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New Radio Marvels Expected from Giant Mystery Valve

EXTRAORDINARY results already have been secured from the experimental construction of a giant valve to handle 15 kilowatts of power on a wavelength of only six metres. This work has been carried out in the laboratory of the General Electric Company at Schenectady, and it is impossible to predict what will eventually be the outcome of this new work. Amongst other phenomena observed as within the capacity of this valve is the ability to warm the blood of humans within reach, to cook a sausage hung from the aerial, and to kill rats long exposed to the valve's rays. This article, by Robert E. Martin, in the "Popular Science Monthly," will convince readers that we have barely crossed the threshold of radio knowledge.

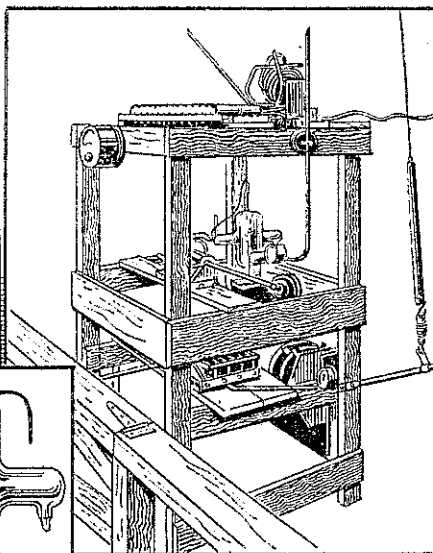
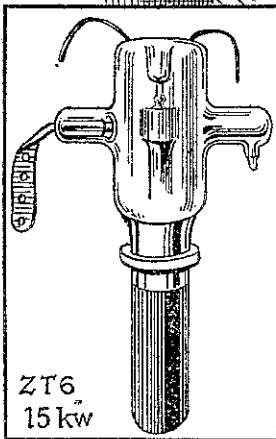
INSIDE the encircling black wire grating of a shortwave radio research laboratory, engineers of the General Electric Company, at Schenectady, N.Y., have just turned loose the most wonderful radio tube in the world—the mystery "ZT-6." And while experts are still trying to account for the startling events that occur when its short waves run wild, engineers under the direction of Dr. W. R. Whitney are launching a new investigation with longer radio waves that promises fresh wonders.

Electric lamps glow without sockets or wires when near the mystery tube. Meters in rooms all over the building run wild. Approach the glass flask when its current is on, and you will feel yourself being baked from the inside out. Apples and sausages, placed on a copper rod "antenna" which is a duplicate of the tube's transmitting aerial ten feet away, are cooked to a turn in a few seconds! Sparks appear out of thin air to crackle about the wire netting that incloses the laboratory; and the engineers stand on wooden platforms because there is metal in the reinforced concrete floor. A metal bar lying on the floor blisters the hand that picks it up, though the bar is cold.

NO one could foresee what would happen when an engineer pulled the switch that set the five-inch-thick, two-foot-high ZT-6 tube glowing in its wooden cage at the south side of the laboratory. That was what Dr. Whitney wanted to find out. Weak radio waves, when their length is short, compared with the quarter-mile waves that broadcasting stations use, are known to perform feats that seem magical to the layman. Only last year Dr. Phillips Thomas, research engineer of the Westinghouse Company, lighted lamps by radio to demonstrate the possibility of radio power transmission—he used extremely short waves produced by a "mouse-power" tube of a mere thirty watts power. But Dr. Whitney strove to create, and try out, a tube that would loose short waves of enormous power simply to see what they would do. His new ZT-6 tube is a titan that hurls into the ether fifteen thousand watts of power—probably fifty times as much as has ever jarred a laboratory on as short a wave as it generates, and enough to kill rats placed in a cage near the mystery tube.

Even now that it has been tested, its possibilities are still unknown. Will it prove the long-sought key to radio power transmission? Does there lie hidden within it the principle on which may be based some future terrible "death ray?" Dr. Whitney, director of the research laboratory in which the tube was developed, warns against such sensational conclusions at this time. "No one can safely predict or promise a utility for such new things," he says. "It is clear that further experiments must first be carried out." Only one prediction he is willing to make—the surprising fact that medicine may have a new tool in the ZT-6 tube.

The valve below radiates 15 k.w. of power at 50,000,000 waves per second.



The mystery tube in its wooden cage with the maze of equipment that feeds its tremendous power. The copper bar with its glass insulator at the lower right is the transmitting aerial of the strange ZT-6.

PERSONS approaching the tube have felt a warm glow not unlike that produced by an alcoholic stimulant—and, if they remained too close, pain in their limbs and joints. With a doctor present, several laboratory workers volunteered to stand in front of the tube for tests of its effects on them. In fifteen minutes' time, the physician had observed what were probably the first cases on record of artificial "electric fever." The subjects' blood temperature had risen to nearly 100 degrees before the tube was shut off. "Fever is sometimes artificially produced to start convalescence," Dr. Whitney points out, "and it may be assumed that if we had here a perfectly harmless method for warming the blood it might have value."

Fruit flies, and also rats, were placed before the tube in an effort to learn more about the strange radiations. When a cage of rats was placed near the antenna that hurled the tube's waves into the air, the rats became excessively animated. Exposed longer, they died.

Engineers set about finding why the mysterious waves warmed the blood. They placed vessels of salt water near the antenna, and found that when the solutions were of similar consistency to human blood—with about one teaspoonful of salt to a pint of water—they, too, grew hot under the radio bombardment. Salt water would do, then, as a substitute for blood in the unique tests of the new tube.

The tests disclosed that, at the extremely short wave length of six metres—a wave no longer than the laboratory itself—the salt water reached its greatest heat.

AT the particular wavelength of six metres, the human blood becomes a veritable electric network teeming with stray currents. For the comfort and safety of the experimenters, therefore, the tube has been readjusted to produce a longer, and hence harmless, wave. All the weird phenomena have not yet been photographed for scientific record. Some of the most spectacular ones, though, have been recorded.

Picture a dazzling, spluttering plume of greenish-white electric flame, hurling molten copper in all directions, until it is blown out! When the experimenters touch a metal-tipped pole to the copper transmitting aerial—or even to the receiving rod, connected only invisibly, by radio, to the glowing tube ten feet away—this electric flame, more than two feet high at the transmitting end, shoots into the air! They take the pole away. The mysterious flame remains, spluttering as it melts the copper bar. It resembles the "ball of fire" reputed to accompany tropical thunderstorms. By skilful manipulation they raise three or four such flames on a single rod. Some are higher than others, and their heights make a spectacular graph of the voltage or electrical pressure at points along the rod!

Not an electrical instrument in the entire building that houses the shortwave laboratory can be used while the ZT-6 tube is in operation. Through walls and ceilings, delicate measuring instruments feel the tube's force. Their dial needles quiver and run wild, just as the compass plays strange pranks during a brilliant display of northern lights. The story is told of a man who came into the laboratory with a wave meter, a delicate radio instrument. Suddenly the wave meter he was holding became red-hot and blew up!

When a sausage, placed in a glass tube, is hung from the copper bar that serves as a receiving aerial, it immediately begins to steam. A few seconds later, it is beautifully cooked by the stray electric currents that have coursed through it. An apple impaled on the rod is speedily baked. Cookies are baked in other tests with slightly altered apparatus.

THE wonder room where these things happen is a bare-looking, screened laboratory; inside its sliding door wooden tables stand piled with electrical apparatus, while wooden gratings bridge the concrete floor between them. The tube rests in its framework cage, surrounded by an intricate-looking maze of wires, condensers, and oscillators that feed it its titanic power. Beside it hangs the ten-foot, horizontal piece of copper tubing that projects its mysterious "rays" straight through the air, to be picked up by another ten-foot rod four or five paces away, mounted upon a table. This is the rod on which the experimenters cook sausages and fry eggs.

Not very different in appearance from the ordinary high-power vacuum tube that radio broadcasting stations use is the new ZT-6, or high-frequency tube as it is called because of its fifty-million-wave-a-second speed. Its ability to pack its whole fifteen kilowatts of power—enough to light brilliantly half a dozen dwellings and run their toasters and vacuum cleaners as well—into the short wave length of six metres is the real secret of its astounding effects.

Radio in Europe Before the "Mike"

GREAT STRIDES BY GERMANY

EXCELLENT PROGRAMME STANDARD

GERMANY has made the greatest strides of any country in broadcasting progress in the last year, according to the observations of William Dubilier, a well-known radio inventor, who has just returned to New York from Europe where he made a survey of the radio field.

Broadcasting in that country is under Government supervision. Each listener in pays a yearly license fee of £2 8s., which goes to support the broadcasting stations and the necessary microphone talent.

About a dozen excellent broadcasting stations are in operation, giving the audiences the finest programmes possible.

Multi-Valve Sets Popular.

IN Germany, the multi-valve, or vacuum tube with several tube units within the same glass bulb, is highly popular just now. Complete radio sets, capable of excellent loud-speaker rendition on local signals, retail for £2 8s. The broadcasting stations are of sufficient power to provide good service with sets of moderate amplification.

French Anti-fader.

ACROSS the border, in France, broadcasting is also conducted by the Government, although there are a few independent broadcasters. The broadcasting service is far from ideal in that country, but fortunately the listeners-in can tune in on British, German and other foreign stations if need be. Mr. Dubilier saw an anti-fading device in France which impressed him deeply. This device maintains a uniform signal strength irrespective of whether it is receiving from a local or distant station, and compensates for fading.

British Radio Progressing.

BRITISH broadcasting, according to Mr. Dubilier, is steadily progressing, with one organisation, under Government control, handling it. The stations in various parts of England are engaged mainly in network operation. Interesting work is being done with short-wave broadcasting, in order to bring programmes from the Mother Country to the far-flung colonies.

Interesting Device.

While in England, Mr. Dubilier saw an intensely interesting device which does not use tubes or batteries of high potentials, yet serves as an excellent amplifier. It has an amplification of about thirty per stage. The details were not revealed to Mr. Dubilier beyond these facts.

BROADCASTING PERSONALITY

FAMOUS DIVA EXPLAINS

According to radio broadcast experts (says the "New York Times") 90 per cent. of the vocalists and musicians who seek a place as stars of the air fail because they are not able to perfect themselves in what is known as the broadcast studios as radio technique. That is the peculiar ability to inject the performer's personality into the microphone and hence to millions of receiving sets throughout the country with an unimpaired faithfulness.

An outstanding example of the mastery of this new musical art is that of Olive Palmer, coloratura soprano in the programmes broadcast every Friday through the NBC red network. A former grand opera star, Miss Palmer's individuality and methods have proved ideal for perfected radio performance. Her own story of her achievement shows the difficulties which air aspirants have to overcome.

Developed Own Technique.

"WHEN I first began my radio career," said the diva, "I realised that all of my operatic training would be of but little avail. By that I mean that in broadcasting I should not have the inspiration which comes from scenery, lights and the visible presence of an audience. Then, too, what might be termed the acoustics of the microphone and of the air itself are of course vastly different."

So Miss Palmer set out seriously to study the new technique. Since her radio debut her voice has been broadcast during 463 separate hours. For each one she has spent three hours in rehearsing or a total of 1389 radio hours.

"Although my audience does not see me, I continue to act," Miss Palmer continued. "I must feel my roles to get them over and this applies to even the simplest songs. So I act as I would on the concert or operatic stage, and it is a wonderful inspiration to know that hundreds of thousands are listening as I sing to them."

Asked to what specific thing she attributed her mastery of the radio art, Miss Palmer replied promptly.

Stands Close to the "Mike."

"My success has been due, more than anything else, to my discovery of the proper way to address the microphone. I have tried it from all angles and all distances. Finally I discovered that standing a little to the left and about eighteen inches from the microphone gives me the most satisfactory results—a discovery which seems to be borne out by the studio experts and the kindly comments of the radio critics who review my performances."

Radio Beacon

WONDERFUL AID TO AVIATORS

SIMPLE AND EFFECTIVE

THE aviator of the future will receive his radio compass bearings visually, and will not be required to fly with a headset clamped over his ears, as a result of the development of visible radio, a demonstration of which was recently made to prominent government Bureau of Standards at College United States Congress by the Government Bureau of Standards at College Park, Md. While the new method gives a visible signal, it is not to be confused with television, the principle being different.

THE new direction finder resembles in appearance an ordinary compass. A needle-like reed, moved by electrical impulses received from a radio beacon, is on the dashboard of the plane, and warns the pilot if he leaves his designated course for an instant. This visual indicator, as it is called, is the latest aid to airmen developed by the Bureau of Standards of the Department of Commerce. It does away with headphones, and also eliminates wire antenna.

Only Small Set Needed.

THE radio beacon system for guiding aircraft permits the marking out of an invisible but infallible course along which aviators can fly regardless of fog or other weather conditions. To make use of this system, an airplane need only be provided with a small receiving set carrying an indicator. An occasional glance at the indicator tells the pilot whether he is following the course, or how far off he has deviated from it.

The directive radio-beacon is a special kind of radio station, usually located at an airport, just off the landing field. Instead of having a single antenna like an ordinary radio station, it has two loop antennas at an angle with each other. Each of these emits a set of waves which is directive, i.e., stronger in one direction than others. When an airplane flies along the line exactly equidistant from the two beams of radio waves, it receives signals of equal intensity from the two. If the airplane gets off this line it receives a stronger signal from one than the other.

Reeds Vibrate on Signal.

THE indicator connected to the receiving set on the airplane shows when the signals from the two beams are received with equal intensity, by means of two vibrating reeds which are tuned to different modulating frequencies used on the two antennas at the directive radio-beacon station. When the beacon signal is received the two reeds vibrate. The tips of these reeds are white with a dark background behind them so that when vibrating they appear as a vertical white line. The reed on the pilot's right is tuned to a frequency of 65 cycles, and the one on the left to 85 cycles. It is only necessary for the pilot to watch the two white lines produced by the vibrating reeds. If they are equal in length, he is on his correct course. If the one on his right becomes longer than the other, the airplane has drifted off the course to the right (into the region where there is more of the 65 cycles). If he drifts off the course to the left, the white line on the left becomes longer.

Tells Pilot Location.

THIS beacon system has an additional feature whereby the pilot is informed of the distance traversed along the course. This is done through the installation of supplementary radio beacons of another type, which have been named "marker beacons" to be placed along the airway at short intervals. These markers are of very low power, and emit a characteristic signal which the airplane pilot will receive for one of two minutes. They tell the pilot when he is passing over a specified place, so that he can locate himself and know his position. In fact, through keeping track of these marker beacons, the pilot will be able to gauge wind conditions and note any change in direction or velocity as he proceeds during the flight. These "marker beacons" operate a 60-cycle reed vibrator mounted on the airplane's instrument board. Each marker beacon will send the characteristic signal assigned for its location, which will coincide where possible with the characteristic flash signal of the light beacon at the same location. Thus the marker beacon signals will come to the pilot in a logical and automatic manner.

Require Special Sets.

SPECIAL receiving sets and antennas for use on airplanes in connection with the beacon system have been developed. They are even simpler than those in use hitherto. The familiar trailing wire, with its possible dangers and its directive effect introducing apparent variation in the course, is eliminated. It is replaced by a short special receiving set which is highly sensitive, light in weight, and exceptionally proof against engine ignition interference.

ONE of the problems still to be worked out is caused by the discovery that radio fading sometimes causes slight shifts of the indicated course at

Television

AMERICA TO BEGIN

BAIRD'S PATENT BOUGHT

LATEST mail advices from America state that the Baird Television Company have just sold the American rights of their recently-perfected machine to an American syndicate. The syndicate, an official of the company stated, sent experts all over the world to find a television apparatus which would be commercially possible, and their visit to England synchronised with the completion of the new Baird television, with which they expressed themselves completely satisfied.

They propose to set up their own broadcasting station in America forthwith. The Baird Company are to have a 50 per cent. interest in the new venture, and will send directors to the board.

A Liner to be Fitted.

ANOTHER newspaper account supplements this bare announcement with the following details:—

The Leviathan, the colossal flagship of the United States Lines, will be the first liner in the world to have a permanent television transmitter and receiving abroad. This is stated by Herbert Z. Pokress, one of the three Americans controlling the Baird television rights in America.

"The recent reception of television transmission accomplished aboard the Berengaria—an English-owned vessel," Mr. Pokress said, "was just a demonstration of the practicality of the apparatus . . . but when we secured American rights to the Baird apparatus we also arranged that the first ship to be equipped with permanent apparatus be an American one."

Pokress arrived in New York recently on the Leviathan, together with Nathan Feldstern, of Philadelphia. With Charles Izenstark, of Chicago, Pokress and Feldstern control the Baird rights in America, and will operate under the name of the American Baird Television Corporation. Sir Charles Higham, representative of the English Baird group, was also on board the ship.

Other Nations Plan Television.

INTERVIEWED in the temporary headquarters at the Hotel Astor, Pokress, acting as spokesman for the three, stated that he understood that Baird television rights for France and Australia also had been closed in London at the time of his departure.

"It will only be a short time, it seems," continued Pokress, "that television will be an international proposition."

Two of Baird's engineers, Captain W. Gerard and Captain Jerry W. Clapp, were brought along by Feldstern and Pokress to supervise the inauguration of the system. Captain Clapp had previously visited the United States with Captain O. G. Hutchinson, another Baird engineer.

"John L. Baird, the inventor of the apparatus, will arrive here with Captain Hutchinson within sixty days," he said, "when television broadcasting will be undertaken either by single stations or by one of the national chains."

"Apparatus will soon be in the process of manufacture, and kits will be sold very soon—sooner than the public expects."

Assembled Sets May Be Sold.

ALTHOUGH the company will only sell kits at the start, Pokress remarked, it is expected that assembled sets will follow shortly.

While he would not assert what metropolitan station will broadcast television, Pokress said that he has received inquiries from a large number of stations, including WOR and also the Gimbel Brothers interests, which control four broadcasting stations.

He asserted that a private Press demonstration will soon be arranged and the apparatus will also be demonstrated at the Radio World's Fair in September.

Wait and See.

COMMENTING on the foregoing news, "Popular Wireless," the British journal, says: "We do not propose to make any comments on this matter, as it is outside the policy of 'Popular Wireless' to pass any criticisms except on matters purely technical or matters connected with the policy of the B.B.C. We can only remind readers of our already well-known views on the matter, and the views of such men as Sir Oliver Lodge, Dr. Lee de Forest, Dr. J. H. T. Roberts, and others."

"Whatever the activity of financial groups in connection with television development, it is now a generally accepted fact among scientific men of repute, and men who have taken the trouble thoroughly to investigate the scientific and the commercial practicality of television systems, that television in the home, or any television service designed as a public utility service, must inevitably be delayed until some new principle in connection

night at distances over fifty miles. This effect is at its worst in mountainous regions where the beacon is most needed. One solution under consideration is placing the beacons closer together, less than 100 miles apart. This may have some other advantages, allowing greater simplicity and reliability. This night variation may be greatly reduced by the new short antenna; this remains to be investigated.

Regional System

CHOICE OF TWO PROGRAMMES

FOR CRYSTAL OWNERS

FOR some time past rumours have been in circulation in the Home Country concerning a regional broadcast scheme which, it was said, the British Broadcasting Corporation was going to establish at an early date. In brief the scheme was that a chain of high-power stations should be established just outside the main centres of population and that they should transmit different programmes on two wavelengths simultaneously.

As is usual, the rumour preceded by many months the actual official statement about the regional scheme. It was only during the last few days (says the London "Wireless Export Trader" of May), that we have heard anything definite in this connection from the B.B.C., and even now the official statement gives very few more details than the rumours that were in circulation last year.

BRIEFLY the statement is this:—The Postmaster-General's sanction has now been given for the erection of the first of the chain of stations. The transmitter will serve London and the South-Eastern area, and consequently the site will probably be somewhere to the north of London. It has been an open secret for some months past that the district of Potters Bar has been engaging the attention of the B.B.C. engineers, but we understand the location has not yet been definitely fixed. It seems likely, however, that it will not be far from this spot.

The work on this new station, the B.B.C. says, will begin very shortly, and it is anticipated that it will be ready for service within twelve to fifteen months from the present time.

WHEN the whole chain of stations is working, all England will have a choice of two programmes that will be available even to the users of crystal sets, while the owners of multi-valve receivers will be able to get a choice of four, six, eight or more programmes according to the power of the set. Further, the scheme will cover Britain even better than do the B.B.C. stations at the moment.

It is the fashion in Britain to complain about broadcast programmes, but with the inception of the new scheme the public will have little left to find fault with. Truly the lob of the British listener is a happy one!

with television systems has been discovered. So far that system is unknown. It might be discovered tomorrow, or it might not be discovered for fifty years.

"Only time can show the truth of the criticisms passed in this journal and of the soundness of the policy we have advocated in connection with television. In other words, we can but repeat that very well-known political slogan, 'Wait and See'—a slogan, by the way, the last word of which has a meaning particularly apt when expressed in connection with television."

THE "Report on the health of the (British) Army for 1926," recently published, contains this paragraph: "The soldier of to-day having, to a very large extent, given up the consumption of alcohol, beer and other intoxicating beverages have been replaced by cocoa and coffee or other soft drinks."

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THE GREAT CASE OF BARDELL v. PICKWICK.

This case, which occurred (in literary history), a hundred years ago, is to be tried over again in IYA studio next Friday, June 22. This picture, from one of the illustrations to the original edition of "Pickwick" by Phil, shows a dramatic moment in Court. Every Dickensian will recognise Pickwick himself, Mr. Perker, Mrs. Bardell and Master Bardell, Mrs. Cluppings and Mrs. Sanders, and (behind) Sergeant Buzfuz, in full spate. The famous scene has been adapted (for the air) by Mr. J. P. Montague, and with the capable assistance of the Auckland Comedy Players, should prove entertaining and interesting to all classes of listeners.

Good Music

GROWING DEMAND

BROADCASTING EXPERIENCE IN AMERICA

ONE of the greatest and most popular broadcasting organisations in America is the National Broadcasting Company, and the chairman of its Committee on Music, Dr. Walter Damrosch, submitted the following most interesting report to a recent meeting of the company's advisory committee:

"I TAKE pleasure in reporting great progress regarding the quality of the music that is now broadcast by the National Broadcasting Company. Without any friction, the bad has given place to the better, the better to the good, and in some cases, the good to the best. This is due partly to a natural instinct which is found among all people, but also greatly to the evident desire on the part of our officials to encourage such instincts.

