior rooms of steel-frame buildings it will sometimes be found that all signals seem to come from the same direction. The reception is fairly good, but the directions of all signals are the same. This is because the reception is chiefly from magnetic fields of currents induced by the travelling waves either in the steel or in the electric wiring system of the building.

A nearby wire aerial of considerable length will increase the signal strength on a coil receiver when both are tuned to the same frequency. If the long aerial has a regenerative receiver connected to it, with the tickler or intensity control brought well up the scale, it will very greatly increase the strength of the signals on the coil receiver, because regenerative reception actually strengthens the local field of the incoming radio waves.

Coil Receiver Overcomes Fading.

Sometimes at night, and particularly in certain country locations, signals from stations roughly a hundred miles away fade markedly and vary rapidly in intensity. When using an ordinary long wire aerial receiver nothing can be done about the fading effect. With the coil receiver, however, it will sometimes be found that when such a signal fades rapidly, swinging the coil approximately 90 degrees to a new position at right angles to the original position will bring the signal back again. This is sometimes a useful way of following the fading effects of an incoming signal, since it has the advantage that it enables holding the signal at a critical moment—for example, when some important statement is being broadcast or when the station signature is being given.

In view of its portability, directional selectivity and general interest and convenience of installation, the coil aerial receiver or radio telescope is widely used in modern sets and has a real sphere of usefulness.

PHONOGRAPH COMPANY

ORGANISES BROADCAST CHAIN.

A new chain of radio stations, connected by land lines, known as the Columbia Broadcasting System, which will link WOR in the New York area with thirteen transmitters scattered throughout the section of the United States east of the Rocky Mountains, will open their studios for simultaneous transmission of programmes on Sunday, September 4, according to a statement made recently by H. C. Cox, President of the board of the system, which it was said will be directly controlled by the Columbia Phonograph Company. Headquarters will be established in the Paramount Building, New York. Linked with key station WOR, in New York, will be:—WEAN, Providence, R.I.; WNAC, Boston; WFBL, Syracuse, N.Y.; WMAK, Lockport, N.Y.; WCAU, Philadelphia; WJAS, Pittsburgh, Pa.; WADC, Akron, Ohio; WAIU, Columbus, Ohio; WKRC, Cincinnati, Ohio; WGHP, Detroit, Mich.; WMAQ, Chicago; KMOX, St. Louis; WHO, Des Moines, Iowa, and other stations to be announced later.

Some New Ideas.

"We feel that there is a large field for a strong independent new radio chain," said Mr. Cox in his official announcement. "In addition, we are bringing into the chain broadcasting field some ideas which we believe are new and logical."

Major J. Andrew White, it was announced, is in charge of technical affairs of the system. Arthur Judson will, with the assistance of programme builders, select the musicians, entertainers and organisations for the programmes.

American, European and Oriental talent will be made available to the Columbia Broadcasting System through its association with Mr. Judson, who is constantly in touch with all important musical centres of the world, the Columbia officials declared.

"This is the second radio system to be formed in America," said Mr. Cox. "It includes stations located at strategic points and selected as most desirable because of the technical equipment, the large area in which they are heard and their excellent standing in the communities in which they have built up their following and good-will."

From the Woman's Point of View.

By VERITY.

WELLINGTON ACADEMY

Truly these are exciting times to live in. Aren't we all lucky to be alive? Airplanes, the kinema, radio! And the greatest of these is radio. Or so some of us think, as in the warm security of our ain fireside we listen o' nights to the magical sounds and wonders that come to us over the air like gifts from the gods. Television is not yet, though it may be in the offing, so to speak.

And as one can't see the Annual Academy show without going down to the little building in Whitmore Street, one wanders along there as a matter of course to see the latest work of New Zealand painters. Very fine it is, too, some of it; though, on the opening night, when Lady Alice Fergusson opened the show and spoke with that grace and charm of hers, there was not much chance to study art. An interesting crowd it was, numbering men and women of achievement in the professional, artistic and social world, also a few glowing representatives of those who, in the Victorian era, were termed the rosebud garden of girls. The play, the social play, is the thing at the opening function; but next day one likes the quiet hour when the pictures are noted at leisure and the portrait or landscape more carefully studied than was possible when it intrigued the fancy the night before. What a glow and sparkle Marcus King contrives to imprison, and the quiet poetry of Nugent Welch's painted fields and skies is irresistible. Memorable, too, is a picture of a fair and youthful maiden by that gifted artist, Mrs. Tripe; while Elizabeth Kelly's portrayal of a well-known Christchurch journalist is a convincing bit of work. The women's work in this show is outstanding.

LISTEN AND LEARN

RADIO RECIPES.

Here are some of the recipes given by Miss Christian from 2YA last week Her talks on cookery are meeting with much appreciation:—

Braised Fillet of Veal.

3½lb. veal, 2oz. suet, finely chopped, (larding bacon if liked). 1 tablespoon chopped parsley, vegetables, ½ teaspoonful salt, stock or water (for braising), ¼ teaspoonful pepper, bacon rolls and lemon for garnishing, ½ teaspoonful dried herbs, forcemeat, 1 egg, 3ozs. bread crumbs.

Method.—Mix the dry ingredients of the forcemeat, then moisten with the egg. If the veal is to be larded, unsmoked bacon should be used, and cured without saltpetre, as this turns white meats red. Cut the veal into a stew pan with the vegetables and liquid. Braise for 2½ hours, basting occasionally. Then brown and crisp the surface of the meat, placing it, with a little of the liquid, into a dripping tin in a hot oven for about 15 minutes. Reduce the stock by fast boiling to about ½ pint, then use it for making gravy.

Bacon Roll.—Cut the bacon very thin, roll, put on a skewer, and cook in the oven with the veal for about 5 minutes, or till slightly browned.

Chocolate Pudding.

2ozs. chocolate, 2 eggs, 4ozs. sugar, 6ozs. bread crumbs, ½ pint milk, 3ozs. butter, ½ teaspoon vanilla essence.

Grate the chocolate, slightly warm the milk, and dissolve the chocolate in the cream, butter and sugar, add bread crumbs, essence of vanilla, and yolks of eggs. Then mix in the milk and chocolate and add the whites of eggs stiffly whipped. Steam in a mould for 3 hours and serve with custard sauce.

Welsh Tea Cake.

1lb. flour, ¼lb. butter, ¼lb. sugar, ¼lb. currants, 2 eggs, 1 dessertspoonful baking powder, ½ pint milk.

Method.—Mix flour and sugar in a bowl, rub in the butter, add baking powder and cleaned currants, and mix to a moist paste with eggs and milk. Roll out on floured board, cut into rounds with a cutter. Bake 20 minutes serve hot, butter for tea.

A CONFESSION

No chain is stronger than the weakest link;
It is a truth we did not feel, I think,
When we our mighty love-ties forged, and cried,
"Nor earth, nor heaven, our souls can e'er divide."
Now world's asunder, though in gloom we go,
And darkly hint at "cruel Fate," I know
The thing that really parted you and me
Was the light blow you dealt my vanity,
—*Suzanna Marr-Spalding.*

THE LADY IN LONDON

"London has been very full," says a topical letter, "and the season very gay with exceptionally fine weather. Fashions here are so diverse and tastes are so varied that it is possible only to give merely an idea of some of the more salient features, made from observations in the streets, parks, theatres, and such functions as the trooping of the colours, the horse show, the military tournament at Olympia, and that zenith of dress display of the season—Ascot on Gold Cup day. The straight silhouette is still the most favoured, and the effect of the slim, graceful outline with hair cut like a man's, the Eton crop, and brushed smoothly back or waved on the top, slim ankles and neat shoes conveys almost a race horse appearance, and looks especially smart and becoming on younger women.

Hats are still, the high-crowned, narrow brim variety, but there are some larger shapes with brims short, or cut off entirely behind. At Ascot, the wide leaf crinolines were very much in evidence, trimmed with large full-blown roses on the brim and also on the front of the crown. These, of course, are peculiar to Ascot and other functions.

—Tornquist, photo.
MISS DOROTHY YOUD.

Miss Youd's splendid voice is regularly heard from 1YA. She is a leading soprano in Auckland, and has been complimented on the beauty of her voice by such artists as Rosina Buckman, Elsa Stralia, and Toti del Monte. A concert arranged by her will be given on Friday of next week.

The most conspicuous, feature regarding head wear is the popularity of felts for summer wear, not only for sports, but in the streets and parks. The most favoured colours this summer are beige, in all tones, almond green, new blue (a shade between delphinium and saxe), and bright red—these in the order named. Soft pearl grey was expected to be in demand at the beginning of the season, but has not become a general favourite yet. Paris houses are strongly of the opinion that it will be much worn next summer.

Crepe-de-chine, plain and printed, especially in small designs is the leading material for afternoon frocks. Dinner and evening frocks are of plain georgette and lace, and printed ninons and georgettes, the latter often in very large designs.

The vogue of the plain tailored coat and skirt has returned. They are seen everywhere, worn by the very smartest women, with a large posy on the lapel. Made with short coats, single or double-breasted with one or two buttons, they are expressed in beige tones of fine tweeds, plain cloths and flannels, also in small checks. Sports suits are as popular as ever, and worn on many occasions—not for sports only. They are very bright and attractive, many have pleated skirts, and a sleeveless cardigan is generally added.

Coats of black satin, reversible sultane and silk, plain, figured and with soft borders, are more popular even than last season.

Fine light tweeds in beige mixtures are new—repps and charmelains are only used in a few tones, beige, navy, and black; while the brighter colours have gone out of favour entirely for coats. Linings are of crepe-de-chine to tone or contrast.

For washing frocks only two kinds of material are seen, voiles and artificial silks, the former in all kinds of floral designs, figured and bordered. The newest ones have spots and small neat designs on pastel, navy and black grounds. Artificial silks are now produced in a variety of colours and designs, so beautiful that it is difficult to distinguish them from the real thing. Bags are universal, matching the frock or costume. They are in the underarm and new pouchette shapes, mostly in two-colour effects.

SOLACE TO THE BLIND

I know of a quiet spot away in the country, where there is a low rambling wooden house, set in what was once a well-kept garden. A long winding drive leads up to it, through a fir plantation. In the long, low sitting room with its beamed ceiling, a big log fire burns cheerily on the hearth. Outside, darkness has already fallen, but to the man of whom I am thinking darkness makes no difference at all. He sits patiently weaving a basket, his nimble, sensitive fingers following the pattern. It is nearly eleven years since he learned to count the number of steps to the gate. How it happened is all old stuff now, and most people have forgotten the boy who used to make such a noise at the piano and led the choruses with such gusto. He never gets into town now, the roads are too muddy all the winter; and any way the traffic is a bit dangerous for a man who has to listen, listen, all the time.

But he is kept cheery and gets his music, too, when he wants it, sitting there in the dusk, and his thoughts are kept from brooding too long over the past. No one can guess exactly how much his wireless set means to our blind friend.

THE PILGRIM'S GRACE

Give me a good digestion, Lord,
And also something to digest;
Give me a healthy body, Lord,
With sense to keep it at its best
Give me a healthy mind, Good Lord,
To keep the good and pure insight
Which, seeing sin, is not appalled,
But finds a way to set it right.
Give me a mind that is not bored,
That does not whimper, whine or sigh;
Don't let me worry overmuch,
About the fussy thing called "I."
Give me a sense of humour, Lord;
Give me the grace to see a joke;
To get some happiness in life
And pass it on to other folk.

FROM A SOUL'S TRAGEDY

Friend-making, everywhere friend—finding soul,
Fit for the sunshine, so it follows him,
A happy-tempered bringer of the best
Out of the worst; who bears with what's past cure,
And puts so good a face on't—wisely passive
Where action is fruitless; while he remedies
In silence what the foolish rail against.

* * * * *

The most gladsome thing in the world is that few of us fail very low; the saddest thing that with such capabilities we seldom rise very high

Experiments where a radio receiver have been located in caves and in submarines established the fact that very little static is found under the earth and water.

RADIO IN AUSTRALIA

REPORT OF COMMISSION

IMPORTANT RECOMMENDATIONS.

The Australian cables report that the Commonwealth Government's Wireless Commission, having considered the evidence taken at several weeks' sittings, has made various important recommendations. The Commission's report, however, does not recommend Government ownership or management of broadcasting, conditional upon Amalgamated Wireless (Australasia), Ltd., agreeing to certain specified conditions. Failing compliance with these, it recommends the Commonwealth Government to take steps to acquire the shares privately held by the company, and that, prior to the acquisition of such shares in the company, it should take steps to obtain a decision on the validity of patents.

To Test Patent Claims.

In the interests of all parties concerned, the sooner the validity of certain radio patents is tested the better. It is satisfactory to learn that he Association for the Development of Wireless in Australia and New Zealand proposes to ask Mr. Bruce, Commonwealth Prime Minister, to have the recommendations of the Wireless Commission brought into operation immediately.

Copyright Charges.

The Commission's report also includes proposals for the reduction in patent and copyright charges, and for the benefit to go to listeners-in in the shape of reduced license fees. The recommendation regarding the reduction in license fees is reasonable enough in Australia, with its tremendous proportion of listeners to the number of broadcast stations. In New Zealand the position is somewhat different, inasmuch as the support of four stations falls upon a population of only a million and a quarter. In the Commonwealth, with its population of seven millions, there are only eight broadcast stations receiving financial support from listeners' license fees.

The Commission, it will be noted, has realised that the pressure of copyright charges should be resisted, and a reduction should be made.

A Controlling Committee.

The report recommends the Government to appoint a wireless committee consisting of the Director of Postal Services, as chairman, and two other members, with a special knowledge of wireless, to deal with wireless problems generally throughout the Commonwealth. This the Commission regarded as necessary, owing to the increase in volume of wireless communication and broadcasting.

Another recommendation is for an alteration of wave-lengths. Regarding beam wireless, the report says that service differences have arisen between the Federal Post Office and the directors of the bea mservice regarding the payment of terminal and other charges. The Commission recommends the company to pay terminal charges, failing which the overnment is urged to take control of the beam service. It, is further recommended that, for the protection of the interests of newspapers in news, broadcasting stations shall not transmit news from any newspaper without the consent in writing of the proprietors of that newspaper, and upon payment of fees fixed for the use of such service.

POWER VALVES

GREATLY IMPROVED TONE.

Many New Zealand broadcast listeners are now employing power valves in the last audio stage of their receiving sets. Among the most popular power valves are the 171, 112 and 210 types. It means an incomparably better tone when a power valve is used, and the strained tone when a valve is overloaded is completely eliminated.

Former Discrepancies.

Older types of radio receivers reproduced with full intensity only the medium-pitched notes, to which both the loud speaker and the human ear are sensitive. The lower bass notes were not reproduced and the high frequencies were slighted. Under such conditions, tubes of the 201A type were capable of giving satisfactory service.

Up-To-Date Requirements.

Present day requirements call for full reproduction of a much wider range of frequencies with uniform intensity. The high frequencies do not carry much energy, and hence impose no additional load on the valve supplying the speaker. The low frequencies, on the other hand, contain most of the energy present in musical selections or speech and, therefore, have a tendency to greatly overload the valves. At the same time, the reproduction of these notes does not give the impression of loudness, because the ear is less sensitive to them

It will be evident, therefore, that quality reproduction requires valves capable of furnishing greater power output than can be obtained from 201A type and similar valves. Emphasis should be placed on this feature of tone quality in reproduction, and not on the volume obtainable from power valves.

THE SHORT-WAVE ERA

MARCUSE'S POWER

HEAVY COST FACTOR.

The principal difficulty Mr. Gerald Marcuse is evidently up against with regard to his short-wave Empire broadcasts is lack of power. It is doubtful whether he has one-hundredth the power at his station of what is employed by PCJJ, Holland, and WGY, Schenectady, U.S.A.

These huge short-wave broadcast stations cost a veritable mint of money, and it is possible only for such huge concerns as the Philips Co. and the General Electric Co. to find the money for the erection of these stations and for the maintenance of the broadcast services. These stations bring in no direct monetary return, although, of course, they are invaluable for experimental purposes, and also as an indirect advertising medium.

It is peculiar how folk differ with regard to short-wave reception. Writing of a recent short-wave broadcast by PCJJ, Holland, a Melbourne listener says:—"3AR, Melbourne, had them picked up very well and gave a good rebrodcast, while 3LO, Melbourne, found them too weak for rebroadcasting. Several amateurs also complained that they were weak in their districts. Personally, I thought PCJJ louder than I have ever heard him before, and his signals were several times louder than signals from WGY, who was also working for portion of the afternoon."

Some Short-wave Freaks.

While the carrying power, at long distance, of the higher radio frequencies (short waves) has been demonstrated most remarkably in the past year, even these are subject to severe fading. In recent tests at Keston, England, by the B. B. C. on reception from Schenectady, use was made of the fact that different waves fade at different times. Two short-wave receivers were tune, one to 32.8 and the other to 22 meters, and their combined output was fed into one loud-speaker. The transmission was thus made remarkably steady. The drawback, however, is that the atmospherics ("static") were doubled in strength. However, the experiment seems to indicate remarkable possibilities in the way of improving long-range broadcasting. It will be tested upon European chain stations; and similar tests might be made by American listeners with two receivers upon the "network" programmes.

SPOOKS BY RADIO

NEW YORK'S MYSTERY NIGHT.

In spite of a New York scientific journal's offer to spiritualists of a prize of many hundred dollars for a strict test, if successful, of spirit manifestations, no one has come forward to try for the reward. The spiritualists, however, have invaded the region of broadcasting.

The "New York Times" reports:—

"The radio broadcasting station of WGL at the Hotel Majestic was turned over to the ectoplasmic denizens of the spirit world at 9.45 last night, and, according to the Rev. Mary Freeman, pastor of the Liberty Spiritualist Church, who hid behind a screen, messages were received from President Woodrow Wilson, Voltaire, and Albert Snyder, who was murdered last spring.

SOUND-PROOF DOOR.

"Extensive preparations were made by the management. The lights were lowered, a sound-proof glass door was installed, and an assorted lot of musical devices were set up on a table before the microphone. These devices included an Indian drum, a bass drum, a 'cello, a bell and clapper, a whistle and a glass. When all was in readiness the witnesses, including a sceptical man named John W. Stafford, from the "Scientific American," made a little half-moon before the glass door. They were on the look-out for impalpable movements in the atmosphere.

FAMOUS GHOSTS ENTER.

"At 10 o'clock the three spirits entered the room, according to the Rev. Mary Freeman. And then, five or ten minutes later, those who had tuned in on WGL, heard three sharp thumps on the Indian drum or a plucking of the 'cello strings. The noises were repeated at intervals, and after six or seven more minutes had elapsed they had increased in both volume and frequency.

"What the noises meant to Mrs. Freeman were summed up as follows:—

"President Wilson predicted that the country would (or would not) go Democratic in the next election. The static marred his prophecy, but he said one thing or the other. Voltaire said he was very happy in his new home. Albert Snyder said that his widow would never go to the electric chair for his murder. But they didn't understand his taps on the drum until Mrs. Freeman made everything clear.

"When everything was over the members of an investigating committee said there had been no fraud as far as they could believe their senses."

AMERICA'S DILEMMA

TOO MANY STATIONS.

New Zealanders cannot realise the extent of the trouble occasioned in the United States through the superabundance of broadcast stations. Recognising the new radio act has failed to prove a panacea for broadcasting ills, a number of members of Congress already are planning to propose amendments.

Many radio experts feel that satisfactory reception conditions never can be established with the present 697 stations on the air. For ideal conditions 300 stations are practically the limit, according to this view.

Since the Government cannot arbitrarily cut down the number of stations without confiscating property, a violation of constitutional right, a plan for congressional appropriation of about $10,000,000 (£2,000,000) to buy up the physical equipment of several hundred stations has been suggested.

Opponents of this scheme insist that limitation of stations to 300 would immediately set up a dangerous monopoly; a cry already raised by smaller stations and would-be broadcasters who have not obtained licenses.

Legal authorities insist that to a certain degree, the commission already has confiscated radio property by placing some of the stations in the lower congested wave bands where their efficiency has been decreased.

Several stations which had advertising contracts have complained to the commission that this business has been withdrawn as a result.

The first radio "newspaper" was produced at a dinner of the Massachusetts Institute of Technology Alumni at New York recently The apparatus comprised a radio picture receiver which turned out pictures three feet square; a hot-air blast instead of the usual pen is employed. These radiographs, with similarly-transmitted messages, were posted on the walls of the banquet hall as fast as they were received.

The devotees of an ancient game will note with interest in a Dutch radio magazine, "Officiele Korte-Golf-Zenders" in connection with radio; but only short-wave transmitters are meant thereby. The striking expression "Dubbelroosterlamp" refers to nothing more startling—in Europe—than a double-grip valve.

Many fans have wondered what the suffix or prefix "dyne," which has been used to name many new circuits, means. This comes from the Greek word dynamis, meaning power; in physics this means force.

Some Features of Next Week's Programmes

Excellent fare is available to listenrs this w eek. The newly-organised special professional Christchurch Instrumental Trio (see page two) will make their initial appearance from 3YA. This is the first fruits of Mr. Bellingham's organising work, and similar feature groups may be expected at other centres. A strengthening of Dunedin's service is forecasted by the general manager. The programmes are showing steady improvement in all phases—musical and educational.

1YA FEATURES

The 74th anniversary of St. Matthew's Anglican Church will be broadcast on Sunday, September 25, by 1YA.

Mr. Stanley Bull's address at 1YA on Tuesday will deal with historic Pompeii and the disaster which overwhelmed it. Mr. Bull, who is a member of the London Authors' Society, is frequently heard from 1YA.

Mr. Eric Waters' Trio, a combination of exceptional merit, appears at 1YA on Tuesday. They were to have appeared on September 8, but the illness of one of the members, who was confined to hospital, necessitated a postponement.

Miss Laura Walker will be welcomed back at 1YA on Tuesday after an absence of six months. She is a very popular soprano singer and a soloist with the Auckland Choral Society. Her items which call for comment are "Sing, Joyous Bird" and the "Waltz Song" from "Tom Jones."

Miss Edna Peace, a contralto, who sings at 1YA, has swept all before her in her classes at the Auckland Competitions. She sings again at 1YA on Tuesday.

Tuesday's will be an excellent concert at 1YA. Some of Auckland's best talent will be contributing, including Messrs Ripley and Brough, while Barry Ingall's Quintet, with Hawaiian airs, will supply light variety to the programme.

Mr. Peter Dawson, well known elocutionist and singer, of 1YA, will on Tuesday recite Ingersoll's famous soliloquy over the grave of Napoleon.