"THIS upward trend has manifested itself not only in the sustaining programmes which are carried on by the National Broadcasting Company, many of which have shown a very high artistic standard, but also in the commercially sponsored programmes, the music of which ranged from the classics to the seventeenth and eighteenth centuries, down to the present day, comprising important selections from operas and symphonies, piano and violin concertos, besides many of the world's best songs and stringed quartets.

"SUCH programmes could not be offered if the public did not eagerly accept them, and while no doubt there are still millions dwelling in the lower depth and darkness of accepting mere rhythmic noise as a substitute for music, there are now millions who, thanks to the radio, have learned something of the inner significance and emotional power of music as a language.

"THERE seems to be an extraordinary eagerness among our people to know more, and I have made some interesting experiments along this line during my RCA hour, in which I have made short explanatory comments in an endeavour to give my listeners a background against which to put their own preceptions of what they hear. Occasionally I have played a number without telling them what it is, but asking them to write to me what emotional impression it made on them, and you would be amazed at the quality of the many letters I have received in response, both from men and women, and the seriousness with which the matter was treated by them. Incidentally, we still receive about a thousand letters a week from eager listeners.

"I PERSONALLY have derived an immense pleasure from the new opportunities that the radio has given me. At a time of life when I assumed that my public work was, if not finished, at least but a repetition of what I had done in former years, the radio has suddenly enabled me enormously to widen my sphere of activities, and especially in our latest experiments, to get astounding results, opening up still further possibilities. Thanks to the generosity and close sympathy of our officials, of which I cannot speak too feelingly, I was permitted to dig the first shovelful of earth for the foundations of your great 'University of the Air.'

"I BROADCAST three of my children's and young people's concerts as an experiment. The first one, on one of our RCA Saturday nights, was designed for teachers, educational bodies, and parents, the second for children in the grammar schools, and

the third for young people in the high schools and colleges, on two consecutive Friday mornings.

"IN hundreds of schools all over the country this announcement spread like wildfire. The children assembled either in their own auditoriums, or in great public halls loaned for the purpose. Radios were either loaned by the local radio sales agents, local merchants, or other public-spirited citizens. With that remarkable adaptability which seems to be characteristic of our people, the whole thing arranged itself naturally. The regular schedules of the school were willingly interrupted by the teachers. In such cities as Kansas City, Indianapolis, and many others, all the school children and faculty 'listened in,' and what particularly gladdened my heart, were the responses received from the rural districts. These children perhaps are most in need of what an appreciation of music can give them, and if I could bring the 'little red school-house' all over the country within the sphere of our activities, I should consider it the crowning arch of our building. For two weeks, appreciative letters from pupils, teachers, and parents poured in by the thousands every day, and this makes me optimistic regarding the possibilities of our being able to carry out a regularly organised series of such concerts next year. It seems to me that where there is such an evident desire on the part of the people of this country, their patriotism and well-known generosity towards anything tending to raise the standard of our race, will find a way to enable us to carry through our plans."

£75,000 MORE FOR B.B.C.

HOW WILL IT BE SPENT?

DURING this financial year, the British Broadcasting Corporation will receive from the Post Office £880,000—£75,000 more than the total grant it has received in the current year.

The first full year's working of the corporation (which replaced the old British Broadcasting Company in December, 1926) comes to an end on April 5, and it is anticipated by then that the number of wireless license-holders will have reached 2,487,000. It is on the basis of this figure that the estimated increase in the B.B.C.'s revenue is based.

From the total amount received by wireless licensees, the Post Office deducts 12½ per cent. for the cost of collection, then takes 10 per cent. of the balance in respect of the first million licenses, 20 per cent. in respect of the second million, and 30 per cent. in respect of the third. The remainder of the money is handed over to the B.B.C.

The steady growth in the constituency, for which the B.B.C. caters is shown by the fact that three months ago, the number of license-holders stood at 2,383,726, while in December, 1926, it was 2,178,250. Under the present sliding scale, the State will be assured of a revenue of more than £250,000 a year from the deductions made by the Post Office.

During the last year of its working, the old B.B.C. had a revenue of £730,000, and it is interesting to recall that when the present corporation was formed, Lord Clarendon, the chairman, expressed the doubt whether the estimated revenue they would enjoy (£800,000), would be sufficient for the proper development of the B.B.C. "on progressive lines."

Children's Sessions for Next Week

AT 1YA

TUESDAY, June 19.—A happy hour with Uncle George and a merry little band of Mrs. Bartley-Baxter's pupils, who will entertain with dialogues, sketches and songs.

WEDNESDAY.—Here's Uncle Tom full of stories and jokes. Songs, too, that delight young and old. Letters and birthday greetings.

THURSDAY.—All aboard for South Africa. Captain James is taking us all, and what fun on the boat. Peter Pan and Cinderella will also be passengers, and you will hear all about their experiences when they arrive at their destination.

FRIDAY.—Good evening Nod! Have you stories and birthday greetings for us? Rather, and Uncle Mack will also be with us, and tell us more stories about the jungle in India.

SATURDAY.—Here is Cinderella, and she has an old friend with her—Sunny Jim, and a new friend, Aunt Ve, who has just returned from the East and is going to tell the Radio family about her adventures there.

SUNDAY.—Children's Song Service, conducted by Uncle Leo, assisted by cousins from the Grange Road Baptist Sunday School.

AT 2YA

MONDAY, June 18.—To-night you will be led into a labyrinth such as the old Grecian story tells us about. Why, yes, Uncle Jeff's Puzzeland, of course. Auntie Gwen and a merry party of youngsters will follow him through the amazing tracks.

TUESDAY.—Another Radio Trip—no fare to pay. Through tunnels,

over bridges and away out to the coast. All aboard sharp at 6 p.m. Fairies please attend. Also, watch for Happy Joe.

THURSDAY.—Wonder what Auntie Dot will bring to light from her house of mystery? The curtains will be drawn till 6 p.m. Just a secret—the Hatatai Methodist Sunday School sprites will be there.

FRIDAY.—Uncle Ernest—Cheerio! Why, of course "cheerio's" the word, because the Cheerio Club girls will be present. Glee songs will brightly flow, and famous incidents will be related.

SATURDAY.—Auntie Dot and Uncle Toby will lead you into a land of fairy lore and song. The revels will commence at 6 p.m. when the fairy queen will hold her court.

AT 3YA

MONDAY, June 18.—Uncle Jack with his jolly, joyful stories that all the little ones love to hear.

WEDNESDAY.—Uncle Peter and Mother Hubbard are going to tell you Maori tales, and sing little Maori folk songs to you to-night. And cousin Tullock is bringing his banjo—so here we all are!

THURSDAY.—Hoo-ray for "Chuckie" and Aunt Pat—With a laugh and a joke for you. Mr. Griffiths is bringing a little model country school choir, so listen in to the wee ones.

FRIDAY.—Look what we have for you to-night, Little Folk. "Big Brother," with his greetings. "Peterkin," with his stories and tricks. And "The Captain," with some new games for all.

Some little pupils of Madam Audibert will charm all listeners with their songs also.

SATURDAY.—Uncle Sam and Aunt May will keep you smiling and gay for an hour to-night, with story, song and music.

SUNDAY.—Children's song service, at 5.30 p.m. Uncle Sam in charge and the hymns will be sung by choristers from St. Luke's Anglican Sunday School.

AT 4YA

TUESDAY, June 19.—When you strike a match do you ever stop to think of the wonderful way it is made? The marvellous machines that do things as cleverly as a human brain. And did you know that one-time people lost their lives through making matches, whereas now they can handle the dangerous stuff quite safely? Listen in to 4YA to-night; Big Brother Bill is going to take the family on a trip through a match factory. Certainly, the Radio Postie will go his rounds. He uses a bell now because he had to blow the whistle so many times he became short of breath. Songs, recitations, and music, too.

FRIDAY.—Miss Noeline Parker's happy band of clever children will be on the air again to-night. They were so good the last time that the family asked for a "return." Aunt Sheila and Big Brother Bill will be there too; and the Radio Postie as usual. One of the family wants to know what the "Milky Way" is, and, if Big Brother Bill gets five minutes somewhere in the programme, he will tell. Also, Aunt Sheila has some stunning riddles and tales.

500,000 DOLLARS

BIG LOSS IN BROADCASTING

IT would seem that broadcasting in America is not yet a lucrative investment.

The president of the National Broadcasting Company of America, which furnishes programmes through fifty-five broadcasting stations, in reporting to the Advisory Council of the company at its second meeting in March last, sixteen months after its formation, made use of the following statement:—

"While the National Broadcasting Company has invested for its owners, the Westinghouse Electric and Manufacturing Company, the General Electric and the Radio Corporation of America, more than three and one-half million dollars in the equipment for broadcasting, at an operating loss of approximately five hundred thousand dollars for the first fourteen months of its existence, we have kept faith with our great audience, and have provided only those programmes which we would accept without question in our own homes."

S-O-S

TRAVEL IN COMFORT BY CAR

WELLINGTON — PALMERSTON
NEW PLYMOUTH.

Use Our Booking Offices in Advance.
51 Willis Street, WELLINGTON.



HEARD The Story about the White Horses?

Everybody knows it, so there's no need to repeat it here. We can tell you, however, the story about your radio dry batteries. They're simply wasting money for you. Put in an Emmco Battery Eliminator, and start to save now. Gets you better reception, too.

Emmco Eliminators.
From £10/10/- up



N.Z. Distributors:
Abel Smeaton, Auckland;
Thomas Ballinger, Wellington;
L. B. Scott, Christchurch.



If you haven't a Good Radio—Half the World

is Passing you by!

KING 5-VALVE NEUTRODYNE SETS, complete with Speaker, Batteries, Aerial Wire, etc. . . From £36/10/-
BROWNING-DRAKE SETS, made to order. Amplifiers, Crystal Sets, Speakers, in large variety.

SEND FOR CATALOGUE.

F. J. W. FEAR AND CO.,

63 WILLIS STREET, WELLINGTON, N.Z.

JUST ARRIVED — A NEW SHIPMENT OF
THE FAMOUS NO. 51

2-VALVE CROSLY

Australian Stations Guaranteed on 'Phone Strength, complete with Valves, Batteries, Loudspeaker and 'Phones.

£9 10 0

CALL FOR A DEMONSTRATION.

G. G. MACQUARRIE Ltd.

CROSLY SALES AND SERVICE.

Phone 45-865 95 WILLIS STREET WELLINGTON.

OUR NEW PRICE LIST IS AVAILABLE FOR THE ASKING.

£27/10/-

This Marvellous 4-Valve "COURIER"

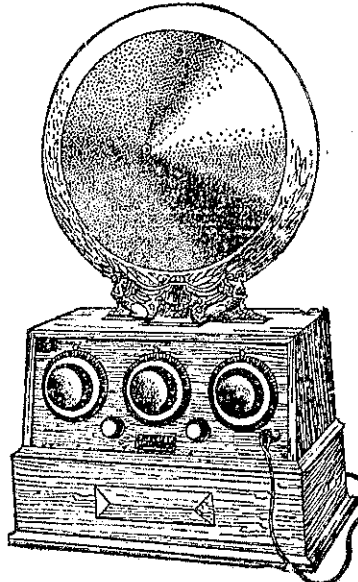
£27 10s. buys the marvellous 4-Valve "Courier," the most up-to-date Radio Set on the market. Sold Complete with Accumulator A; Dry B. and C. Batteries, Phones, Aerial, Valves and 15in. diameter O'Neill Cone Speaker.

HIGH OR LOW BY THE FLICK OF A SWITCH

The Courier 4 employs no troublesome plug-in-coils; if you want to change over from broadcast wavelength to low wave reception, you simply press a switch—that's the marvel of the "Courier," the set with the marvellous patent (Prov. Patent 59509 N.Z.) that dispenses with troublesome plug-in-coils. If you can't get the "Courier" from your dealers write to us and we will see that you are immediately supplied.

The
"Courier"
"Brings tidings from afar."

Wholesale: J. WISEMAN & SONS, LTD.,
Albert St., Auckland.



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.

SUBSCRIPTION RATES.

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

ADVERTISING RATES.

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

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

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

A. J. HEIGHWAY,
Managing Editor,
"The N.Z. Radio Record,"

P.O. Box 1032.

Dominion Buildings, Mercer Street, Wellington.

WELLINGTON, FRIDAY, JUNE 15, 1928.

EDITORIAL NOTES.

THROUGH the wonderful flight of the Southern Cross aeroplane from San Francisco to Honolulu, Suva, and Brisbane both aviation and radio have received a tremendous and spectacular advertisement. The adventure achieved success because of its thorough equipment and organisation, backed by splendid personnel. The highest praise is due to the gallant aviators, individually and collectively, and will be given ungrudgingly, but to our mind the greatest wonder attaching to the flight must be accorded the apparatus contributed by the various sciences to make the flight possible. In this field radio has made notable contributions—in fact, it is certain that without radio the feat could not have been performed. With the perfection of contact maintained with ship and shore throughout the flight the navigation never was at fault.

It is inevitable that contrast will be drawn between the success achieved by this splendidly-equipped machine and the tragedy of the Hood-Moncrieff flight of January last. If, as seems likely, the Southern Cross comes to New Zealand as a preliminary to that world flight on which Kingsford Smith is said to have set his heart, a royal welcome will be given—with a tribute, too, to those who tried—and failed.

WELLINGTON RADIO SOCIETY

The first meeting of the new committee of the Amateur Radio Society of Wellington was held last week. Mr. Byron Brown (president) occupied the chair. Letters were received from recently-elected vice-presidents, a number of whom forwarded cheques.

It was decided that a letter be forwarded to the Post and Telegraph Department suggesting a systematic inspection of the sets operated in and around Wellington, to ascertain whether they are correctly neutralised, and that if neutralisation has now been efficiently performed, the owners be served with an official notice that, unless their sets are put right, they will be liable to prosecution. It was stated that much of the howling-valve nuisance was due to imperfect neutralisation of Browning-Drake and neutrodyne sets.

Mr. R. L. Jones was thanked for undertaking to continue to act as secretary until the next general meeting

of the society in about a fortnight's time.

Mr. G. W. Morgan, as official representative of the Taranaki Club, reported that he had visited New Plymouth recently, and had been in communication with the Broadcasting Company regarding the intense fading and distortion of 2YA, Wellington, as heard in certain areas in New Plymouth. From what Mr. Morgan reported, it seemed that the trouble was due to some local peculiarity, as perfect reception was obtained from 2YA in another area of New Plymouth, and at the mountain house on Mount Egmont. Members of the committee expressed the opinion that the problem was a most difficult one. The matter has been reported by the Taranaki Club to the Postmaster-General, who has replied that it will be referred to the Scientific Research Board for investigation.

Mr. W. J. Roche, hon. treasurer of the Wellington Society, reported that the society's finances were in a satisfactory condition. Mr. Byron Brown was accorded a hearty vote of thanks for his donation of £5 5s. towards the society's funds.

Hellesen Radio Batteries

THE BEST IN THE WORLD

DOES THIS NAME MEAN ANYTHING TO YOU?

HELLESEN STANDS FOR BETTER RESULTS, LONGER LIFE, AND GREATER EFFICIENCY IN YOUR SET.

Large Stocks Carried by

SOLE N.Z. AGENTS.

John Chambers & Son, Ltd.

AUCKLAND, WELLINGTON, CHRISTCHURCH, DUNEDIN, AND
INVERCARGILL.

SPORTING

NEXT WEEK'S FIXTURES

TROTTING AND RUGBY.

Saturday, June 23.

Auckland Trotting Clubs's
Winter Meeting (first
day) 1YA

RUGBY.

Athletic Park 2YA
Lancaster Park 3YA
Carisbrook Ground 4YA

RE-BROADCASTING AT 2YA

FOR re-broadcasting purposes, the Broadcasting Company has for some time been making tests around Wellington for the purpose of locating the most suitable site for a listening-in station. The spot eventually chosen was on Mt. Victoria, and through the courtesy of the Wellington Harbour Board permission has been granted to erect the necessary apparatus at the signal station.

"THE LISTENERS' GUIDE"

AN EXPERT'S APPRECIATION.

MR. D. NEILL KEITH, a wireless expert of standing and long experience, now resident in Wellington (after having been closely associated with radio work in the war) writes as follows:—"I have carefully perused my copy of 'The New Zealand Radio Listeners' Guide,' 1928-29, and would like to congratulate you on the excellent little book you have produced.

"I have read a good many handbooks, guides, and text-books since I was first interested in wireless (which was as far back as 1906), spending hours in a good many libraries, especially the Library of the Institution of Electrical Engineers, Victoria Embankment, London, and I can without hesitation say that the information contained in the 154 pages is the most useful I have come across for the amateur or listener, in one book.

"In your publication, you do not indulge in mathematical gymnastics, but the whole subject is in the simplest language possible, so that the non-technical reader can understand it, and therefore take an interest in it.

"The subjects you have touched on are numerous, but brief and to the point (without diving into the deep mysteries of the 'whys and wherefors'), merely stating facts either historical or technical. Your 'construction' section, for example, describes a few useful crystal and valve sets without encroaching on the province of your weekly publication, 'The Radio Record.'

"So many of the so-called 'Guides' to wireless concentrate on one particular line, and do not include such items as 'laws relating to wireless licenses,' 'valve guides,' 'useful Morse abbreviations,' 'glossary of wireless terms,' etc.; others start off with the theory and elements of electricity and magnetism, but the balance you have preserved on the whole subject of wireless, commencing from the 'Early Days of Radio' (which, although I am not 'one of the ancients', I well remember, for I was a student at one of the large engineering colleges at the time), right up to the present day with 'screened grid valves,' etc., is one which makes the book so useful as a 'Guide.'

"The article on shortwave reception by Mr. F. W. Sellens is brief and interesting, and the table of 'shortwave stations on telephony heard in New Zealand,' also by the same author, is most useful to every shortwave enthusiast.

"My experience in 'wireless' has been too long for me to be carried away into superlatives, but I felt I must write to you as one who has, perhaps, seen more handbooks, guides, or text-books (call them what you like) than anyone in New Zealand, and congratulate you and your technical associates on getting so much useful information into such a small space."

Super Heterodynes.

ON page 19 of the "New Zealand Radio Listeners' Guide," there are several statements made with regard to super heterodyne receivers, on which we should be glad to be allowed to comment.

A statement is made to the effect that "Super-heterodynes take a large amount of both high and low tension current, so that wet batteries would be almost imperative. To show that these remarks are not applicable to all super-heterodynes, we give herewith the filament and plate current taken on three of our most popular super-heterodynes:

Radiola 26 (six-valve set), filament current, .36 amp.; plate current, 10 milliamps.

Radiola 25 (six-valve set, employing a power tube), filament current, .42; plate current, 12 milliamps.

Radiola 28 (8-valve super-heterodyne, employing a power tube), filament current, .54; plate current, 17.5 milliamps.

The final paragraph, dealing with the super-heterodynes, does not apply to any of the seven models handled by us, as they are all licensed by the Post and Telegraph Department for use on an outside aerial.—Amalgamated Wireless (Australasia), Ltd.

Novelty Turns for 2YA

PRIZE COMPETITION TO FIND NEW TALENT

THE Broadcasting Company is seeking novelty turns for 2YA. What novelty talent is there available?

To ascertain this a competition is to be conducted by the "Radio Record," in co-operation with the Broadcasting Company.

ANYONE who can put on a turn of a novelty character—no conditions are laid down as to the nature, except that it must first be approved by the Broadcasting Company before going on the air—is invited to report to the station director at 2YA.

TO all approved artists a fee of £1/1/- will be paid, and there will be a prize for the most popular turn. All listeners will be invited to vote per medium of a coupon appearing in the "Radio Record" on the various items broadcast. This competition will continue for a month after the inception of the novelty items, at the end of which time the artist who has secured most votes will be awarded a prize of £1.

THE competition will be conducted on those nights at 2YA which are devoted to popular and vaudeville items, a certain portion of each evening's session being allocated for the purpose, the amount of time being dependent on the response to the competition.

IT is hoped that this competition will result in bringing to light many new variety artists. The opportunity certainly gives much scope for the display of much originality in ways of entertaining.

Intending competitors are invited forthwith to get in touch with the director of 2YA Wellington.

SUNDAY MORNING SERVICE

RECOMMENDED FOR 3YA.

A MEETING of the 3YA Church Service Committee was held at the studio last week, the Rev. D. Gardner Miller in the chair. There were also present: Ven. Archdeacon F. N. Taylor, the Rev. T. W. Armour (Presbyterian), the Rev. Harold Sharpe (Methodist), Mr. A. R. Harris, general manager of the Radio Broadcasting Company, Mr. C. S. Booth (administrative staff), and Mr. L. Slade (station director of 3YA).

In accordance with notice, the Rev. D. Gardner Miller moved: "That it be a recommendation to the company to broadcast once a month a morning service from an Anglican or Presbyterian Church."

After discussion, during which Archdeacon Taylor said the Anglican Church would be glad to avail itself of the opportunity, the motion was carried, and a date was arranged. So far as the Presbyterians are concerned, the proposal will be referred to the Church Presbytery.

The committee recommended that the special choral festival at the East Belt Wesley Church on Sunday afternoon, July 1, should be broadcast, and this was accordingly put on the schedule.

The secretary reported the rotation of church services during June and July.

CAPPING RELAY

BRIGHT FEATURE FROM 2YA.

LISTENERS to 2YA on Friday evening last were given a treat in the relay from the Wellington Town Hall of the Capping Carnival of Victoria College students. Arrangements for this were effected at comparatively short notice. Commencing at 7.30, the relay was kept in operation for over an hour, and was distinctly enjoyable and novel. The speakers from the platform were heard very well, and there was sufficient volume from the singing of the students from the body of the hall both in their preliminary effort before the commencement of proceedings and during the speeches to give listeners a very good idea of the wholehearted way in which students enjoy themselves on such occasions.

The normal evening's programme was given on the conclusion of the relay.

WHEN the Turkish station at Stamboul (formerly Constantinople) signs off, the announcer does so in Turkish, French, German, and English. It is a 7-kilovatt station, and is heard over the entire continent.

SUNDAY HOURS FOR 3YA

AFTERNOON SESSION.

Commencing next Sunday, June 17, 3YA will be on the air for an afternoon session from 3 o'clock till 4.30.