Mr. Phil Lewis and his quartet will be responsible for the bulk of the programme at 1YA on Wednesday evening. The quartet is already well known for its rendering of popular songs and humorous numbers, and a feature will be the introduction of a string trio. The concert will provide plenty of variety, and will be interspersed with dialogue in Mr Lewis's inimitable style.

The chief feature of the first half of the programme at 1YA on Thursday will be a thirty-minute entertainment by the Asquiths, an extremely popular duo. The other talent will be supplied by such artists as Miss Ida Holmes and Miss Nancy Clarke

Mr. Walter Smith's Radio Orchestra will provide jazz, novelty, and vocal numbers at 1YA on Thursday night

The studio programme at 1YA on Friday has been arranged by Miss Dorothy Youd, assisting whom will be some excellent talent, such as Miss Martha Williamson and Miss Cecilia Duncan, Mr D Wrathall, Mr. Eric Bell, and Mr. Bretnall

Miss Dorothy Youd will sing the "Jewel Song" from "Faust" during her concert at 1YA on Friday.

The story of the wreck of the Amy Turner is to be told at 1YA by Captain West on Friday. It will be a graphic description, with added interest from the fact that Captain West was aboard the ship at the time of the wreck He has a duplicate log of the happenings at the time, the facts of which have been duly certified by the Australian Marine Department as correct. Captain West is well known to a large section of the public because of his newspaper writings on similar subjects.

"The Butterfly," which is to be played by the studio pianist at 1YA on Friday, is a composition by Merkel. Although

MISS CECILIA DUNCAN.

Popular mezzo-soprano, who appears at 1YA, contributing to programmes arranged by Miss Dorothy Youd. Miss Duncan's next appearance will be on August 23.

not recognised as an outstanding composer, Merkel is responsible for some twenty compositions, and the notation of the one in question is, as the name implies, typical of the lightness and speed of a butterfly's wings in flight.

The Saturday evening programme at 1YA will introduce to the radio public Mr. Robert Peters, the well-known tenor of St. Andrew's Quartet. He will make his first appearance as a soloist. His contributions will include "The Tramping Song."

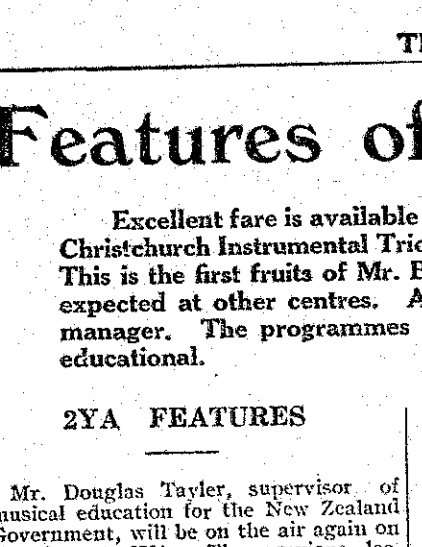
Miss Nellie Lingard, the noted Auckland contralto and a popular artist at 1YA, is to sing on Saturday evening. On the same programme will be Mr. Fred Baker, in his always welcome baritone solos. The instrumental and vocal sextet, The Tongans, will also be there, and music will be relayed from the Click-Clack Orchestra till 11 p.m.

2YA FEATURES

Mr. Douglas Tayler, supervisor of musical education for the New Zealand Government, will be on the air again on Tuesday at 2YA. The previous lectures on music delivered by Mr. Tayler have been very interesting and instructive, and next week's should be of equal merit.

Mr. N R. Jacobsen will continue his series of lectures on popular science on Tuesday at 2YA. Mr. Jacobsen, who is a lecturer at the Wellington Training College, is a scholar, artist, and athlete.

On Monday, 26th, the pupils of Signo. Lucien Cesaroni will present a full operatic bill, comprising excerpts from various operas. Listeners will have pleasurable memories of the last programme presented by this talented combination. The Signor has specialised in opera, and has appeared with success on the operatic stage. In addition to the operatic numbers, Miss C. Conlan will present pianoforte solos. During the evening Lieut. Gordon Burt will continue his lecturettes on Polar exploration.



—S. P. Andrew, photo.

MR. SAMUEL DUNCAN.

A lyric tenor, has a particularly sympathetic voice. He recently achieved more than usual success in the role of the plaintive lover in Sterndale Bennett's pretty cantata, "The May Queen," given by the Orpheus Musical Society. Mr. Duncan's voice is filled with a melancholy pathos, and was also heard to great advantage in "Last Night I Dreamed," from an ode entitled "The New Earth," by Henry Hadley.

On Tuesday, 27th, a programme arranged by the Bristol Piano Company will be given. This will, of course, cover a range of vocal, instrumental, and concerted items. The contributors will be Misses Hazel Rowe and Maisie Murray (piano), Mrs. W. Frew, Miss Frances Whiteman, and Miss Veronica Berry (vocal), Mr. Frank Matejka (violin), Messrs. T. C. Wood, E. Fendall, J. Caldwell, L. Ormrod, Harry Matthew, Samuel and Duncan (vocal), and Mr. D. L. Irwin ('cello).

On September 29 the Central Mission Band will be heard in various selections and other interesting numbers, including the well-known cornet duet, "Ida and Dot," which will be played by Bandsmen McPherson and Baker. Bandsman Baker will also render as a euphonium solo "The Village Blacksmith." Among the vocal artists will be Miss Mary McKeown, a well-known concert singer, and Miss Esme Crow, Miss Hilda Chudley, the possessor of a contralto voice of rare quality, will be making her first appearance from 2YA on this occasion.

On the 30th Mr. Geo. Neil, a bass soloist who has sung from 2YA before and is a favourite with listeners, will be heard to advantage in several numbers. Mr. Wm. Hambley, a member of the Wellington Municipal Tramways Band, is to play flugel horn solos—the first time this instrument has been heard "on the air" from 2YA. Mr. Jack McKinley, the conductor of the Star Dance Orchestra, will be heard in some novelty pianoforte solos. Miss Marie Brown will make her first appearance as a vocalist.

NOVELTY FROM 2YA

CHINESE ORCHESTRA.

Listeners will have something out of the ordinary on October 1, when 2YA will broadcast music by a Chinese orchestra.

As the music of the Orient differs considerably from our own, a few words on the subject may be advisable.

The "queerness" (to us) of Chinese music depends on two factors—the scale foundation and the type of instruments used. The present European scale consists of an octave divided into 12 equal semitones, whereas the Chinese divide their octave into 17 "quarter tones." As a result of these smaller intervals, Chinese music is often unintelligible to our ears. When adhering to the five note or pentatonic scale the music sounds grotesque; when quarter tones are used it sounds out of tune—nevertheless it is good music—from the Orient point of view.

Most folk like music with a good swing and a good tune. With Oriental music the former frequently overshadows the latter. The reason is clear when one realises that the larger (or more prominent) part of a Chinese orchestra is the "percussion," i.e., instruments that are beaten. They use, to name a few, various drums, bells, copper plates, cymbals, and wooden clappers, with bizarre effect.

The tune or melody is played on flageolets (a form of flute), and primitive fiddles. A favourite instrument, the Chinese piano, is somewhat like the Scottish dulcimer.

It is hoped that listeners, bearing in mind the musical scale on which this music is built, will be able to appreciate the efforts of the Chinese Orchestra when 2YA puts this item "on the air."

PICKING THE AIRS

A LISTENER-IN SCORES WELL.

An interesting competition was recently organised by the management of the Majestic Theatre, Auckland. The orchestra, under Mr. J. Whitford-Waugh, played a musical switch, and the audience in the theatre and also those listening in were invited to write down the names of as many of the airs as they knew. A prize of one guinea was offered to anyone giving the most names correctly.

The result of the competition was very interesting, replies being received from listeners located from Wellington to Whangarei. Two competitors tied for first place, one being a member of the audience and the other a listener-in at Te Kawhata. The Majestic Theatre therefore sent each a prize of one guinea.

The names of the winners were: Mrs. D. H Ross, Devonport; Mr. J. A. Walker, Te Kowhata

DUNEDIN ITEMS

The St. Kilda Band, one of the leading musical combinations in the Dominion, will give its first concert of the season on Sunday evening. The music will be broadcast by 4YA. The concerts by this popular band, under the baton of Mr. James Dixon, are being eagerly looked forward to by listeners throughout New Zealand. There will be a break of one or two Sundays following this before the band commences its regular Sunday night concerts.

Miss M. Puechegud and Mr. H. Greenwood will speak at 4YA on Tuesday afternoon, the former on "Interior Decoration" and the latter on the latest books.

On Thursday evening "Gargoyle" will give his weekly lecture to motorists.

A high-class concert is promised for the evening session at 4YA on Tuesday, when special selections by leading soloists will be heard, including Miss Lilian MacDonald (soprano), Miss Elsie Bryant (mezzo-soprano), Mr. Neil Black (bass), Mr. Rod. Braithwaite (tenor), Mr. T. Levi (flautist), Miss Marie Tucker at the piano, and elocutionary items by Mr. A. Gorrie.

During Tuesday's concert at 4YA, by special request, Pastor W. D. More will give an amusing address on "Haunted Houses." Mr. More says: "Every married man lives in a haunted house, because he is always followed by a shadow." Listeners may, therefore, look forward to a good 15 minutes' fun when his familiar voice "takes the air."

On Thursday night a concert of a high order is to be provided by the Salvation Army Band, under Bandmaster A. Millard and assisting artists. The band will play several selections, and one special feature will be an instrumental sextet. Included on the programme are: Mr. O. Judd (cornetist) and Miss Eva Judd (violinist), whose items are always delightful, Miss Olga Burton (soprano), Messrs. G. Lemin (trombone), Mr. T. J. Howe (euphonium player), and Mr. D. J. Robertson (cornet). Several choral numbers will also be rendered by the girls' choir

During Friday night's concert from 4YA, the Workers' Educational Association will provide an address. From 9 p.m. dance music by Mr. Ern Beecham and his orchestra will be relayed from the Savoy until closing time at 10 p.m

ITEMS FROM 3YA

Mr. Fred Penfold, who is choirmaster at Trinity Congregational Church, Christchurch, is to sing at 3YA on Monday. He has a very fine baritone voice, and is heard frequently at 3YA.

Mrs. Bingham Puddey is to sing again at 3YA on Monday evening. This lady has a glorious mezzo-soprano voice, as those who have heard her know. She comes from the Midlands, where she had considerable local reputation as a soloist at many public functions.

Miss Myra Edmonds, who is to sing at 3YA on Monday, is a splendid elocutionist, as well as a singer. It is only of fairly recent date that she discovered and began to develop her vocal talents.

Mr. C. R. Russell, B.Sc., well-known in Christchurch as an authority on radio, is to give his first lecture at 3YA on Monday. Mr. Russell has been engaged for two addresses a month—on the second and fourth Mondays.

Photo: Jauncey.

MISS LUCY COWAN.

Miss Lucy Cowan is a well and favourably-known teacher of elocution in Christchurch. She has been heard with much appreciation in various items from 3YA.

Mr. H. Blakeley will make his second appearance in radio on Wednesday evening at 3YA. With a long record as a soloist in Auckland and in Christchurch, Mr. Blakeley is well-known on the concert platform. He is a prominent figure in musical circles. He has been choirmaster, bandmaster, and orchestral conductor. In Auckland he was an original member of the Lyric Quartet, which memorised a repertoire of 122 songs. In Christchurch Mr. Blakeley is secretary and a tenor soloist of the Male Voice Choir.

Sitting by their comfortable firesides on Wednesday evening, listeners-in to 3YA will be taken on a motor trip round the lakes of Mount Cook district. Mr. Leo. Hayward, of the Rink Taxis, knows every inch of the road, and he will visualise its beauties for his audience.

The Welsh soloists, who regularly appear at 3YA., are proving very popular. They are Mr. and Mrs. J. Filer and Mr. and Mrs. T. G. Rogers, who come from the great coalfields of South Wales, and are now settled in Christchurch. Mr. and Mrs. Filer will be on Wednesday's programme at 3YA.

Miss Muriel Johns and Miss Dorothy Johnson, who have brightened many a Saturday evening's entertainment at 3YA, are appearing on Wednesday next week. They will sing some duets, bright revue songs, and will accompany themselves on the piano. Miss Johns will also sing a solo.

The Christchurch Broadcasting Trio will be on 3YA's programmes on Wednesday, Thursday, Friday, and Saturday next week. Excellent music, both concerted and solo items, can be expected.

"A Square Meal" is the subject chosen by Miss Shaw, of the Home Economics Association, for Thursday afternoon.

The Rev. B. Dudley, F.R.C.S., who gives popular addresses on astronomy at 3YA, is to speak on Thursday on "Jupiter, the Head of the Sun Family."

Miss Irene Morris, the brilliant violinist, will be playing at 3YA on Thursday.

Mr. W. Bradshaw, the favourite tenor, has been engaged again by 3YA for Thursday; so also have been Messrs. L. and R. Boulton, who play the cornet and flute respectively.

One of Christchurch's leading baritones, Mr. Bernard Rennell, will sing at 3YA on Friday. He will be heard in solos and in duets, when he will be associated with Miss Edna Donaldson, a soprano of great promise. Miss Donaldson, one of the most promising of Christchurch's young singers, ha

the distinction, when eighteen years of age, of playing "Dolores" in the Christchurch Amateur Operatic Society's production of "Florodora" in May, 1926. Miss Donaldson is to sing at 3YA on Friday. She has been a pupil of Mr. Sidney Butler and Signor Antonio Botariello, and she is now studying under Madame Josephine Ottlee. Miss Donaldson is a favourite on concert platforms.

Mr. M. E. Withers, leading clarionet player in the Orchestral Society, will be on the air on Friday at 3YA.

"Blunders and Bulls," anecdotes met with and collected by a Scotsman with a sense of humour, will be retailed from 3YA on Friday evening by the Rev. D. Gardner Miller, of Trinity Congregational Church. Mr. Miller has previously tickled the risible faculties of listeners, and his second venture before the microphone for this purpose will be keenly anticipated.

More humour will be purveyed to listeners on Saturday evening, when Mr. Alec Dey will take his place before the microphone. Mr. Dey is a very popular entertainer, and will help much to make a bright and cheerful Saturday night. Assisting artists will be Miss Muriel Johns, Miss Phemia Suckling, and Mr. D. Suckling.

THE DIVIDEND WAS——

INCIDENT AT THE TROTS.

The quickness of the operator saved 2YA from breaking the law on Saturday last in connection with the broadcast of the Hutt Trotting Club's meeting. As is well known, it is against the law for the Press to publish the amounts of race dividends, and the same applies to publication "over the air."

The microphone was placed in the stand, well situated for viewing the races. After one event the announcer was giving the placings, and had announced the winner, when a member of Parliament, well known in the district in which the event was being held, who was seated behind the announcer, leaned forward and said loudly, "And the dividend was —— (so and so).

The operator at the switch in the studio of 2YA immediately detected the strange voice, and instantaneously shot up the switch so that listeners could not catch the sum mentioned. Had it not been for his quickness a breach of the law would have been committed, for which the Broadcasting Company would have been liable. A message was immediately put through to the stand protesting against the attempt that was made, and it is hoped no repetition will occur.

NOTES WE CAN'T HEAR

A correspondent of the New York "Radio News" writes:—"It is well known that extremely high musical frequencies are not heard over the radio. This was noticed the other night when at Denver a man was giving bird calls. When it was announced that he would imitate a bird with

—Alva photo.

MISS EDNA DONALDSON.

Miss Donaldson is a promising soprano, who will be heard from 3YA on Friday next. She has had a good training under competent teachers, and appeared very successfully in opera at eighteen.

a high musical note nothing was heard but a slight hissing sound; probably caused by the impersonator's breath striking the microphone. Either the transmitter could not send out such a high note, or the receiver could not reproduce it; more likely the latter.

The editor of the "Radio News" added:—There are several possible solutions of this phenomenon. A good radio will pass and amplify a note up to 7000 or 8000 cycles fairly well but the band-pass filters of some broadcast stations cut off notes sharply above 5000 cycles, to avoid going beyond their "channels." Very selective R. F. tuning will have a similar effect and, thirdly, human hearing varies more than two octaves in its upper range, with individuals who have apparently normal ears.

Full Programmes for Next

NEWS AND NOTES

(By "Switch.")

The speech of the Prince of Wales at the dedication of the Peace Bridge, in Canada, relayed from America, was, despite occasional fading, received with considerable clearness in England at 10 o'clock on the night of August 7, and was rebroadcast.

The other day I saw an aerial lead-in neatly tacked down the side of a house. Apparently the owner of the aerial had not heard that a lead-in should be kept as far as possible from the side of a house until it enters the building.

This reminds me of a gentleman who was using a "T" aerial, with one side of the aerial 60 feet in length, and the other side about 40 feet in length. He complained that he had difficulty in getting his set to tune exactly on any one wave-length. After he had cut 20 feet off the 60 feet end of his aerial, the difficulty disappeared. When a "T" aerial is used, the lead-in should come from the middle of the aerial.

Recently a listener in Sydney who wanted a dog belonging to a breed almost extinct in Australia, wrote to 3LO, Melbourne, stating that he had advertised extensively, and sought in vain

—S. P. Andrew, photo.

MISS NORA GREENE.

This young English contralto sang at 2YA on the opening night. She is a most artistic singer, with perfect enunciation. She was a holder of an Ada Lewis Scholarship at the Royal Academy of Music, London, and has sung at the Queen's Hall, Palladium, and principal London and provincial concerts. She has also broadcast from 2LO (London), Bournemouth, and Daventry. Miss Greene is a decided acquisition to musical circles in Wellington, and to radio generally throughout New Zealand. Listeners-in will be pleased to learn that she will be singing regularly from 2YA.

for one, and asking 3LO, Melbourne, to broadcast an appeal. The result was that within a day 3LO, Melbourne, got in touch with a man who had a dog of the breed required, and now the Sydney-sider is for ever happy

A Wellington listener tried the stunt of using his loop aerial in conjunction with an outdoor aerial But when he found the loop aerial lost its directional effect, he discontinued the use of the outdoor equipment, and is now able to cut out "not wanted" stations by revolving his loop aerial so that it is pointed away from the undesired transmitter.

An excellent plan is to place a two-microfarads condenser across the plus and minus of your B batteries. The condenser acts as an electrical reservoir, smooths out some of the irregularities of the batteries, and reduces noises in the receiving set.

The "voice" of a dog was recently broadcast by 3LO, Melbourne, during one of the children's hours, when Miss F Shepherd's quaint little Pekingese spaniel, "Tiny Tots," uttered his charming little "barks" to amuse the children. The children are hoping that "Tiny Tots" will be induced to give another demonstration before the microphone. 2YA has also broadcast a dog's whisper

Met a man the other day who gets the utmost out of his dry-cell A batteries. When they show signs of senile exhaustion he punches a few holes in the zinc containers of the cells and soaks the cells for a while in a solution of sal ammoniac. He says they run quite a while through this rejuvenating operation.

Long-distance reception always shows a marked increase in volume in the middle of the night when Australian programmes are being tuned in. For reception of the Indian stations three or four hours later means greater volume. This is due to the area between New Zealand and India being in darkness as long as possible.

Sunday, September 25th

1YA AUCKLAND (333 METRES)—SUNDAY, SEPTEMBER 25.

3 p.m.: Selected Studio and gramophone items.
4.28: Announcement of evening church service.
4.30: Close down.
6.55: Church service from St. Matthew's Anglican, Wellesley Street. Preacher, Rev. Canon Grant-Cowan. Organist and choral director, Mr. W. Phillpott. This is the seventy-fourth anniversary of the church and is the "Paternal Festival."
8.30: Special choral items by St. Matthew's Choir, to be followed by selected studio items.
9.30: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, SEPTEMBER 25.

6.55 p.m.: Relay of church service from Taranaki Street Methodist Church. Rev. Clarence Eaton.
8.15: Relay of the Wellington Tramways Band concert at His Majesty's Theatre.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, SEPTEMBER 25.

5.45: Children's song service from 3YA Studio, by Uncle Sam.
6.30: Relay of evening service from Oxford Terrace Baptist Church. Preacher, Rev. J. Robertson, B.A. Organist, Mr. Melville Lawry. Choirmaster, Mr. V. C. Peters.
7.45: Programme of choral and organ selections from the church.
8.15: Relay from Liberty Picture Theatre of concert, arranged by the Returned Soldiers' Association for thei. Unemployment Fund.

4YA DUNEDIN (463 METRES)—SUNDAY, SEPTEMBER 25.

6.30 p.m.: Relay of service from the First Church of Otago. Preacher, Rev. W. Scorgie. Organist, Dr. V. E. Galway.
8 to 9.30 p.m.: Relay from St. Kilda (weather permitting) of concert by the St. Kilda Band, under the baton of Mr. James Dixon.
March, "The Conqueror" (Ord Hume).
Hymns, (a) "Abide With Me," (b) "Nearer My God."
Selection—"Les Hugenots" (Meyerbeer).
Overture—"The Bohemian Girl" (Balfe).
Trombone fantasia—"Parachute."
Waltz—"Casino Tanse" (Gungl).
March—"The Exile."

Monday, September 26th

1YA AUCKLAND—SILENT.

2YA WELLINGTON (420 METRES)—MONDAY, SEPTEMBER 26.

3 p.m.: Afternoon concert.
3.30: Lecturette—Madame Fleck, "Fashions."
3.50: Resumption of afternoon concert.
5.0: Close down.
6.0: Children's session—Aunt Jo.
7.0: News session and market reports.
7.34: Lecturette—Mr. Preston Billing, "Radio."
8.0: Chimes of the General Post Office clock, Wellington. Studio concert by pupils of Signor Lucien Cesaroni.
8.1: Special announcement re fading.
8.6: Instrumental—Studio Orchestra, selected.
8.11: Contralto—Miss Eileen Higgins, Romance, "Voce Di Donna" ("La Gioconda"), (Ponchielli-Ricordi).
8.15: Chorus of male members of the company, "Hymn to God" from "Africana" (Meyerbeer-Ricordi).
8.19: Tenor solo—Mr. R. Portens, aria, "Cilloe Mar" ("La Gioconda").
8.23: Soprano solo—Mrs. G. Harden, "Visse d'Arte" from "Tosca" (Puccini).
8.27: Bass solo—Mr. E. McLellan, "Invocation" from "Faust" (Gounod-Chappell).
8.31: Pianoforte—Miss C. L. Conlon, "Hungarian Dance, No. 10" (Dvorak-Augener).
8.36: Soprano solo—Miss A. Bennie, Romance, "Mignen" (Thomas-Ricordi).
8.41: Instrumental—Studio Orchestra, selected.
8.56: Chorus—Male members of the company, "Chorus of Dervishes" from "Ruins of Athens" (Beethoven).
9.0: Weather report.
9.1: Lecturette—Mr. Gordon Burt, "Spitzbergen: Final Preparations for the Dash Into the Unknown."
9.16: Instrumental—Studio Orchestra, selected.
9.26: Soprano—Miss D. Carmen, "Through the Streets" ("La Boheme"), (Puccini-Ricordi).
9.30: Contralto—Mrs. H. Maplesden, "O Mio Fernando" ("La Favorita"), (Donizetti-Ricordi).
9.34: Baritone—Mr. G. Brennan, "Viva Riso" ("La Somnambula") (Bellini).
9.38: Soprano—Mrs. G. Harden, "The Flower Song" from "Faust" (Gounod).
9.42: Concerted number—The company, "Solemn Night" (Beethoven).
9.46: Bass—Mr. F. Hurly, "Il Lacerato Spirito" from "Simon Boccanegra" (Verdi).
9.51: Instrumental—Studio Orchestra, selected.