TELEPATHIC TEST

ARGUS TO DEMONSTRATE AT 1YA

AN interesting telepathic test is to be conducted by 1YA, in conjunction with His Majesty's Theatre, Auckland, where "Argus," the boy prophet, is shortly to appear.

The youthful prodigy is one of the cleverest exponents of the science of telepathy, and the demonstration (the time and date of which will be announced from 1YA), will be a very severe test.

THE procedure to be followed will be that about two thousand leading citizens, including the clergy and prominent lawyers, will be invited to attend a demonstration performance at His Majesty's. Argus will be in the theatre, and an independent committee of citizens will be at 1YA studio. Various prominent people, in whom the public would have complete confidence, will stand before the microphone, and a gong will be struck in the studio. Immediately on the striking of the gong, Argus will describe the person, and various things in connection with him, and read his mind, answer mental questions (unspoken), and conform to any other test. The person then in the studio will speak through the microphone, and acknowledge the accuracy or otherwise of the test.

This demonstration will provide one of the most interesting turns ever broadcast in New Zealand. Tests of a similar nature were put over the air from 2BL and 4GG.

VAUDEVILLE TURNS

STAGE FEATURES FOR 1YA.

Arrangements have been made with the management of the new theatre in Auckland, the Embassy, for the broadcasting on two evenings of the week, of two of their best stage attractions.

The nights chosen are Tuesdays and Saturdays, the first performance to be given next Tuesday, when the artists who will be broadcast will be Misses Connie and Millie Harris (musical comedienne, late of the Tivoli), and Mr. Cecil Scott (baritone), of J. C. Williamson, Ltd.

A Wonderful Performance by

"BREMER TULLY 6-35"

52 STATIONS Including 22 AMERICAN

Read the letter from the man who owned the set:—

"... I am now able to put before you a much bigger list, which includes 22 American, 14 Australian, 9 New Zealand, and 6 Foreign Stations, all of which were quite able to be distinctly heard on the speaker...."

"I expect before the winter is over, to be able to log somewhere in the vicinity of 80 stations, and I think this will do that too."

THE SIGN of
QUALITY
Look for it!



We have on hand numerous testimonials brimming full with enthusiasm for the famous Bremer-Tully—the set that is different. Ask your Radio Dealer to demonstrate the Bremer-Tully to you.

N.Z. Wholesale Agents:

RADIO LTD.

Commerce Buildings
(Top Floor)
Anzac Ave., Auckland.

Pacific Flight

VALUE OF RADIO DEVELOPMENTS

SUCCESSFUL RELAY OF ARRIVAL

GOOD WORK PERFORMED BY 2YA

RADIO listeners on both short-wave and ordinary broadcast bands will long remember Captain Kingsford Smith's great flight from San Francisco to Brisbane. The "Southern Cross" was in the first place fitted with the most complete and perfect wireless receiving and transmitting apparatus ever put into an aeroplane, and to this fact may be attributed a large measure of the success achieved. By radio the aeroplane was enabled to receive important compass bearings from ship and shore, and by radio they were enabled to permit the whole world, as it were, to accompany them in their flight. This, in retrospect, is the most outstanding feature of the flight—the sense of intimacy with the venture created in the public mind by the close contact with the progress of the aviators. Every important phase of the flight was immediately conveyed to the world, and so accurate were their computations that they were able to advise beforehand in the last dramatic "hop" to Australia that they would reach the Australian coast south of Brisbane and would require to work north.

Successful Relays.

THE actual arrival in Brisbane was the subject of wireless history in that very complete preparations were made for describing to the whole world, both on broadcast and short-wave bands, the incidents as they occurred. 2FC, Sydney went on the air at 6 a.m. and gave a running commentary of the progress of the aviators as it became known. A land line with Brisbane was in readiness and at a later stage played an important part in proceedings. Unfortunately, however, this land line, doubtless owing to its great length, became somewhat noisy, and the actual messages transmitted from Brisbane were by no means as clear as they might have been. On receipt in Sydney of the Brisbane account, it was rebroadcast by 2FC both on ordinary wave-length and also through 2ME on 28.5 metres. This short-wave transmission was picked up in Wellington mission was picked up in the heart of Wellington by a short-wave receiver, made and operated by Mr. Mack, of Mack's Radio Service, and relayed by telephone line to 2YA, where it was put on the air. The reception was splendid and credit must be given Mr. Mack for his work on this occasion.

HIGH praise is due to 2YA for the quality of their work. 2FC, when received direct, came through splendidly and was retransmitted practically as clearly as if from the local station. It must be admitted, however, that when Sydney went back on to Brisbane's land line, the extraneous noises referred to caused a great deal of voice distortion and difficulty. In spite of that, it was a memorable occasion, and all listeners were thrilled at their instantaneous receipt of news of the safe conclusion of the most momentous flight yet recorded. The importance of the occasion seemed to affect the Brisbane announcer, for he spoke far too rapidly and excitedly for the proper transmission of his voice.

A Great Night.

Mr. R. Leslie Jones supplies the following few notes of his experience "listening-in" on the flight Suva-Brisbane. The outstanding impression left on his mind, he states, was the high spirits of the aviators, and the cheery character of the messages they were putting over as they, in a measure, saw the end of their flight in sight and success at the end.

"One of the most interesting radio nights yet experienced and one that will live long in my memory was on Friday night last, when listening-in to

the progress reports from the Southern Cross on its way to Brisbane. A friend with long morse experience sat with me at my house listening-in also. The signals were good, very clear, for the most part, late that night, and again Saturday morning the messages were clearly audible direct from the Southern Cross."

"A number of messages transmitted from the plane were of a personal nature on Friday night; and Sydney radio received quite a continuous run of communications."

"An amusing part of the transmission was where Ulm stated, amongst other things, that 'the elements were playing mean tricks, and Smithy and he (Ulm) were wet through, but as soon as the moon comes up and blind flying ended for the night, they would have a "spot" of their emergency rations of whisky; he was too cold to send more then without gloves, but would send again later, cheerio.' 'We'll get there O.K.' added Ulm."

"On Saturday morning, 2FC, on short-wave, reported that several stations in America (including WGY); also London, were picking up the signals clearly. They were relaying the broadcast from Brisbane through 2FC, the latter transmitting on 28.5 metres. The transmission from Brisbane through 2FC was splendid; with plenty of volume; and, of course, at loudspeaker strength, on three valves (short wave)."

"At one period whilst the onlookers were waiting for the arrival of the Southern Cross, one of the Brisbane aviators went up 7000 feet, but could not at that time (Saturday morning) sight the Southern Cross; the morning was fine with a crispness in the air."

"Sydney, on Saturday morning, reported that the Southern Cross direct signals were not being received in either Brisbane or Sydney as these two districts were located within the "Skip" distance, meaning, the plane was then too close; but Melbourne was receiving the signals O.K., as also was New Zealand, of course."

"It was well worth the trouble of sitting up late Friday."

WIRELESS IN TRAVEL

NOW AN ESSENTIAL.

RECENT events in aviation and exploration show definitely that radio has now reached the standard of being an essential part of the equipment of explorers and travellers, whether in the air or on the land. The Bremen, in its memorable westward flight from Europe to America, did not carry wireless, but the personal authentic accounts of the aviators themselves stressed the confession that they realised they should have—that had they had radio, they would have been able, on nearing the American coast, to pick up the signals of the radio direction posts, and instead of landing in the wilds of Labrador, have made their destination, New York, with ease and eclat.

The Italia, whose fate is still uncertain, was equipped with radio, and for the period during which she cruised over the North Pole area, kept the world in touch with her movements by brief but informative dispatches.

Captain Kingsford Smith, in his dramatic trans-Pacific flight made full use of radio as an aid to successful navigation—three transmitting sets were carried, two dependent for power upon the vessel's motor, and one supplementary, relying upon storage batteries, thus being sure of availability in any emergency.

Apart from these three ventures in the air, and the lessons conveyed by

them as to the essential utility of radio, it is interesting to record that a unique motor-car trip now in progress from Cape Town to Cairo, and on to Stockholm, which is being conducted by a General Motors' South African-built Chevrolet, is equipped with powerful receiving and transmitting equipment, so as to make it possible for the expedition to inform, and be informed, day by day. The travelling station has the call sign A8M, and is operating on wavelengths of 20 and 40 metre. This expedition, in addition to the principal, Mr. C. V. H. Lacy, carries a wireless expert in Mr. Wilson, a motion-picture photographer, and a publicity man.

Amongst other New Zealand short-wave enthusiasts who have been advised of this expedition's progress is Mr. E. A. Shrimpton, who has successfully worked stations in North Africa. The expedition left Cape Town on March 7, and probably by now has traversed Africa. So far we have no definite record of transmissions of A8M having been heard in New Zealand, but London and European stations are on the watch for their signals.

UNCLE JACK RESIGNS

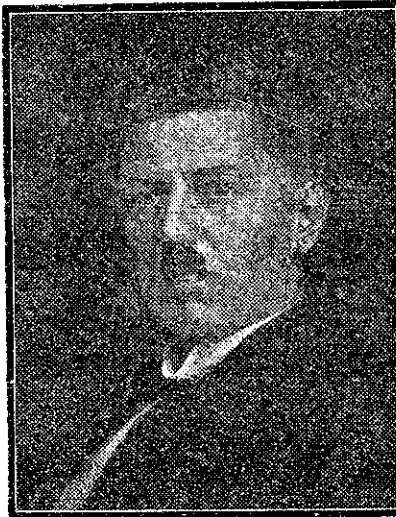
LOSS TO 3YA CHILDREN

THERE will be thousands of children (and grown ups, too) who will regret to hear that Uncle Jack of 3YA has resigned.

In advising the general manager that he would have to relinquish his radio duties after June 25, Uncle Jack (Mr. Ernest J. Bell, City Librarian) said in the course of his letter:—

"For close upon two years I have carried out this work, and I now feel that someone else should carry on. My work at the library is increasing rapidly, and there are many demands upon my time."

"I may say that I shall relinquish the work with many regrets because I have enjoyed doing it very much indeed. I have made numbers of friends throughout the Dominion, and should therefore be grateful if sometimes I could appear at the microphone by arrangement, and tell the children a few stories."



—Stefano Webb, photo.

THOSE who have not been radio uncles will not fully appreciate the wrench which accompanies a resignation of this nature, and such a wrench is particularly acute in the case of Uncle Jack, who has served such a long spell before the microphone, and whose popularity has not waned. This is testified to by the many thousands of letters which he has received. Stories have always been a feature of Mr. Bell's sessions, and his young listeners will be glad to read of his offer to appear sometimes before the microphone and tell a few more tales. It is very gratifying to know that Mr. Bell's services will not be completely lost to radio, in which he has played no small role.

X-RAY TROUBLE-FINDER

A LONDONER'S INGENUITY.

A LONDON radio enthusiast, Mr. George Clissold, uses an X-ray to discover breaks in his radio set.

He owns a receiver guaranteed for a certain length of time so long as the panel seal is not broken. His instrument developed a fault. Although quite sure that the receiver was at fault, he was loth to investigate further because of the seal.

A friend is an X-ray photographer, and he decided to have an X-ray photograph of the receiver taken. The picture disclosed that one wire was loose, being just held by the insulation.

On returning the receiver to the makers, he informed them that if they broke the seal they would find a certain wire disconnected, but he omitted to mention how he knew. His reputation as a radio expert went up when repairers found that his diagnosis was correct.

The Radio Depot

135 Manchester St., Christchurch.

E. G. SHIPLEY.

RADIO SPECIALIST.

Phone 4779.

Official Listeners

To Report on Programmes and Transmission

THE Broadcasting Company invites further applications from enthusiastic listeners who are prepared to offer their services as honorary official listeners.

Following the publication of the scheme in the "Radio Record," there was a splendid response from capable listeners throughout the Dominion who were willing to act in this capacity, but some more are still required to complete the network of advisory posts scattered over New Zealand.

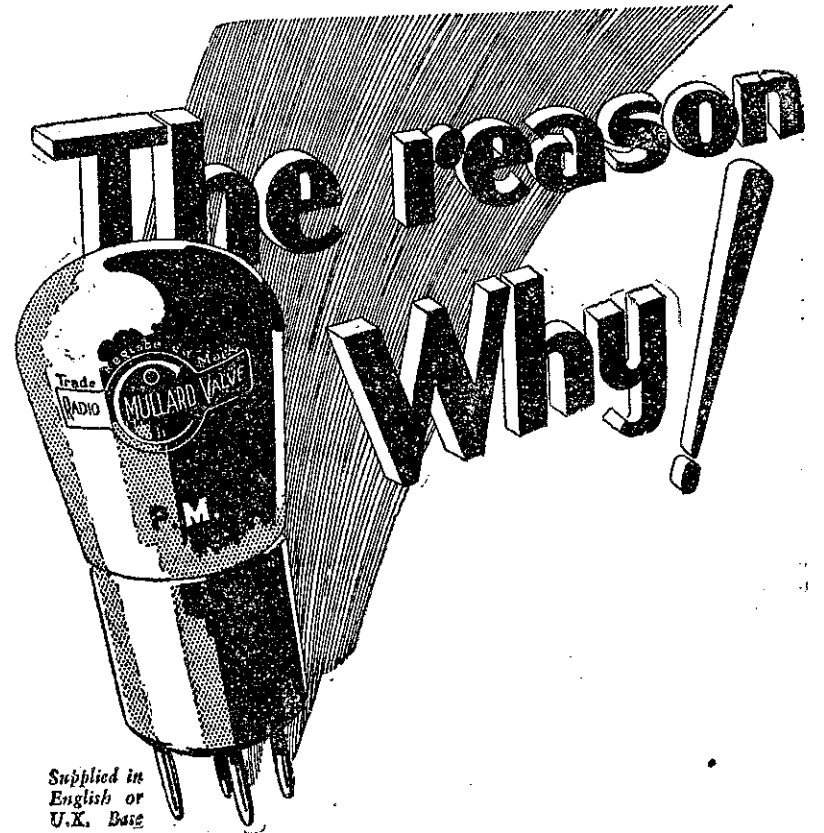
ON the programme preparation side, the Broadcasting Company is perfecting its organisation. It has its own officers and various advisory committees—church, music and dramatic, and children's session—which are all working efficiently. The company, however, is naturally anxious to learn how the programme "goes over" from the point of view of acceptability as well as technically. In other words, the network of listening posts throughout New Zealand will "check up" on the work of the committees and of the stations. This will be an effective way of gauging public opinion regarding all branches of the company's service.

THE reports sent in by official listeners will be carefully analysed at the head office of the company, and the company's service and policy will be directly influenced. It is therefore necessary that gentlemen (or ladies) who are appointed should be of sound judgment as well as possessed of a capable receiving set, the latter being very important in regard to reporting on transmissions.

LISTENING posts will be located not only in the towns, but in the country districts, for the country viewpoint on programmes may be somewhat different from that of the town.

APPOINTMENT as an official listener will not incur expense to the gentleman appointed, and be no more tax on his time than he is giving now, if he is an enthusiast. All fully accredited Official Listeners will be given a badge by the company. They will be put on the company's mailing list, and will receive periodical circulars relating to broadcasting affairs in New Zealand. The position is not one that calls for onerous work, but a lively and intelligent interest in broadcasting is essential.

THE Broadcasting Company will shortly have its supply of badges available, and its whole scheme of public relations will be put into operation. In the meantime, the company invites further applications from gentlemen prepared to take up the duties of official listener. It will be a very interesting and useful work.



ASK the man who uses them and he will tell you why Mullard P.M. Radio Valves, with the wonderful Mullard P.M. Filament are so popular.

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'Repeat' Coupon

Address: 2YA/0, Radio Record, P.O. Box 1022, Wellington.

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

Monday (Classic)
Tuesday (Operatic)
Friday (Popular)
Saturday (Vaudeville)

Signed

Votes may be recorded for one or for all of the nights mentioned. This selection is made at mid-day for the evening affected. Voting papers receivable till noon. Distant listeners may send forward their Monday's and Tuesday's votes if desired, in order to be in time, and follow later with Friday's and Saturday's wishes. The coupon is inserted for convenience, and may be supplemented in writing.

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From the Woman's Point of View.

By VERITY.

"The Better Way," No 2

COMPETITION RESULTS

THIS week we are publishing the result of our "Better Way" competition No. 2. The popularity of these competitions and the many excellent entries received make it no easy matter to select a prize-winner. The prize this month goes to "Fay Eglintine," Christchurch, for her "better way" of home-building, whose point of view is commendable and really covers the whole essence of "home."

In the belief that there is a great deal of talent among those who have not the courage to take up literature as a career, we are holding a literary competition for our readers this month, which we hope will prove interesting.

The "Better Way" competitions will be resumed at a later date.

The "Better Way" of Home-making.

AM still what is termed a "spinster" (odious word!), but with a home of my own in view I am ever on the alert for any hints I can glean from my married friends on the goodly maintenance of a home and "the better way" of performing household tasks.

Not long ago I spent a few days with a friend whose good housekeeping was almost a byword in the small town in which she lived, and from whom I hoped to learn much. I must confess that before my visit was over I felt very disappointed. Martha was undoubtedly a good housekeeper, yet, in spite of her excellent cooking, her shining silver and brass and her spotless rooms, I felt that there was something lacking in her home.

Martha's cupboards were full of beautiful china and silver, but these rarely saw the light of day, being kept for "company." There was a large drawing-room, a room of beauty and comfort, but this, too, was for other than those of the household. Martha's young son was in the habit of jokingly referring to this room as "The Museum," and I could not but think that his jesting words carried more than an element of truth. Rarely was a fire lit there, the family generally gathering in a smaller living-room while all the comfort and beauty of the drawing-room stood idle—waiting for whom? The casual guest, the passing stranger, while the nearest and dearest were without, partaking of "the second-best."

Wives and mothers, our home-makers, appeal to you. Is this just let alone reasonable? For whom are you building a home? Are your own of such small account that their comfort must ever be a secondary consideration? I, a potential homemaker, stoutly answer, No! Not for mine the "second-best," but all the comfort and beauty I can gather within my home shall be outpoured for them. Is not this "the better way" to build a home and to make it a place of true beauty, comfort and abiding joy?—"Fay Eglintine," Christchurch.

THE following "Better Way's" each receive the sum of 2s. 6d.:

Washing Day Made Easy.

TAKE a clean petrol tin and half-fill with water, add 4lb. of washing soda, and stir occasionally until dissolved. Then add 4lb. of ordinary unsalted lime, and stir well, let settle; a clear fluid will result, with sediment at bottom. Fill copper with cold water, add as much soap as desired, and one teacup (no more) of the clear fluid, stir well, then put the dry clothes into the copper and boil well for about half an hour. Rinse well, blue and starch as usual. Does not harm coloured clothes or flannels. Is excellent for blue overalls and men's greasy clothes.

It has proved the greatest labour-saver I have used for six years past.—Mrs. G. Munday, Christchurch.

Fish Batter.

WHEN frying fish, a batter made of custard powder, flour and water (about one dessertspoonful of custard powder to two tablespoons of flour) is a cheap substitute for eggs and gives a better flavour than a batter made of flour and water. Add a pinch of salt.—"E.R.H.," Epsom, Auckland.

Trimming Bacon.

WHEN cutting the rind off bacon, I always use a pair of scissors. The rind can be cut very closely, without wasting the bacon. I also cut the bacon into suitable lengths with the scissors. This plan is much more satisfactory than using a knife.—"Handy," Lawrence.

Cleaning Silver.

EVERY busy housewife dreads the weekly task of cleaning the silver. How many would rejoice if they only knew that a good handful of common cooking salt put into an aluminium saucepan of water and brought to the boil, and while at boiling point the silver immersed for a few minutes and then washed in clean, hot soapy water makes the silver look like new.—Mrs. G. White, Porangahau.

To Cook Steak.

INSTEAD of frying steak "the better way" is to place steak on a slightly greased enamel plate, cover with chopped onion and bread crumbs. Cover with another plate and cook in a moderate oven half to three-quarters of an hour.—Mrs. W. Peterson, Dargaville.

Mending China.

HERE is a way to repair broken china and other crockery. Melt some common alum, which may be obtained from any chemist, in a spoon over the fire and smear it over the broken edges. Press the pieces firmly together, and in a short time it will set and the article is repaired. Wash carefully, and you may now replace it in the china cupboard.—"Handy Housewife," Epsom, Auckland.

Mincing Bread Crumbs.

WHEN mincing dried bread crumbs, the better way is to tie a brown paper bag on to the mincing machine for the crumbs to fall into and then they do not scatter all over the table and floor, also they are easy to pour from the bag into a bottle when ready.—Miss Hector, Lower Hutt.

Cleaning the Hearth.

WHEN next you are using whiting or red ochre for the hearth or fireplace, try mixing it with boiled starch instead of water. It will not rub off and lasts much longer.—Mrs. Jenkin, Masterton.

"FAVOURITE NOVELS" COMPETITION MONTHLY PRIZES FOR WOMEN READERS

TO most women there is some book of especial attraction. It may be they find the story of enthralling interest, or perhaps the country in which the scenes are laid holds peculiar fascination. Again, the literary style may have a unique appeal, or some picturesque period in a historical romance.

For our Competition this month we invite readers to send the name of their "Favourite Novel," with the author's name, and a short summary, not exceeding 200 words, of the reason, or reasons, that it holds first place in the affections. A brief and interesting paragraph should be aimed at, conveying as far as possible the charm the book holds for you.

"The Radio Record" offers a prize of half-a-guinea for the best paragraph. The right is reserved to publish the whole or any part of any entry sufficiently original or striking (apart from the prizewinner) on payment of space rates. Entries must be written in ink, on one side of the paper only, and the name and address of the competitor should be written on the back of each entry.

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

The "Favourite Novels" competition closes July 20, and the result will be announced on the women's page on July 27.

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

The Letters of Annabel Lee

MY dear Elizabeth: In this year of grace 'tis but few occupations at which the New Poor does not try its slender and competent hand. Amazing to find those hitherto apart from vulgar pursuit of profit can hold their own and haggle with the best. It would seem that in Belgravia the commercial instinct flourishes as well as in Whitechapel, and with even more success and finesse. The shop-keeper is born, not made, and the tricks of the trade, if not exactly a gift of the gods, a kind of sixth sense essential in treading the path of mundane prosperity.