3YA CHRISTCHURCH (306 METRES)—MONDAY, SEPTEMBER 26.

3 p.m.: Afternoon concert session.
6.0: Children's session, by Uncle Sam.
7.15: News and reports.
7.30: Talk—Mr. C. R. Russell, B.Sc., "Wireless."
8.0: Chimes. Studio concert by Band of 1st Regiment, Canterbury Infantry, under conductorship of Lieutenant C. H. Hoskin.
8.1: March—Band, "Brigade of Guards" (Hawkins-Richardson).
8.8: Baritone solo—Mr. F. C. Penfold, "Song of Surrey" (Lohr-Chappell).
8.12: Medley—Band, "A Melodious Revue" (Rimmer-Wright and Round).
8.19: Mezzo-soprano solo—Miss Myra Edmonds, "Fiddle and I" (Goodeve-Enoch).
8.23: Valse—Band, "Dreaming" (Joyce-Hume-Boosey).
8.29: Sketch—Mr. A. J. Brown, "An Incident in an East London Theatre" (Tate-M.S.).
8.33: March—Band, "Steadfast and True" (Teike-Hawkes).
8.37: Mezzo-soprano solos—Mrs. Bingham Puddey, (a) "Wind in the Wheat" (Phillips-Chappell), (b) "Good Night" from "Cousin from Nowhere" (Kunneke-Chappell).
8.43: Fantasia—Band, "Golden Valley" (Hawkins-Richardson).
8.50: Baritone solo—Mr. F. C. Penfold, "The Secret" (Scott-Church).
9.0: Relay of orchestral selections from Strand Picture Theatre Quartet, under direction of Mr. Harry Ellwood.
9.10: Mezzo-soprano solo—Miss Myra Edmonds, "Agatha Green" (Cooper-Chappell).
9.14: Two-step—Band, "High Jinks" (Thomas-Wright and Round).
9.19: Mezzo-soprano solo—Mrs. Bingham Puddey, "The Valley of Laughter" (Sanderson-Boosey).
9.23: Selection—Band, "The Bing Boys" (Ayer-Douglas-Feldman).
9.31: Recitation—Mr. A. J. Brown, "Blime! Ain't a Man Stiff?" (Nelson-M.S.).
9.34: March medley—Band, famous fragments from "Marches of Rimmer" (Rimmer-Wright and Round).
9.40: Mezzo-soprano solo—Miss Myra Edmonds, "Tommy Lad" (Margetson-Boosey).
9.44: Fantasia—Band, "Nursery Ditties" (by request), (Raymond-Richardson).
9.50: Baritone solo—Mr. F. C. Penfold, "The Arrow and the Song" (Balfe-Boosey).
9.54: March—Band, "Jolly Jaunts" (Casson-Richardson).
10.0: Close down. God Save the King.

4YA DUNEDIN—SILENT.

Tuesday, September 27th

1YA AUCKLAND (333 METRES)—TUESDAY, SEPTEMBER 27.

3 to 4.30 p.m.: Afternoon session—Selected studio items.
6.30: Children's session—Aunt Betty.
7.15: News and information session.
7.30 to 7.45: Talk on "Pompeii," by Mr. Stanley Bull.
8.0: Chimes.
8.1: Relay of overture from Majestic Theatre. Mr. J. Whitford-Waugh, conductor.
8.10: Baritone solo—Mr. Walter Brough, "Eleanor" (Coleridge-Taylor).
8.14: Soprano solo—Miss Laura Walker, (a) "The Little Old Garden" (Fox-Hewitt), (b) "Sing, Joyous Bird" (Chappell-Phillips).
8.22: Instrumental—Mr. Eric Waters's Trio, (a) "Autumn and Winter" (Glazounow), (b) "Slow Movement" from "Trio E Major" (Chaminade).
8.30: Contralto solo—Miss Edna Peace, (a) "Cradle Me Low" (Enoch-Brahe), (b) "Western Wind" (Enoch-Brahe).
8.36: Relay of musical interlude from Majestic Theatre.
8.41: Tenor solo—Mr Arthur Ripley, "O Vision Entrancing" (Thomas).
8.46: Instrumental—Ingall's Hawaiian Instrumentalists, "Hawaiian Airs."
8.54: Recital—Mr. Peter Dawson, "Orange Blossoms" (Rohmer).
9.0: Weather report.
9.1: Baritone solo—Mr. W Brough, (a) "Brian of Glennan" (Graham), (b) "Sacrament" (MacDermid).
9.9: Instrumental—Mr. Eric Waters's Trio, (a) "Serenade" (Schubert), (b) selected.
9.17: Soprano solo—Miss L. Walker, "Waltz Song" from "Tom Jones" (Chappell-German).

Week - All Stations - to Oct. 2

9.22: Tenor solo—Mr. A. Ripley, (a) "Siciliana" from "Cavalleria Rusticana" (Mascagni), (b) "Mother" (Mascagni).
9.30: Relay of entra'acte from Majestic Theatre.
9.35: Contralto solo—Miss E. Peace, (a) "The Pearl Cross" (Boosey-Marshall), (b) "Dawn" (Allan-Curran).
9.44: Instrumental—Ingall's Hawaiian Instrumentalists, Hawaiian selections.
9.53: Recital—Mr. P. Dawson, (a) "Over Napoleon's Tomb" (Ingersol), (b) "The Frail Vagabond" (Dawson).
9.59: A thought.
10.0: Close down.

2YA WELLINGTON (420 METRES)—TUESDAY, SEPTEMBER 27.

3 p.m.: Chimes of the Wellington General Post Office clock.
3.1: Gramophone recital. Lecturette, "Electric Cooking," by Mrs. Sinclair.
6.0: Children's session—Uncle Jasper.
7 to 7.45: News and market reports.
7.45 to 7.55: Lecturette, by Mr. N. R. Jacobsen, "Carbon: The Story of the Diamond."
Programme arranged by Bristol Piano Company.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Instrumental—Studio Orchestra, selected.
8.10: Duet—Mr. T. C. Wood and Mr. E. Fendall, "Larboard Watch" (Williams).
8.14: Piano duet—Miss Hazel Rowe and Miss Maisie Murray, (a) "Hungarian Dance, No. 5" (Brahms), (b) "Hungarian Dance, No. 7" (Brahms).
8.19: Bass solo—Mr. J. E. Caldwell, "Father O'Flynn" (Stanford-Boosey).
8.23: Tenor horn solo—Mr. Len Ormrod, "Facilita" (J. Hartman).
8.27: Mezzo-soprano solo, with violin obbligato—Miss Veronica Berry and and Mr. Frank Matejka, "Ave Maria" (Mascagni).
8.32: Baritone solo—Mr. Harry Matthew, "The Sweetest Call" (Morrow).
8.36: Violin solo—Mr. Frank Matejka, "Meditation" from "Thais" (Massenet).
8.39: Tenor solo—Mr. Samuel Duncan, "Songs My Mother Taught Me" (Dvorak).
8.43: Piano solo—Miss Hazel Rowe, (a) "Barcarolle" (York Bowen), (b) "Nocturne" (Greig).
8.48: Baritone solo—Mr. Thomas C. Wood, "O Primavera" ("Spring-time") (Tirindelli-Ricordi).
8.53: Baritone chorus—Messrs. T. C. Wood, H. Matthew, J. E. Caldwell, E. Fendall, J. Thorp, C. Trim, "Vittoria" ("We Triumph"), (Carissimi-Boosey).
9.0: Weather report.
9.1: Lecturette by Mr. J. W. Collins, Secretary of Department of Industries and Commerce.
9.15: Instrumental—Studio Orchestra, selected.
9.25: Mezzo-soprano solos—Mrs. W. Frew, (a) "Tit for Tat" (Pontet-Ashdown), (b) "The Magic of Your Voice" (Carr-Hardy-Nightingale).
9.30: Piano duet—Miss Hazel Rowe and Mr. B. Leyland, (a) "Russia" from "Foreign Parts," (b) "Spain" (Moskowski-Augener).
9.34: Bass solo—Mr. Jack E. Caldwell, "The Peat Fire Flame" (Kennedy-Fraser-Boosey).
9.40: Violin solo—Mr. Frank Matejka, "Serenade" (Drlda-Ricordi and Co.).
9.43: Mezzo-soprano solo—Miss Frances Whiteman, "My Prayer" (Squire-Boosey).
9.48: Tenor solo—Mr. Samuel Duncan, "I Hear You Calling Me" (Thompson-Boosey).
9.57: 'Cello solo—Mr. D. L. Irwin, (a) "Aria" (Pergolesi-Fred. Harris), (b) "Weigenlied" (Schubert-Carl Fraser).
9.56: Vocal duet—Mr. Thomas C. Wood (baritone) and Mr. Samuel Duncan (tenor), "The Fishermen" (Gabussi-Boosey).
10.0: Instrumental—Studio Orchestra, selected.

3YA CHRISTCHURCH—SILENT.

4YA DUNEDIN (463 METRES)—TUESDAY, SEPTEMBER 27.

3 p.m.: Town Hall chimes.
3.1: His Master's Voice recital.
3.15: Address on "Interior Decoration," by Miss M. Puechegud.
3.30: Studio music.
4.0: Book talk by Mr. H. Greenwood, Librarian, Dunedin Athenaeum.
4.15: His Master's Voice recital.
4.30: Close down.
7.0: Town Hall chimes.
7.1: Children's session—Big Brother Bill.
7.45: News session.
8.0: Town Hall chimes. Studio concert, with orchestral selections, under Mr. Mr. D. L. Austin, relayed from the Octagon Theatre.
8.1: Bass solos—Mr. Neil Black, (a) "The Mighty Deep" (Jude), (b) "Valley by the Sea" (Adams).
8.7: Piano solo—Miss Marie Tucker, "Cappriccio" (Scarlatti).
8.11: Soprano solos—Miss Lilian MacDonald, (a) "Ouvre tes Yeux Bleux" (Massenet), (b) "Songs My Mother Taught Me" (Dvorak).
8.18: Flute solo—Mr. T. Levi, "Siciliano" from "Sixth Sonata" (Bach).
8.23: Mezzo-soprano solos—Miss Elsie Bryant, (a) "Sacrament" (MacDermid), (b) "At Dawning" (Cadman).
8.28: Tenor solos—Mr. Roderick Braithwaite, (a) "The Diver" (Loder), (b) "Requiem" (Homer).
8.37: Piano solo—Miss Marie Tucker, "Fantasy in C Minor" (Bach).
8.42: Address—Pastor W. D. More, "Haunted Houses" (by request).
8.58: Bass solos—Mr. Neil Black, (a) "The Devout Lover" (White), (b) "Captain Mac" (Sanderson).

9.3: Flute solo—Mr. T. Levi, "Nocturne" (Lemmone).
9.9: Soprano solos—Miss Lilian MacDonald, selected.
9.15: Recital—Mr. A. Gorrie, selected.
9.20: Tenor solos—Mr. Roderick Braithwaite, (a) "Sincerity" (Clarke), (b) "The Fuschia Tree" (Quilter).
9.26: Piano solo—Miss Marie Tucker, "Butterfly Study" (Chopin).
9.31: Orchestral selections from Octagon Theatre.
9.43: Mezzo-soprano solos—Miss Elsie Bryant, (a) "A Brown Bird Singing" (Wood), (b) "When the Dew is Falling" (Schneider).
9.48: Flute solo—Mr. T. Levi, "Gipsy Dance" (German).
9.53: Orchestral sections from Octagon Theatre.
10.0: Close down.

Wednesday, September 28th

1YA AUCKLAND (333 METRES)—WEDNESDAY, SEPTEMBER 28.

3 to 4.30 p.m.: Afternoon session—Selected studio items.
7.15: News and information session.
7.30 to 7.45: Talk on "Physical Culture," by Mr. Norman Kerr.
8.0: Chimes.
8.1: Relay from Prince Edward Theatre. Mr. Geo. Poore, conductor.
8.11: Quartet, Messrs. Lewis, Pitkin, Bennett, and Crutcher, "The Entertainment Stores."
8.17: Tenor solo—Mr. Len. Crutcher, selected.
8.22: Duet—Messrs. Pitkin and Bennett, "Harold and Reggie."
8.27: Elocutionary item—Mr. Jas. Sharp, "Viewing the Baby."
8.32: Soprano solo—Miss S. Thompson, "Danny Boy" (Weatherley).
8.37: Instrumental Trio—The String Trio, (a) "Londonderry Air," (b) "Hungarian Dance" (Brahms).
8.42: Humour—Mr. Bert Watson, "Melodious Meanderings."
8.47: Baritone solo—Mr. Phil Lewis, "Nita Gitana."
8.52: Quartet—Messrs. Lewis, Pitkin, Bennett, and Crutcher, (a) "Soldiers and Comrades," (b) "Absent."
9.0: Weather report.
9.1: Relay from Prince Edward Theatre.
9.6: Duet—Messrs. Pitkin and Bennett, "Simpletons."
9.11: Soprano solo—Miss S. Thompson, "Splendour of the Morn."
9.16: Quartet—Messrs. Lewis, Pitkin, Bennett, and Crutcher, "Sing Heigh! Sing Ho!"
9.22: Humour—Mr. Bert Watson, Coon songs and stories.
9.28: Baritone solo—Mr. P Lewis, "Good Company."
9.33: Relay from Prince Edward Theatre.
9.41: Elocutionary item—Mr. J. Sharp, "And Yet I Don't Know."
9.47: Duet—Messrs. Lewis and Crutcher, "Really? Fact? Well, I'm Surprised!"
9.54: Finale—Messrs. Lewis, Pitkin, Bennett, and Crutcher, "God Save King George the Fifth."
9.59: A thought.
10.0: Close down. (This concert was arranged by Mr. Phil. Lewis.)

2YA WELLINGTON—SILENT.

3YA CHRISTCHURCH (306 METRES)—WEDNESDAY, SEPTEMBER 28.

2.45 p.m.: Relay—Description football match from Lancaster Park, South Island Possibles v. Probables.
6.0: Children's session by Uncle Jack.
7.15: Addington stock market reports.
7.30: General news.
8.0: Chimes. Relay of orchestral selections from Everybody's Picture Theatre Orchestra, under direction of Mr. Albert Bidgood.
8.15: Bass solo—Mr. James Filer, "Bosom of the Deep" (Johnson-Phillips and Page).
8.19: Soprano solo—Mrs. James Filer, "One Morning, Oh, So Early!" (Diack-Leonard).
8.23: Vocal duets at piano—Misses Muriel Johns and Dorothy Johnson, (a) "Moonbeams! Kiss Her for Me" (Woods-Davis), (b) "Song of the Wanderer" (Moret-Allan).
8.30: Instrumental trio—Christchurch Broadcasting Trio, "Three Miniatures" (Bridge-Goodwin and Tabb).
8.38: Tenor solo—Mr. H. Blakeley, "My Sweetheart When a Boy" (Morgan-Ascherberg).
8.42: Violin solo—Miss Thelma Cusack, "Orientale" (Cui-Allan).
8.45: Bass solo—Mr. James Filer, "Bombardier" (Rawlings-Feldman).
8.53: Soprano solo—Mrs. James Filer, "The Children's Home" (Cowen-Boosey).
8.57: Vocal duets at piano—Misses M. Johns and D. Johnson, (a) "It all Depends on You" (De Sylva-Brown-Henderson), (b) "I Can't Get Over a Girl Like You Loving a Boy Like Me" (Ruskin-Albert).
9.0: Relay from Everybody's Theatre.
9.15: Travelogue—Second series, Mr. Leo Hayward, "A Round Trip through the Southern Lakes of Mt. Cook District" (M.S.).
9.30: Tenor solo—Mr. H. Blakeley, "I Seek for Thee in Every Flower" (Ganz-Ashdown).
9.34: Vocal duet—Mr. and Mrs. Jas. Filer, "Spider and the Fly" (Smith-Stuttard).
9.38: Violin solo—Miss Thelma Cusack, (a) "Cavatina" (Raff-Cole), (b) "Gavotte" (Gossec-Harris).
9.46: Tenor solo—Mr. H. Blakeley, "An Evening Song" (Blumenthal-Chappell).

P. A. ... photo.

MR. WILLIAM RENSHAW.

Mr. William Renshaw is a tenor with considerable experience in London and the provinces on the concert platform, and especially in oratorio. While serving with the Royal Naval Air Service he was injured in a bad crash, as the result of which he found it desirable to come to New Zealand. He is quickly finding a place for himself in musical circles in Wellington. All who heard the opening concert at 2YA will remember him, and will be pleased to note that he will appear regularly from 2YA.

The huge sunspots reported last week coincided with an excess of static. A scientist states that the sun is bombarding our planet with a constant stream of negative electrons. Evidently old Sol was putting up a barrage last week, for long-distance reception was hampered by intense peppery static.

Henry F. Bellows, a member of the United States Government Radio Commission, said recently there was a definite trend among well-established broadcasters toward higher power, and said he saw no reason why this change of policy should not be approved. Mr. Bellows expressed the opinion, based on observations he had made, that stations using 30,000, 50,000, or 100,000 watts were not likely to cause any more interference than broadcasters using 5000 watts. This had been found to be true, he said, in the case of the Schenectady experiment and with the broadcasting of KDKA, Pittsburgh, which uses 30,000 watts. In acting upon applications for power in excess of 30,000 watts, Mr. Bellows said, the commission would give great weight to the character of the programmes furnished and to the mechanical equipment of a station.

The Jap station JOAK has been hammering in at Wellington lately. He is just above the wave-length 3LO, Melbourne. Some of us used to have to wait till 3LO closed down in order to get the Jap., but nowadays it is not at all difficult to separate them.

A battery service station man exhibited to me a radio A accumulator, the other day, which was returned as being inefficient. The owner of the battery was surprised when he was shown that half the acid had been spilt out. His children had accidentally capsized it some weeks before, and as he never examined the interior of his battery he was unaware of the cause of its failure.

Programmes Continued

9.50: Soprano solo, with violin obbligato—Miss M. Johns and Miss Cusack (violin), "Little Old Garden" (Zamecnik-Fox).
9.54: Instrumental trio—Christchurch Broadcasting Trio, (a) "Minuet in G" (Beethoven-Metzler), (b) "Scherzo, Op. 166" (Schubert-Hansen).
10.0: National Anthem. Close down.

4YA DUNEDIN—WEDNESDAY—SILENT.

Thursday, September 29th

1YA AUCKLAND (333 METRES)—THURSDAY, SEPTEMBER 29.

3 to 4.30 p.m.: Afternoon session—Selected studio items.
7.15 to 7.45: News and reports.
8.0: Chimes.
8.1: Relay of overture from Rialto Theatre. Mr. Henry C. Engel, conductor.
8.6: Soprano solo—Miss I. Holmes, "Shepherd, Thy Demeanour Vary" (Boosey-Wilson).
8.10: Vocal—The Asquiths, thirty minutes' drawing-room entertainment.
8.40: Contralto solo—Miss Nancy Clarke, (a) "Abide With Me" (Liddle), (b) "To a Miniature."
8.46: Relay of musical interlude from Rialto Theatre.
8.49: Soprano solo—Miss Ida Holmes, (a) "An Ereskay Love Lilt" (Boosey-Fraser), (b) "Enough" (Ricordi-Samuels).
8.57: Contralto solo—Miss N. Clarke, (a) "My Dear Soul" (Sanderson), (b) "The Dawn" (d'Hardelot).
9.4: Weather report.
9.5: Instrumental—Mr. Walter Smith's Radio Band, Novelty vocal and instrumental selections.
10.0: Close down.

2YA WELLINGTON (420 METRES)—THURSDAY, SEPTEMBER 29.

3 p.m.: Gramophone recital.
3.30: Lecturette—Miss Mann, "Fashions."
3.45: Gramophone recital.
7.0: News and market reports.
7.40: Lecturette—Mr. King, D.E.B.A., "Esperanto."
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Relay from Paramount Theatre Orchestra.
8.15: March—Central Mission Band, "St. Elmo" (Kellai).
8.20: Contralto solo—Miss Hilda Chudley, "I Love Thee" (Greig).
8.23: Cornet duet—Bandsmen McPherson and W. Baker, "Ida and Dot."
8.28: Mezzo-soprano solo—Miss Mary McKeown, "Scenes That Are Brightest" (Wallace).
8.31: Selection—Central Mission Band, "Minstrel Melodies" (Bourne).
8.41: Baritone solo—Mr. Geo. East, "The Trumpeter."
8.44: Waltz—Central Mission Band, "Moonlight" (d'Pecorine).
8.52: Soprano solo—Miss Esme Crow, "Dream of Delight" (H. Nicholls).
8.57: Selection—Central Mission Band, "John Peel" (Greenwood).
9.5: Weather forecast.
9.6: Lecturette on music—Mr. Douglas Tayler.
9.21: Fox trot—Central Mission Band, "Razzle Dazzle" (B. Houghton).
9.26: Contralto solo—Miss Hilda Chudley, "Deep River" (Busleigh).
9.31: Air varie—Central Mission Band, "Eventide" (Rimmer).
9.38: Mezzo-soprano solo—Miss Mary McKeown, "Sweet Spirit, Hear My Prayer" (Wallace).
9.42: March—Central Mission Band, "The Great Little Army" (Alford).
9.49: Baritone solos—Mr. George East, (a) "Mother o' Mine," (b) "Of All the Young Maidens" (Lohr).
9.54: Euphonium solo—Bandsman Baker, "The Village Blacksmith" (Weiss).
9.59: Soprano solo—Miss Esme Crow, "No! No! No!" (Mattei).
10.3: National Anthem.

3YA CHRISTCHURCH (306 METRES)—THURSDAY, SEPTEMBER 29.