WITH eclat the mannequins of Mayfair combine sense of salesmanship with graceful, slippery slide, getting off decorative habiliments on lovely ladies with a celerity that makes them well worth high emolument proffered by enterprising, aristocratic employer, and incidentally rendering more difficult and arduous the way of the poor and pretty shop-girl, without influence or education, who a decade ago was a favourite peg of novelists wishful of depicting the perils of virtue.

WOODEN-HEADED are we to appear in the near future, if lucky enough to secure one of those late creations now worn in London by those aware of le dernier cri. Hailing from Paris, these are the work of an original and artistic designer, who weaves upon canvas foundation strange and charming shapes in wood of a most winning flexibility in tones of golden and russet, orange and rose beige and sand. Much sought after are they by noblesse and snoblesse; in fact, by all possessing the numerous shekels required, supply being for the moment limited and exclusive.

AT his brilliant best, Mr. Somerset Maugham is ahead of the majority of contemporary novelists and playwrights, provoking more than casual interest, and at times making imperishable impression; as who will question, remembering that sombre tale of genius and its words and works, "The Moon and Sixpence," which inexorably travelled to its dreadful close with the callousness of a malignant fate. As an example of economy of words, there is the revealing description of marooned travellers and true and terrible sketch of female depravity in the short story entitled "Rain," which no one, having read, is likely to forget. And now there is an "Ashenden," a collection of studies, many of them gruesome, but each an inherent quality of interest that holds the attention in thrall.

WITH many of our novelists, it would seem, we are safe in expectation of portrayal of seamy aspects of life. But with Mr. Hugh Walpole one never knows. From some charming fantasy exhibiting uncanny knowledge of the vagaries of a child's outlook, his versatile talent branches off to turn a searchlight on strange and sordid facets of civilisation. Equally at home with drainers and duchesses, to his probing vision and capable accomplishment, which explore many strange fields, nothing comes amiss, and he illuminates for us the outlook of illuminated dweller in Kedar's tents, dignitaries of the Anglican church, or those appalling and pathetic Old Ladies, the latter etched with devastating fidelity to type. In his able latest novel, "Wintersmoon," Mr. Walpole brings to his crowded canvas welcome reappearance of interesting characters in "The Duchess of Wrex," telling this tale of mod-

ern society and manipulating his puppets with all his wonted verve.

ON these winter nights of cold and streaming rain, hurrying homewards through dreary streets, even the hard-hearted finds time for kindly glance at those cheery habits of the kerbstone, the newspaper boys who shout their wares in young voices rendered raucous by the atmosphere and the nature of their calling. Recently purchasing an evening paper, inadvertently another journal was offered to me. The mistake was hastily rectified, and, surveying me from red-rimmed eyes in which shone a glint of chivalry, with a tact worthy of Adam of Dublin himself, my newsboy remarked casually: "No, that's not the paper for you! A Very Impertinent Paper, that is! Not for a lady like you!" An impertinent paper indeed, and one that I sometimes read; but I appreciated the tribute to my literary taste, as I surveyed those bulging boots that had reached last stage of decrepitude, and ragged coat covering youth so plucky and pleasant and gay.

THIS morning, tramping through my suburb with the nine o'clock brigade, I chanced I passed the open door of a bungalow, in which stood a portly female, lacquered hair gleaming in the tepid sunshine, dangling string of pearls and ornate dressing strangely incongruous at that hour. Before her, across the road staggered an infinitesimal, pampered mongrel on spidery legs, yapping and shivering in its padded coat. "Not too far, darling," pleaded the stout lady. "Come back honey, sweet one: come back to Mummy!" The contrasts of life! Your

ANNABEL LEE.

TO-DAY AND TO-MORROW

The Green Hat.

MOST skillfully decked was a win-dow in Wellington recently with subtle varieties of the Green Hat. A subsidy, one agrees, is due to the perpetrator of the novel that everyone read, or tried to read, concerning the non-moral lady who squashed artistic green headgear upon ravishing golden head, to the tune of much strange chat amid more than mildly Bohemian surroundings. This exhibition of the made, for beguilement of feminine heart and coin, ranged in colour from the attractive duck-egg shade, through many gradations, to a velour of that consoling jade in which golden blondes whom gentlemen prefer look their loveliest. A small cloche, with vanishing brim and small chic buckle, if worn with the right impudent detachment and nez retousse, would be quite capable of seducing an anchorite.

They Say:

THAT through the enterprise of the B.B.C. thousands of listeners in England have had the opportunity of appreciating the superb art of Miss Sybil Thorndike. The great tragedienne's performance of "Medea" has been broadcast, to the delight of those inhabitants of the British Isles fortunate enough to possess, or have a friend who possesses, a radio set.

THAT Dr. Marshall Macdonald's flair for literature found admirable expression in an address given on the occasion of the centenary of the birth of Dante Gabriel Rossetti. In an acute and impersonal tribute to the mystical imagery and haunting loveliness of his poetry, the supernatural quality and spiritual beauty of his painting, Dr. Macdonald was at his notable best. It is to be regretted that so illuminating study of the work of the poet and painter, of his chameleon-like personality, was available to only a limited audience, and was not broadcast for the delight of all lovers of art in its different manifestations.

Women as Critics.

LEON Feuchtwanger, the much-discussed author, finds his most stimulating and finely attuned critics among women. He states that they have a sure feeling for quality, and are capable of sinking themselves entirely in a work of art without losing a discriminating ear for false notes. He is by no means insensitive to their approval. Writing for the "Women's Journal," he says:—"It would be foolish hypocrisy to deny that I find success pleasant—the hymns of praise in newspapers, and among the general public, the approval of the not very large band of friends whose opinion I value; but to all these things one becomes gradually accustomed. What never grows stale is the adventure of work itself, its triumphs and failures, and—perhaps—the joy of seeing its final effect mirrored in the face of an understanding woman."

Women and Politics.

THE Women's Unionist Organisation, which held its annual conference in London on May 10, reported an increase of 90,500 members last year.

The Countess of Inveagh, M.P. presided at the morning session of the conference, and Lady Newton in the afternoon. Mrs. Baldwin met the delegates at a reception on the evening of May 10.

On the afternoon of May 11, the Prime Minister addressed a mass meeting in the Albert Hall.

No Wish to Marry Lindbergh.

WHEN 150 girls in a school in Columbia were asked if they would like to marry the famous aviator, Colonel Lindbergh, only 29 answered in the affirmative. Of the 105 who gave negative answers, 63 were in love with someone else, 17 said he was too popular, 12 "did not care for his type at all," 6 were afraid he might get killed at any minute, and 3 could not bear the idea of marrying a famous man and being known only as his wife.

Barnyard Buttonholes.

THE new buttonholes are most attractive, and get larger every day. Real flowers are worn a good deal by smart women who can afford them, but there are lovely artificial posies that look so real you feel you must smell them. Kingcups, polyanthus, cowslips, and anemones mixed together look very fresh and gay on a tailor-made.

The Duchess of York was seen wearing one of the new barnyard buttonholes the other day.

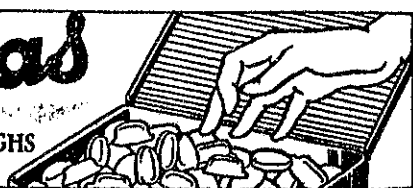
Heaviest Women Smokers.

It is computed that 100,000,000,000 cigarettes are smoked every year in Great Britain, of which 40,000,000 are made every day at the Nottingham factories of Messrs. Players, who celebrated to-day the centenary of their foundation by Mr. William Wright. The firm has evidence that English women are the heaviest women smokers of cigarettes in the world; that soldiers and outdoor workers are the heaviest smokers of all; and that most cigarettes are smoked between six and seven o'clock in the evening.

Shock-proof Watches.

THE newest watches are very original and surprising. The watch itself is scarcely thicker than a penny, and is set on a flat, inch-wide diamond bracelet. Its face is covered with a sliding jewelled lid, and its works are guaranteed shock-proof. These watches are also made up to wear as pendants.

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MAGISTRATE (to prisoner): "I seem to have seen you somewhere before."

Prisoner: "Yes, Your Worship, I had the honour of teaching your son how to rig up a wireless set."

Magistrate (severely): "Six months without the option!"—From "Le Figaro."

Tonking's Linseed Emulsion
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Some Features of Next Week's Programmes

TWO NOVELTY ENTERTAINERS AT 3YA

BICYCLE PUMP AND PHONO FIDDLE.

Messrs E. H. Hunter and Vernon Lawford, whose novelty items attracted much attention at 3YA, have now joined forces in duet work. The combination is excellent.



Steffano-Webb Photo

E. H. HUNTER AND VERNON LAW FORD

"MARITANA" AT 1YA

OPERATIC selections now occupy a high place in order of popularity. Opera is more popular now than in the early days of radio. More people are now listening-in, and thousands of people have come to appreciate opera because of becoming familiar with it through the receiving set. That is why the weekly excerpts at 1YA, as produced in the studio by Madame Irene Ainsley, are so popular. The opera to be taken next week will be the famous work by Wallace, "Maritana." The pieces produced will include the famous "Prison Scene," and other well-known solos and duets.

The vocal portion of the remainder of the programme will also be given by the Madame Irene Ainsley operatic party.

"Some of the Pioneers" will be the subject of Mr. A. B. Chappell's lecture on Tuesday evening, in continuing his talks on Old New Zealand.

The orchestral selections for the evening will be broadcast from the Majestic Theatre, the orchestra being under the able conductorship of Mr. J. Whitford-Waugh. The instrumental items will be contributed by the Auckland Trio, Miss Ina Bosworth, and Mr. Eustace Tregilgas.

AT 7.45 p.m. on Wednesday evening Mr. Norman Kerr will continue his interesting and popular talks on "Physical Culture."

Wednesday evening's programme will be a relay of the Municipal Organ recital for the Auckland Town Hall, the organist being Mr. Maughan Barnett, who has arranged a varied and popular programme for the evening. The organ will be assisted by the Hazell-Sutherland Duo and Miss Lynda Murphy. Miss Murphy will contribute a number of her most popular humorous sketches.

CONTRIBUTING to the vocal portion of Thursday evening's programme will be Mr. Barry Coney's Quartet, who will sing "Venetian Boatmen's Sing" and "Slavonic Cradle Song." Continuing his talks of "A Wayside Philosopher to His Friend," Mr. F. Barker will talk on "Doubling Your Salary," a subject that should be interesting to all listeners. Mr. Barker will also contribute a humorous number, "Snorkius." Instrumental numbers to be performed by the Auckland Trio include "First Movement" from the "Dumky Trio," by Dvorak, and "Cobweb Castle," by Loza Lehmann. Mr. Cyril Towsey will play "In Senta's Spinning Room," by Beethoven. The popular "Snappy Three" will also contribute to the programme, their numbers including "Broken-Hearted," "The Song is Ended," and a jazz piano medley.

THE programme for Friday evening, is of a most varied nature. Vocal quartets to be sung by Madame Towsey's Quartet include "The Prayer," from "Moses in Egypt" (by Rossini), and "When Evening's Twilight" (by Hattton). A choice selection of solos will be sung by the members of the quartet.

The photograph shows clearly the nature of Mr. Lawford's single stringed instrument which, as a leading member of a musical combination known as the Napier Minstrels, he played for many years. Mr. Lawford is employed by the Post and Telegraph Department.

Mr. Hunter, whose father, Mr. J. B. Hunter, was one of the first bandmasters in Christchurch, is also a civil servant, being employed by the Railway Department. He himself is a bandsman. He plays the tenor horn, but he can extract music from almost anything. The bicycle pump is blown as one would a flute, and is operated on the trombone principle.

ing wed to music, ranking only next to the finest example of this class of work—viz., Mendelssohn's wonderful music to "A Midsummer Night's Dream." The Symons-Ellwood-Short Trio and the Studio Orchestra will also contribute to the programme.

ON Tuesday the Orpheus Quartet will sing the song cycle, "The Mountebanks," by Easthope Martin. This work was unavoidably postponed from May 29. The wandering minstrels come to the "Barley-mow Inn," and mine host offers them bread and board if they in their turn will ply their art before the company. The cycle goes on to describe the items by the mountebanks.

AMONG the items to be played by the orchestra on Tuesday evening will be the famous "Nutcracker Suite." Request numbers and the latest dance novelties are also on their programme. On the vocal side of the evening's entertainment, in addition to "The Mountebanks," many good items will be given. Mr. Len Barnes will sing "The Prologue" from "I Pagliacci," also "The Requiem," written by Mr. R. A. Horne, of Christchurch. Mrs. Alice Harris will sing "Angus MacDonald," and Miss Lily Mackie, "Here in the Quiet Hills," from the comic opera "Doris," by Cellier. Mr. Arthur Coe has selected "So Fare Thee Well." A duet, "A Summer's Night," by Goring Thomas, will be sung by Miss Lily Mackie and Mr. Len Barnes. Mrs. M. Thomas will present humorous elocutionary numbers, and there will also be a short organ recital by Mr. E. Temple White, broadcast on relay from Taranaki Street Methodist Church.

THE programme to be submitted by the popular Lyric Quartet on Thursday, is one marked by great variety, and extends from favourite operatic numbers to simple nursery rhymes. The concerted numbers to be rendered by the quartet will include the melodious Irish folk song, "Oft in the Silly Night," and the old English melody, "In the Gloaming." Then there is the nursery story concerning Doctor Foster. The solo items will be sure to please, for Mr. Will Goudie will render in rousing style that popular number from Bizet's opera "Carmen," "The Song of the Toreador." In contrast to this, the tenor voice of Mr. Charles Williams will be heard to advantage in that beautiful song of Coleridge-Taylor, "Eleanor," and the deep bass voice of Mr. W. Binet Brown is emblematic of the "Toreador."



Photo. Crown Studio, Auckland
CECIL SCOTT.

Cecil Scott, who is appearing with the "Diplomats" Revue Company at the Embassy Theatre, is one of the finest baritone voices heard in Auckland for some time. His handsome and pleasing appearance has already installed him as the Matinee Idol at this new vaudeville theatre. Mr. Scott will be heard on the wireless programme of 1YA, June 16, when he will sing "Yesterday," one of his latest successes.

ently suited to "Beloved, Awake." A duet will also be rendered entitled "The Lovers." Listeners are assured that the vocal portion of this programme will be quite up to the high standard always attained by the Lyric Quartet.

RONNIE and Monty, a comedy duo, will be on the bill in two items, "Where Does the Candlelight Go?" and "Heaven." The second is an original composition and is not suggested as being the sequel to the first.

THE instrumental music of Thursday's programme will be supplied by the Wellington Municipal Tramways Band, under the able conductorship of Mr. T. Goodall. Mr. Goodall will be heard in one of his finished cornet solos, and Bandsman Ballantyne is scheduled for a trombone solo.

ON Friday, June 22, the Etude Quartet will share in a varied programme. Their own numbers will include selections from grand opera.

VAUDEVILLE ARTISTS AT 1YA

THE HARRIS SISTERS

Connie and Millie Harris, the exceptionally clever "stars" of the "Diplomats" Revue, who will be heard on the wireless programme of 1YA next week, have been receiving unstinted applause for the past two weeks at the Embassy Theatre, the



Photo Mason, Brisbane.

new home of vaudeville in Auckland. Miss Connie Harris has proved herself one of the most versatile comedienne who have yet appeared on the Australian stage, and with her youth and ability should quickly find her way to the front ranks of the theatrical profession. Connie can always make you laugh, be it with her facial contortions, her vocal imitations of other artists, or her jokes at the expense of her pretty sister Millie, who in turn, with her rather retiring and charming manner, can win her way into the hearts of the most critical audiences. The Harris sisters are musical artists of no mean order, and with the harp, violin, trumpet, piano, accordion, or cornet, can give an item which abounds with talent.

musical comedy and some popular ballads. From "The Runaway Girl" will be sung the trio, "We Have Left Pursuit Behind Us." There is also the old-time favourite, "Sweet and Low," and a fox-trot, "The Dancing Tambourine," arranged for the quartet by Mr. Len Barnes. Mr. Frank Skinner will sing "The Flower Song" from "Carmen." Carmen threw a rose at Don Jose's feet, which flower he cherished even in the prison cell, where he is thrown for having deserted the army for Carmen. She falls in love with Escamillo, but in this song Don Jose tells of his love for Carmen, showing her the flower she threw to him. Mr. Ray Kemp sings the old favourite, "The Yeoman's Wedding Song" and "Ma Little Banjo." Tosti's "Serenata" and "The Cuckoo," by Martin Shaw, will be sung by Miss Gretta Stark, and Miss Rita Arnold will give "Hushen," a beautiful lullaby. Other contributors to the evening's entertainment will be the Two Boiled Owls, Mrs. Kenny's Mandolin Band, the Studio Orchestra and the Symons-Ellwood-Short Trio.

FOR Saturday night's programme at 2YA the Melodie Four will present a number of concerted items from their extensive repertoire. Among the quartets which will be sung on this date is the humorous "Goslings," which tells the story of the sad fate which befel two little goslings. "Little Tommy Went a'Fishing" and "Stars of the Summer Night" will also be sung on this occasion. The solo items include "God Bless the Prince of Wales" and "Give a Man a Horse He Can Ride."

Mr. Lad Haywood with his Italian mandolin, and the Glad Idlers, with their light vocal numbers, will also entertain, while the Studio Orchestra will play selections and dance music.

3YA FEATURES

SPECIAL interest will attach to Monday evening's studio concert, for the Woolston Band will make its first appearance in the realm of broadcasting. A splendidly-varied programme will be submitted.

THE vocal portion of Monday's concert programme will also be particularly good. The artists contributing will include Miss Constance Flammank (contralto) and Mrs. Daisy Pearce (mezzo-soprano). Mr. Charles Lawrence and Mr. Les Stewart will be heard in popular songs, and harmony duets at the piano, while Mr. R. H. Wills, a winner at the recent Christchurch Competitions, will give humorous recitations.

A novelty turn at 3YA on Monday will be the singing by Mr. Percy Nicholls of a song, followed by a gramophone record (electrically produced) of the same item, sung by Mr. Nicholls. As the announcer will not state which is the record and which is the voice of Mr. Nicholls, listeners will be left to decide for themselves.

The fortnightly talk on books by Mr. E. J. Bell will precede the studio concert on Monday.

(Continued on Page 14.)

2YA ATTRACTIONS

MISCELLANEOUS as it is in character, the programme to be presented by the Ariel Singers at 2YA on Monday will include, among other things, three more of the popular "Sea Chanties" and Gounod's "Serenade" (with violin obbligato); also a great tenor and bass duet, "The Outpost Vigil." The vocalists will be Madame Emily Briggs, Miss Ngaire Coster, Mr. J. M. Caldwell, and Mr. Roy Hill.

AT the Ariel Singers' next radio recital on June 25, they will, in conjunction with the Symons-Ellwood-Short Trio, specially feature works by a well-known local composer, Mr. Claude M. Haydon, Mus. Bac., of Lower Hutt.

ON Monday evening Mr. A. Stanley Warwick will be heard in one of the most beautiful monologues that has ever been written, "The Selfish Giant." The words are by Oscar Wilde, and the music by Liza Lehmann. The piano-forte part will be played by Mr. Gordon Short. The monologue takes over thirteen minutes to perform, and is a really splendid example of words be-

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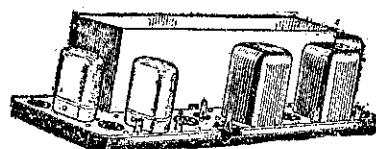
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ART-LITE STUDIOS

(Chas. M. Brown).

21A PRINCES ST., DUNEDIN
(Above the Ritz).

Full Programmes for Next

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NOTES AND COMMENTS

(By "Switch.")

A RADIO acquaintance told me in pensive tones the other day that with his brand-new two-valve set he was unable to get 2FC, Sydney, clearly unless he turned back one of his controls. I told him that unless he turned that control back and stopped his valve from howling he would find the radio inspector tapping at his front door one of these nights. The set my acquaintance operates is a notorious howler unless correctly operated.

IT is quite certain that Wellington listeners are anything but unanimous on the subject of the "silent night" of 2YA, Wellington. Many scores of Wellington listeners who operate multi-valve sets look forward to the Wednesday night, when 2YA is off the air, in order that they may tune in "outside" stations. It is the lot of few residing within a couple of miles of the Wellington station to be able to tune in 2FC, Sydney, while the local station is hammering the atmosphere.

NATURALLY the crystal set owner wants the "silent night" of 2YA eliminated, but the crystal owner in the fullness of time becomes the possessor of a good valve set, and then wants the "silent night." The same conditions prevail at Auckland, Christchurch and Dunedin. The Broadcasting Company can't please all the people all the time.

BY-THE-WAY, the "silent night" in Wellington provides a great opportunity for the radio inspector and his trouble-finding outfit to locate some of the "howlers." On Wednesday night Bedlam is let loose in Wellington, and the shrieks and howls suggest a "late night" among the departed spirits in Tophet. There are two "howlers" in the city area of Wellington who would prove an easy "sitting shot" for the radio inspector and his loop receiving set. They never cease howling for two or three hours. One squats on 2FC, Sydney, and growls persistently by the hour. He runs up and down the scale on top of 2BL, Sydney, from two to three hours nightly.

THE much-heralded co-ordination of programmes promised by the amalgamation of 2BL, Sydney, and 2FC, Sydney, seems to have missed fire, and one often hears exactly the same type of item being broadcast simultaneously by from both stations. Take, for instance, Tuesday night, June 5. I got a man-and-woman dialogue from 2FC, and, switching over to 2BL, found a man and woman jabbering inanities at each other also at that station. There are a host of listeners who cannot tolerate these "maggings" acts, and I can imagine the disgust of a crowd of such listeners in Sydney tuning from one local station to the other to escape this senseless cackle, only to find that both stations were hurling out this sort of stuff.

I TAKE it that true co-ordination does not stop merely at refraining from simultaneously broadcasting the same sports meeting, football or cricket match, or race meeting, etc. I contend that if two stations are located in one city their programmes should be arranged so that two sets of dialogues are not simultaneously being put on the air. Every plebiscite that has come under my notice, and I have analysed several which have been taken outside of New Zealand, show that dialogues are decidedly low in the scale of popular favour.

GRANTED that there is a proportion who relish these dialogues and should have an occasional dose of this stuff, it is not good management to give these folk both barrels simultaneously. Even they would prefer to have one station fire it at them at a time.