3 p.m.: Afternoon concert session.
4.0: Talk—Miss M. J. Shaw, Home Economics Association, "A Square Meal."
7.15: News and reports.
8.0: Chimes. Relay of orchestral selections from Grand Picture Theatre Orchestra, under direction of Mrs. Black.
8.15: Clarionet solo—Mr. Linton Boulton, "O Sole Mio" (Di Capua-M.S.).
8.19: Tenor solo—Mr. W. Bradshaw, "Thora" (Adams-Boosey).
8.23: Flute and clarinet duet—Messrs. Ronald and Linton Boulton, "Cherry Time" (Spalding-Jacobs).
8.28: Soprano solo—Miss Frances Hamerton, "The Shepherdess of the Field" (French folk song-Ditson).
8.36: Talk—Rev. B. Dudley, "Jupiter, the Head of the Sun Family."
8.47: Instrumental trio—Christchurch Broadcasting Trio (violin, 'cello, and piano), "Trio in B Major" (Beethoven-Peters).
8.57: Tenor solo—Mr. W. Bradshaw, "The Pilgrim of Love" (Bishop-Boosey).
9.0: Relay from Grand Theatre.
9.15: Flute solo—Mr. Ronald Boulton, "Aria" (Lemmone-Paling).
9.19: Soprano solos—Miss Frances Hamerton, (a) "Oh, Star Deceive Me Not" (Franz-Ditson), (b) "Stars with Golden Sandals" (Franz-Ditson).
9.23: Violin solos—Miss Irene Morris, (a) "Andantino" (Martin-Kreisler-Schott), (b) "Allegretto" (Boccherini-Kreisler-Schott).
9.29: Flute and clarionet duet—Messrs. Ronald and Linton Boulton, "Chant d'Amour" (Leigh-Jacobs).

JOAK, Tokio, is a powerful station, for, although it is located about 5500 miles away from Wellington, the music and speech is heard with fair loud-speaker volume, using a 4-valve Browning-Drake.

What do the Japs have so much to talk about? The other evening a Jap was haranguing his listeners for over half an hour, but it was all volapuk to us barbarians. The Jap announcer is most deliberate in his announcements, and he is a veritable Drummond for mellowness of voice.

There are certain areas in different parts of the world where wireless signals transmitted on long wave lengths can only be received with difficulty at all, while in other places such signals can only be received at certain hours of the day. With the object of ascertaining to what extent short-wave transmission may be capable of reaching such areas, the British official Press news will be transmitted by Morse for two months beginning on September 8 on long and short wave simultaneously. The same call sign will be used, and the long wave will remain as it is at present. The short wave will be 22 metres at noon, Greenwich mean time transmissions, and 37 metres at 8 p.m. and midnight. Reports on reception by stations will be welcomed by the General Post Office, London.

Wigglesworth and Binns.

MR. AND MRS. T. G. ROGERS.

Welsh singers these, frequently heard from 3YA. They both have splendid records in competition work in South Wales, England, and in New Zealand. At Blaenavon, South Wales, Mr. Rogers was the conductor of the Primitive Methodist Church Choir, and at the same time conductor of a juvenile choir which was very successful in competitions. A miner by trade, Mr. Rogers came to New Zealand in 1920, and settled at Millerton, West Coast. There he formed and conducted the first Male Voice Choir, which gave concerts at Westport, Reefton, Seddonville, and other towns. Coming to Christchurch he joined the tramway service. He is now a tenor soloist of the Male Voice Choir, and conductor of the Linwood Congregational Church choir. On 3YA programmes Mr. Rogers is frequently associated with Mr. J. Filer, who hails from the same locality in South Wales. Mr. and Mrs. Rogers and Mr. and Mrs. Filer are a quartet of excellent singers.

"How can I reduce the fundamental wave-length of my aerial? I think it it too long for reception of certain Australian amateur broadcast stations," writes "Puzzled" (Napier). A variable condenser connected in series between the aerial and receiving set will reduce the natural wave-length of the aerial. The smaller the capacity of the condenser the greater the reduction in the natural wave-length of the aerial.

I have heard several English and American musical items from JOAK, Tokio. One recent night a chorus of girls sangs, "The Red, White and Blue" splendidly. There is one Jap I'd like to electrocute, and that is the joker who sings mournful dirge-like compositions to the accompaniment of an instrument of the guitar species.

The transmitting station of JOAK, Tokio, is located on the brow of a hill. The aerial masts are 150 feet in height and 105 feet apart. The aerial, which is 85 feet in length, is of the "T" type. The counterpoise, three feet above the station roof, is composed of eight wires slightly shorter than the aerial. The transmitter, which was made in America, is of 1000 watts power, but it is proposed to increase this. There is a three-stage amplifier, and the aerial current averages 8.5 amperes.

Most Japanese listeners use a crystal set. Valve receivers commonly utilise two-valve reflexed circuits, with a loud-speaker; though there is a considerable number of five-valve neutrodynes and super-heterodynes in the country. Parts are commonly of Japanese make, although for the finest quality of reproduction, the best American makes are preferable. Japanese vacuum-valve manufacture has been greatly improved. Aerial masts are commonly of bamboo in Japan.

9.34: Tenor solo—Mr. W. Bradshaw, "Sound an Alarm!" ("Judas Maccabeas"), (Handel-Boosey).
9.39: Instrumental trios—Christchurch Broadcasting Trio, (a) "Once Upon a Time" (Lind-Augener), (b) "Three Fours Valse" (Taylor-Augener).
9.46: Soprano solo—Miss Frances Hamerton, "I'll Rock You to Rest" (Lullaby), (Stanford-Boosey).
9.50: Relay from Grand Theatre.
10.0: National Anthem. Close down.

4YA DUNEDIN (463 METRES)—THURSDAY, SEPTEMBER 29.

7.0: Town Hall chimes.
7.1: Request gramophone concert.
8.0: Town Hall chimes. Studio concert by the Salvation Army Band, under Bandmaster A. Millard and assisting artists.
8.1: March—The band, "Liberator" (Marshall).
8.5: Vocal—Girls' Choir, "Far from the Fold" (Johnston).
8.9: Cornet solo—Deputy B.M.O. Judd, "Flight of Ages" (Burton).
8.14: Soprano solos—Miss Olga Burton, (a) "Slumber Song" (Schubert), (b) "A Brown Bird Singing" (Wood).
8.19: Selection—The band, "New Zealand Melodies" (Gore).
8.28: Violin solo—Miss Eva Judd, "Romance" (Vieuxtemps).
8.33: Trombone solo—Bandsman G. Lemin, "Phantasy" (Jenkins).
8.39: Violin and cornet—Miss E. Judd and Mr. O. Judd, selected.
8.44: Euphonium solo—Bandsman T. J. Howie, "Cavatina" from "Lucretia Borgia" (Donizetti).
8.49: Cornet duet—Messrs. O. Judd and D. Robertson, "Will o' the Wisp" (Round).
8.55: Vocal—Girls' Choir, "The Good Shepherd" (Barri).
8.59: Selection—The band "Musical Switch" (Milard).
9.9: Violin solo—Miss E. Judd, "Mazurka" (Wieniawski).
9.13: Cornet solo—Bandsman D. J. Robertson, "Because" (d'Hardelot).
9.19: Soprano solos—Miss Olga Burton, (a) "Dreaming" (Millard), (b) "Out of the Dusk" (Lee).
9.24: Address by "Gargoyle"—"For Motorists."
9.32: Sextet—Messrs. Judd, Robertson, Stanton, T. Lemin, G. Lemin, and Howe, "The Young Recruit" (descriptive fantasia), (Bulch).
9.38: Vocal—Girls' Choir, "Face to Face" (Tyler).
9.42: Cornet solo, with band accompaniment—Mr. O. Judd, "Largo" (Handel).
9.50: Selected items.
9.57: National Anthem.
10.0: Close down.

Friday, September 30th

1YA AUCKLAND (333 METRES)—FRIDAY, SEPTEMBER 30.

3 to 4.30 p.m.: Afternoon session—Selected studio items.
6.30: Children's session.
7.15: News and information session.
7.30 to 7.45: Talk on "Motoring," by Mr. Geo. Campbell.
8.0: Chimes.
8.1: Relay of concert from Messrs. John Court's, Ltd.
8.30: Piano solo—Mr. Eric Bell, "Arabesque" (Debussy).
8.35: Soprano solo—Miss Dorothy Youd, "Jewel Song" from "Faust" (Gounod).
8.39: Baritone solos—Mr. Dudley Wrathall, (a) "Lolita" (Buzza-Peccia), (b) "Thou'rt Passing Hence" (Sullivan).
8.48: Violin solo—Mr. Paul Bretnall, "Eli, Eli" (Elman).
8.53: Contralto solo—Miss Martha Williamson, (a) "O, Divine Redeemer," (b) selected.
9.1: Weather report.
9.2: Duet—Miss D. Youd and Mr. D. Wrathall, "The Singing Lesson."
9.7: Mezzo solo—Miss Cecilia Duncan, (a) "Sing, Break into Song" (Mallinson), (b) "Bonnie Banks of Loch Lomond."
9.15: Piano solo—Mr. Eric Bell, "The Butterfly" (Merkel).
9.20: Soprano solo—Miss D. Youd, (a) "Message and the Song" (Mallinson), (b) "The Star."
9.28: Talk—"Account of the Wreck of the Amy Turner," by Captain West.
9.45: Baritone solo—Mr. D. Wrathall, "Song of the Flea" (Moussorgsky).
9.48: Violin solo—Mr. P. Bretnall, "Brandl" (Kreisler).
9.50: Contralto solo—Miss Williamson, "Caro Mio Ben."
9.53: Mezzo solo—Miss C. Duncan, "Knowest Thou the Land" (Thomas).
9.57: Piano solo—Mr. E. Bell, "Valse de la Reine" (Taylor).
10.0: Duet—Miss Williamson and Miss D. Youd, "With a Heigh Ho."
10.3: Violin solo—Mr. Paul Bretnall, "Kula Wiak" (Wieniawsky).
10.7: Trio—Misses Youd and Williamson and Mr. D. Wrathall, selected.
10.11: Close down. (This concert was arranged by Miss D. Youd.)

2YA WELLINGTON (420 METRES)—FRIDAY, SEPTEMBER 30.

3 p.m.: Gramophone recital.
3.30: Lecturette—Miss Marion Christian, "Gas Cooking."
3.45 to 5.0: Gramophone recital.
6.0 to 7.0: News and market reports.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Instrumental—Studio Orchestra, selected.
8.15: Bass solo—Mr. Geo. Neel, "Harlequin" (Sanderson-Boosey and Co.).
8.18: Flugel horn solo—Mr. Wm. Hambley, "The Pilgrim of Love" (Hartman).
8.21: Elocution—Miss Mavis Halliday, "Jim" (Hillaire Belloc).
8.24: Pianoforte—Mr. Jack McKinley, "Nola" (Arnat).
8.27: Mezzo-soprano solo—Miss Marie Brown, "The Carnival" (Molloy).
8.30: Studio Orchestra, selected.
8.45: Contralto solo—Miss Gwytha R. Harbroe, "I Did Not Know" (Footere).
8.48: Saxophone solo—Mr. R. Bothamley, "Valse Erica" (Weidoeft).
8.51: Studio Orchestra, selected.
9.6: Weather forecast.
9.7: Lecturette—"Imperial Affairs."
9.22: Flugel horn solo—Mr. Wm. Hambley, "Because" (d'Hardelot).
9.30: Elocution—Miss Mavis Halliday, "The Photographer" (Stephen Leacock).
9.33: Pianoforte—Mr. J. McKinley, "Doll Dance" (Brown).
9.36: Mezzo-soprano solo—Miss Marie Brown, "A Birthday" (Cowen).
9.40: Saxophone solo—Mr. R. Bothamley, "Velda" (Weidoeft).
9.43: Contralto solo—Miss Gwytha Harbroe, "Salaam" (Lang).
9.46: Bass solo—Mr. Geo. Neel.
9.49: Studio Orchestra, selected.
10.0: Close down.

Programmes Continued

3YA CHRISTCHURCH (306 METRES)—FRIDAY, SEPTEMBER 30.

3 p.m.: Afternoon concert session.
7.15: News and reports.
8.0: Chimes. Relay of orchestral selections from Crystal Palace Picture Theatre Orchestra, under the conductorship of Mr. A. J. Bunz.
8.15: Baritone solo—Mr. Bernard Rennell, "The Song of the Wagoner" (Smith-Chappell).
8.19: Clarionet solo—Mr. Morris Withers, "Concertino, Op. 26" (Weber-Fischer).
8.23: Soprano solo—Miss Edna Donaldson, "Trees" (Rushbach-Chappell).
8.26: 'Cello solo—Mr. Harold Beck, "Adagio" ("Pastorale"), (Handel-Williams-Augener).
8.31: Baritone solo—Mr. Bernard Rennell, "Casey the Fiddler" (Bowles-Chappell).
8.35: Instrumental trio—Christchurch Broadcasting Trio, "Rondo Alla Turka" (Mozart-Augener).
8.41: Soprano solo—Miss Edna Donaldson, "A Little Coon's Prayer" (Hope-Boosey).
8.45: Clarionet solo—Mr. Morris Withers, "Polonaise" from "Mignon" (Thomas-Fischer).
8.50: Soprano and baritone duet—Miss Donaldson and Mr. Rennell, "Somebody" from the opera "Floradora" (Stuart-Day and Hunter).
8.55: 'Cello solo—Mr. Harold Beck, "Chanson Villagoise" (Popper-Simrock).
9.0: Interval.
9.5: Relay from Crystal Palace Theatre.
9.20: Talk—Rev. Gardner Millar, "Blunders and Bulls" (M.S.).
9.40: Soprano solo—Miss Edna Donaldson, "Sapphic Ode" (Brahms-Lengnick).
9.44: Instrumental trios—Christchurch Broadcasting Trio, (a) "Song Without Words, N.o 18" (Mendelssohn-Metzler), (b) "Mazurka Russe" (Glinka-Bayley and Fergusson).
9.50: Baritone solo—Mr. Bernard Rennell, "The Christening" (Fisher-Boosey).
9.54: Relay from Crystal Palace Theatre.
10.0: National Anthem. Close down.

4YA DUNEDIN (463 METRES)—FRIDAY, SEPTEMBER 30.

3 p.m.: Town Hall chimes.
3.1: His Master's Voice recital.
3.15: Afternoon tea music from the Savoy.
3.30: Studio music.
4.0: Cookery talk by Miss M. Puechegud.
4.15: His Master's Voice recital.
4.30: Close down.
7.0: Town Hall chimes.
7.1: Children's session—Big Brother Bill.
7.45: News and market service
8.0: Town Hall chimes.
8.1: Studio concert.
8.45: Address, arranged by the Workers' Educational Association.
9.0: Dance music by Ern. Beacham and His Orchestra, from the Savoy.
10.0: Close down.

Saturday, October 1st

1YA AUCKLAND (333 METRES)—SATURDAY, OCTOBER 1.

3 to 4.30 p.m.: Afternoon session—Selected studio items.
7.15 to 7.45: News and sports results.
8.0: Chimes.
8.1: Relay of overture from Strand Theatre. Eve Bentley, conductor.
8.11: Baritone solos—Mr. Fred. Baker, selected.
8.19: Contralto solos—Miss Nellie Lingard, "Softly Awakes My Heart" from "Samson and Delilah" (Durand-Saint-Saens).
8.24: Instrumental—The Tongans, Native folk songs.
8.30: Tenor solos—Mr. Robert Peters, (a) "Where'er You Walk" (Boosey-Handel), (b) "Believe Me, if all Those Endearing Young Charms" (Boosey).
8.38: Baritone solo—Mr. F. Baker, selected.
8.42: Contralto solos—Miss N. Lingard, (a) "Garden of Happiness" (Enoch-Wood), (b) "Cuckoo Calls" (Enoch-Brahe).
8.50: Instrumental—The Tongans, folk songs.
8.56: Tenor solo—Mr. R. Peters, "The Tramping Song" (traditional).
9.0: Weather report.
9.1: Relay of dance music from Click-Clack Cabaret, by the Click-Clack Orchestra, under Mr. Walter Smith.
11.0: Close down.

2YA WELLINGTON (420 METRES)—SATURDAY, OCTOBER 1.

3 p.m.: Relay—Description of the North v. South football match.
5.0: Close down.
7.0: News session, sporting results, and market reports.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Relay of Paramount Theatre Orchestra.
8.16: Steel guitar duo—Berthold and Bent, "The Farmer's Dream" (Ferreira).
8.20: Humorous elocutionary item—Mr. J. Watchman, "Yes, I Think So" (Foster).
8.24: Instrumental—Studio Orchestra, selected.
8.34: Humorous song—Mr. J. Wilkinson, "Mamma's Gone Young" (Weston and Lee).
8.42: Banjo duet—Mrs. Mildred Kenny and Mr. R. Metzentine, "Lancashire Clogs" (Grimshaw).
8.46: Steel guitar duo, Berthold and Bent, (a) "Kalima Waltz" (traditional), (b) "Palakiko Blues" (Palakiko).
8.51: Humorous elocutionary item—Mr. J. Watchman, "The Meanderings of Monty" (Milton Hayes).
8.54: Banjo duet—Mrs. M. Kenny and Mr. R. Metzentine, "Coontown Breezes" (Papworth).
8.58: Humorous song—Mr. J. Wilkinson, "There's a Catch in it Somewhere" (Weston and Lee).
9.2: Relay of Charles Dalton's Columbian Solo Six Dance Orchestra, from the Columbian Cabaret, Kilbirnie.
Instrumental—Chinese Masonic Orchestra.
Chinese piano solo—Mr. Ah Foon.

3YA CHRISTCHURCH (306 METRES)—SATURDAY, OCTOBER 1.

2.45 p.m.: Rebroadcast 2YA, Wellington—Description Rugby football match, North Island v. South Island.
6.0: Children's session, by Uncle Sam.
7.15: News and reports.
7.30: Sporting results.
8.0: Chimes. Relay of orchestral selections from Liberty Picture Theatre Orchestra, under conductorship of Mr. Ernest Jamieson.
8.15: Soprano solo—Miss Muriel Johns, "A Spring Fancy" (Densmore-Winthrop-Rogers).
8.19: Tenor solo—Mr. Douglas Suckling, "Sailors of the King" (Byng-Day and Hunter).

Broadcast listeners are required to pay three yen (approximately six shillings) quarterly, for the privilege of listening to the programmes, which are splendid.

And now 3AR, Melbourne, is about to broadcast on an ultra-short wavelength. A relatively small station is being erected, specially for short-wave broadcasts. The wave-length is to be 55 metres, which, it is claimed, is admirably suited to reception in distant parts of Australia, and in New Zealand. Still, to reach greater distances a slightly shorter wave-length would have proved more efficient.

A short-wave station is of no use for anything but distant reception, for the short waves have a nasty habit of skipping distances. This is the reason why short-wave broadcasting cannot supplant the broadcasting on the present wavelengths. Anyhow, many listeners are now adding a short-wave receiver to their equipment, and there is a lot of interest to be obtained from this new avenue.

Hitherto the British listener has remained content with the crystal, it has been asserted; but a recent survey made by the British Broadcasting Corporation indicates that over 50 per cent. of British fans are now using valve sets.

Denmark will equip its schools with radio equipment, as the result of negotiations between the national department of education and the radio control board. Radio instruction, it is announced, will be made part of the regular curriculum in the schools.

The first broadcast station on a railway train began operations on July 1, on the lines of the Chicago, Milwaukee and St. Paul railway. The "Mile-a-Minute Studio" was given a special call of WHBL for the occasion; and a wave-length of 205 metres was authorised by the Radio Commission.

Because static prevails about the Canary Islands, the U.S. consular service reports, it is found that the short-wave broadcasts from Europe and America give the best reception on home-made sets. This has aroused much interest in this type of receiver.

The attempt to broadcast a programme from the Arctic will be made shortly by Capt. Donald B. McMillan, whose ship, the Bowdoin, carries a short-wave 'phone transmitter. It is hoped that it will be possible to rebroadcast its transmissions from one of the larger stations in the United States.

Barley, in the intense electrical field beneath the aerials of the Government station at Arlington, opposite Washington, grew rapidly until it was higher than a man's head, says Admiral Bullard, chairman of the radio commission, who ascribes this development to the radio waves. Scepticism as to the cause assigned, however, is expressed by the Department of Agriculture.

In most countries broadcasters derive their revenue from the subscriptions of listeners-in. In Zurich, Switzerland, the broadcasting company has recently been sending demonstrators about the canton to interest prospective customers in the purchase of sets. The company introduces and sells them for manufacturers; deriving its profit, not from the original sale, but from the licenses which purchasers must take out.

The colonial empire of Portugal is now linked with Lisbon by a chain of five stations, the latest of which was recently opened at Lourenco Marques on the east coast of Africa. Others are at Madeira, the Azores, Cape Verde, and Loanada in West Africa.

To eliminate interference with radio receivers, Vienna (Austria) now equips its cars with double trolley pole contacts, about three feet apart. Sparking is thus avoided when joints in the power line are passed. It is also found that a carbon-to-copper contact reduces much of the annoyance from breaks in the circuit.

"Mike" (the microphone) demonstrated his versatility by announcing a fire, had his hearers but understood, during a broadcast in Chicago over WGN. Listeners-in heard but a crackle after a dance programme was announced; then came the statement that the terrace platform was in flames. Orchestra and dancers fled; and the faithful microphone perished in the flames.

8.23: Humorous recitation—Mr. Alec Dey, "Presentation of Prizes" (M.S.).
8.25: Instrumental trio—Christchurch Broadcasting Trio, "Midenette" (Marling-Cincaf Music Co.).
8.31: Soprano solo—Miss M. Johns, "Golden Dancing Days" (Clarke-Chappell).
8.35: Pianoforte solo—Miss Phemie Suckling, "Good-bye" (Tosti-Ricordi).
8.40: Tenor solos—Mr. Douglas Suckling, (a) "Sheila" (Bamford-Boosey), (b) "At Dawning" (Cadman-Boosey).
8.46: Instrumental trio—Christchurch Broadcasting Trio, (a) "Barcarolle" ("Tales of Hoffmann"), (Offenbach-Metzler), (b) "Hungarian Dance No. 1" (Brahms-Bayley and Fergusson).
8.52: Humorous recitation—Mr. Alec Dey, "Bendy's Sermon" (Conan Doyle).
8.56: Pianoforte solo—Miss Phemie Suckling, "Valse Arienne" (Spindler-Novello).
9.0: Soprano solo—Miss Muriel Johns, "A Pastorale" (Turner, Haley-Schirmer).
9.5: Interval.
9.10: Relay from Liberty Picture Theatre.
9.25: Relay of dance music from Kashmiri Cabaret by Mr. Les Grummitt's Orchestra. Rebroadcast 2YA, Wellington (circumstances permitting).
10.0: National Anthem. Close down.