THIS reminds me that from one of the Sydney stations on Tuesday night, June 5, I listened to a gentleman member of Edgar Warwick's party of entertainers, endeavouring to sing "The Sergeant-Major on Parade." He sang it with about as much vim and colour as though it were a hymn. The blustering hue "Pick it up, pick it up" was given with as much vigour as Mary calling her little lamb.

OH, yes, they have break-downs of their relays even in Australia. We New Zealanders are wont to set up a terrific howl if something goes wrong in a relay. The other night I sat back to listen to a relay of a concert at Lilydale (Victoria), at which Dame Nellie Melba was to sing. The relay was by both 3LO Melbourne, and 2FC Sydney. I preferred to take it from 2FC, as he was the louder.

THE singing of the diva came through very nicely until something went wrong with the relay line between Melbourne and Lilydale. Well, I got some of Melba's items, and some of John Lemmone's flute solos between breaks in the line, but eventually the breaks became so frequent and prolonged that the relay had to be abandoned.

Sunday, June 17

1YA AUCKLAND (333 METRES)—SUNDAY, JUNE 17.

- 2 p.m.: Afternoon session—selected studio items.
4.0: Literary selection by the Announcer.
4.8: Selected studio items.
4.30: Close down.
6.0: Children's session, conducted by Uncle Leo, assisted by cousins from Beresford Street Sunday School—song service.
6.55: Relay of service from Pitt Street Methodist Church—preacher, Rev. Lionel B. Dalby; choirmaster, Mr. W. Leather.
8.30: Relay of organ recital by Mr. Maughan Barnett from the Town Hall.
9.30: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, JUNE 17.

- 3 p.m.: Afternoon session—selected studio items.
4.30: Close down.
6.0: Children's service, conducted by Uncle Ernest, assisted by choir from Church of Christ, Newtown.
6.55: Relay of evening service from Taranaki Street Methodist Church—preacher, Rev. Clarence Eaton, organist and choirmaster, Mr. H. Temple White.
8.15 (approx.): Relay of band recital of the Wellington Municipal Tramways' Band from His Majesty's Theatre—conductor, Mr. T. Goodall.
Close down.

3YA, CHRISTCHURCH (306 METRES), SUNDAY, JUNE 17.

- 5.30 p.m.: Children's song service, conducted by Uncle Sam, assisted by children from Moorhouse Avenue Church of Christ Sunday School.
6.30: Relay of evening service from Church of Christ, Moorhouse Avenue. Preacher, Rev. Jas. Crawford. Organist, Miss E. Hepburn. Director of Choir, Mr. H. Ames.
7.45: Musical items from studio.
8.15 (approx.): Rebroadcast by relay of 2YA, Wellington (concert by Municipal Tramways' Band from His Majesty's Theatre).
God Save the King.

4YA, DUNEDIN (463 METRES), SUNDAY, JUNE 17.

- 5.30 p.m.: Children's song service, conducted by Big Brother Bill, assisted by children from the Trinity Methodist Sunday School.
6.30: Relay of service from Knox Church. Preacher, Rev. Tulloch Yullo, M.A., B.D. Organist, Mr. W. Paget Gale.
8.0: Studio concert.
9.15: Close down.

Monday, June 18

1YA AUCKLAND (333 METRES)—MONDAY, JUNE 18.

SILENT DAY.

2YA WELLINGTON (420 METRES)—MONDAY, JUNE 18.

- 2 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sporting results to hand.
5.0: Close down.
6.0: Children's session—Aunt Gwen and Uncle Jeff, assisted by pupils of Miss Gwen Shepherd—duets, puzzles, stories and greetings.
7.0: News session, market reports and sports results.
7.40: Lecturette—Mr. H. E. South, "Books—Grave and Gay."
8.0: Chimes of the G.P.O. clock.
8.1: Overture—The Orchestra, "Le Blanche Dame" (Brieldiere).
8.10: Vocal duet—Messrs. Roy Hill and J. M. Caldwell, "The Outpost Vigil" (Rivers).
8.15: Soprano solo (with violin obbligato)—Madame Emily Briggs, "Serenade" (Gounod).
8.20: Instrumental trio—Symons-Edwood-Short Trio, "1st Movement Trio" (Tschalkowsky).
8.30: Recital—Mr. Stanley Warwick, "The Selfish Giant" (Wilde-Lehmann).
8.42: Tenor solos—Mr. Roy Hill (a) "Mary of Allendale" (arr. Lane Wilson), (b) "My Lovely Celia" (arr. Lane Wilson).
8.48: Orchestral suite—Orchestra, "Peer Gynt Suite" (Grieg):
Peer Gynt, the only son of poor peasants, is drawn by the poet as a character of morbidly developed fancy. In his youth he has many wild adventures: for instance, he stole the bride from a peasant wedding and carried her up to the mountain peaks. Here he leaves her (No. 1 "Ingrid's Lament") to roam with wild cowherd girls. He then enters the Kingdom of the Mountain King, whose daughter falls in love with him, and dances to him. But he laughs at the

dance and droll music, at which the enraged mountain folk try to kill him. He escapes and wanders in foreign lands, among others Morocco, where he appears as a prophet and is greeted by Arab girls (No. 2, "Arabian Dance"). After many hardships he returns as an old man, suffering shipwreck on the way (No. 3, "Peer Gynt's Return") to his home as poor as he left it. Here the sweetheart of his youth, Solveig, awaits him, faithful through all the years (No. 4, "Solveig's Song").

- (No. 1) "Abduction of the Bride" (Grieg).
(No. 2) "Arabian Dance" (Grieg).
(No. 3) "Peer Gynt's Homecoming" (Grieg).
(No. 4) "Solveig's Song" (Grieg).

- 9.0: Weather forecast.
9.2: Mezzo-contralto solos—Miss Ngaire Coster, (a) "Love's Whisper" (Willeby), (b) "Rose in the Bud" (Forster).
9.10: Bass solos with male chorus—Mr. J. M. Caldwell, (a) "Blow the Man Down," (b) "The Hog's Eye Man," (c) "The Wild Goose Shanty" (from "Sea Chanties," arranged by Terry).
9.18: Request numbers—the Orchestra.
9.28: Recital—Mr. Stanley Warwick, "Como" (Miller).
9.32: Soprano solos—Madame Emily Briggs, (a) "Sylvain" (Sinding), (b) "Come Down to Itomaka" (Lehmann).
9.38: Orchestral selection—the Orchestra, (a) "Ave Maria" (Gounod-Bach), (b) "Valse" (Moskowski).
9.47: Bass solos—Mr. J. M. Caldwell, (a) "Why Shouldn't I" (Kennedy Russell), (b) "If I Were" (Richards).
9.49: Snite—the Orchestra, "Ballet Suite" (Romeau-Motti), (a) "Minuet," (b) Murette, (c) "Tambourin."
Close down.

3YA CHRISTCHURCH (306 METRES)—MONDAY, JUNE 18.

- 3 p.m.: Afternoon session—selected studio items.
4.25: Sports results.
6.0: Children's Hour—Chimes, bedtime stories, songs and birthday greetings; Uncle Jack.
7.15: News and reports.
7.30: Talk—Mr. E. J. Bell, "Books."
8.0: Chimes.
Orchestral music from the Strand Theatre Orchestra, under the conductorship of Mr. Harry Ellwood (by kind permission of the management).
Band concert programme by the Woolston Brass Band, under the conductorship of Mr. R. J. Estall, and assisting 3YA artists from studio.
8.5: Popular song—Mr. Les. Stewart, "Hello, Little Girl of My Dreams" (Berk).
8.9: March—the Band, "Harlequin" (Rimmer).
8.14: Mezzo-soprano solo—Mrs. Daisy Pearce, "Hush Me, O Sorrow" (Somerset).
8.18: Overture—the Band, "Zauberflote" (Mozart).
8.29: Harmony duet at piano (pianist, Mr. Charles Lawrence), Messrs. Charles Lawrence and Les. Stewart, "I Wish You Were Jealous" (Rowel).
8.31: Humorous recitation—Mr. R. R. Wills, "A German Bed" (M.S.).
8.36: Contralto solos—Miss C. Flammank, (a) "Still as the Night" (Bohm), (b) "Tangi" (Hill).
8.42: Selection—the Band, "Annie Laurie" (arrgd. Rimmer).
8.47: An interlude at the piano—Mr. Charles Lawrence, "At the Party" (original M.S.).
8.51: Selection—the Band, "William Tell" (Rossini).
9.1: Novelty item (tenor singer and his gramophone record)—Mr. Percy Nicholls (tenor), "Ave Maria" (Schubert), followed by his record, "Ave Maria" (Schubert).
9.4: Talk—Captain J. L. Findlay, M.C., "Aviation."
9.19: Weather report.
9.21: Overture—relay from the Strand Theatre Orchestra.
9.31: Popular song—Mr. Les. Stewart, "Ten Thousand Years From Now" (Ball).
9.35: Humor, fantasy—the Band, "Three Blind Mice" (Douglas).
9.41: Mezzo-soprano solo—Mrs. Daisy Pearce, "Ring, Bells, Ring" (Day).
9.47: Cornet solo, with band accompaniment, "O, Dry Those Tears" (Del Riego).
9.51: Harmony duet at the piano—Messrs. Chas. Lawrence (piano) and Les. Stewart, "Drifting and Dreaming" (Alstyne).
9.56: Recitation—Mr. R. R. Wills, "Linguistic" (J. K. Jerome M.S.), "Experiences."
10.0: Contralto solo—Miss C. Flammank, "O Love From Thy Power" (Samson and Delilah), (Saint-Saens).
10.4: Humoresque—the Band, "The March of the Mannikins" (Flesher).
10.9: An interlude at the piano—Mr. Chas. Lawrence, "Bits and Pieces" (original M.S.).
10.13: Novelty item (tenor singer and his gramophone record)—Mr. Percy Nicholls (tenor), "Vale" (K. Russell), followed by his record, "Vale" (K. Russell).
10.19: March—the Band, "The Mouse" (Linke).
God Save the King.

4YA DUNEDIN (463 METRES)—MONDAY, JUNE 18.

SILENT DAY.

Tuesday, June 19

1YA AUCKLAND (333 METRES)—TUESDAY, JUNE 19.

- 3 p.m.: Afternoon session—selected studio items.
3.30: Lecturette on "Electric Cooking."
3.45: Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Uncle George, assisted by pupils of Mrs. Bartley-Baxter—song, Cousin Edna, "A Prayer"; recitation, Cousin Marjory, "Elizabeth in London"; musical sketch, Cousin Gwen, "Child Imitation"; letters and birthdays; recitation, Cousin Beryl, "Sixpence"; song, Cousin Edna, "Bold Sir Brian"; recitation, Cousin Marjorie, "Old Mother Spider"; storytime.
7.15: News and market reports.
8.0: Chimes.
8.1: Relay of orchestral overture from Majestic Theatre Orchestra, under the conductorship of Mr. J. Whiteford-Waugh.
8.6: Contralto solo—Madame Irene Ansley, "Dopo" (Tosti).
8.10: Instrumental trio—Auckland Trio, "Shepherd's Lament" (Weber).
8.19: Baritone solo—Mr. John Hogan, "The Fishermen of England" (Sander-son).
8.23: Cornet solo—Mr. Eustace Tregilgas, "Lucille Caprice" (Code).
8.28: Soprano solo—Miss Ailini Rogers, "The Crown" (Rae).
8.32: Violin solo—Miss Ina Bosworth, "Slow Movement from Concerto in E Minor" (Mendelssohn).

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Week - All Stations - to June 24

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- 8.36: Tenor solo—Mr. Robert Peter, "Once Again" (Sullivan).
8.40: Flute solo—(Record, G. Barrere), "Minuet From L'Arlésienne Suite" (Bizet).
8.44: Lecturette by Mr. A. B. Chappell, M.A., "Talks on Old New Zealand, No. 14—Some of the Pioneers."
8.59: Relay of orchestral entr'acte from Majestic Theatre.
9.4: Weather forecast.

- 9.5: Excerpts from "Maritana" (Wallace), including the famous prison scene—produced under the direction of Madame Irene Ainsley. "Maritana," an opera in three acts, was first produced at Drury Lane Theatre, London, on November 15, 1845. It is one of the most popular and successful of the mid-Victorian school of English opera, and tells of the love of the beautiful young gipsy girl, Maritana, and one, Don Caesar.

Cast.

Maritana Miss Airini Rogers.
Lazarillo Madame Irene Ainsley.
Don Caesar Mr. Robt. Peter.
Don Jose Mr. John Hogan.
"Of Fairy Wand" Maritana and Don Jose.
"The Angelus" Chorus.
"Alas! Those Chimes" Lazarillo.
"Turn On, Old Time" Trio.
"In Happy Moments" Don Jose.
"Let Me Take a Soldier's Fall" Don Caesar.
"Scenes That Are Brightest" Maritana.
"A Stranger Here" Maritana and Don Caesar.
"Sainted Mother" Maritana and Lazarillo.
"Vive Maritana" Fingale.

- 9.40: Instrumental trio—Auckland Trio, "Keltic Suite" (Foulds).
9.47: Cornet solos—Mr. E. Tregilgas, (a) "The Pearls" (Chambers), (b) "Portia and the Merchant of Venice" (arr. Rosse).
9.56: Contralto solo—Madame Irene Ainsley, "Break, Break, Break" (Carey).
10.0: God Save the King.

N.B.—Special Vaudeville Numbers from the Embassy Theatre will be broadcast during the above programme.

2YA WELLINGTON (420 METRES)—TUESDAY, JUNE 19.

- 3 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sporting results to hand.
5.0: Close down.
6.0: Children's session—Conductor Stewart and Big Brother Jack on the Radio Train; songs, mandolin and banjo selections.
7.0: News session—market reports and sports results.
7.40: Lecturette "For the Man on the Land," by a representative of the Agricultural Department.
8.0: Chimes of the G.P.O. clock.
8.1: Overture—the Orchestra, (a) "Tzigane" (Lacome), (b) "Tales from the Vienna Woods" (Strauss).
8.9: Baritone solos—Mr. Len Barnes, (a) "Requiem" (Horne), (b) "The Prologue" from "Pagliacci" (Leoncavallo).
8.18: Violin and piano—Miss Ava Symons and Mr. Gordon Short, "Rondo from Sonata in F" (Beethoven).
8.28: Soprano solo—Mrs. Alice Harris, "Angus Macdonald" (Roeckel).
8.33: Orchestral selections—the Orchestra, "Nutcracker Suite" (Tchaikovsky); (a) "Overture," (b) "Arab Dance," (c) "Dance of the Sugar Plum Fairy," (d) "Russian Dance," (e) "March," (f) "Chinese Dance," (g) "Dance of the Reed-Pipes," (h) "Waltz of the Flowers."
8.45: Humour—Mrs. M. Thomas, (a) "Should a Woman Tell" (Townsend); "In the Rain" (Harvey).
8.51: Contralto solo—Miss Lily Mackie, "Here in the Quiet Hills" (Carne).
8.54: Tenor solo—Mr. Arthur Coe, "So Fare Thee Well" (Cellier).
8.58: Vocal duet—Miss Lily Mackie and Mr. Len Barnes, "A Summer Night" (Thomas).
9.2: Weather forecast.
9.4: Request numbers—the Orchestra.
9.12: Relay of organ solos—Mr. H. Temple White, (a) "Andantino in D Flat" (Lemare), (b) "March in G" (Smart).
9.22: Humour—Mrs. M. Thomas, "Castles in the Air" (Broughton).
9.27: Orchestral selection—the Orchestra, musical comedy, "Der Rosenkavalier" (Strauss).
9.37: Song cycle—"The Mountebanks," sung by the Orpheus Quartet—"Preamble" and "Episode" (Easthope Martin), Quartet.
"Dusk of Dreams" (Easthope Martin), contralto solo.
"The Quack Doctor" (Easthope Martin), baritone solo.
"The Heartrending Story" (Easthope Martin), quartet.
"The Minstrel" (Easthope Martin), tenor solo.
"Jingle Hat" (Easthope Martin), soprano solo.
"Finale" (Easthope Martin), quartet.
9.57: Latest dance novelties—the Orchestra.
Close down.

3YA CHRISTCHURCH (306 METRES)—TUESDAY, JUNE 19.

SILENT DAY.

4YA DUNEDIN (463 METRES)—TUESDAY, JUNE 19.

- 3 p.m.: Town Hall chimes.
3.1: Gramophone music.
3.30: Special notes and news.
3.40: Studio music.
4.0: Lecturette by Mr. G. J. Butcher on "The Domestic Uses of Electricity."
4.15: Gramophone music.
4.25: Sports results.
4.30: Close down.
6.0: Town Hall chimes.
6.1: Children's session—Big Brother Bill, Harry Folks' Anthem, pianoforte solos, songs; recitations, Cousin Marjorie, selected; storytime for the Chickabiddies; letters and birthdays; story for older children, "How Matches are Made," Big Brother Bill.
7.15: News session.
7.30: Address on "Tourist Resorts," by Mr. R. W. Marshall, of the Government Tourist Department.
8.0: Town Hall chimes. Concert by the St. Kilda Band under the conductorship of Mr. J. Dixon, and items by assisting artists.
8.1: March—Band, "Odeon" (Pryor).
8.5: Baritone solos—Mr. Bert Rawlinson, (a) "I Ain't Got Weary Yet" (Marsh), (b) "I Want to be Ready" (Marsh).
8.11: Humorous recital—Miss Anita Winkel, "Hoodoo McFiggens' Christmas" (Leacock).
8.16: Cornet solo, with band accompaniment—"I Passed By Your Window."
8.20: Soprano solo—Mrs. D. Carty, "Queen of the Earth" (Jazeni).
8.24: Recitals—Mr. Lester Moller, (a) "The Harmonium" (Anon), (b) "The Fool" (Service).
8.32: Descriptive selection—Band, "A Sailor's Life" (Cope), (with vocal choruses).
8.42: Bass solo—Mr. F. C. Cooper, "The Song of the Bow" (Aylward).
8.46: Waltz—Band, "Honey Flowers" (Rimmer).
8.51: Humorous vocal duet—Mrs. D. Carty and Mr. Bert Rawlinson, "Maggie Launder."
8.58: Weather forecast.
9.0: Humorous address by Pastor W. D. More.
9.15: Sacred selection—Band, "Spanish Chant" (Greenwood).
9.23: Baritone solo—Mr. Bert Rawlinson, "Stand the Storm" (Marsh).
9.27: Recitals—Miss Anita Winkel, (a) "The Useful Cat," (b) "In an Indian Garden."
9.34: Scottish selection—Band, "Scotia" (Seddon).
9.39: Bass solos—Mr. F. C. Cooper, (a) "Drake Goes West" (Sanderson), (b) "Down Amongst the Dead Men" (Old English).
9.46: Intermezzo—Band, "Prelude in C Sharp Minor" (Rachmaninoff).
9.53: Soprano solo—Mrs. D. Carty, "Danny Boy" (Old Irish).
9.56: Recital—Mr. Lester Moller, "Mrs. McGregor's Movies" (Anon).
10.0: March—Band, "Captain of the Guard" (Jubb).
10.4: God Save the King.

Wednesday, June 20

1YA AUCKLAND (333 METRES)—WEDNESDAY, JUNE 20.

- 3 p.m.: Afternoon session—selected studio items.
3.30: Lecturette by Mr. R. Howard-Taylor, "Diseases of the Feet."
3.45: Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session, conducted by Uncle Tom—Opening Chorus, Record; recitation, Cousin Frank, "The Best Friend"; letters and birthdays; song, Uncle Tom, selected; record; recitation, Cousin Frank, "Noise"; storytime; closing chorus.
7.15: News and market reports.
7.45: Lecturette on "Physical Culture," by Mr. Norman Kerr.
8.0: Chimes.
8.1: Relay of municipal organ recital from the Town Hall—organist, Mr. Maughan Barnett, assisted by the Hazell-Sutherland Duo and Miss Lynda Murphy, who will perform the following items from the studio:—
Contralto solos—Miss Phyllis Hazell, (a) "Cradle Me Low" (Brahe), (b) "Lie There, My Love" (McCum).
Soubrette—Miss Lynda Murphy, (a) "Cautionary Tales" (Belloc), (b) "We Ain't 'Arf Proud o' Dad" (Anon).
Baritone solos—Mr. Frank Sutherland, (a) "Little Miss Over the Way" (Bennett), (b) "Thy Sentinel Am I" (Watson).
Vocal duo—Hazell-Sutherland Duo, (a) "Love is Meant to Make Us Glad" (German), (b) "How Sweet the Moonlight Sleeps" (Lehmann).
10.0: Close down.

2YA, WELLINGTON (420 METRES), WEDNESDAY, JUNE 20.

SILENT DAY.

3YA, CHRISTCHURCH (306 METRES), WEDNESDAY, JUNE 20.

- 3 p.m.: Afternoon session—Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Uncle Peter and Mother Hubbard. Bedtime stories and birthday greetings, Uncle Peter. Maori legends and songs by Mother Hubbard. Nature stories for the little ones by Aunt Robin.
7.15: Addington stock market reports.
8.0: Chimes and overture.
8.5: Baritone solo—Mr. A. G. Thompson, "The Gladiator" (Adams).
8.9: Cello solo—Mr. Harold Beck, "Andante Cantabile Francatelle" (Vallier).
8.14: Soprano solo—Miss Hilda Hunt, "I Go My Way Singing" (Smith).
8.18: Trumpet solo—Mr. Percy W. Reeves, "Carnivale de Venice" (Arban).
8.23: Tenor solo—Mr. T. G. Rogers, "Like Stars Above" (Squire).
8.27: Instrumental trio—Christchurch Broadcasting Trio, "Allegro Animato" (Gade).
8.37: Contralto solo—Miss Nellie Lowe, "A Japanese Love Song" (Brahe).
8.41: Humorous recital—Mr. H. Instone, "Publicity" (Green).
8.46: Saxophone solo—Mr. R. C. Brundall, "Saxaphobia" (Wiedolf).
8.51: Vocal quartet—Dulcet Quartet, "Where My Caravan Has Rested" (Lohr).
8.56: Weather forecast.
8.58: Overture.
9.5: Baritone solo—Mr. A. G. Thompson, "Harlequin" (Sanderson).
9.9: Cello solos—Mr. Harold Beck, (a) "Hungarian Folk Melody" (traditional); (b) "The Butterfly" (Popper).
9.16: Soprano solo—Miss Hilda Hunt, "A Song of Sleep" (Somerset).
9.19: Trumpet solo—Mr. Percy W. Reeves, "Comin' Through the Rye" (Rimmer).
9.24: Soprano and contralto duet, followed by tenor solo—The Dulcet Duo, Mr. T. G. Rogers, (a) "Arise, O Sun" (Day); (b) "A Furtive Tear" (Donizetti).
9.32: Instrumental trios—Christchurch Broadcasting Trio, (a) "Valse" (Rabikow); (b) "Canzonetta" (Godard).
9.42: Contralto solo—Miss Nellie Lowe, "The Dream Canoe" (Squire).
9.46: Humorous recital—Mr. H. Instone, "McBride's System" (Wood).
9.51: Saxophone solo—Mr. R. C. Brundall, "Norwegian Cradle Song" (Morel).
9.55: Mixed vocal quartet—Dulcet Quartet, "Alas! That Spring Should Vanish With the Rose" (Lehmann).
God Save the King.

4YA, DUNEDIN (463 METRES), WEDNESDAY, JUNE 20.

SILENT DAY.

Thursday, June 21

1YA, AUCKLAND (333 METRES), THURSDAY, JUNE 21.

- 3 p.m.: Afternoon session—Selected studio items.
3.30: Lecturette—Representative of Auckland Gas Company, "Gas Cooking."
3.45: Selected studio items.
4.0: Literary selections by the Announcer.
4.8: Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session, conducted by Peter Pan. Captain James takes a trip to South Africa, accompanied by Peter Pan and Cinderella. Piano solo, Eldrid Seely, selected. "Incidents on the Voyage and Arrival at South Africa," Captain James. Letters and birthdays. Piano solo, Eldrid Seely, "Maypole Dance" (Rowley). "Life in South Africa," Captain James. Story-time.
7.0: Close down.
7.15: News and reports. Book review.
8.0: Chimes.
8.1: Orchestral selection, "Hungarian Rhapsody" (Liszt).
8.25: Vocal quartet—Mr. Barry Coney's Quartet, "Venetian Boatmen's Evening Song" (Hutton).
8.13: Instrumental trio—The Auckland Trio, "Dumky Trio—First Movement" (Dvorak).
8.21: Baritone solo—Mr. H. Barry Coney, "The Convoy" (Bleichmann).
8.25: Selections—(a) "Honeymoon Waltz" (Sherwood); (b) "Some Other Bird" (Schafer).
8.32: Soprano solo—Miss Dorothy Youd, "Now, Joan, Ardently" ("Joan of Arc"), (Bemberg).
8.36: Piano solo—Mr. Cyril Towsey, "In Santa's Spinning Room" (Bendel).
8.41: Vocal trio—The Snappy Three, (a) "The Song Is Ended" (Berlin); (b) "Broken-hearted" (De Silva).
8.47: Novelty—Mr. F. W. Barker, "A Wayside Philosopher to His Friend—Doubling Your Salary."
8.57: Tenor solo—Mr. G. Barnes, "A Spirit Flower" (Campbell-Tipton).

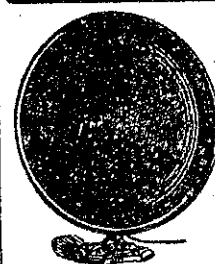
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YOU know Mr. Herbert F. Wood is just about the most popular tenor vocalist in Wellington. I heard him called back for four encore items on the occasion of a recent Sunday night concert which was relayed by 2YA. His voice comes across with delightful effect on the radio.

A FRIEND of mine, the other night, sent up five beautiful valves in smoke through accidentally connecting the B battery to the A battery cords. This is a time when one wants to be alone. My friend exhausted his vocabulary, he says, and then started on composite words of doubtful derivation.

THAT'S rather a nice turn put on by "Mr. Medley and Mr. Motley" at 2FC, Sydney. They have some neat patter, and not too much of it; besides it is well written stuff, with some topical allusions. They also sing quite well, both singly and together.

CAPTAIN KINGSFORD SMITH, in his flight across the Pacific in the air plane, "Southern Cross," provided plenty of interest for those who listened to 2BL, Sydney. Mr. Ray Allsop, the engineer for 2BL, received the Morse signals direct from the airplane, and, besides broadcasting the text, 2BL let us hear the actual Morse signals from the airplane.

A VERY naughty young Wellington amateur transmitter was recently ordered off the air for so many weeks for having interfered with broadcast listening. They used to tell us, once upon a time, that amateur transmitters could not interfere with broadcast listening.

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Programmes Continued

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- 9.2: Talk—Mr. Culford Bell, "Great Authors."
9.12: Orchestral selection—"Lady, Be Good" (Gershwin).
9.19: Contralto solos—Miss Martha Williamson, (a) "Drink to Me Only" (Quilter); (b) "Hush-a-Ba" (Old Scotch).
9.26: Saxophone selections—(a) "I Love the Moon" (Rubens); (b) "Lanette Caprice" (Henton).
9.33: Humour—Mr. F. W. Barker, "Snorkins" (Anon.).
9.37: Baritone solo—Mr. Barry Coney, "Uncle Rome" (Homer).
9.40: Instrumental trio—The Auckland Trio, "Cobweb Castle" (Liza Lehmann).
9.47: Soprano solo—Miss Dorothy Youd, "Gloriana" (Mallinson).
9.50: Vocal trio—The Snappy Three, (a) "Some Day You'll Say O.K." (Donaldson); (b) "Piano Jazz Medley"; (c) "A Bungalow and You" (O'Hagan).
9.59: Organ selection—"Just a Cottage Small" (De Sylva).
9.59: Vocal quartet—Mr. Barry Coney's Quartet, "Slavonic Cradle Song" (Dvorak).
10.3: God Save the King.

2YA, WELLINGTON (420 METRES), THURSDAY, JUNE 21.

- 8 p.m.: Chimes of the G.P.O. clock.
8.1: Selected gramophone items.
4.30 and 4.55: Sporting results to hand.
5.0: Close down.
6.0: Children's session—Aunt Dot, assisted by a party of cousins from the Hataitai Methodist Sunday School—Choruses, stories, duets, and greetings.
7.0: News session, market reports, and sports results.
7.40: Lecturette—Miss Marget O'Connor, "Doings and Dancing in Other Lands."
8.0: Chimes of the G.P.O. clock.
Studio concert by the Wellington Municipal Tramways Band and assisting artists. (Conductor, Mr. T. Goodall).
8.1: March—Band, "Knight of the Road" (Rimmer).
8.3: Vocal quartet—Lyric Quartet, "Off in the Stilly Night" (traditional).
8.12: Waltz—Band, "Eusueno Seductor" (Rosas).
8.18: Bass solo—Mr. W. Binet Brown, "Beloved, Awake" (Hemery).
8.23: Cornet solo—Mr. T. Goodall, "Click-Clack Polka" (Rimmer).
8.20: Comedy duo—Ronnie and Monty, "Where Does the Candle-light Go?" (Gilbert).
8.35: Selection—Band, "Gems from Maritana" (Wallace).
8.47: Vocal quartet—Lyric Quartet, "Doctor Foster" (Hughes).
8.51: March—Band, "The Ironclad" (Carter).
8.58: Baritone solo—Mr. W. Goudie, "The Toreador's Song" (from "Carmen"), (Bizet).
9.3: Weather forecast.
9.5: Serenade—Band, "Love in Arcady" (Haydn Wood).
9.14: Comedy duo—Ronnie and Monty, "Heaven" (original).
9.20: Humoresque—Band, "March of the Manikins" (Fletcher).
9.25: Vocal duet—Messrs. W. Goudie and C. Williams, "The Lovers" (Wilson).
9.30: Trombone solo, with band accompaniment—Bandsman Tallantyne, "The Jigsaw" (Sutton).
9.35: Vocal quartet—Lyric Quartet, "We Laid Our Little One Away" (Oakley).
9.40: Fox-trot—Band, "The Song is Ended" (Berlin).
9.45: Tenor solo—Mr. Chas. Williams, "Eleanor" (Coleridge-Taylor).
9.49: Vocal quartet—Lyric Quartet, "In the Gloaming" (Harrison).
9.53: March—Band, "The Dawn of Freedom" (Rimmer).
God Save the King.

3YA, CHRISTCHURCH (305 METRES)—THURSDAY, JUNE 21.

- 8 p.m.: Afternoon session—Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Aunt Pat and Chuckle. Stories and songs by Chuckle. Music and birthday greetings by Aunt Pat. Songs, part-songs and choruses by a "Model School," under the direction of Mr. Vernon Griffiths.
7.15: News session.
7.30: Talk on "Popular Electricity," by Mr. Battersby.
8.0: Overture.
8.5: Contralto solo—Mrs. Ann Harper, "The Nightingale" (Kjerulf).
8.9: Piccolo solo—Mr. T. H. Amos, selected.
8.13: Tenor solo—Mr. Harold Prescott, "Sylvain" (Sinding).
8.17: Violin solo—Miss Irene Morris, "Gavotte" (Rameau).
8.22: Baritone solo—Mr. Bernard Rennell, "Epilog" (Grieg).
8.26: Instrumental trio—Christchurch Broadcasting Trio, "Elegia" (Arensky).
8.36: Soprano solos—Madame Gower-Burns, (a) "Songs My Mother Taught Me" (Dvorak); (b) "On the Ling Ho" (Kjerulf).
8.43: Recital (to piano accompaniment)—Miss Myra Edmonds, "Twenty Gallons of Sleep" (Shaw-Mayer).
8.49: Soprano and contralto duet—Grand Operatic Duo, "The Angel" (Rubinstein).
8.53: Weather forecast.
8.56: Overture.
9.5: Tenor solo—Mr. Harold Prescott, "Thy Blue Eyes" (Lassen).
9.9: Flute solo—Mr. T. H. Amos, "Scene de Ballet" (Papp).
9.14: Contralto solos—Mrs. Ann Harper, (a) "Evening Song" (Dvorak); (b) "My Heart is Like a Dreary Night" (Lassen).
9.21: Violin solo—Miss Irene Morris, "La Precieuse" (Couperin-Kreisler).
9.26: Baritone solo—Mr. Bernard Rennell, "I Love Thee" (Grieg).
9.30: Instrumental trios—Christchurch Broadcasting Trio, (a) "Song Without Words" (Mendelssohn) (Metzler); (b) "Mazurka Russe" (Glinka).
9.40: Soprano solo—Madame Gower-Burns, "Solveig's Song," from "Peer Gynt Suite" (Grieg).
9.46: Recital—Miss Myra Edmonds, "Playmate" (Shaw-Mayer).
10.5: Mixed vocal quartet—Grand Opera Quartet, "The Hunter" (Rubinstein).
God Save the King.

4YA, DUNEDIN (463 METRES)—THURSDAY, JUNE 21.

- 7 p.m.: Town Hall Chimes.
7.1: Request gramophone concert.

LINE leakages (or is the noise due to violet ray of X-ray plants) still infests various parts of Wellington. I heard it going strong up in Brooklyn last Monday week in the afternoon. A listener, up at the Thorndon end, says it's quite impossible to get DX reception for an hour at a time, owing to these electrical noises.

A HASTINGS listener ("Cathode") writes me asking when television will be possible in New Zealand. From all accounts television is still five years off so far as the general public are concerned. The Baird system seems to be up against a dead-end, and experts say that a fresh start will have to be made before the system can be perfected so that it can become practicable to the man in the street.

THE Yankees have been working hard on the television system, and have produced a number of successful demonstrations, but the equipment is so frightfully expensive that it is beyond the purse of all except a banker or bootleg king. Even then the living pictures cannot be transmitted unless a very powerful electric light is thrown on the subject which is to be reproduced.

MR. W. Dexter Smith, an American, has developed an extremely novel feature in the form of an automatic orchestra. Each of the instruments in his orchestra has an attachment which allows it to respond only to the vibrations of a similar instrument. Receiving a broadcast programme on a special receiver, Mr. Smith takes his output to the attachments mentioned, and the instruments do the rest. It is claimed that no single reproducing unit can achieve such fidelity as this system.

IF interference is experienced from electric tramways, though the trouble may not be entirely eliminated, it can be reduced by employing a counterpoise in place of the usual earth. The counterpoise should consist of a number of wires stretching below the aerial and at about 6 feet or so from the ground. It will be necessary to pay the same attention to the insulation of these wires as would be given to an aerial, and a well-insulated lead should be taken from one end, where the wires should be joined together, to the earth terminal of the set.

THE importance of having an aerial of thick or stranded wire is generally realised, but it must be remembered that it is just as necessary—in fact, more so—to use low-loss wire for down-leads and earth wires.

THE tuning-fork used by the British Broadcasting Corporation to determine broadcasting wavelengths was recently taken to Brussels by air liner to be compared with Europe's standard tuning fork.

POLITICAL interest in America is centring on the fact that Mr. Secretary Hoover, who is likely to be one of the candidates for the Presidency, is a "radio man" to a greater extent, perhaps, than any other man in the United States. Many brilliant public speakers are timid before the microphone; Mr. Hoover reverses the usual order of things by being an indifferent orator on the platform and a compelling speaker before the microphone. In the forthcoming campaign it is expected that the utmost use will be made of Hoover's vote-winning powers in this direction. His association with wireless will be no novelty, for it was Mr. Hoover who was primarily responsible, as head of the Department of Commerce, for the formation of the Federal Radio Commission. The commission's work in securing at least a partial clearance in the chaotic American ether will not be forgotten.

WITH the gramophone pick-up the most important part of the reproduction is done by the wireless set, and if you have a good set you can rely upon really good gramophone-radio reproduction. All that you need from the gramophone is a good motor with no obvious mechanical weakness. If the gramophone will take care of the turning of the record all right, you can be sure that the pick-up and the wireless set will take care of the programmes.

THE R.C.A. (Radio Corporation of America) balance-sheet for 1927 is sensational. Net income, 11,799,650 dollars (£2,345,000). After reserving for amortisation of patents, income tax, foreign investments, pension fund and general reserve, the surplus is 8,478,319 dollars. Machinery and tools are written down to one dollar, and the patent account by 1,000,000 dollars. After paying dividends of 7 per cent on Preferred Stock and placing 4,500,000 dollars to reserve for plant, the surplus is 7,029,621 dollars, or something over £1,400,000.

ERRATIC reception prevalent in many home-built radio receivers often may be traced to grid leaks of improper value. The higher the resistance of the grid leak the more sensitive the detector action. However, when a leak of high value is used on nearby stations, the tone quality suffers. Two or three leaks of different values might be kept at hand for use in meeting various reception conditions.

- 7.40: News session.
8.0: Town Hall chimes.
8.1: Relay of orchestral music from the Octagon Theatre Orchestra, under the direction of Monsieur de Rose (Mus. Bach).
8.11: Light soprano solos—Miss Betty Roberts, (a) "I've An Inkling" (Rubens); (b) "The Fellow Who Might" (Stuart).
8.15: Humorous monologue—Mr. Carl Moller, "Wheels" (Weeks).
8.20: Popular numbers—Dunedin Banjo Trio, (a) "The Doll Dance" (Brown); (b) "Annabelle" (Henderson); (c) "Pal of My Cradle Days" (Piantadosi); (d) "There's Everything Nice About You" (Wendling).
8.32: Light baritone solo—Mr. J. B. McConnell, "The Song is Ended" (Berlin).
8.36: Hawaiian guitar duets—Messrs. Sheehy and Campbell, (a) "Caring For the Rose" (Sharp); (b) "While Hawaiian Stars Are Gleaming" (Collins).
8.42: Light soprano solo—Miss Thelma Blackman, "Can't You Hear Me Calling Caroline" (Roma).
8.46: Humorous recitals—Miss Hilda Scurr, (a) "I Go All Girlish When I See the Moon" (Herbert); (b) "Life or Rather Literature" (Herbert).
8.53: Relay of orchestral music from the Octagon Theatre.
9.3: Weather forecast.
9.5: Light soprano solo—Miss Betty Roberts, "Pierette and Pierrot" (Lehar).
9.8: Humorous recitals—Mr. Carl Moller, (a) "Nell" (Bennett); (b) "The Tidy Wife" (Anon.).
9.17: Popular numbers—Dunedin Banjo Trio, (a) "Me Too" (Sherman); (b) "Shalimar" (Nicholls); (c) "I'm Going" (Edwards).
9.27: Light baritone solos—Mr. J. B. McConnell, (a) "Moonlight Lane" (Francis and Glogau); (b) "I Don't Believe You" (Spier).
9.34: Hawaiian guitar duet—Messrs. Sheehy and Campbell, "My Blue Heaven" (Donaldson).
9.37: Light soprano solos—Miss Thelma Blackman, (a) "Priscilla" (Schleeforth); (b) "Remember" (Berlin).
9.44: Recital—Miss Hilda Scurr, "The Elf Child" (Reilly).
9.58: Relay of orchestral music from the Octagon Theatre.
10.0: Close down.

Friday, June 22

1YA, AUCKLAND (333 METRES)—FRIDAY, JUNE 22.

- 8 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the announcer.
4.8: Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session conducted by Nod. Record. Trio, Cousins Valma, George and Rachel, "Smilin' Thro'." Letters and birthdays. Record. Uncle Mack, "Jungle Story." Trio, Cousins Valma, George and Rachel, selected. Story-time.
7.0: Close down.
7.15: Talk, Mr. Geo. Campbell, "Motoring."
7.30: News and reports.
8.0: Chimes.
8.1: Orchestral selection—"Valkyrie—Wotan's Farewell and Magic Fire Scene" (Wagner).
8.8: Vocal quartet—Madame Mary Towsey's Quartet, "Prayer" (Moses in Egypt), (Rossini).
8.12: Instrumental quartet—The Internationals, (a) "I'll be Lonely" (Johnston); (b) "Breeze" (Hanley).
8.17: Humorous sketch—Mr. T. T. Garland, "A Presentation" (Jackson).
8.21: Soprano solo—Madame Mary Towsey, "Softly Awakes My Heart" (Saint-Saens).
8.25: Instrumental trio—The Auckland Trio, "Clog Dance," "Handel in the Strand" (Grainger).
8.33: Baritone solo—Mr. John Bree, "The Pagan" (Loehr).
8.37: Concertina selection—"Under the Double Eagle" (Wagner).
8.40: Contralto solo—Miss G. Evans, "Only the River Running By" (Hopkins).
8.43: Cello solo—Miss Molly Wright, "Gavotte" (Popper).
8.47: Scene—Auckland Comedy Players under direction of J. F. Montague, Trial Scene from "Pickwick Papers," Bardell v. Pickwick.
9.12: Orchestral selection—"Hungarian Rhapsody" (Liszt).
9.18: Tenor solo—Mr. J. McDougall, "Parted" (Tosti).
9.22: Humorous sketch—Mr. T. T. Garland, "Adverts" (Craighton).
9.26: Instrumental trio—The Auckland Trio, "Three Irish Pictures" (Ansell).
9.33: Soprano solo—Madame Mary Towsey, "Hindoo Song" (cello obbligato by Miss Molly Wright) (Bemberg).
9.37: Concertina selection—"With Sword and Lance" (Starke).
9.40: Baritone solo—Mr. J. Bree, "For the Green" (Loehr).
9.43: Instrumental quartet—The Internationals, (a) "Maybe I'll Baby You" (Buck); (b) "Shine on, Harvest Moon" (Bays); (c) "Picardy" (Rose).
9.52: Contralto solo—Miss G. Evans, "Give Me Youth and a Day" (Drummond).
9.56: Vocal quartet—Madame Mary Towsey's Quartet, "When Evening's Twilight" (Hutton).
10.0: God Save the King.

2YA, WELLINGTON (420 METRES)—FRIDAY, JUNE 22.

- 8 p.m.: Chimes of the G.P.O. clock.
8.1: Selected gramophone items.
4.30 and 4.55: Sporting results to hand.
5.0: Close down.
6.0: Children's session—Uncle Ernest and the Cheerio Girls. Songs, stories, sketches and travel talks.
7.0: News session, market reports and sports results.
8.0: Chimes of the G.P.O. clock.
8.1: Overture—The Orchestra, "The Bohemian Girl" (Balfe).
8.10: Vocal trio—Etude Trio, "We Have Left Pursuit Behind Us" (Monckton).
8.14: Instrumental trio—Symons-Ellwood-Short Trio, "Suite" (Widor).
8.24: Baritone solo—Mr. Ray Kemp, "Teoman's Wedding Song" (Poniatowski).
8.28: Mandolin Band—Mrs. Mildred Kenny's Mandolin Band, (a) "Marche des Petite Pierrots" (Hudson); (b) "Cheerie Beerie Be" (Wayne).
8.35: Soprano solo—Miss Greta Stark, "Serenata" (Tosti).

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Programmes Continued

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- 8.39: Selection—The Orchestra, "Offenbach" (arr. Finck).
8.49: Novelty—The Two Boiled Owls, (a) "My Idea of Heaven" (Sherman); (b) "A Few Moments at the Piano" (Alter).
9.53: Tenor solo—Mr. Frank Skinner, "The Flower Song" (from "Carmen"), (Bizet).
9.0: Weather forecast.
9.2: Request numbers—The Orchestra.
9.10: Vocal quartet—Etude Quartet, "Sweet and Low" (Barnby).
9.14: Mandolin Band—Mrs. Kenny's Mandolin Band, (a) "C'est Vous" (Richman); (b) "Mary Lou" (Robinson).
9.22: Baritone solo—Mr. Ray Kemp, "The Little Banjo" (Dichmont).
9.26: Orchestral selections—The Orchestra, (a) "Widmung" (Schumann); (b) "Ich Grolle Nicht" (Schumann).
9.34: Soprano solo—Miss Greta Stark, "Cuckoo" (Shaw).
9.38: Humour—The Two Boiled Owls, "The Boiled Owls at The Confectioner's" (original).
9.45: Contralto solo—Miss Rita Arnold, "Husheen" (Needham).
9.49: Vocal quartet—Etude Quartet, "Dancing Tambourine" (Polla, arr. L. Barnes).
9.53: Orchestral selection—The Orchestra, "The Gondoliers" (Sullivan).
Close down.

3YA, CHRISTCHURCH (306 METRES), FRIDAY, JUNE 22.