4YA DUNEDIN—SATURDAY—SILENT.

1YA AUCKLAND (333 METRES)—SUNDAY, OCTOBER 2.

3.30 to 4.30 p.m.: Afternoon session.
6.55: Relay of church service from Auckland Unitarian Church. Preacher, Rev. Thornhill; organist, Mr. Woods.
8.30: Relay of Municipal Band from Town Hall. Conductor, Mr. Chris Smith.
9.30: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, OCTOBER 2.

6.55 p.m.: Relay of church service from the St. Andrew's Presbyterian Church. Rev. R. Howie, preacher.
8.15: Relay of the Port Nicholson Silver Band concert from the Opera House.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, OCTOBER 2.

5.45 p.m.: Children's song service, by Uncle Sam.
6.30: Relay of anniversary service from Durham Street Methodist Church. Preacher, Rev. W. Arthur Hay; organist and choirmaster, Mr. E. R. Firth, F.R.C.O. Solos, hymns, and Scripture recitations.
8.0: Musical items from 3YA Studio.
8.15: Relay of concert from Liberty Theatre, under auspices of the Returned Soldiers' Association, in aid of their fund.

4YA DUNEDIN (463 METRES)—SUNDAY, OCTOBER 2.

6.30 p.m.: Relay of service from St. Andrew's Street Church of Christ. Preacher, Pastor W. D. More. Choirmaster, Mr. G. Hickey. Organist, Miss E. Stokes.
Sacred cantata—"Pardon, Peace, and Power."
9.0: Close down.

AUSTRALIAN VISITORS FAVOUR 2YA WITH ITEMS

Listeners to 2YA were afforded an unexpected and delightful treat on the evening of the 15th, when Miss Alice Prowse, one of Australia's most charming radio favourites, generously sang four songs to her great unseen audience. Miss Prowse is a dramatic contralto, and the happy possessor of a glorious, highly-cultured voice. Visiting Wellington, Miss Prowse was naturally desirous of seeing the Studios of 2YA, of which, after a thorough inspection, she expressed unqualified admiration. Very graciously Miss Prowse consented to sing to New Zealand listeners through a New Zealand station. The numbers she chose were: "She Wandered

Down the Mountain Side" (Clay), "Oh, Men From the Fields" (Brash), the Negro spiritual "Sing Low, Sweet Chariot" (Berleigh), and "Morning" (Speakes). Miss Prowse was accompanied by Mr. James Brash, of Sydney, who was in Wellington, en route to Dunedin, where he is to adjudicate at the Competitions in that city. Mr. Brash, it may be noted, was the composer of the song "Oh, Men From the Fields," so beautifully rendered by Miss Prowse.

Amongst the Listeners

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

KAIKOURA

Business here is booming. Mr. Jeff. Bullen, of "The Lakes," has installed an eight-valve set, and is obtaining excellent results.

The pack horse was called in to equip Mr. G. E. T. Shand with a six-valve set. This shows how the wireless is taking the latest news to the most inaccessible spots.

Mr. Morton Bullen, of "The Elms," is another radio fan at present operating a six-valve set.

On Wednesday last, when the football match was being broadcast from Palmerston North on relay, Mr. Rey Clark took a six-valve set in a motor-car, and listened to the progress report of the match until his destination was reached in the Blue Dued Valley. The report came through with excellent volume.

A novice who recently took up radio in these parts boasted of his powerful set. Said he to a friend: "Wellington is on 420 metres, isn't it? Well, I can get it from 420 down to 300!" Not much selectivity about that set!

Another agent said: "Boy, you should hear my set; I can get three stations at once—Wellington, Japan, and Sydney." He should try and hold Wellington, and cut the other two stations out!

Recently a young fellow thought he would attempt to secure a commission for a radio set. He had a five-valve, quite new to him. Hearing that another firm was installing a set, he rang up the prospective client, saying: "Hang off, radio, I have the goods for you." He later visited the residence and found a six-valve set installed. Then he hurried off to Christchurch, and brought up a seven-valve set. The prospective purchaser gave him a "chance," and asked him to demonstrate against his six-valve set. The six-valve operated on the second floor, and the seven-valve on the first. The purchaser directed operations, and called for stations. The six-valve won easily. It was an eight-valve, with only six used, and this without an aerial It was a good test, and smart Alec was defeated.

There are now fifty radio sets in Kaikoura, forty-one of which have been supplied by the "Star" office, the pioneers of radio in Kaikoura. Mr. A. B. Clark published the "Wireless News" in France in January, 1918

RADIO DANCE AT PIRINOA

Radio dances are becoming more popular every day. The Memorial Hall at Pirinoa was the scene of a successful function on Saturday, September 10 last, when a number of the local residents gathered to dance to the music of Allen's orchestra, so excellently broadcast by 2YA. After 2YA had closed down, those present were able to hear descriptions of motor-cycle racing from the National Speedway, Brisbane, per medium of Station 4QG; also motor sports from 2FC, Sydney. The last two rounds of the fight, Williams v. Squires, were enjoyed by the men present, and altogether an enjoyable radio evening was spent.

Several people expressed regret that there was not more variety in the dance music, consisting as it did of only fox trot and waltz numbers, but several extras, including lancers and two one-steps were arranged, with Mr "Perriot" Morris—a prominent Maori entertainer—at the piano. Much appreciation of 2YA's programme was expressed, the opinion being advanced that if more dance music was included on these occasions the gatherings would be even more successful.

NEW RADIO NAMES

New standards of nomenclature for radio receivers devised to simplify the technical vocabulary of manufacturers and users of such apparatus have been adopted by the United States Standards Committee of the National Electrical Manufacturers' Association. The association handbook, which will be available shortly, will include the new standards. The radio division of the association has adopted the following colours for vacuum valve bases to permit ready identification: Dark red for general purpose valves; green for special detector valves; orange for audio power valves.

Our Mail Bag

REPLIES TO CORRESPONDENTS.

H. Mather (Millerton).—It is quite evident that your batteries are defective, and should be sent to the agents for examination. The vendors would be the best people to get in touch with.

C.V.B. (Waihopo, North Auckland).—3XM is listed as the Princetown University Wireless Club, Princetown, New Jersey, U.S.A., but the call-sign may have been changed over to the Bell Telephone Company, U.S.A.

W. N. McNabb (Marsden, Greymouth).—4ZB is listed as R. B. Brewin, 21 East 38th Street, Savannah, Georgia, U.S.A.

"Perplexed" (Havelock).—The trouble is seemingly due to a power-line leakage. It is probable that the music from 3YA submerged the noise, that station being louder than 1YA. It is not practicable to eliminate the noise from the dynamo without considerable expense.

E.H.B. (Northland).—Evidently your crystal receiver and aerial tuned right on to a harmonic of 2YA. The fundamental wave-length of your aerial and earth system being equal to the wave-length of the harmonic.

K.E.P. (Murchison).—It would appear that you were receiving 2YA on a "harmonic." The station you heard just above 300 metres was 2GB, Sydney, the Theosophical station.

Who's the Stranger?

F.J.R. (Taumarunui): For the past two or three evenings, whilst listening in to 2BL, Sydney, I have been annoyed with a whistling sound, caused by a station broadcasting—I presume, on the same wave-length. Last evening it was more pronounced than usual, and I was able to hear—whilst 2BL was working—a woman singing, and then some orchestral music. This was during the children's session. On my set, Christchurch, Auckland, and 2BL are close together, Melbourne, 3LO, and 4QG, Brisbane, coming next, all within twenty degrees on my dials In between Christchurch and Auckland a station works, but does not interfere with one much; but the station above referred to causes interruption with both Auckland and 2BL The approximate time the interruption occurs is about 7.30 p.m. Perhaps some of your readers could help me. I was pleased to read in last week's "Record" that you are going to have an experimental evening next week. 2YA is certainly the pick of all stations, except on my set it is somewhat noisy, and I have to go down on to first stage, and I get it louder than Auckland Christchurch is picked up better than Auckland, and that is a thing I cannot understand.

[The fact that all the stations come in within twenty degrees of your dials seems to indicate that your condensers are of too large an electrical capacity. It would be worth while ascertaining whether the set was imported, or assembled in New Zealand. Sometimes correspondents allude to their sets as being of a certain make, whereas they were assembled in New Zealand, and they omitted to explain this. We cannot identify the interfering station at present.]

Is the Powerhouse Too Powerful?

A. Jardine (Hora Hora): My set works absolutely quietly at Mount Eden, Auckland, and yet at the power station here considerable hissing or rushing noise comes from the loudspeaker, but occasionally dies down quiet, then returns. Some nights are not as bad as others, giving clearer reception and a faint hiss. On Saturday, 10th, there were intermittent scratchy noises in the loudspeaker; hissing or rushing very pronounced; constant fading. Fading on other nights is frequent, but lasts for only a second or two, like the wave voltage dying to zero and returning to maximum. A peculiar thing is, the station announcement is always full and clear, but when a speech is made it is difficult to hear all, just as though the speech-maker had turned around instead of speaking into the microphone. Music comes through the best, particularly pianos, organs, orchestras, and instruments; singing fairly good; difficult to hear the words. Christchurch tunes in at good volume sometimes; other times it is faint; but this station is fairly easy to pick up. Auckland, or 1YA, is the most difficult to get, and is subject to considerable fading. On Saturday night, September 10, 1YA could not be tuned in, yet 3YA came in strong. The weather was wet and misty. Of the Australian stations, 2FC comes in at good strength, and formerly 4QG, Brisbane; but now only 2FC tunes in. Does the nearness of the power station with the H.T. lines cause interference? Have they any choking effect? Does a subantenna eliminate this by using filtered ground waves? My aerial is No. 14 S.W.G., solid phosphor bronze, 80 feet including lead-in to ground. Does a brass knife switch on the aerial to set (indoor), with good contacts, do as well as a copper switch, than connected direct from aerial to set? The ground connection is of four galvanised iron pipes, 3 feet 6 inches deep, and a heavy gauge wire running to the water service pipe 12 feet away; the 4 g.i. pipes are in gravel ground, but kept well saturated with water; earth leads are bolted to brass clips on pipes.

[The proximity of the power station is likely to cause interference, such as a rushing sound, other noises, and even a choking effect. A subantenna means a greatly reduced range for your set, and, therefore, weaker signals. The brass switch will be effective. Use either the galvanised iron pipes or the water pipe, but not both. By testing, ascertain which earth is the better and restrict yourself to it.—Ed.]

2YA Strong Enough in Picton.

"Radio" (Picton).—What is worrying me is the number of listeners that complain that 2YA has no strength. I can't understand it, more so as we are in a very bad locality for long distance reception, and anything in the champion log line. 3YA fades terribly with us at most times, but we don't blame the station; we can't very well when other localities twice as far from 3YA report excellent reception. I get sufficient volume from 2YA without an aerial to fill a house. Yet if I grasp the end of the lead-in in my hand, but not touching the set in any way, signals at once almost cease. Can you explain this? Mr. George Scott, Oaonui, Taranaki, asks about a station broadcasting a church service on Thursday, August 25, 6.45 to 7.15 p.m. I have had this station two or three times and wrote you some time back concerning the stranger. May I make one suggestion, Sir? When a breakdown occurs at any of the B.C.'s stations, could this be announced a couple of times from the other stations? This would satisfy the listeners, and also save a lot of worry over the telephone.

The fading of 3YA, Christchurch, is due to uncontrollable causes in respect to your reception. The station broadcasting a church service on Thursday cannot be identified by us. The grasping of your lead-in affords a passage to earth for the incoming signals. Apparently the aerial has an inductive effect on your set when the lead-in is free. The suggestion regarding a breakdown was applied recently (although belatedly) in connection with 2YA's breakdown. There would always, of course, be many listeners who would not pick up the announcements from the other stations.]

Good Daylight Reception.

F. McD. (Pahiatua).—2YA is particularly clear in the afternoon in this district. Personally, I have no fault to find with night reception of 2YA. There is occasional fading and distortion, but not more than from other stations. I hear other things said by a few other listeners, but as far as I can gather 2YA is being well received throughout the district, and the programmes are good.

Study the "Mike."

B.T.W. (Christchurch), (an old experienced listener with a wealth of scientific engineering skill at his back), says: Two things are wanted in radio—all performers, both vocal and instrumental, want to study the "mike" and learn that it does not give off the sound in the same volume it receives it, but squares or magnifies it, with the result that a singer who starts as if he or she were crooning a child to sleep (scarcely hearable) and finishes with a voice of full capacity (often on high notes) that would fill a hall containing 15,000 listeners, that could be heard a quarter of a mile off, must learn that this won't do for the microphone. All studio artist beginners want coaching with an expert. When I say all I bar such singers as the lady who sang at 2YA recently. I believe her name was Miss Marshall. She sang like a prima donna—splendid; so did the tenor, and the pianist was also perfect. Another thing listeners-in want. coaching, both through your paper and also through the studio. It wants drumming into them every night. 3YA has been very unreliable for about a month now. We had to cut it out time after time. Of course the station gets the blame, whereas if listeners would look nearer home they would stand a better chance of finding the culprit.

This is Pleasant.

H.F. (Whangarei): I have been a constant listener-in for the past two years, and during the greater part of this time have been patiently waiting for New Zealand stations to reach a standard which would put them on the radio map. I congratulate the Broadcasting Co. on having reached that standard—1YA, 2YA and 3YA are splendid stations, and the variety of the programmes should suit everybody.

Favourable Comment.

S.W. (Newtown): I wish to congratulate you on the steady improvement of your programmes. Could you give us more orchestral music and less vocal items? Sopranos especially do not broadcast well. Billy Hart's jazz selections are much appreciated by all the family. Having listened-in to the B.B.C. stations while in England, I can say that New Zealand compares very favourably. The B.B.C. does not have a silent night. I am sure there would be more crystal users in New Zealand if the silent night could be replaced by a relay. A nightly children's session is urgently needed for the kiddies.

Good Long Distance Reception.

A. V. Pearce, principal keeper at Pencarrow Heads Lighthouse, writes that on the morning of September 7 at 5.20 a.m. he picked up the test from station PCJJ at good loudspeaker strength and heard a beautiful band piece under the conductorship of Mr. S. Johnston. "This was 5.20 a.m., New Zealand time. Then I heard 3LO call out 'Hullo, PCJJ,' three times in succession, 'Broadcasting Company of Australia, 4 a.m., Wednesday morning.' Then came two tenor solos and then two piano solos by Mr. Williams. Static then interfered, but further calls from 3LO were heard. On Saturday morning I tuned in WGY at good strength at 2 a.m. The first item, a duet; at 2.15 a.m. dance music; at 2.25 a.m., violin solo; at 2.30 a.m., band music, very loud and good; at 2.35 a.m., a duet, after which the station closed down. This was all received direct, as I heard the announcer quite well."

Radio War in Taranaki.

George Scott (Oaonui): My letter caused one "B.C.L." to write a chapter in the "Taranaki Daily News," wherein he stated that he utters a prayer that "he does not live in Oaonui." If he were to live in Oaonui he might receive 2YA much better, and the fact that I am a two-valve, three-coil user does not necessarily mean that my set howls. "B.C.L." seems to have a set on anybody who gets 2YA successfully. I predict a "radio war" yet if New Plymouth listeners do not get a relay station. "B.C.L." is constantly complaining!

The Dempsey-Tunney Fight.

G.C.H.: I notice that my letter in your issue of September 2 has brought forth a volley of adverse criticism from "J.W.C." In re the matter of filling in the gap between 7.45 and 8 p.m., I think that "J.W.C." has overlooked the fact that a station does not possess one announcer only! In any case, I do not think an extra fifteen minutes in the early part of the evening would be a very great strain even if there is only one announcer on duty. However, my object in writing is not to commence a discussion per medium of your columns, but to ask if there is any truth in the whisper that 2YA may rebroadcast the Dempsey-Tunney fight being broadcast on short wave by station WLW, Cincinnati, on September 23. The Broadcasting Company startled the whole country, and incidentally made a name for itself, by the memorable broadcast of the Hawke's Bay v. Wairarapa Ranfurly Shield match on July 9—a truly wonderful achievement for the initial transmission. There is no doubt of the interest taken in radio by the whole country from this date onwards. Similarly, a ringside description of the Dempsey-Tunney fight heard throughout New Zealand would, I think, be a crowning achievement for the Broadcasting Company. The feat would not by any means be impossible, and if not attended by complete success no one could possibly be so unreasonable as to make any adverse criticism on same. In regard to rebroadcasts, I hope the Broadcasting Company is not going to take up the same attitude as the British Broadcasting Corporation has in regard to Empire Broadcasting!

[The Broadcasting Company will do its best in connection with this fight, and its plans will, we trust, give satisfaction.—Ed.]

Good Crystal Work.

A listener at Castlecliff, Wanganui, reports that he can regularly receive 2YA with a small, roughly-made crystal set, using galena, the coil being wound on a wooden former. The 'phone strength is clear and distinct enough to get every word of the news session, and fading is unnoticeable. The air-line is about 100 miles, mostly over water.

A Giant Loudspeaker.

A. E. Elliston (Reefton):—All of us in this town appreciate the "Record" and in my opinion it completely fills the bill. As regards the programme, I am satisfied and realise the difficulty of getting up programmes for every night in the week. If the artists realise the pleasure they give to us in the backblocks, and leave out of their thoughts the cities, they will feel that their efforts are not in vain. Your reply to a correspondent: "That criticism has weight in accordance with the calibre of the person making it," hit the tack on the head with a sledge hammer, and I fully agree with you. As regards reception, this town is not a good receiving centre, as agents demonstrating various makes of sets have found out. I have no trouble in getting sufficient loudspeaker volume from 2YA. Swinging is bad at times, also mushiness. This I put down to weather conditions and local disturbers with their sets. 1YA and 3YA are consistent; to-night 3YA was very strong. 4YA is no good here. I will briefly describe my layout. I have 2 aerials 125ft. and 512ft., the former No. 16 copper, the latter 7-20 copper. Pipe masts, 50ft. high, standing on bottles. All stay wires insulated; water pipe earth, aerials set out by compass bearing. The set is a home made 3 valve duo reflex, and has tuned, straight, and reflexed RF crystal detector, reflexed and straight audio; the set is made up with all makes of instruments. Valves are 2/201A and PM6. Plate voltage 90. I use a 14-inch loudspeaker. I use my 125ft. aerial mostly, and on nights when signals are weak, I turn over to the 512ft., which brings up to loudspeaker volume. I have also a large horn, 6ft. 3in. long and 3ft. 6in. across the opening. This latter is made to fit in the neck of my speaker. I use this horn on Sunday evenings for choirs and bands, and it is clearly heard up to 1½ miles air line distance. People all over this town leave their windows up, sit round the fire, or lay in bed listening to the music—not forgetting those who congregate outside on the road and grassy banks. Many expressions of thanks and praise have come voluntarily to me from people who have derived pleasure from my radio concerts. Music teachers have also sent their pupils up to get education on music. The volume given out by the big horn is not distortion or noise, and no complaints have ever been voiced to me or through others, when giving the entertainments.

Wanted, a Big Loudspeaker.

S.B. (Tauranga):—I agree strongly with one writer to your paper who complains of the absence of music on the air between the hours of about 5 p.m. to 8 p.m. If the four stations took turns it would require little more effort to provide music during such a session, and would undoubtedly prove popular to those who are unable to get distant stations. Could not something be done in this respect? Having had a slight experience with experimenting, I am interested to know whether it is possible to construct a loudspeaker of unusual proportion that might cope with an extraordinary amount of volume. I have tried several large speakers, but when the set is turned on full they are obviously overloaded. Perhaps other listeners have found the same difficulty and an article on the construction of an unusually large speaker in your paper might enlighten us considerably.

Is This Identity Right?

E. C. Sim (Tapanui):—In regard to Mr. S. Mackay's request, I may be able to enlighten him as to the locality of one of the stations he heard, in that, on Tuesday or Wednesday (Wednesday I think) of this week I picked up a harmonic (presumably) of 3LO Melbourne, transmitting on short wave to England, and this came in practically right on KFON's setting on a five valve neutrodyne which I use. I listened to same from about 5 a.m. to 6 a.m.—the music, speeches, etc., coming in very clear, barring static, at good loudspeaker strength. I have also heard a station just a fraction below 3LO Melbourne's usual broadcast setting at 3.30 a.m., but could not pick up the call for static.

(Continued on Page 13.)

Listeners Corner Continued

Do Listeners Get Too Much?

"Listener" (Christchurch): I should like to make a few remarks on the broadcasting service in New Zealand. First of all, let me congratulate you on the production of your splendid paper the "Radio Record," which I read with very much interest every week. I do not know how you can turn out such a paper, containing so much interesting and useful matter, at the price. I should like also to congratulate the Broadcasting Company on the service they have built up and the fare they are giving us. I may say that I have recently come out from England, where, of course, broadcasting is a very great institution, and while New Zealand cannot expect to compare with England in this respect, I think what we are getting is splendid under the circumstances, and great credit is due to the promoters. While saying this, however, it is just here that I want to find some fault. I have read a number of letters in your paper, and especially in the morning newspapers, and the one idea of the writers seems to be that they want more. They are regular Oliver Twists; they "want more," and still more. One of these writers wants a concert on Sunday afternoon, and he also wants the interval from 7.45 to 8 p.m. "filled up with something." As one of your more reasonable correspondents remarks, it is astonishing what some people do want for their money. I sincerely hope, sir, that the company will not accede to any such request. Sunday afternoon is a time either for rest and quiet or for out-door recreation, and a wireless programme would, in my opinion, be quite out of place, and, in fact, objectionable.

Now, my complaint is not that we get too little, but that we get too much, and to make my meaning clear I will take an instance. On a recent Sunday evening I listened with a party of friends to four hours' continuous performance, without a single break, from 3YA. First there was a children's service starting at 5.45 and lasting right on to 6.30, at which time the regular church service begins. At the end of this, at 8 o'clock, the announcer gives us an educational talk for 15 minutes, and at 8.15 a secular concert is begun lasting till about 9.45. The whole Sunday evening, four hours, without a minute's interval.

Now, although I think wireless is a good thing, I think this is altogether "too much of a good thing," and simply has the effect of tiring people. For my part, I should like to see Sunday evening given up to the church service alone, especially where we have a children's service in addition. We have a secular concert every other evening, and I think this could very well be dispensed with on Sunday. I recognise, however, that this would not suit many, and if the concert must be given I would like to suggest that the evening be divided into three distinct sessions in something like the following manner:—The children's service, start at 5.45, finish at 6.20 prompt; 10 minutes interval. The regular service start at 6.30, finish at 8. The talk, or reading, should be left out (not that it is uninteresting, for, indeed, I should like to hear a deal more of that sort of thing, but simply because there is no time for it). A quarter of an hour's interval should be given, and then the concert session could start and go on till the finish.