- 3 p.m.: Afternoon session—Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session—Big Brother and Peterkin, assisted by pupils of Madame Audibert—Stories and birthday greetings. Health game talk, by the Captain. Tricks and school stories by Peterkin. Songs and duets.
7.15: News session.
8.0: Chimes and overture.
8.5: Mixed vocal quartet, followed by bass solo. Radiolian Quartet and Mr. W. J. Richards, (a) "Now the Merry," from "La Mascotte"; (b) "Muleteer of Malaga" (Trotter).
8.13: Banjo solo and popular song, Mr. Jack Gillespie, (a) "Teach Me" (Green); (b) "Old Pal" (Gerome).
8.19: Soprano and tenor duet—Mrs. Claris Shaw and Mr. Gregory Russell, "Old Courting Rhyme" (from "The Windsor Drollery"), (arr. White).
8.23: Pianoforte solo—Miss Aileen Warren, "On the Carnival—Op. 19, No. 3" (Grieg).
8.27: Contralto solo—Miss Mildred Russell, "Dreaming of Home" (Irish air, arr. Besley).
8.31: Instrumental trio—Christchurch Broadcasting Trio, "Molto Obligato in D Minor" (Mendelssohn).
8.39: Tenor solo—Mr. Gregory Russell, "The Letter" (Gambogi).
8.43: Mouth-organ solos, with vocal refrain—Mr. George Bennet, (a) "O Sole Mio" (De Capua); (b) "The Sunshine of Your Smile" (Ray).
8.47: Recital—Mr. J. P. Darragh, "Cohen at the Call Office" (MS.).
8.52: Vocal quartet—Radiolian Quartet, "Shenandoah" (Sir R. Terry).
8.56: Weather forecast.
8.58: Overture.
9.5: Soprano solo, followed by contralto and bass duet—Mrs. Claris Shaw, Miss Mildred Russell and Mr. W. J. Richards, (a) "When I Was Young and Twenty" (Gilbs); (b) "You, Come, Kiss Me, Now" (humorous duet of Shakespeare's time, (edited by Taylor).
9.12: Banjo solo and Scottish song—Mr. Jack Gillespie, (a) "Banjo Solo and Song" (Hall); (b) "Maggie Frae Dundee" (French).
9.18: Tenor solo—Mr. Gregory Russell, "The Spirit Flower" (Tipton).
9.22: Pianoforte solo—Miss Aileen Warren, "Les Sylphides" (Chaminade).
9.27: Contralto solo—Miss Mildred Russell, "The Wind" (Spross).
9.31: Instrumental trios—Christchurch Broadcasting Trio, (a) "Intermezzo" (Scott); (b) "Hungarian Dance" (Brahms).
9.41: Soprano solo—Mrs. Claris Shaw, "Auld Robin Gray" (Scottish air).
9.45: Accordion solos—Mr. George Bennet, "Tell me the Old, Old Story," etc. (own arrangement).
9.50: Bass solo—Mr. W. J. Richards, "Time to Go" (Sanderson).
9.54: Humorous recital—Mr. J. P. Darragh, "Levin's Wedding" (MS.).
9.59: Mixed vocal quartet—Radiolian Quartet, "You Never Know What's Waiting Round the Corner" (fox-trot song), (Strong).
God Save the King.

4YA, DUNEDIN (463 METRES), FRIDAY, JUNE 22.

- 8 p.m.: Town Hall chimes.
8.1: Gramophone music.
8.15: Relay of afternoon tea music from the Savoy.
8.30: A talk on "Fashions," by Miss Buckleuch, of the D.S.A., Ltd.
8.45: Relay of music from the Savoy.
9.0: Studio music.
9.25: Sports results.
9.30: Close down.
9.40: Town Hall chimes.
9.41: Children's session—Aunt Sheila and Big Brother Bill, "Happy Folks' Anthem." Greetings, riddles, and jokes. Recitation, Cousin Olive, "Disobedience" (Milne). Recitation, Cousin Harold, "So Was I" (Anon.). Song, Cousin Mavis, selected. Story-time for the chickabiddies, Aunt Sheila. Violin solo, Cousin Luella, selected. Recitation, Cousin Elsie, "A Fancy" (Anon.). Recitation, Cousin Gracie, "Since Grandma's Day." Letters and birthdays. Recitation, Cousin Kit, "Lines and Squares" (Milne). Recitation, Cousin Dowl, "When Burglars Come" (Thomson). Recitation, Cousin Joan, "If You Want to See a Fairy" (Milne). Nature talk to older children, Big Brother Bill.
7.15: News session.
7.30: Book review, by Mr. H. Greenwood, of the Dunedin Athenaeum.
8.0: Town Hall chimes.
8.1: Orchestral selection.
8.5: Mezzo-soprano solos—Miss Molly Vickers, (a) "Vorre" (Testi); (b) "When I Was Young" (d'Hardelot).
8.11: Clarinet solo—Rev. G. E. Moreton, "Melody in F" (Rubinstein).
8.18: Tenor solos—Mr. L. E. Dalley, (a) "Yesterday and To-day" (Spross); (b) "Come" (d'Hardelot).
8.21: Humorous recital—Miss Sheila Neilson, "Before the Curtain Rises" (Fisk).
8.25: Soprano solos—Miss Florence Sumner, (a) "Drift Down" (Ronald); (b) "La Serenata" (Braga).
8.31: Pianoforte solo—Mrs. Ernest Drake, L.A.B., "Polonaise" (McDowle).
8.35: Mezzo-soprano solo—Miss Molly Vickers, "When the Roses Bloom" (Reichardt).
8.38: Clarinet solos—Rev. G. E. Moreton, (a) "Chanson Triste" (Tschakowsky); (b) "The Mermaid" (Lange).
8.46: Tenor solo—Mr. L. E. Dalley, "How Many Thousand Years Ago" (Huhn).
8.49: Recitals—Miss Sheila Neilson, (a) "Playmate" (Anon.); (b) "The Volunteer's Mother."
8.57: Soprano solo—Miss Florence Sumner, "A Prayer in Silence" (Brahe).
9.2: An hour's dance music by Alf. Carey and his Savoy Orchestra, relay from the Savoy.
10.2: Close down.

THE London "Wireless Export Trader" (of April) says:—"To those who have already featured British goods in their business we would offer the sincere assurance that 1928 in this country (Great Britain) is the best wireless year yet; while to those who have still to make the acquaintance of British quality and British methods, we would say that there never was a better opportunity than now to open up a tremendously profitable business." The British manufacturers, however, in point of the amount of business done in radio in New Zealand has been badly beaten by the Americans.

OWING to the interruptions caused by storm and floods to the ordinary telegraphic and telephonic communication, the Government of Ceylon have been experimenting with a portable wireless receiving and transmitting set capable of communicating over a range of 300 miles.

SOME tubes and some receivers are particularly susceptible to vibration, and even the vibration of the air caused by the proximity of the loud speaker may cause a loud constant howl to be built up which will only stop when the loudspeaker is turned around or moved farther away from the receiver. Such action is called "microphonic," and the trouble is usually found to be in the detector tube. The use of another tube for the detector may eliminate this trouble, or there are metal and rubber caps now on the market which are helpful when placed on the detector tube. Microphonic trouble is sometimes caused by turning the detector rheostat too low, and will disappear when turned up to normal. Cushion sockets are helpful, and their action may sometimes be improved by not inserting the tube all the way, but instead just far enough to make good contact.

MR. L. J. KERMOND, of 4 Lava Street, Warrnambool, Victoria, sends along to the Melbourne "Listener" a very fine list of stations he has received with a two valve receiver, operating it in conjunction with an aerial 75 feet long and 31 feet high. The list includes the following stations in New Zealand:—O.Z.—1YA, 1AO, 1SF, 1AP, 1AN, 1AY, 1FD, 1AB, 1FE, 1FB, 1AJ, 1AC, 1FJ, 1AF, 1AR, 1AL, 1AA, 1AT, 1FQ, 1FU, 2YA, 2AX, 2AT, 2AL, 2AC, 2AS, 2BG, 2FB, 2GE, 2BJ, 2BO, 2AJ, 2AN, 2BE, 2AP, 2GG, 2AO, 2BX, 2BR, 2BU, 2BL, 2BP, 2BF, 2AE, 2AY, 2AV, 2GA, 2BC, 2AQ, 2AB, 3YA, 3AU, 3AR, 3AS, 3AP, 3AJ, 3AO, 3AM, 3AW, 3CG, 3AV, 3AB, 3AH, 3AZ, 3CF, 3CM, 3AT, 4YA, 4AA, 4AE, 4AJ, 4AD, 4FQ, 4AM, 4AC, 4AU, 4VL, 4AR, 4AT, 4AO, 4AP.

RECENTLY a business man at Vancouver rang up his London representative. This was the "longest" distance call by wireless telephone recorded. To accomplish the connection it took only six minutes; the words were clearly audible on both sides of the 7000 mile distance, and the call that lasted for four minutes cost £15. The following Associated Press message was published in the United States dailies:—Washington, March 29. Expecting tremendous development in facsimile transmission of messages in five years, navy radio men have started experiments with photo radio. Transmitting and receiving apparatus has been installed at radio central of the navy here and aboard the battleship Texas, flagship of the Atlantic Fleet. Experiments also are being conducted in sending and receiving pictures with communications central of the Radio Corporation of America.

A MELBOURNE writer says:—The association of 2FC and 2BL Sydney, and of 3LO and 3AR, in Melbourne, was only a prelude to a plan under which all the broadcasting stations in Australia will co-operate in programme work. Such a co-ordination has appeared inevitable to those who consider the matter carefully, and it was no surprise to find the Postmaster-General outlining the scheme to members of the Federal House at Canberra, recently. It will naturally take some time to bring the plan into operation, for there are several knotty problems to be solved.

THE most prevalent form of man-made interference as distinct from natural interference, such as atmospheres, etc., is that caused by electric machinery or supply systems. It is possible, of course, to obtain perfect reception near electric systems, but if they are not designed or maintained with any consideration of their influence as generators of radio interference, the listeners within the sphere of influence have a bad time. Some country residents know too well how suddenly and completely their enjoyment of broadcasting ceases for the night immediately a picture show opens up; while others know that every night is spoiled for reception when a medical man with his electro-therapy apparatus starts his high frequency oscillating. There are towns where the supply system is the cause of continual "static," as it is frequently called locally, and listeners' efforts at obtaining satisfaction from their sets are practically nil.

Saturday June 23

1YA AUCKLAND (333 METRES)—SATURDAY, JUNE 23.

- 11.30 a.m.: Relay description of Auckland Club. (first day). By courtesy of and Trotting Club's Winter Meeting.
2.45 p.m.: Relay description of Rugby football from Eden Park.
5.0: Close down.
6.0: Children's session, conducted by Cinderella—"Talk on Maori Words," Sunny Jim; song, Cinderella, "Sixpence" (Farjeon); talk, Aunt Ve, "A Visit to the East"; letters and birthdays; laughing record; jokes and conundrums, Cinderella and Sunny Jim; recitation, Sunny Jim, "Packing Up"; bedtime stories.
7.15: News and sports results.
8.0: Chimes.
8.1: Orchestral selection (Record). "Wildflower" selection (Youmans).
8.9: Vocal quartet—Lyric Quartet, "Honolulu Moon" (M.S.), (arr. F. Crowther).
8.13: Tenor solo—Mr. Herbert Richards, "Macgregors' Gathering" (Lee).
8.18: Vocal and instrumental—Bohemian Trio, (a) "Te Arawa" (traditional), (b), "Tahi Nei Taru Kino" (traditional).
8.26: Bass solo—Mr. Ernest Thomas, "Ashore" (Trotter).
8.30: Hawaiian Instrumental Sextette (Record). (a) "Moana Chimes Waltz" (Costello), (b) "Under the South Sea Palms" (Parish).
8.35: Vocal quartet—Lyric Quartet, "Mother Goose Medley" (arr. Lyric Four).
8.43: Humour—Mr. Alan McElwain, some humour.
8.48: Tenor solo—Mr. Arthur Ripley, "Till Dawn" (Lowe).
8.52: Vocal and instrumental—Bohemian Trio, (a) "The World is Waiting" (Leitz), (b) "Down Kentucky Way" (Gilliespie).
9.0: Weather forecast.
9.1: Vocal duet—Messrs. H. Richards and E. Thomas, "Tenor and Baritone" (Wilson).
9.6: Orchestral selection (Record), "Sunny" selection (Kern).
9.13: Vocal quartet—Lyric Quartet, "Sea Chanties—Eight Bells" (Bartholomew).
9.18: Relay of dance music from Dixieland by The Internationals under Clyde Howley.
11.0: God Save the King.
Special Vaudeville Numbers from the Embassy Theatre will be broadcast during the above programme.

2YA WELLINGTON (420 METRES)—SATURDAY, JUNE 23.

- 3 p.m.: Chimes of the G.P.O. clock.
3.1: Relay description of Rugby football match from Athletic Park.
6.0: Children's session—Aunt Dot and Uncle Toby—An Hour in Fairyland, with the pupils of Mrs. Martyn Williams in fairy songs and poems.
7.0: News session, market reports and sports results.
7.40: Lecture—Mr. F. B. Barton, "Don'ts for Philatelists."
8.0: Chimes of the G.P.O. clock.
8.1: Overture—the Orchestra, "Marche Militaire" (Schubert).
8.9: Vocal quartet—Melodie Four, "Stars of the Summer Night" (Williams).
8.13: Italian mandolin solos—Mr. Lad Hayward, (a) "Dew, Dew, Dewy Day" (Sharma), (b) "You Went Away Too Far" (Monaco).
8.20: Hits and harmonies—The Glad Idlers, "Ain't it Cold" (Wood).
8.26: Jazz pianoforte solos—(a) "Magnolia," (b) "The Skater's Waltz."
8.33: Tenor solo—Mr. F. Bryant, "Give a Man a Horse He Can Ride" (O'Hara).
8.37: Orchestral selection—the Orchestra, "Carnival of the Animals" (Saint-Saens).
(In this work the composer brings the imagination into play by his dexterous handling of the orchestra in describing a fantastic procession of animals, and each by characteristic instruments as it passes. First we have the introduction and majestic march of the royal lion, immediately followed by the hens and cocks, aptly suggested by a cockcrow in the violins. Soon we see the tortoise, ponderous and slow, with the orchestra moving in broad triple rhythm. The elephant in his turn is found among the double basses, followed by the kangaroo, orchestrated in characteristic leaps of intervals. Even the fish swimming in their pond are pictured by rippling sounds, and as the ass appears he introduces himself with a bray in the violins. The woodwind, always expressive of bird life, is used to describe this, and we have the cuckoo in soft appealing clarinet note. When the aviary comes into view there is a burst of twittering sound from the violins and flute. Near the end of the procession the swan glides by with rippling accompaniment to his song in the cellos. This is frequently heard as a cello or violin solo, and will be recognised by many listeners. The work ends happily in the finale, as is fitting on an occasion of this kind.)

- 8.45: Humorous sketch—Miss Gwen Shepherd and Mr. Wynne Watkins, "The Burglar and the Girl" (Boulter).
8.52: Baritone solo—Mr. R. S. Allwright, "The Merry Monk" (Pevan).
8.56: Repeat numbers—the Orchestra.
9.4: Weather forecast.
9.6: Vocal quartet—Melodie Four, "Little Tommy Went A'Fishing" (Macy).
9.10: Italian mandolin—Mr. Lad Hayward, (a) "Are You Lonesome To-night" (Handman), (b) "Under the Clover Moon" (Schwartz).
9.17: Hits and Harmonies—The Glad Idlers, "Swinging on the End of a Rainbow" (Wood and Long).
9.22: Novelty—the Orchestra, "Whistle for Me" (Fane).
9.27: Humour—Miss Gwen Shepherd and Mr. Wynne Watkins, (a) "Odd's and Ends" (original), (b) "Greetings" (Parker).
9.34: Tenor solo—Mr. S. Duncan, "An Evening Song" (Blumenthal).
9.38: Selection—the Orchestra, "The Chocolate Soldier" (Strauss).
9.46: Vocal quartet—Melodie Four, "The Gossings" (Bridge).
9.50: Dance numbers by the Orchestra, with vocal choruses by the Glad Idlers.
10.0: Dance programme—vocal choruses by the Glad Idlers.
11.0: Close down.

3YA CHRISTCHURCH (306 METRES)—SATURDAY, JUNE 23.

- 2.45 p.m.: Description of Rugby football match from Lancaster Park.
6.0: Children's hour. Chimes. Stories and birthdays by Uncle Sam. Songs and music by Aunt May.
7.0: Close down.
7.15: News and reports.
7.30: Sports results.
8.0: Chimes and overture.
Vaudeville Programme.
8.5: Soprano solo—Mrs. D. Cherry, "The Nightingale of Lincoln's Inn" (Chetham).
8.9: English concertina solos—Mr. E. W. Heald, "Popular Melodies" (MS.).
8.14: Popular song—Mr. Jack Smyth, "The Old Sundowner" (Coney).
8.18: Steel guitars and ukulele—Miss Elaine Moody's Hawaiian Instrumental Trio, (a) "Sweet Hawaiian Sands"; (b) "Waikiki Mermaid"; (c) "Flower of Hawaii" (O'Hagen), (own arrangement).
8.27: Contralto solos—Miss Marian Woodhouse, (a) "Destiny" (Furrell); (b) "All in a Garden Green" (Lidger).
8.33: Instrumental trio—Christchurch Broadcasting Trio, (a) "Laguna Lullaby" (Hope); (b) "Serenade" (V. Herbert).
8.43: Bike pump and one-stringed fiddle duet—Messrs. E. G. Hunter and V. Lawford, "William Tell" (own arr., MS.).
8.51: Recitation—Mr. W. H. Moses, "The Spanish Champion" (Hemans).
8.56: Weather forecast.
9.0: Overture.

(Continued on page 14.)

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The Shield-Grid R. F. Booster Unit

ADAPTING THE S625 VALVE



THE shield-grid R.F. unit described on June 1 for use with the UX222 valve is equally well suited for use with the S625, the British type of screen-grid valve.

The only difference necessary in connection with the use of the 625 is the actual connections to the valve, and the matter of grid-bias. In the case of the 222, which only requires 2.3 volts on the filament, the small necessary grid-bias is obtained by the "drop" across a resistance or the rheostat in the negative filament leg. In the case of using a 6-volt battery a 10-ohm resistance is placed in the negative leg, and the rheostat in the positive leg. With a 4-volt battery the rheostat is placed in the negative leg, and gives a small amount of negative bias.

THE 625 requires from 5.5 to 6 volts on the filament, so that the necessary grid bias should be provided by a 1½-volt flashlight cell, which may conveniently be one of the smallest size, suitable for inclusion within the shield. It might be said here that in case of using the higher plate voltage of 150 volts on the 222, extra grid bias may be provided on a 4-volt circuit by inserting a dry-cell between the rotor of condenser and the rheostat.

VALVE CONNECTIONS.

THERE are five prongs on the 625, two at one end and three at the other. The two are the screen grid and plate connections, the latter marked with an A for "anode." At the opposite end are the two filament legs, the third being the ordinary control grid connection, in its usual relative position.

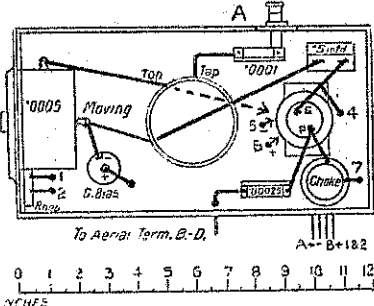
AN ordinary British socket is required, to be mounted in place of the UX type. Only the plate and grid connections will be made to this, the grid terminal in this case being the screen grid. Instead of the two filament wires connecting to the socket, they must be sufficiently long to reach well above the top of the valve, and each wire must terminate in the smallest socket procurable, and these slip over the respective filament prongs, and are easily removable at any time. The control grid connection from the top of the coil may be made by means of a small battery clip, just as in the case of the 222.

WHEN experimenting, the writer placed the valve in the Klossner UX socket already in place, with plate in usual position, and by slightly closing the spring on the opposite filament position and making the screen grid connections to this, the holder

answered quite well, so that this type of holder with a flat grip each side of the prongs can be used.

All connections are as shown in the theoretical diagram on June 18, except that the 10-ohm resistance is omitted, and a grid-bias cell is placed in the grid lead at the point marked X. The plan diagram of wiring here-with shows the addition of the grid-bias cell between moving plates of condenser and filament negative. This means that in the pictorial view the dotted lead marked 4v. is omitted, and the 1½-volt cell is placed in the dotted lead marked 6v., which then continues under the board to join filament negative lead.

FROM the battery cable the A positive goes to one side of rheostat, the other side to one of the filament prongs at top of valve. The A



negative lead from battery goes direct to the other filament prong, and is joined under the board by the lead from stator via grid-bias cell.

A PLATE voltage of 90 volts is shown on the original diagram, but any voltage up to 135 volts may be used on the 222 and 120 on the 625, and the latter a maximum of 80 volts on the screen grid. The grid bias on the control grid is from 0 to 1½ volts negative.

Referring to the plan wiring diagram, the wires running down through holes in baseboard are numbered and connect as follows:—1 up through 6 to filament positive; 2 to A positive battery lead; 3 under board to connect to wire coming up through 5 to filament negative; 4 to B battery low voltage lead in cable; 7 to B battery high voltage in cable.

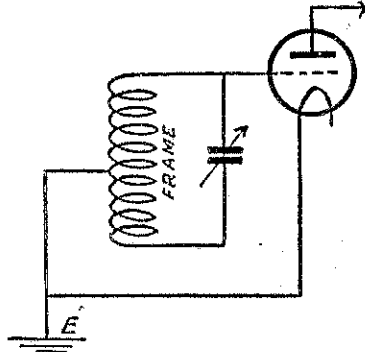
THE three connections to the top of the valve are shown with arrow points, the dotted line from top of coil being the control grid connection with small battery clip or socket. The A battery must always be switched off when connecting or disconnecting filament wires.

The S625 is retailed at 30s. The supply of all shield-grid valves is at present very low in New Zealand, but good stocks will arrive at an early date. Amalgamated Wireless, Ltd., imported as an initial stock what was considered to be a large quantity of the 222, but so popular has the valve proved that the stock was soon cleared, and those at present available are any that remain in the retailers' hands. The Marconi S625 shipment is due to arrive shortly, and the same applies to the Osram S625, for which the British General Electric Co. are wholesale distributors.