I feel certain that to the great majority of listeners this would be a much better arrangement, and I should think it would be better for the operators, too, for it would give them a spell. I should also like to have a ten minutes' interval in the middle or the evening concert. We used to get this, but I notice now the interval is generally left out, which I think is a mistake. There are other things I should like to mention, but I am afraid of making this letter too long. For instance, we have in Christchurch four children's sessions per week of about an hour each. This is too much, and the former arrangement of two sessions per week was much better. In one of the early numbers of the "Radio Record" there was an article in which it was stated that the sessions in America were much shorter than in New Zealand, and that is just the point that I am driving at. You can guess that the Americans know a thing or two, and what they want, and what we want, too, is quality rather than quantity. The thing to be aimed at, I suggest, is short, bright sessions on different topics of about an hour each, as many as you like, but divided from each other by not less than a quarter of an hour's interval.

In writing this, I may say that I am expressing not only my own views but those of many others, for I have often heard similar views expressed, and my only desire is for the improvement of the broadcasting business in New Zealand.

The Empire Broadcast.

N. R. Cunningham (amateur station 2BD, Masterton) writes:—I was rather surprised to note in the issue of the "Radio Record" just to hand that only poor reception was had from English 2NM last Sunday evening. Although in a very bad position in the middle of the town here, I received the Empire broadcast quite well. Certainly swinging was pronounced at times, but on the whole the reception was quite good. As I did not take notes at the time, it is rather difficult for me to remember now just what did happen. I first picked up the station shortly after 5.30. From then on till 6 p.m. were various speeches and orchestral items, these latter seeming like phonograph records. The only piece which I knew was the old favourite "Always," which came through very well indeed, being at times unpleasantly loud in the headphones. When this piece ended at 5.58, the announcer said (from memory) "[illegible] how did you get that. I hope it was very good. Just stand by." I then waited for a few minutes, but there was nothing further. I had to leave the set then, and did not get back to it till 6.40. Just as I was tuning in, I heard a speaker, but he stopped almost immediately, and I heard nothing further. I did not bother to take notes of the announcements, etc., as I expected that if I was receiving it in my poor location, others would be receiving it much better. However, in any further Empire broadcasts I will take notes and give you further particulars.

BIG FIGURES

144 STATIONS RECEIVED

AN IMPRESSIVE LIST.

The number of creditable "logs" of distant stations continues to grow. Here is an interesting letter from Taranaki.

Mr. T. W. Ward, of Inglewood, writes:—"I have been interested in your search for the greatest number of broadcasting stations received by any listener in New Zealand. I do not see that this points to any great ability by the owner of such a record, but it certainly shows that amateur is keen and persevering, and that is what we want amongst out amateurs to-day. If a bigger percentage of New Zealand listeners-in would spend more time searching for new stations, instead of growling at our own stations and the Broadcasting Co., they would very soon learn to appreciate our own transmissions.

I enclose a complete list of all stations on telephony received by myself. The list comprises 50 New Zealand, 34 Aussie, 52 American, 3 Japan, 1 Philippine Islands, 2 India, 1 Russia, and 1 Holland, making a total of 144. These have all been received on two to seven valve receivers, but the seven valves were seldom used, except for very weak reception from America, in fact, I can assure you that even these were first picked up on five valves, but to overcome fading I often used the other two, which were H.F. Practically all the long distance stations have been officially checked and the replies are in my possession. As regards loudspeaker reception, first I want to know what constitutes loudspeaker reception on DX work.

I may also mention that Mr. B. Dwen, Waitoriki, Inglewood, also has a log comprising a total of 127 stations, and all these were received on home made receivers. This gentleman will be only too pleased to supply a complete log if desired. In fact, I know of other amateurs in New Zealand whose logs are well over 100 stations, if they would care to total them up.

Talking of D.X. reception, I have just had an experience that is real D.X. work. I built a crystal receiver, and the results were startling indeed. The receiver was only made from cast out material in my shack, but the following stations were received:—1YA, 2YA, 3YA, and from Aussie, 2BL, 2FC, 3LO, and 4QG. Not only received on one night, but on several nights.

Stations Received on Telephones.

New Zealand stations.—1VB, 1AO, 1AB, 1YA (old station), 1AM, 1AX, 1AA, 1 YA (new station), 1ZB, 1AR, 1ZO, 1AZ, 2AB, 2AA, 2AC, 2YM, 2AH, 2AB, 2AF, 2AM, 2AP, 2BZ, 2AQ, 2AJ, 2AK, 2YB, 2YK, 2YA (old station), 2YA (new station), 2ZF, 3AA, 3AC, 3BQ, 3AF, 3AQ, 3YA, 3AU, 3YA (new station), 4AA, 4YA, 4YO, 4AG, 4AD, 4AC, 4AB, 4AP, 4BM, 4AK, 4ZB, VLDN.

Australia.—2CM, 2GR, 2JM, 2ZG, 2FB, 2FC, 2BO, 2BL, 2RJ, 2BF, 2KY, 2RA, 2EM, 2UW, 2MA, 2DN, 2RA, 2BE, 2GB, 2UX, 2UE, 3AR, 3LO, 3DB, 3UZ, 3MA, 3LO (short wave), 4QG, 5DN, 5CL, 5DN (short wave), 6WF, 6WF (short wave), 7ZL.

America.—KFI, KHJ, KDYX, KGO, 6XB, WDAP, WGAY, KPO, WMB, KGU, KGW, KNX, WQJ, WGN, 6XD, WEBH, 8XAA, WREO, WFAA, KOA, CFCN, WDAF, KFRU, 9XG, WCBD, KDYL, KHQ, KDKA, KFWB, KFON, CNRV, KFRU, WBBM, WLW, 2XAF, WSAI, 2XAG, WHB, KFVD, WLIB, KFSG, KOWW, KFSD, WENR, KMOX, KFWI, KTAB, KFPR, KFWB, 2XG, 2XAD, NRRL.

Japan.—JOAK, JOBK, JOCK.

Philippine Islands.—KRMZ.

India.—7BY, 7CA.

Russia.—RFN.

South Africa and England.—Telephony heard from both places, but never received the call letters to definitely prove the reception.

Canadian stations (2), and Hawaiian Islands stations (2).—The call letters are included in the American list above (CNRV, CFCN, and KDYX, KGU).

Holland.—PCJJ.

RADIO BURGLAR-CAMERA

Radio control of an invisible camera which operates in daylight or darkness so that a thief merely by his presence in a room sets the camera in action was demonstrated at Rochester, New York, recently, by John E. Seebold, president of the Seebold Invisible Camera Corporation of that city.

Co-operating with Mr. Seebold, engineers of the General Electric Company developed the radio-control device in the Schenectady laboratories.

With a light-detecting device at one side of the room and a small electric light at the other, the camera begins operating when a person or object passes between the two. Tampering in action. The camera will take one picture or any number in succession up to 160. The equipment can be completely hidden.

A control device so that it operates in daylight as well as in darkness is the work of the General Electric engineers.

U.S. STATIONS

NEW WAVE-LENGTHS

LIST FOR NEW ZEALAND LISTENERS.

A large number of New Zealand listeners, particularly those located outside the cities, where electrical leakages interfere with long-distance reception, tune in American stations during the early portion of the evening. The newly-appointed United States Radio Commission, for the purpose of mitigating the evil occasioned by some 600 broadcast stations in that country interfering with each other, has reallotted the wavelengths of various stations, and in some cases has ordered a reduction of power. The commission has issued temporary licenses up till about the middle of this month, when possibly some minor alterations were to be made in wavelengths and power.

The following list of United States broadcast stations, with their new wavelengths and power, comprises the leading stations, and those most likely to be heard in New Zealand:—

STATIONS, WITH WAVELENGTHS AND POWER.

Radio Call Letter.	BROADCAST STA. Location	Wave (Metres).	Power (Watts)
KDKA, East Pittsburg, Pa...		316	30000
(Also *63.6 metres and other short-wave transmissions on varying power.)			
KELW, Burbank, Calif.		229	250
KEX, Portland, Ore.		240	2500
KFAB, Lincoln, Neb.		309	*2000
KFAD, Phoenix, Ariz.		273	500
KFAU, Boise, Idaho		285	*2000
KFBU, Laramie, Wyo.		428	500
KFDM, Beaumont, Texas		375	500
KFDX, Shreveport, La.		236	250
KFDY, Brookings, S.D.		395	500
KFEL, Denver, Colo.		248	250
KFEQ, St. Joseph, Mo.		231	1000
KFH, Wichita, Kas.		246	500
KFI, Los Angeles, Calif.		468	5000
KFJF, Oklahoma City, Okla.		273	*750
KFKB, Milford, Kansas		242	*1500
KFKU, Lawrence, Kansas		254	500
KFNF, Shenandoah, Iowa		270	1000
KFOA, Seattle, Wash.		447	1000
KFON, Long Beach, Calif.		242	500
KFPR, Los Angeles, Calif.		282	250
KFPY, Spokane, Wash.		246	250
KFQB, Port Worth, Texas		261	1000
KFRC, San Francisco, Calif.		454	500
KFRU, Columbia, Missouri		250	500
KFSD, San Diego, Calif.		441	1000
KFSG, Los Angeles, Calif.		275	500
KFUL, Galveston, Texas		258	500
KFUO, St. Louis, Mo.		545	500
KFVD, Venice, Calif.		208	250
KFVE, St. Louis, Mo.		234	*1000
KFWB, Los Angeles, Calif.		361	500
KFWF, St. Louis, Mo.		244	250
KFWI, San Francisco, Calif.		268	500
KFWM, Oakland, Calif.		236	*500
KFWO, Avalon, Calif.		219	250
KFXB, Los Angeles, Calif.		252	500
KFXF, Denver, Colo.		283	500
KFYR, Bismarck, No. Dak.		240	250
KGA, Spokane, Wash.		261	2000
KGBU, Ketchikan, Alaska		229	500
KGCH, Wayne, Nebraska		294	250
KGEF, Los Angeles, Calif.		263	500
KGFH, La Crescenta, Calif.		224	250
KGO, Oakland, Calif.		384	5000
KGU, Honolulu, Hawaii		270	600
KGW, Portland, Oregon		492	1000
KHJ, Los Angeles, Calif.		405	500
KHQ, Spokane, Wash.		370	1000
KJR, Seattle, Wash.		349	2500
KLDS, Independence, Ma.		238	1500
KLS, Oakland, Calif.		246	250
KLX, Oakland, Calif.		508	500
KLZ, Denver, Colo.		268	250
KMA, Shenandoah, Iowa		270	500
KMIC, Inglewood, Calif.		224	250
KMMJ, Clay Centre, Neb.		229	500
KMO, Tacoma, Wash.		254	250
KMOX, 1St. Louis, Mo.		300	5000
KMTR, Los Angeles, Calif.		526	500
KNRC, Santa Monica, Calif.		375	500
KNX, Los Angeles, Calif.		337	500
KOA, Denver, Colo.		326	*5000
KOAC, Corvalis, Oregon		273	500
KOB, State College, New Mex.		395	5000
KOCH, Omaha, Neb.		258	250
KOIL, Council Bluffs, Iowa		278	*2000
KOIN, †Portland, Oregon		319	1000
KOMO, Seattle, Wash.		306	1000
KOW, Denver, Colo.		476	250
KOWW, Walla Walla, Wash.		300	500
KPO, San Francisco, Calif.		422	1000
KPRC, Houston, Texas		294	500
KPSN, Pasadena, Calif.		316	1000
KOV, Pittsburgh, Pa.		270	500
KQW, San Jose, Calif.		297	500
KRLD, Dallas, Texas		461	500
KRLO, Los Angeles, Calif.		216	250
KSAC, Manhattan, Kansas		333	500
KSBA, †Shreveport, La.		268	1000
KSCJ, Sioux City, Iowa		244	500
KSD, St. Louis, Mo.		545	500
KSEI, Pocatello, Idaho		333	250
KSL, Salt Lake City, Utah		303	1000
KSO, Clarinda, Iowa		227	500
KSOO, Sioux Falls, So. Dak.		210	250
KTAB, Oakland, Calif.		280	500
KTBI, Los Angeles, Calif.		288	500
KTCL, Seattle, Wash.		278	500
KTHS, Hot Springs, Ark.		384	1000
KFNT, Muscatine, Iowa		256	*3500
KTSA, San Antonio, Texas		265	2000
KTW, Seattle, Wash.		395	1000
KUOA, Fayetteville, Ark.		297	500
KUOM, Missoula, Mont.		375	500
KUSD, Vermillion, St. Dak.		484	250
KUT, Austin, Texas		232	500
KVOO, Bristow, Okla.		349	1000
KWKH, Shreveport, La.		395	1000
KWSC, Pullman, Wash.		395	500
KWUC, LeMars, Iowa (dayt'e)		244	1500
KWWG, Brownsville, Texas		278	500
KYA, San Francisco, Calif.		309	500
KYW, Chicago, Ill.		526	2500
NAA, Arlington, Virginia		**434	1000
WAAF, Chicago, Ill.		389	500
WAAM, Newark, N.J.		349	500
WAAT, Jersey City, N.J.		246	500
WAAW, Omaha, Neb. (dayt'e)		375	300
WABC, Richmond Hill, N.Y.		326	2500
(Also 64.0 metres, 500 watts)			
WABF, Pringleboro, Pa.		265	250
WABO, Philadelphia, Pa.		261	500
WADC, Akron, Ohio		240	1000
WAIU, †Columbus, Ohio		283	5000
WAMD, Minneapolis, Minn.		225	500
WAPI, Auburn, Ala. (daytime)		326	1000
WBAA, West Lafayette, Ind.		**273	500
WBAP, Fort Worth, Texas		500	1500
WBBM, Chicago, Ill.		389	1000
WBBR, Rossville, New York		256	1000
WBNY, New York, N.Y.		236	500
WBOQ, Richmond Hill, N.Y.		326	500
WBT, Charlotte, No. Car.		258	*500
WBZ, †Springfield, Mass.		*333	15000
WCAJ, Lincoln, Neb.		349	500
WCBD, Zion, Ill.		345	5000
WCCO, †Minneapolis, Minn.		405	*5000
WCFL, Chicago, Ill.		484	1500
WCX, †Pontiac, Mich.		441	5000
WDAF, Kansas City, Mo.		370	1000
WEAF, New York, N.Y.		**492	5000
WEAR, Cleveland, Ohio		400	1000
WEBH, Chicago, Ill.		366	2000
WEMC, Berrien Springs, Mich.		238	1000
WEW, St. Louis, Mo.		353	1000
WFAA, Dallas, Texas		500	500
WFLA, Boca Raton, Fla.		213	1000
WGHP, Mt. Clemens, Mich		244	1500
WGN, Chicago, Ill.		306	15000
WGY, Schenectady, N.Y.		**380	30000
(Also on 32.77 metres and 22.02 metres)			
WHAP, New York, N.Y.		236	1000
WHO, Des Moines, Iowa		535	5000
WHT, †Chicago, Ill.		416	5000
WIOD, Miami Beach, Fla.		248	1000
WJAD, Waco, Tex.		447	500
WJAG, Norfolk, Nebr.		285	*250
WJAX, Jacksonville, Fla.		337	1000
WJAZ, †Mt. Prospect, Ill.		263	5000
WJJD, Mooseheart, Ill.		366	1000
WJR, †Pontiac, Mich.		441	5000
WJZ, †New York, N.Y.		**454	30000
WLBL, †Stevens Point, Wisc.		319	1000
WLS, †Chicago, Ill.		**345	5000
WLW, †Cincinnati, Ohio		428	5000
(Also 53.02 metres, 250 watts)			
WLWL, New York, N.Y.		370	1000
WMAQ, Chicago, Ill.		**447	1000
WNOX, Knoxville, Tenn.		265	1000
WOAI, San Antonio, Tex.		303	5000
WOC, Davenport, Iowa		352	5000
WODA, Paterson, N.J.		294	1000
WOI, Ames, Iowa		265	*2500
WOK, †Chicago, Ill.		252	5000
WOR, Newark, N.J.		422	5000
WORD, †Batavia, Ill.		275	5000
WOW, Obama, Nebr.		508	1000
WOWO, Fort Wayne, Ind.		229	1000
WRC, Washington, D.C.		**468	500
WREN, Lawrence, Kan.		254	750
WRHM, Minneapolis, Minn.		261	1000
WRR, Dallas, Tex.		353	500
WRVA, Richmond, Va.		254	1000
WSAI, †Cincinnati, Ohio		361	5000
WSB, Atlanta, Ga.		476	1000
WSM, Nashville, Tenn.		341	2000
WTAM, Cleveland, Ohio		400	3500
WTAS, †Batavia, Ill.		275	3500
WTAW, College Station, Tex.		509	500
WWJ, Detroit, Mich.		375	1000
WWNC, Asheville, N.C.		297	1000

*Allowed higher daylight power.

**Standard or constant frequency transmission.

†Remote control.

LIST OF CANADIAN BROADCAST STATIONS.

CFAC, Calgary, Alta.	434.5	500
CFCA, Toronto, Ont.	356.9	500
CFCF, Montreal, Que.	410.7	1650
CFCH, Iroquois Falls, Ont.	499.7	250
CFCN, Calgary, Alta.	434.5	1800
CFCT, Victoria, B.C.	329.5	500
CFQC, Saskatoon, Sask.	329.5	500
CFRB, Toronto, Ont.	291.1	
CFRC, Kingston, Ont.	267.7	500
CFYC, Burnaby, B.C.	410.7	500
CHCY, Edmonton, Alta.	516.9	250
CHIC, Toronto, Ont.	356.9	500
CHNC, Toronto, Ont.	356.9	500
CHUC, Saskatoon, Sask.	329.5	500
CHWC, Regina, Sask.	312.3	250
CHXC, Ottawa, Ont.	434.5	250
CHYC, Montreal, Que.	410.7	750
CJBC, Toronto, Ont.	291.1-356.9	500
CJCA, Edmonton, Alta.	516.9	500
CJCI, Toronto, Ont.	291.1	
CJCQ, York, Ont.	291.1	1000
CJGC, London, Ont.	329.5	500
CJSC, Toronto, Ont.	356.9	500
CJTC, Calgary, Alta.	434.5	250
CJWC, Saskatoon, Sask.	329.5	250
CJYC, Scarboro, Ont.	291.1	500
CKAC, Montreal, Que.	410.7	1200
CKCD, Vancouver, B.C.	410.7	1000
CKCK, Regina, Sask.	312.3	500
CKCL, Toronto, Ont.	356.9	500
CKCO, Ottawa, Ont.	434.5	100
CKCW, Barketon Junc. Ont.	329.5	5000
CKCX, Toronto, Ont.	291.1	500
CKNC, Toronto, Ont.	356.9	500
CKY, Winnepeg, Man.	384.4	500
CNRA, Moncton, N.B.	322.4	500
CNRC, Calgary, Alta.	434.5	500
CNRE, Edmonton, Alta.	516.9	500
CNRM, Montreal, Que.	410.7	1650
CNRO, Ottawa, Ont.	434.5	500
CNRQ, Quebec, Que.	340.7	500
CNRR, Regina, Sask.	312.3	500
CNRS, Saskatoon, Sask.	329.5	500
CNRT, Toronto, Ont.	356.9	500
CNRV, Vancouver, B.C.	291.1	500
CNRW, Winnipeg, Man.	384.4	500

THE VARIABLE GRID LEAK

In receiving distant stations, the grid leak can also be used in tuning, but in order to explain this we must first understand its function. It will not be difficult to do this if we can visualise the grid as it is being charged with these positive and negative charges 1,220,000 times a second when receiving a signal from a broadcasting station operating at a frequency of 610 kilocycles. It is very easy to comprehend that if nothing is done to relieve the grid of these charges it will become choked. This is the purpose of the grid leak, which allows the charges to leak from the grid directly or indirectly to the filament.

We can reason from this that the stronger the signal the greater the leakage we must allow. By the same token it is advisable to have as little leakage as possible when receiving a very weak signal. Inasmuch as a grid leak is nothing more than a high resistance and that the greater the resistance the less the leakage it is evident that a variable resistance in the grid circuit is quite essential. If you have a variable grid leak, increase the resistance when you wish to receive distant stations and decrease it when you wish to receive local stations.

ESPERANTO

On the occasion of the transmission of the studio explanation of Lesson 6, an unavoidable alteration in the time of the broadcast was experienced, and, as a result, only half of the lesson was transmitted. The instructor gives his assurance to students that every possible endeavour is made to adhere to the announcements published with the printed lessons. In the event of any rearrangement in connection with a broadcast lesson from 2YA being necessary, efforts will always be made to acquaint students with the alteration per medium of the ether; and students should, therefore, be on the alert to receive any special notification.

As in the past, inquiries relative to Esperanto and the course may be forwarded to "The Esperanto Instructor," N.Z. Broadcasting Co., Wellington, or care of "Radio Record." To ensure a reply, enclose a stamped addressed envelope.

LESSON IX.

(To be broadcast from 2YA on September 29, from 7.39 to 7.54 p.m.).

Bonan vesperon, studantoj.

THE VERB (concluded): Although this part of speech was dealt with piecemeal in the last three lessons, it has been decided to give further space for examples of the use of active and passive participles. Examine the following:—**ACTIVE: La frato estas studanta morson,** the brother is studying morse; **studanto viro,** a studying man; **studanto,** a student; **studante, oni lernas,** by studying one learns; **la policano estas parolinta,** the policeman **has spoken; parolinto,** a speaker (after he has spoken); **parolinte, li sidig'is,** having spoken, he sat down; **la sendilo estas funkcionta,** the transmitter is about to work (function); **la kantonto,** the singer (one about to sing). PASSIVE: **La kondensatoro estas konstruata,** the condenser is being constructed; **la batato,** the person being beaten; **batate, li ekkriis,** being beaten, he cried out; **amplifite, la signaloj estis tre fortaj,** having been amplified, the signals were very strong; **la ricevilo estas agordata, agordita, agordota,** the receiver is being tuned, has been tuned, is about to be tuned; **reakcio estos provizata de bobeno kuplita al la antena induktanco,** reaction will be provided by a coil coupled to the aerial inductance.

Note: Every verbal ending is applicable to every verb in the language, without exception.

Bonan nokton al c'iuj!

LOUD-SPEAKERS ON CRYSTALS

Probably there are but few listeners who realise that a crystal receiver is capable of working a small loudspeaker at sufficient strength to entertain a room full of people. That this means greater enjoyment than the usual "taking turns with the 'phones" goes without question.

This applies to practically all crystal receivers within two miles or so of the Auckland and Christchurch stations, and within five to ten miles of the new 2YA Wellington station.

The most important part of any crystal set is the aerial. It must be as long and as high as possible. Listeners should always remember that signal strength is directly proportional to the height of their aerials.

Also the heavier the wire (in gauge) the better. The Post Office makes no restrictions whatever on height or length of aerials. One hundred feet should be used at the least. Two hundred feet or even more would be ideal, especially if stranded copper wire is used.

Next in importance is the earth connection. It is essential that this be the best possible. It is not sufficient to merely twist the wire a few times round the water pipe or the tap. If the water pipe is used, the earth wire (preferably thick insulated wire) should be tightly soldered to it. Care must be taken to see that the water pipe actually goes into the ground within a short distance of where the earth wire is connected to it. Otherwise it would be better to solder a wire to a pipe three or four feet long and then drive it into the ground just outside. In this case keep the ground always damp by tipping water over it occasionally.

Where possible take your lead-in off the highest end of your aerial and always have everything well insulated.

Any well made home constructed set or any standard crystal receiver should be capable of working the loudspeaker. Of course a big loudspeaker suitable for a multi-valve set must not be expected to give satisfactory results at any distance from the broadcasting station. There are plenty of small loudspeakers suitable for the purpose which can be obtained for a very slight outlay.

In the writer's opinion the ideal receiver is one which has a fixed crystal contact (commonly called a permanent detector) with a potentiometer and a small 1½ volt battery to bring the crystal up to its most sensitive condition.

Carborundum for preference as this is generally recognised as one of the most stable detectors known.

Another point—when buying crystals, the dealer will probably offer specimens at graded prices. Some crystals give as much volume as some valves, the dealer has tested them, and the price is an indication of their quality. Take the best! However, your own crystal set should do the work. Give it a trial.—O.P.

Every seat in the new parlour cars of the Canadian National Railways is equipped with radio headphones, plugged into outlets in the walls, while the car has a cone speaker. This was a special part of the structural designs each car has its own built-in receiver and special aerials are provided.

The Improved Browning-Drake Circuit

This instalment concludes the series by "Megohm" giving details for the construction of the Improved Browning-Drake Receiver. Carefully made and operated this set will be found to have exceptional selectivity.

Practically all the constructional and assembling work has now been described, with the exception of the choke filter. The inclusion of this item in the circuit is recommended, but it is not indispensable. Its use preserves the windings and magnets of both speaker and 'phones, as, instead of direct current flowing through the windings, only voltage impulses are used to actuate the diaphragms of reproducers. The two parts of this filter consist of a Mansbridge condenser of two microfarads capacity, and a choke coil. There is more diversity in the values assigned to these two accessories than to any others used in radio. The value of the condenser is sometimes recommended as low as one-tenth microfarad, but too small a capacity gives poor tone, and the two microfarad mentioned will give good results. Then, again, the value of the choke coil is given by a reliable source as 20 henries, and from other sources various figures above this up to an inductance value of more than 100 henries. Unless the constructor is winding his own choke coil, it will be a matter of taking the most suitable value that is available, and probably between 30 and 50 henries will be the value. The choke used in the set described was made from an old Dayton L.F. transformer by taking it to pieces, making a new bobbin of cardboard to fit, and filling it with 36's enamel wire, irregularly wound. The core was then reassembled, and the ends of the winding connected to two of the terminals, the other two being discarded. Although a closed core choke, this gives excellent tone, and answers the purpose well. Using an old transformer without rewinding is not recommended, as the wire would probably be of too thin a gauge for the purpose, and in that case would mar the tone of reproduction.

The Condenser.

A fixed condenser across the output is not shown in the wiring diagram, but it must on no account be omitted, as its influence upon tone is very marked. Here, again, there is considerable latitude, but .002 mfd. may be used as a fair average. If tone is not pure when the set is put into commission, then a different value may be tried. This condenser is connected to the two wires running from the choke and 2 mfd. condenser to the single open circuit jack above. A jack for cutting out the last stage of audio is not shown, but there is ample room to include it if desired, altering the wiring accordingly. Where the speaker is likely to be used away from the set in another room, it is a convenience to include above the jack shown a similar one connected in parallel to the other. By this means 'phones can be used at any time to vary tuning without cutting out the speaker. The filament switch included cuts off all filaments without altering adjustment of the rheostats The constructor must arrange the most convenient way of cutting off the high-tension supply. If an eliminator is in use no switch will be required, as cutting the eliminator off the mains is all that is necessary.

A Warning.

A reminder is given as to the small capacity required in the neutralising condenser when the low-loss winding is adopted for the coils. Two plates of rather less than a square inch each are all that is required, and if readers have any difficulty in procuring the necessary small capacity in a ready-made article instructions will be given for the construction of a simple and effective condenser. The neutraliser must be placed in the position shown, and, if possible, a slot like that in a screw head should be cut in the control knob Then a hole can be made opposite in the panel and alteration of the condenser can be made by means of a dowel stick sharpened at one end like a screwdriver and pushed through the hole in the panel. This eliminates any trouble from hand-capacity when neutralising.

How to Neutralise.

When the set is completed and ready for use the first operation is to carry out neutralisation as follows:—Tune in a loud station near centre of broadcast wave band, 1YA or 3YA, maximum volume being carefully obtained without oscillation, reaction being turned well down. Next turn out the filament of the R.F. valve, then with the neutralising stick turn the neutralising condenser until signals are inaudible or at minimum strength, then turn on filament of R.F. valve and the station should come through well Now see that the condensers are both at maximum tuning, if not, they must be altered to get the best tuning and the process of neutralising is gone through again. The second attempt is practically certain to be correct. If neutralisation cannot be obtained, reverse the connections to the R.F. primary marked A and B and try again. If it cannot be obtained either way it may be an indication that the neutralising condenser is too large or too small, and in that case the correct value must be substituted.

There must be no crowding together of components on the radio-frequency side, and everything should be placed as nearly in the position shown as is possible.

Achieving Selectivity.

The chief aim in the arrangement and construction of this set has been selectivity, and this has been well achieved. The original set is situated an air-line distance of two miles from 2YA and, as already stated, whilst that station is working it can be cut out and 1YA and 3YA can be received with quite negligible background. Although a wave-trap has been provided, it is not required for New Zealand stations. On 2BL the background begins to obtrude, and a wave-trap is required for stations nearing the wavelength of 2YA. At two miles from such a high-powered station the test is fairly severe for an unshielded set, So that at an increased number of miles from 2YA the selectivity of the set will be more evident.

Loudspeaker Volume and Tone.

Connected to a speaker of good design that is able to carry the volume which the set is capable of giving, the tone is smooth and round, and such as should be the aim of every radio enthusiast. Good tone is secured firstly by audio transformers of good design and secondly by critical testing of fixed condensers for each position, including the grid condenser, in order to suit each one exactly to its place in the audio portion of the circuit.

Volume on main Australian stations under normal conditions is as much as any ordinary loudspeaker will satisfactorily carry.

There is not a great deal of construction in the set as described, the aerial tuning coil and R.F. transformer being the only items of note. There are several good kits on the market for those who wish to cut out the coil-making.

Since the commencement of this article the new P.M.3A valve has been tested as a detector, giving even better results than the P.M.3, with marked increase in volume. This valve filament consumes 1 amp. at a maximum of 4 volts, maximum plate volts 150.

Although a filament supply of four volts has been adopted for the set described, and the valves mentioned have been found to work well, there is no reason why any constructor should not adopt the six-volt A battery, and use any valves he fancies, bearing in mind the general characteristics of each suited to the position it is to occupy in the set.

Some constructors will no doubt prefer to use wire rheostats throughout on a 6-volt circuit, and wisely so, although Bradleystats have worked very satisfactorily on 4 volts in the positions shown.

A finel recommendation, the result of a trial just carried out, is the placing of a Ferranti AF3 transformer in place of the one already mentioned for the second stage of audio. The makers recommend at four volts the PM3 atd PM4 in the first and second stages respectively, but the PM4 and PM254 give very fine results. Whatever valve is used in the first stage, care must be taken to regulate H,T, so that the plate current does not exceed the four milliamps stipulated by the makers.

READING CIRCUIT DIAGRAMS

CONVENTIONAL SYMBOLS.

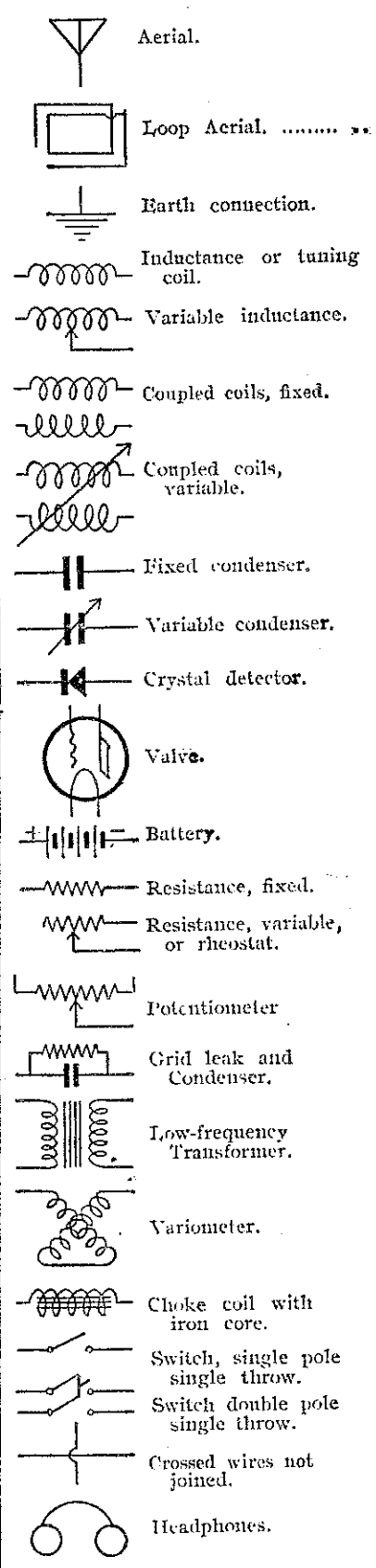
A circuit diagram is more or less a mystery to a beginner in the study of radio, but practice soon develops the ability to see at a glance the main features embodied in a circuit so depicted. It places on paper the working of a circuit in much the same way as musical sounds are represented upon paper, and which a trained musician can interpret and understand perfectly without the use of a musical instrument.

The circuit diagram cannot be replaced by a method of making a pictorial representation of each component wired up in its correct position. That is only a wiring diagram, usually provided to indicate the best method of placing connecting wires.

Certain symbols are used to indicate upon a diagram the various components made use of, the more frequently used of these symbols being shown.

The first three symbols need no explanation, but that signifying an inductance embraces a somewhat comprehensive variety of coils. It may indicate a solenoid coil wound upon or without a tube former, it may represent a honeycomb or low-capacity winding of any kind, and may also represent a coil wound to a special pattern exclusively for a particular circuit. If the inductance is to be tuned by means of a slider, an arrow is placed against the side to indicate a moving contact.

When two inductances are placed near to each other they are said to be coupled, a condition which allows the transfer of radio oscillations from one to the other. If each inductance is permanently fixed in position the coupling is said to be "fixed;" but if a means is provided whereby the distance apart may be varied, then the coupling is said to be "variable," and to indicate this a long arrow is drawn through the two coils so arranged. "Close coupling" is when the coils are placed in close proximity, and "loose coupling" when only a small part of the flux set up by one links the other, that is, when far apart.



A condenser of any capacity whatever is shown by a pair of heavy parallel strokes, and if the condenser is variable, an arrow is drawn through to indicate this. The "rotor" or set of moving vanes or plates may be indicated by curving one of the lines, and an arrow head may be placed at one end of this curved line.

A crystal detector is indicated in graphic form, the pointed section being the cat's-whisker. A valve is indicated by a heavy circle, in which are shown symbols for the square plate, the more or less spiral grid, and the filament. Sometimes the enclosing circle is omited, but its inclusion makes for clearness.

A resistance of any kind is shown by a zig-zag line, which may indicate resistance wire, composition, carbon discs, under compression, pencil lines, or the fine deposits upon glass thread now used in the construction of certain grid-leaks. If the resistance can be varied by rotating an arm or by other means, one end of the resistance is left unconnected, and an arrow placed against the side indicates a movable arm, or its equivalent, which is connected through its bearing to the circuit. In some cases a resistance is required to be connected to the circuit at both ends, and a rotatable arm is provided, that may "tap" current from any part of the resistance, and so divert a portion of the current to another part of the circuit. Such a tapped resistance is usually called a potentiometer.

A battery of any kind, dry or accumulator is indicated by a succession of thick and thin strokes, the thin ones representing positive plates, or electrodes; but in most diagrams the batteries are marked at each end to show the positive or plus and negative or minus ends.

A low-frequency transformer has two separate windings of fine wire, and through the centre of these windings is a soft iron core, built up of a number of thin plates, or "laminated." The symbol for this shows the core by a few strokes, with the "primary" and "secondary" windings placed on either side.

A variometer usually consists of two coils of special form, one moving inside the other. The fixed portion is called the "stator," and the moving the "rotor." The two windings are generally connected in "series," that is, the end of one to the beginning of the other, and the two free ends to the other parts of the circuit.

A choke coil is wound in such a way as to give a large choking, or self-inductance, effect to the passage of an alternating current. A low-frequency choke is wound over a soft iron core, which is indicated in the symbol by a few strokes through the coil.

ANSWERS TO CORRESPONDENTS

An Otago reader is inquiring as to the likelihood of getting more volume from a cage aerial in place of a single wire, having heard that the cage will give increased volume. Such good results are now obtained on a single wire that the cage finds little favour except for transmitting, where low radiation resistance is required. Fairly large capacity effect is produced by a cage aerial, and this is a distinct disadvantage in the case of aperiodic aerial coupling, as used in the Browning-Drake and other recent circuits. Volume may often be increased by careful adjustment of fixed condenser and grid condenser values, a more suitable detector valve, placing a condenser across 'phones or output. Sometimes the loudspeaker is not delivering the volume it should, owing to distortion on a heavy load, so that the full output of the set cannot be utilised.

R.C.S. (Winton): Particulars you seek have now been published.

Study the Advertisements for News.

Letters are received from readers asking for information that may often be obtained more easily. It pays constructors to look through the advertisements, for they are often much more than a mere exhortation to buy. Information is obtained from them as to where many components, and often out-of-the-way ones at that, may be obtained when required at a future date.

The Short-wave Adapter.

J.N. (Frankton) states that he has constructed the short-wave adapter but substituted a .00037 variable condenser for the potentiometer. He gets amateurs on Morse, but complains that his set will not oscillate. The connections of tickler must be correct for the Morse to be received, and the set must oscillate in that position to receive C.W. Listen carefully for the point of oscillation, which is heard at a certain setting of the reaction condenser, when an unmistakable hiss starts, and if the condenser happens to be swung quickly by accident, a "plop" is heard. If reaction is not obtained, try reversing the tickler leads, increasing number of tickler turns, or increasing capacity of condenser, though this latter should not be necessary.

Various Questions.

R.D. (Marlborough): (1) There are several good home chargers on the market for both A and B batteries. Any reliable dealer will furnish particulars. (2) Sulphuric acid of good quality is diluted with distilled water for use in accumulators, the usual proportion being approximately one part of acid to four and half of water by volume. A hydrometer is used to test the strength. The acid must always be added to the water, and never water to the acid. (3) There are a number of reliable constructors available that would make up the Browning-Drake for you. (4) A speaker should be personally selected and tried out if possible. Some of the new cone types are very fine, but they do not all give the maximum volume possible with a horn type. The cones excel on low notes that are suppressed and distorted in horn types.

Charging the Accumulator.

A number of correspondents have sent in queries as to whether the 112-volt accumulator can be charged with an existing charger. Several have been given particulars, but others give no details of their charger, so that it is difficult to give advice. As a rule an A battery charger is unsuitable, but there are cases where it might be adapted. The main point is to provide a small charging current of about one-tenth ampere and not more than one quarter ampere at not less than say 150 volts. The charging current is regulated by introducing resistance into the circuit until a reasonable rate of charging is arrived at, neither too quick nor too slow. The plain plates should charge up in from an hour to an hour and a half when formed. Pasted plates would take several hours, according to their capacity. When introducing resistance into a charging circuit care must be taken that the voltage is not cut down so much as to be nearly equal to that of the battery, when charging would become very slow or nil. When charging off 230 volts there is plenty of margin to work on.

SHORT-WAVE ITEMS

When a short wave set is constructed a good deal of careful experiment is necessary before full efficiency is secured. There is considerable variation in the number of turns required on tuning coils, and each experimenter must find out by actual trial those best suited to reach the wave-length required.

A coupling of about 1½in. between secondary and aerial coils will, as a rule, give best results.

The small capacity variable condenser, which may be used to replace the resistance control of reaction in the short-wave adapter, should be .00025 mfd., but if there is a .00035 on hand, it can be used. The smaller condenser spreads the tuning over a large number of degrees on the dial. A vernier dial is necessary, preferably friction drive.

In order to reduce hand capacity when tuning a short-wave set, a metal panel may be employed. The grid lead between detector, leak, and coil should be kept as short as possible, and away from the panel.

Ebonite is not recommended as an insulator for the high frequencies of short-wave, owing to its tendency to decompose. Mr. Marcuse recommends in preference well-dried American white wood. Celluloid is also convenient to work, easily obtained, and highly efficient.

As a short-wave detector valve the P.M.3 has been found very efficient, its maximum filament voltage of 3.7, however, should not be reached if best results are required. H.T. voltage may be from 20 to 28.

Mr. Marcuse, in directions as to how to operate a short-wave set, says: "Do not oscillate violently. If you oscillate violently you only pass over weak signals. Above all, do not swish your condensers while you are oscillating; think of the other fellow. Nothing is more annoying when listening to weak signals than to have someone continually swishing over your carrier."

A one-microfarad condenser across the H.T. battery is practically a necessity, and a great help in obtaining smooth and silent movement from non-oscillation to oscillation. Any tendency for the circuit to go into oscillation with a

"plop" when the condenser is turned slowly, is detrimental, and should be remedied

The aerial should be kept taut. Fading may be cased by a swaying aerial.

As few as 50 turns of 30's wire may be used for an H.F. choke, but 100 turns appears to suit the average set.

In dealing last week with the rotating aerial coil for the short-wave adapter, mention should have been made of reducing the number of secondary turns as well as the primary. However, the correct turns for 30 metres appeared at the end of the article, making the complete combination quite clear.

The best resistance to use across the tickler in the short wave adapter is a Centralab, which is a very high resistance with a maximum of 500,000 ohms. The resistance has a connection at both ends and a variable tap in the form of a rotating arm. The resistance itself consists of a composition, and gives remarkably smooth action. It is really a potentiometer of unusually high resistance. Some short wave enthusiasts say that this method of contral beats a condenser. The resistances sell at about 11s. 6d.

Signals are very often classified as to volume by the numbers R1 to R9, the former indicating extremely weak reception, and the latter very strong signals. There is no absolute authority on the subject, but the usual classification is as follows:—R1, extremely weak and almost inaudible; R2, audible, but not strong enough to read all the time, the slightest fading or disturbance being enough to drown the signal; R3, just readable, but with difficulty; R4, quite clear and readable; R5, fairly strong; R6, strong; R7, signals loud; R8, very loud (i.e. "small loud-speaker strength"); R9, extremely loud.

Under the new United States radio regulations several broadcast stations are licensed for only the daylight hours and others are authorised to use higher power before 7 p.m. The Radio Commission has announced that it is desirous of encouraging higher-power work in the daylight hours, though curtailing power during the night hours, when the interference range is much greater.

NOISES FROM BATTERIES

Many of the noises in a radio set can be traced to loose connections. Because these noises resemble static it is seldom that any other source for them is thought of. Poor battery connections cause more "static" than any other one thing. Storage battery connections should be made by means of a clip which can be made to grip the terminals of the battery. Before connecting to the battery each terminal should be given a medium coating of white vaseline. This prevents corrosion. It is preferable that the B battery connections also be made by means of a smaller clip than used on the storage battery; these clips should have a strong gripping power.

Oftentimes the inexperienced listener will pass over distant signals through haste. Many distant stations have fading signals. The signal fades in and out at irregular intervals. If you happen to strike a signal from one of these stations when it is at its weakest point you are apt to consider it too weak to bother with and pass along. When you strike even the faintest of whistles, nurse it along. It may gradually develop into a strong signal. Tune on to it and stop there. When this is done keep the hands off the dials for a minute or so. It is very likely the signal will come in with good loud-speaker volume.

As the result of a series of experiments conducted by radio stations between England and the Continent, the Welsh language is said to be best for broadcasting. It has been found that its euphonisms and alliterative sentences are not only pleasing to the ear, but very easily received by the microphone.

Seventy-five thousand questionnaires have been sent out by the Edison Company from which it is hoped the musical tastes of radio listeners may be accurately ascertained. The answers received will be utilised in preparing musical programmes to be broadcast from WRNY, New York

WHAT ACCUMULATOR SHALL I USE?

This is a question that a good many prospective set-owners are considering, and much depends upon getting a correct answer. To purchase an accumulator without knowing how long it will last upon your set before requiring recharging is obviously unwise; but if the following simple rules are borne in mind, there is no need to rely upon other people's opinion, for you can work out accurately what type of accumulator is required, and how long it will last.

The current which a valve takes out of an accumulator is reckoned in amperes. Some of the bright-emitter valves take half an ampere or more to light them. Other valves of the semi-dull emitter type take about a quarter of an ampere, whilst the most economical type of all are the ".06's," which, as their title implies, take only six-one-hundredths of an ampere—ie., three-fiftieths.

A Simple Calculation.

When several valves are used at once, their respective current consumptions must be added together, to find out how much current the set will need. For instance, three of the .06 type will take a total of .18 ampere, whilst two valves, each taking .25 ampere, followed by a power-valve taking, say, .5 ampere, would take a total of one ampere (more than five times as much).

As every valve-maker indicates the valve's current-consumption upon the valve-box, it is a very easy matter to determine the current required by any given number or type of valves. Then simply multiply this figure by the number of hours which the accumulator must run without recharging, and you have arrived at the class of accumulator which is required. To make this perfectly clear, let us take the case of a four-valve set, which is to be worked from, say, Cossor Wuncells. We will assume the owner lives in the country and can only charge his accumulator once a fortnight, and that he will use the set for an average period of four hours per day.

Determining Required Capacities.

Consulting the valve-maker's specification, we find that each valve is rated at .25 ampere, so that four valves will consume a total current of one ampere. We have to multiply this by the number of hours which the accumulator must run without recharging, in this instance 14 x 4=56. The required accumulator, then, must deliver one ampere for 56 hours—i.e., it must have a capacity of at least 56 ampere hours. The nearest obtainable figure would be 60 actual ampere hours, which would just give a little necessary margin.

If the set had been only a two-valve set, the figures would have been halved, the figures in this instance being .25 x 2 (=.5). multiplied by 56, =28 actual ampere hours.

Our final example, worked in the reverse direction, will make the principle perfectly clear. How long would a 20 actual ampere hour accumulator last without recharging, if used upon a set employing two bright emitter valves, each rated at .7 ampere?

The total current required by the set would be 1.4 amperes, and this number must be divided into the 20 actual empere hours of the accumulator, as follows:—

$$\frac{20}{1.4} = 14.28$$

This shows that the accumulator would only last about fourteen hours without recharging, so an accumulator with a greater capacity would be necessary, or, better still, dull-emitter valves should be employed instead.

The Children's Corner

By "ARIEL"

Dear Radio Children,—Here is just one more animal for our Zoo, which is growing fast and furiously. This time it is a Faydout, rather a difficult animal to catch and get on to paper, but Ronald Sutton managed to get a lovely one for us, so, of course, he has the prize. Mervyn Jillings, too, sent in a very good specimen, but we haven't room for more than one at a time. However, I am keeping him safely tucked away, as he is too good to lose altogether. This very next animal is to be a "Squealer." As I told you before, he is a first-cousin to the "Howler," but is a thinner kind altogether—in fact, very much inclined to be scraggy. I want him by October 19, and after that I think a "Surprise" would make a nice Zoo inmate, don't you? He has big, wide-awake eyes, and comes in with a bounce, just when you least expect him. He often comes in the Children's Hour and is usually in a pleasant frame of mind then. Of course, he can be very unpleasant at times, and has a funny way of giving quite a nasty little jar. I heard of two boys who were always fighting, till one night a Radio Uncle called them over the air and requested them to give it up at once. He sent them a Big Surprise, didn't he? They were so startled that they have not had a single fight since!

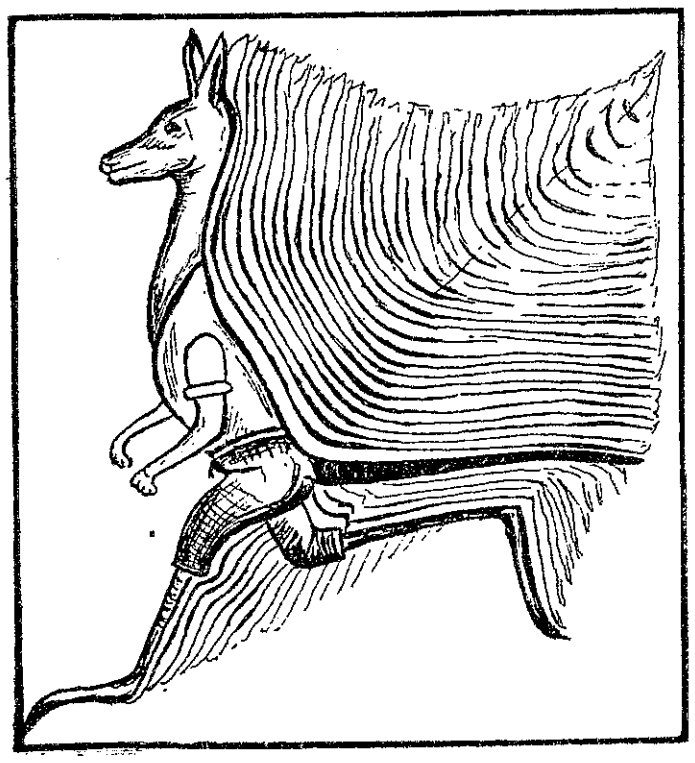
Are you all busy writing stories and poems? Don't make them too long—just little ones, like the examples I gave you, are best.

Don't you all love the out-of-doors just now? The trees are looking so fresh and green, and everything seems glad that Winter has really gone at last. There is a little fat round kitten basking lazily in the warm Spring sunshine on the steps just outside my window. She is having a lovely game with a lizard, but I don't think the lizard is altogether enjoying himself. You see, he has to keep perfectly still, because every time he dares to move, kitty gives him a playful pat with her paddy paw. I wish he would gather up his courage and make a bid for freedom.

Goodbye till next week.—ARIEL.

OUR WIRELESS ZOO—No. 4: THE FAYDOUT

Here we have the "Faydout" to add to our collection of wireless animals. He was drawn by Ronald Sutton, 63 Dublin St., Invercargill, who wins the prize this week.



THE FAYDOUT.

Howler makes his presence felt,
With noise both loud and grim;
Smiler makes the moments melt,
With no such ugly din!

But who comes here so noiselessly,
Just creeping in and out?
One moment here! One moment there!
FAYDOUT! FAYDOUT!! *FAYDOUT!!!*
—Ronald Sutton, Invercargill.

COMPETITIONS

1. **Our Wireless Zoo.**
   (1) **"Squealer" and verse; closing date, October 5. Prize, 5s.**
   (2) **"Surprise" and verse; closing date, October 19. Prize, 5s.**
2. **The Best Story; closing date, October 12. Prize, a book.**
3. **The Best Poem; closing date, October 19. Prize, a book.**

MASTER RAY ARNOLD

We have an apolgy to make to little Ray Arnold, of Dunedin, whose photograph appeared in our Corner quite recently. He was stated to be twelve years old, and he is really only nine. Now, three whole years make a big difference to such a litt boy, and, being so much younger than we thought, makes his performance all the more wonderful, doesn't it?

ANSWER TO DOUBLE ACROSTIC.

1.	S		a	C
2.	A	b	e	L
3.	N	o	r	A
4.	T	h	o	U
5.	A	l	a	S

Solution: Santa Claus.

RIDDLES

1. Why did the enamel bath?—Because it saw the white wash.
2. Why do rabbits have shiny noses?—Because their powder puffs are at the other end.
3. What can't the bear bear?—To hear the crow crow.
4. Why did the coal scuttle?—Because the poker would poke 'er.
5. What fish do birds like?—A perch.
6. What is it we never borrow, yet often return?—Thanks.

LIMERICKS

There was a young lady of Crewe
Who wanted to catch the 2.2.
Said a porter, "Don't hurry
Or flurry, or scurry,
It's a minute or 2 2 2.2."

In science our master has power
To lecture his class by the hour.
He can tell to a grain
The amount of the rain
We shall have in the very next shower.

There was an old woman of Worcester
Who was very much peeved with her rooster.
She cut off his head
And killed him quite dead,
So now he can't crow like he useter.

There was a fine fellow named Tait,
Took a lady to dine at eight-eight;
I cannot relate
What that young man named Tait
At his tete-a-tete ate at eight-eight.

There once was a fisher called Fischer,
Who fished for a fish in a fissure;
But the fish with a grin
Pulled the fisherman in;
Now they're fishing the fissure for Fischer.

Mused a badger, "There's much in a name!
Take by own, for example—I blame
Those who labelled me bad,
No sound reason they had,
For to live like a goodger's my aim.

A Cheshire Cat grinned for a day,
For a week, for a month, so they say.
Then he started to frown,
For a dog of the town
Chased the smile (and the smiler) away.

Of Course.

"What's that space without any printing in it for at the bottom corner?" "Why, that's for the folk who can't read, of course."

VERSES ABOUT THE FAYDOUT

When you are tuning your radio set,
You'll think you've tuned it wrong,
But you'll find who's caused the fading
And so spoiled every song.
Oh! He's such a jealous thing,
He's sure to spoil the fun—
If we could only catch him now,
How we'd make him run!
He is a very silly chap
To be such a disgrace,
Let's put him under the wash-house tap!
That is his proper place.
—Tom May, Hastings.

Hear Master Faydout, dancing up and down,
Making all the listeners strain their ears and frown;
He surely is the most unwelcome guest,
For when he comes he quite spoils all the rest.
—Lionel Hodgson (age 9), Picton.

When we tune in 2YA,
Whether in the night or day,
In comes the Faydout
And flies round about.
I wish he would come a little nearer;
I'd tie him up and get music clearer.
—Mervyn Jillings (age 7), Hastings.

AN UNLICENSED LISTENER

The following interesting, but pathetic, little story of the wireless age is taken from the "Children's Newspaper." It tells of the love of a seal for music, and of the great trust dumb animals have in man, who, unfortunately, does not always prove himself worthy of the trust.

One night, in the full moon, there was a party in a house in a little town in the lonely Orkneys.

It was one of those nights when islanders feel that dwellers in cities on the mainland can scarcely be said to be alive. The moon shone on the great Atlantic rolling softly up to the harbour wall, on the houses of the little town, on the lonely island stretches, and drenched them in a silver, magic light.

Presently out of a house whose garden ran down to the grey sea-wall and the shining sea came a sound of marvellous music. The host was the delighted owner of a multi-valve wireless set, and he had called up a London band to make melody for the dancers in that moonlit house in Britain's Far North.

Shining in the Moonlight.

The windows were open, and out over the sea floated the rhythmic strains. From end to end of the harbour, in all the seaboard homes, this music could be heard, and what it meant, the bewitching spell of sound and dance combined, can only be understood by those who know how wearying is the monotony of daily life in lonely places.

After a while the moonlight called some of the dancers down to a walk on the sea-wall. The throbbing music followed them as they went, laughing and talking. Suddenly someone pointed to something in the harbour, and said, "What is that?"

It was a queer object that moved occasionally, shining in the moonlight on one of the lobster boxes that float in the harbour. Could it be a man? No, it was too small. It was a seal held spellbound by the music. The dancers went tiptoeing back indoors lest they should break the magic, and left the listener in the harbour. They knew how much seals love music of any kind, how they will follow boats where there is a fiddler or a whistler on board.

The Lonely Listener.

The next night, when the loud speaker was going, they tiptoed out again and saw the seal on the same box, listening. He became to them a friend, and they determined to protect this uninvited guest from the great seas.

As the days went by the seal learned, to his surprise, that the harbour was a safe place. It was against all his instincts to believe this, for the coast meant danger and the ocean safety. He began to come in the daytime, longing for the magic sounds to creep down out of that house whose garden ran down to the sea-wall. Some boys tried throwing stones, but they were quickly stopped. It was understood that the lonely listener-in had to be left unmolested.

A Man of Death.

Alas for human kindness! Alas for a wild creature's trust in man! There was a man of death not far away, watching that seal with a gloating eye and a heart of steel. He could not see a creature of the wild without wanting to kill it. There came a day when the friends of the seal ran down to the harbour and saw him stretched lifeless on the box.

Someone had made a sly and easy shot at a defenceless animal that had learned to trust human beings and allow itself the rapture of the music they made. We hope the man who used that gun will read these lines, will learn in what scorn he stands in the eyes of the world, and will throw his gun where it should go—into the depths of the sea.

Cruel Man!

A little girl for the first time heard a Highlander playing bagpipes in the street. Much upset, she ran home and cried, "Oh, mummie, I've just met a horrid man squeezing something under his arm, and he's hurting it terribly!"

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Published Weekly

REGISTERED G.P.O., WELLINGTON, N.Z., AS A NEWSPAPER.

Price 3d.

VOL. I, NO. 10. WELLINGTON, N.Z., FRIDAY, SEPTEMBER 23, 1927 Per Annum, Post Free, 10/-; Booked 12/6.

The Why of Wireless

Interesting Series Setting Out Scientific Facts Simply

(By Electron.)

PART III.

It has been pointed out that the quantity of electricity stored in a condenser depends on the pressure between the plates. It also obviously depends on the area of the plates in close proximity to one another since the crowding or condensing effect is due entirely to this proximity. We can vary the capacity, therefore, by moving the plates towards or away from each other.

The action of a condenser is very similar to a spring. If a pull is applied to a spring it will stretch, and the amount of stretch (within limits, of course, just like the space between the plates of a condenser), is proportional to the force.

The interesting thing about a spring is that in every way its effect is quite opposite to that of a heavy truck. When a pressure is applied the spring moves instantly—in fact, it must be stretched before any resistance is felt—and then slows down, whereas that of the weight is to gradually increase in speed. Also, if an oscillating force is applied the spring will stretch and compress with ease

INDUCTANCE AND CAPACITY COMBINED.

If then we fasten a truck to a spring we should expect some interesting results, and if we do we will not be disappointed, because the two effects are opposite and will neutralise each other. If you can, perform the following experiment, as it will give an excellent illustration of what takes place in every receiving set.

Take a fairly flexible spring or piece of elastic rubber band, and fasten to it a weight which will cause it to stretch perceptibly. Hold the spring by its upper end and move it up and down slowly. Nothing much will happen—the movement of the weight will be the same as that of your hand. Increase the frequency gradually and eventually you will find that the movement of the weight is many times greater than that of your hand. At this frequency the effect of the spring is completely neutralised by that of the weight, and the only resistance to be overcome is that of friction. If friction could be eliminated entirely the movement theoretically would be infinite.

This is the state of affairs which exists in motor-cars at what is called the "critical speed," when the speed of the engine is such that the "springiness" of the frame and its weight together have a natural frequency equal to this engine speed. At this point any out of balance of the engine will cause a pronounced vibration. The same thing occurs in swing bridges, and frequently a broken vase in a room will "respond" to the vibrations set up by a particular note on the piano.

Coming back to the experiment. If the frequency is now still further increased it will be found that the movement of the weight is greatly decreased. This is because the effect of the weight at the higher speeds predominates over that of the spring, and acts like a "choke."

GET THE RIGHT FREQUENCY.

We see, therefore, that there is one frequency at which the arrangement will vibrate with ease, or, in other words, to which it will "respond." To all other frequencies it will respond feebly if at all. We say that it is "tuned" to this frequency, and we can alter this frequency by altering either the weight or the stiffness of the spring. If the weight is increased the natural or fundamental frequency is lowered, that is, the arrangement will respond to frequencies below that of the original. If the spring is made stiffer (smaller) the natural frequency is raised.

In the same way, therefore, if we increase the size of the coil or increase the capacity of a wireless set, the wave-length of the station to which our set will respond must increase, whereas if we put in a smaller coil or decrease the capacity we will be able to hear shorter waves.

In the mechanical model had there been friction in the spring there would have been movement at all frequencies, and also, at the natural frequency, owing to the fact that the spring is highly stretched and then compressed the effect of friction is to decrease the extent of swing or "amplitude."

So also in the wireless receiver. If there is resistance anywhere of appreciable amount the effect will be to make the tuning "flat" so that as we turn the condenser dials the signals will become gradually louder instead of suddenly, as should be the case in a sharply-tuned set. From this it will be seen that "flat tuning" is a fault of the receiving set and not of the transmitter. A poor quality condenser is a frequent source of flat tuning.

THE TRANSMITTER.

It has been stated that all wireless sets consist of a coil and a condenser. Some readers will wonder at this, as it is possible to have a crystal set with no variable condenser. This is so, but then in this case we have to consider the whole set and not merely the "box of tricks." If this is done, it will be realised that the aerial wire and the "earth" can and do form a condenser, and this type of condenser and coil is used on practically all sets.

The transmitting station has also got an aerial like this, and very powerful currents produced in a way which need not concern us at present are "induced" into the coil in the way described in a previous article. These powerful oscillating currents rush up into the aerial and down again just as they do in all receiving sets, and, as has been mentioned, these currents have a strong magnetic effect like all electric currents. This magnetism rising and falling rapidly round about the aerial causes waves to be produced which radiate in all directions

Now it must be understood that the "waves" we speak about in wireless are magnetic waves. They themselves are not electrical because no electricity can pass through ordinary air, which is a perfect insulator. This will perhaps clear up a difficulty which many people experience. They say, "How is it that the wireless can get through the insulation on my aerial wire?" They do not seem to think that if the "wireless" can get through several miles of air it will not stop at a coating of varnish one-thousandth of an inch thick.

THE RECEIVER.

These magnetic waves travel through space at a speed of 186,000 miles per second, and since the distance between two successive waves is, in the case of 2YA, 420 metres (a metre being about 39 inches) it can be calculated that the frequency, that is the number of waves passing any point per second, is approximately 700,000.

These magnetic waves when they strike the metal of the aerial produce a current in it in exactly the same way as any other kind of magnetism would induce a current in a coil through which it passes. These currents flow up and down the aerial in exactly the same way as the original currents flowed in the transmitting station's aerial. If the receiving aerial is tuned to the frequency of the transmitter the currents will flow up and down with little hindrance.

Even when the receiving station is close to the transmitter the amount of power received is almost inconceivably small, and we must take care that none of it escapes due to faulty insulators or a high resistance in the earth connection. But when we are situated several hundred miles from the transmitter it is impossible to hear distinctly, if at all, so that some method of magnifying or amplifying the received signal becomes necessary. At present, however, we will assume that the current in the aerial is big enough to operate the telephones directly.

MODULATION.

There is one main difference between (a) the ordinary domestic telephone, and (b) the wireless telephone, and that is (a) when no speech is being transmitted there is a steady though small current flowing through the microphone and receiver, and when speech is being transmitted this current is increased or decreased according to the air waves hitting the microphone diaphragm. (b) In the wireless transmitter when no speech is being broadcast there is this high-frequency current always flowing in the aerial, and when speech is being transmitted this current is increased or decreased, or as the technical expert says it is "modulated."

This modulation is a difficult thing to explain to the lay reader, but perhaps an analogy may make the matter clearer. A visit to the sea shore will enable anyone to see that more than one kind of wave may be on the surface of the sea at one time. We may have, for example, a heavy swell on the surface of which there may be other waves of smaller wave-length, and it will be noticed that both kinds can exist separately without one interfering with the other. If you could imagine that the little waves are "carried" on the back of the big wave, as it were, then you will understand what is meant by the carrier wave, that is, the wave whose function is to provide the means for the audio or audible wave to travel.

Another analogy more near the truth may be demonstrated quite easily. Lay a piece of rope or heavy cord about 15 feet long on the ground in a straight line, take hold of one end in one hand and jerk the hand up and then down quickly. A wave will be seen to run along the rope. Try the same experiment, but moving the hand slowly. A wave will not be propagated. If we now wish to send a slow rise and fall along the rope, the only way we can do it is to emit a series of quick waves gradually increasing then decreasing in "amplitude," the short, quick waves are the carrier waves and the long slow rise and fall which is sent or carried by them is the audio

A Well-known and Popular Trio from 3YA

Well-known to all who listen-in to 3YA are the Carter Sisters. The instrumental trio which bears their name was formed, and is under the direction of Miss Eileen Carter. Before joining the professional ranks the trio did a great work for the sanatoriums, hospitals, prisons and other Government institutions in and about Christchurch, as well as for the returned soldiers. The trio took part in the opening programme at 3YA in February last. All the members play solos as well as concerted numbers.

—Alva Studio.

Webb, photo.

—Alva Studio.

MISS CHARLOTTE CARTER.

The 'cellist of the trio, Miss Charlotte Carter, first studied the pianoforte, gaining honours at the Trinity College Examinations. She is a member of the Christchurch Orchestral Society. For two years she assisted the orchestra of the Christchurch Royal Musical Society. She is greatly interested in mime and craft work.

MISS JOAN CARTER.

Principal of the second violin in the Christchurch Orchestral Society, Miss Joan Carter is a violinist of great merit. She gained honours at Trinity College examinations for both violin and piano, and she was also a first prize winner for the same instruments at the Christchurch competitions. Miss Carter also shows great ability in craft work and art.

MISS EILEEN CARTER.

Miss Eileen Carter gained a Trinity College (London) Exhibition for pianoforte playing (with 99 marks). She was also local centre medallist. For four years she also studied the violin. She is a member of the Christchurch Orchestral Society. Besides being an accomplished musician, she is keenly interested in dramatic art, taking several prizes at the Christchurch competitions.

"WELL PLEASED"

AUSTRALIA ON 2YA

LITTLE FADING OR DISTORTION.

Late mails from Australia bring flattering comments on 2YA.

A writer at Cooranbong says: "The splendid programmes received from 2YA on my five-valve neutrodyne set compel me to write my entire satisfaction and praise for your transmission. I get you on dial settings 60, 60, 62, and you fairly roar in. In fact, it is impossible to hear one speak in the house when I put you on full with a band item. I do not wish to flatter you, but I prefer your programmes to any Aussie ones. How you do it I don't know, but you always satisfy us, and we have never heard a better range of artists than at 2YA. Only three things annoy us: First, static, which makes you sometimes impossible; second, fading, which is not so bad as 3LO, Melbourne; and lastly, you close down too soon."

A New South Wales correspondent says: "To-night you have been on the loud-speaker continuously for over an hour without a suspicion of a fade, a thing we have never noticed with any station outside Sydney before, and we hold one of the first broadcast licenses here. The whole time there was no trace of distortion—even 3LO usually goes "off" two or three times a night for a few minutes. The volume of sound was terrific; we got all we wanted without pushing the reaction, but what stood out was the beautiful clarity of the transmission the whole evening, and the perfect steadiness."

A correspondent in Victoria writes: "Unlike most of the mainland A class stations 2YA showed no signs of fading or distortion. The modulation and clarity were perfect."

And from Tasmania comes this: "Your station is received here (Hobart) every time you are on the air, and your programmes are very much appreciated. You must be a very powerful station, as we can bring you in as loud as a good many Australian A class stations, although we are only 500 yards away from our own 3000 watt station (7ZL). Our set is a five-valve neutrodyne. Your modulation is exceptionally good, and there is very little fading."

Thomas A. Edison celebrated the golden anniversary of the invention of the phonograph on August 12 at West Orange, N.J., U.S.A., by repeating over the radio, "Mary had a Little Lamb," the nursery jingle he recorded on the first talking machine fifty years ago.

The electrical wizard appeared nervous and ill at ease as he stepped before the microphone for the second time, and in a low voice: "This is Edison speaking. This is Edison speaking. The first words I said to the original model phonograph was a little poem that went:

Mary had a little lamb,
Its fleece was white as snow,
And everywhere that Mary went
The lamb was sure to go."

A few minutes later Mr. Edison was asked if he liked talking over the radio. His response was "No."

Printed and published for the New Zealand Radio Publishing Company, at the registered office, Dominion Avenue, Wellington, of the Wellington Publishing Company, by Archibald Sando, of 47 Freyberg Street, Lyall Bay, FRIDAY, SEPTEMBER 23, 1927.