CUTTING OUT INTER-FERENCE

WITH THE FRAME AERIAL

IN a recent issue of "Wireless World" it is pointed out that the directional effect of a frame aerial can be considerably improved by centre-tapping the frame and connecting this tap to earth and to the valve filaments, as shown in the figure. The idea underlying this mode of connection is that the electrostatic pick-up, being



more or less evenly distributed over the frame, should be balanced out, leaving an approximation to pure electro-magnetic pick-up. The degree of success attained in eliminating the static pick-up can be gauged by the extent to which the local station can be eliminated by turning the frame into the position of minimum signals.

THOSE who live in large towns are very frequently annoyed by finding that all reception, save from the local station, is impossible, owing to the noises due to the electrical machinery which is now found everywhere. All moving electrically-driven machinery, from a vacuum cleaner up to an electric tram, seems to generate

disturbances which are carried along the electric light mains ("wired wireless") for very considerable distances from their point of origin. These disturbances, which are usually classed together under the vague but inclusive title of "earth noises," make themselves known to the user of wireless receivers in the form of a wide variety of scratches, cracks, bangs, buzzings, and indeterminate uproar of all kinds whenever he ventures to tune in a station at any distance. In bad cases even the local station may have its programme punctuated by the loudness of the noises, while every other station may be completely blotted out by a continuous roar. Since these noises are completely untuned, it is not possible to eliminate them by making the receiver ultra-selective.

APPARENTLY, however, the majority of the noises are introduced into the receiver through electrostatic rather than electromagnetic pick-up, for if the frame aerial connections shown in the figure are employed, the ratio of noises to signals can be very considerably reduced. It is found that a frame, connected in the usual manner to the receiver, does not offer any very great relief from noise, but that if the connections shown in the figure are adopted, a very considerable improvement results. In bad cases it becomes necessary to extend the precautions beyond that of the simple centre tap by making the tapping on the frame, which must for this purpose be wound with bare wire, by means of a spring clip, adjusting its position carefully to give the minimum of interference.

AVOID STATIC PICK-UP.

THE lead from tuning condenser to grid, having no counterpart at the other end of the tuned circuit, must be shielded, which implies, in practice, that the tuning condenser must be within the set, and the whole enclosed in an earthed metal screen.

It is also essential to look very carefully after the leads connecting the two ends of the frame to the tuning condenser and to take every precaution to ensure that the static pick-up by them is identical. This could be achieved by using twin flex for the connections, but the high capacity between the wires makes it unsuitable.

A good method is to make a kind of rope-ladder, the two wires forming the uprights, while the rungs consist of ebonite or wood spacing

strips. Alternatively, the two wires may be sewn into opposite edges of a piece of webbing, with the connection for the centre tap, if desired, down the centre.

THESE precautions may seem very elaborate, but it must be emphasised that half measures give but little relief from the earth noises, while a whole-hearted attack on them, on the lines laid down in the present note, will at the least make it possible to obtain some sort of entertainment from any station which, on an open aerial, is not so entirely blotted out by noise that its transmissions are unintelligible.

The accompanying circuit is one that will give comparative freedom from earth noises, but in most cases would only be suitable for short-distance reception, except in the case of using headphones.

QUERIES BY CORRESPONDENCE.

1. Every communication enclosing queries is to be addressed to "Megohm," Box 1032, Wellington, and must be accompanied by a stamped addressed envelope for reply by post.
2. Questions must be written so that a space is left in which the reply may be added.
3. No charge is made for replies.

CHOOSING A VALVE.

THERE is now a good choice of receiving valves on the market, many of them particularly suited for some special function which in many cases requires more or less exclusive characteristics. Experimenters and constructors should accordingly not hesitate to mix the products of various makers if by so doing they may more neatly approach the ideal laid down in the various constructional articles.

A BATTERY VOLTAGE.

THE voltage of a discharged cell should never be less than 1.8 volts. A newly-charged cell may show 2.25 volts, but on standing it rapidly drops to 2.2 volts, and your battery should show this value when connected to your set. In discharging the voltage drops gradually from 2.2 to 2 volts, remains constant at that figure for a fairly long period, and then drops to 1.8 volts. If discharged after this the drop to 0.5 volt is very rapid.

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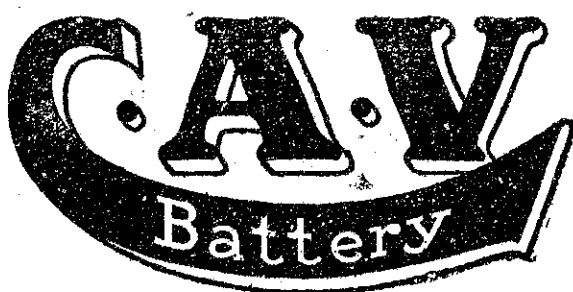
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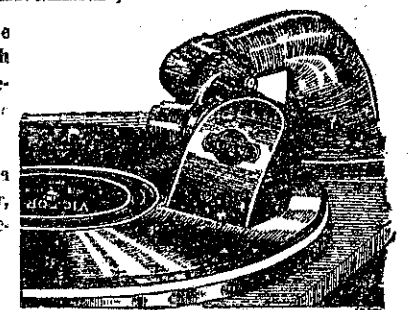
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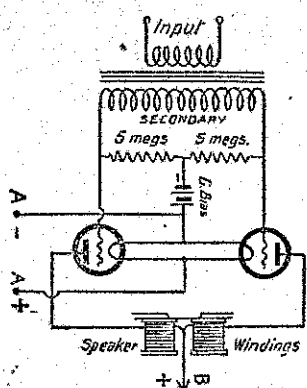
WELLINGTON.

Construction Continued

EXPERIMENTAL PUSH-PULL AMPLIFICATION THE LISTENERS' GUIDE

EXPERIMENTERS have been inquiring for a method of testing push-pull amplification without employing special transformers. The following method was published recently in a London radio journal, and is reproduced here for the benefit of those who are interested and care to try it out. Although this arrangement has not all the advantages derived from the use of a pair of push-pull transformers, the use of the two valves in one stage will certainly allow considerably more volume to be handled. The increase in actual amplification is very small when a push-pull stage is substituted for the single valve arrangement, but increased volume is gained because it is handled without distortion, and this gives the same effect as greater amplification. It is also necessary for the speaker to be capable of carrying the increased volume without overloading.

THE method employed is to use an ordinary audio transformer as the input transformer of the push-pull stage, and as this is not provided with a centre-tapped secondary winding, the



equivalent is provided by shunting the secondary with two high value resistances and making the grid-bias connection at the junction of the two.

IT is not possible, however, to perform this operation on the primary of an output transformer owing to the large D.C. voltage drop which would be caused across them, with the result that the voltage on the plates of the valves would be absurdly low.

AS is well known, the windings of a 2000 ohm loudspeaker, for instance, are wound on two bobbins, each bobbin having a D.C. resistance of 1000 ohms. These bobbins are connected in series, and it is obvious that the plates of the two output valves could be connected to the ordinary terminals of the loudspeaker, the H.T. plus connecting via a third terminal (which could be fitted in a convenient position) to the junction between the two bobbin windings where they are connected in series; care must be taken in the soldering operation. This can be done even in the case of a super-power valve, for no risk of magnetic saturation of the loudspeaker core will take place, as the magnetising current in each bobbin will cancel out just as is the case with the two halves of the primary of an output push-pull transformer.

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SPECIAL INTEREST TO CONSTRUCTORS

CONSTRUCTORS and experimenters will find the "Listeners' Guide" extremely handy for general reference for lists of New Zealand, Australian, American and Canadian stations, with power and wave-lengths, short-wave stations, and a wide range of other information.

Of special interest to constructors there is a list of practically all valves on the New Zealand market, showing at a glance their main characteristics and the positions in the set for which each valve is best suited. There is also a table giving the necessary grid-bias for any valve likely to be used in audio stages.

ANOTHER useful list is that of rectifying valves that are sold without the stipulation that the purchaser must be in possession of the charger for which they are designed. Valves for B battery eliminators and A battery charging are also included, full particulars of all the rectifiers being given.

OTHER tables include winding of solenoids for given wave-length; turns for spider-web coils to tune with condensers of different capacities; turns for secondary coils tuned with condensers of various capacities; tables for making fixed mica condensers of capacities from .5 mfd. down to .00015; wire tables; list of amateur transmitters, etc.

CONSTRUCTIVE articles include crystal receivers, with the "R.R." Selective Crystal Receiver, which so many constructors have found highly successful, and which makes a highly effective wave-trap. Then there are two amplifiers for the crystal, a one- and a two-valve.

The ever-popular four-valve Brown-Drake is fully dealt with, including the amplifying for which inquiries are coming to hand in connection with the two R.F. tuning unit. The "Record" short-wave receiver is fully described, both as a complete shielded three-valve receiver, and as a one-valve "converter" or "adapter," which can be plugged into the detector socket of any broadcast receiver and thus use the audio amplifier to increase the volume of the short-wave reception.

Other information includes the Government regulations relating to wireless listeners, a handy glossary of radio terms, etc.

The "Guide" can be obtained from your dealer for 2s. 6d., or 2s. 9d. posted from the "Record" office.

AN EXPONENTIAL HORN SPEAKER

A FINE example of exponential horn of the folded type is now on the market in New Zealand. This pattern, which is fitted with a speaker unit of high quality, is capable of very fine quality reproduction, and when housed in a suitable cabinet, forms a useful and attractive piece of furniture. A number of these have been landed by Messrs. Thos. Ballinger and Co., Victoria Street, Wellington, where a demonstration will be given.

Browning-Drake Connections.

IN the Browning-Drake circuit as originally published, B negative lead was connected to A positive. It has been found advisable to connect B negative to A negative, and thus keep both negatives at earth potential. Such change would be necessary in the case of adding a potentiometer across the filament of last valve to cut out A.C. hum as mentioned in another column.

Position of Loud Speaker.

THERE are various kinds of "howling" which can be set up in a receiving set, and which are frequently dealt with in relation to the circuit arrangements and to the set itself, but a low-frequency howl sometimes arises owing to purely acoustical reaction between the loud speaker and the valves, especially if the latter are inclined to be microphonic. Sometimes this effect is very troublesome, and I have known cases of amateurs seeking for a remedy for this trouble with no idea of the true cause. The action in cases of the type referred to is similar to that which occurs if you place the ear-piece or receiver of an ordinary line telephone against the transmitter. If the loud speaker is facing the set and

in close proximity to it, a loud note from the speaker, if it happens to be of about the right pitch, may produce considerable vibrations in the valves, and thereby in the filaments, this having the effect of increasing the note in the loud speaker, and so on. The remedy is simply to turn the loud speaker in a different direction and also, if necessary, to remove it further away from the set.

PROTECT YOUR FILAMENT

AN EASILY-MADE FUSE

ANY listener running a valve set should insert a delicate fuse of some kind in the B battery circuit in order to protect valve filaments in case of an accidental wrong connection or short-circuit. By placing one such fuse in the negative lead of the B battery, close to the battery terminal, all valve filaments in the set will be protected, as the fine fuse will "blow" before the high voltage has time to damage the filament.

SUCH fuses have been frequently described in this column in connection with eliminators and other apparatus. Over three years ago the writer accidentally dropped a wire and "blew" three valves costing about £2 each, and the tin-foil fuse was devised in order to prevent the recurrence of such a calamity.

THE construction of these fuses is an extremely simple matter, and it is a far better proposition to construct one and place it in position than to bemoan the loss of one or more valves and purchase others for their replacement.

CIGARETTE tin-foil is the only essential material required, and from this are to be cut the finest possible shreds about an inch long, a sharp pair of scissors being used. To make the cutting easier, the tin-foil may first be pasted to a sheet of paper.

THE next requirement is a slip of ebonite about 1 1/2 in. long and 3-8 or 1/2 in. wide. Two 1/8 in. holes are drilled in this about an inch apart, and into each hole a brass bolt and washer are placed. A piece of fuse is then put into place with an end under each washer, the connecting wires to battery and set being placed over the back of the bolts and the whole secured by a nut on each. An active length of fuse of 1/2 to 1 in. is quite sufficient, and uneven cutting does not matter, as if there is a weak (narrow) place in the fuse, so much the better, as it will be more delicate and fuse more readily.

For those who do not care to construct, there is now on the market a Philips H.T. fuse of the "wander-plug" type which answers the purpose mentioned above.

(End of construction)

RADIO IN ARCTIC

ESKIMOS LISTEN IN.

How Eskimos in the vicinity of Anaktok Bay, Labrador, were able to listen in on one of their own race broadcasting from New York on a recent night, was described in radio messages received by the National Broadcasting Company from Donald MacMillan, leader of the Rawson-MacMillan field expedition, now in the Arctic.

The messages were picked up by A. V. Giamatteo, of the National Broadcasting Company's staff at Bellmore, L.I., who operates amateur station 2VI, and who has been in daily communication since last November with Clifford Himoe, the radio operator on MacMillan's schooner Bowdoin.

Teddy Kirogluk, an Alaskan Eskimo, took part in the programme, announcing the musical selections in Eskimo language, and making a short speech on his experiences in New York since his arrival last December. The principal message of the three received from the Arctic exploration ship Bowdoin, said:

"Thank you for musical programme last night. With the exception of fading now and then everything came in beautifully. The Eskimos listening—Simeon, his wife Miriam, and Panigamiak—were greatly interested, and could understand about one-quarter of what your Eskimo said."

VOICE FROM THE WILDS

AFRICAN TRADER BROADCASTS.

A trader from the wilds of Africa, Trader Horn (Alfred Aloysius Smith) is being taught how to broadcast. He has been introduced to the microphone in the studio of the National Broadcasting Company, and on March 27 at 9 o'clock he went on the air over WEAF, New York, and nineteen associated broadcast stations. The first audition is said to have revealed that Trader Horn's "whiskers and lack of teeth" are the only factors which prevent him from being a perfect broadcaster. He is now being coached to overcome these difficulties.

The adventurer from the Dark Continent was the main attraction on the Eveready hour during which he was on the air for about twenty minutes to tell of his life among the cannibals and wild beasts of Africa.

It was pointed out that Trader Horn's narrative would have a good chance of reaching Africa because the short-wave transmitters of WGY at Schenectady sent out the programme simultaneously with the regular broadcast on 380 metres.

RADIO DIRECTORY

What to Buy and Where

ATWATER-KENT RADIO	Frank Wiseman, Ltd. 170-172 Queen Street.
ALTONA & HAMMARLUND-ROBERTS SETS.	Johns, Ltd. Chancery Street.
AMPLION LOUDSPEAKERS	All Radio Dealers.
BREMER-TULLY RADIO	Superadio, Ltd., 147, Queen Street.
BURGESS RADIO BATTERIES,	All Radio Dealers.
CE-CO VALVES	All Radio Dealers.
CROSLY ELECTRICAL AND BATTERY MODELS	The Forrest-Crosley Radio Co., Ltd. Cuba Street, Palmerston North.
FADA RADIO	Radio Supplies, 251 Symonds Street.
FEDERAL, MOHAWK, GLOBE	Federal Radio House, 8 Darby Street.
GAROD, CROSLY, RADIO AND ACCESSORIES	The Hector Jones Electrical Co. King and Queen Streets, Hastings.
GILFILLAN AND KELLOGG	Harrington's, Ltd., 138-140 Queen Street.
GREBE RADIO	Howie's, Dunworth Building, Custom St. N.
MARCONI ECONOMY VALVES	All Radio Dealers.
MULLARD VALVES	All Radio Dealers.
RADIOLA RECEIVERS	Farmers' Trading Co., Ltd., Hobson Street.
RADIOTRON VALVES	All Radio Dealers.
RELIANCE BATTERIES	Reliance Battery Mfg. Co., Ltd., 98 Albert Street.
PHILIPS VALVES AND APPARATUS	All Good Radio Dealers.

THE PERFECT LOUD-SPEAKER

EFFORTS FOR IMPROVEMENT.

The reproduction by your radio set of original sound in the broadcasting studio is no better than the amplifying element, which finally transmits the electrical waves into sound waves, and projects them into the air, can make it. Very often a beautiful receiving set is handicapped by the necessity of expressing itself through the medium of a poor loudspeaker. The loudspeaker is the last link in the chain from the microphone to the ear of the listener, and as such should be as perfect as human ingenuity can make it. With this in mind, the most recent efforts of radio engineers have been directed toward the improvement of loudspeakers now on the market.

UNEQUAL AMPLIFICATION.

The perfect loudspeaker will reproduce every vibration that originally strikes the microphone, or at least every one that reaches its diaphragm in the form of electrical waves. If these vibrations are amplified in their original proportions, the reception is remarkably true and clear. If, however, the horn which projects them is of a substance prone to vibrate in the same period, certain of these vibrations are amplified a great deal, while others not in that period are actually subdued. The result, of course, is positive distortion.

Likewise, if the horn be made of a composition which does not vibrate at all, it has the effect of muffling all the sounds. The happy medium is a material which will vibrate in tune or in harmony with all notes, and consequently amplify all vibrations in their proper proportions, resulting in high sweet notes, and low notes full of resonance.

QUESTION OF TERMS

VARIABLE OR ADJUSTABLE?

Claiming that the term "variable resistor," which is now so widely associated with current and voltage-control devices for radio, is inaccurate and misleading, Leonard Kebler, president of Ward Leonard Electric Co., in a recent letter to the Radio Manufacturers Association, asks that the use of the word "variable" as applied to resistors should be abandoned by the radio trade.

In his letter of protest, Mr. Kebler points out that "variable" carries with it several meanings which are inexact and which tend to create in the mind of the buying public faults and shortcomings which are not common to properly-constructed resistors of this type.

Dictionary Definition.

The term "adjustable resistor," according to Mr. Kebler, can be employed more exactly and effectively by the radio trade as a whole in merchandising this kind of resistances. The adjective "variable" carries with it the idea of

possible fluctuation and undesirable change once the control resistor is set at a definite point. A comparative definition of "adjustable" and "variable" from Webster's New International Dictionary makes clear the distinction. "Variable: liable to vary; too susceptible to change; unsteady, inconstant."

"Adjustable: made exact; free from discrepancies; brought into proper relation." Interpreting the two terms in even a loose sense, Mr. Kebler concludes, one gathers that a variable resistor is one which is constantly changing in itself. An adjustable resistor is one in which the resistance value can be changed, but in which voltage and current characteristics remain constant for a given setting of resistance.

Yet the "variable" condenser has remained free of such imputations, and the "adjustable" condenser has failed to take. If we were to coin a word, "setable" might do.

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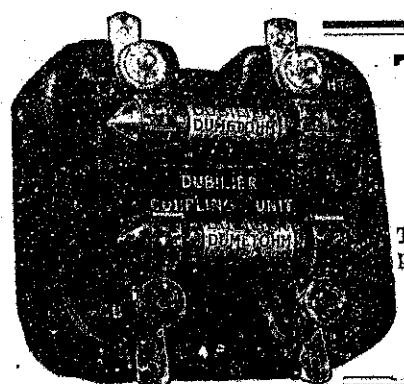
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Arrange for a demonstration TO-DAY

F.J. PINNY Ltd. 58 Willis Street, WELLINGTON.

Programmes Continued

(Continued from page 11.)

- 9.5: Soprano solos—Mrs. D. Cherry, (a) "If You Were the Opening Rose" (Hewitt); (b) "Will o' the Wisp" (Spross).
 9.12: English concertina medleys—Mr. E. W. Heald, "Medley of Old-time Melodies" (MS.).
 9.17: Contrast songs—Mr. Jack Smyth, (a) "Devotion" (Wood); (b) "When You And I Were Seventeen" (Rosoff).
 9.24: Steel guitars and ukulele—Miss Elaine Moody's Hawaiian Instrumental Trio, (a) "Dreamy Hawaii"; (b) "Hanalei Bay" (introducing "My Hawaiian Maid"); (c) "Cheerie, Beerie, Bee" (Wayne), (own arrangement).
 9.33: Contralto solos—Miss Marian Woodhouse, (a) "The Turn of the Year" (Willeby); (b) "Happy Song" (Del Riego).
 9.40: Instrumental trios—Christchurch Broadcasting Trio, (a) "Melodie" (Moskowski); (b) "Vienna Life" (waltz), (Strauss).
 9.48: Bike pump and one-stringed fiddle duet—Messrs. E. G. Hunter and V. Lawford, (a) "Love's Old Sweet Song"; (b) "A Perfect Day" (own arrangement, MS.).
 9.56: Humorous recitation—Mr. W. H. Moses, (a) "Yaweb Strauss" (Allen, MS.); (b) "The Puzzled Dutchman" (Allen, MS.).
 Dance music until 11 p.m.
 God Save the King.

4YA, DUNEDIN (463 METRES)—SATURDAY, JUNE 23.

- 2.45 p.m.: Relay description of Rugby football match from Carisbrook.
 5.0: Close down.
 7.15: News session.
 7.30: Address by Dr. Salmond on "The Pacific" (under the auspices of the Workers' Educational Association).
 8.0: Town Hall chimes.
 8.1: Relay of orchestral music from the Empire Theatre Orchestra.
 A studio presentation of Herman Lohr's song cycle, "The Little Sunbonnet."
 8.11: Vocal quartet—4YA Harmonists, "The Little Sunbonnet" (Lohr).
 8.14: Soprano solo—Miss Roma Buss, "The Little Print Bonnet" (Lohr).
 8.18: Violin solos—Mr. A. R. Watson, (a) "Polonaise" (Bohm); (b) "The Dawn" (Nevin).
 8.24: Vocal duet—Miss Mollie Andrews and Mr. F. M. Tuohy, "Where Violets Grow" (Lohr).
 8.27: Flute solo—Mr. J. Stewart, "Des Marionettes" (Gurlitt).
 8.32: Baritone solo—Mr. F. M. Tuohy, "Little Molly Mary" (Lohr).
 8.35: Pianoforte solos—Mrs. Ernest Drake, L.A.B., (a) "Gavotte" (Gluck-Brahms); (b) "Second Arabesque" (Debussy).
 8.40: Vocal quartet—4YA Harmonists, "A Lady Came to Our Town" (Lohr).
 8.44: Cornet solo—Mr. George Christie, "Zelda" (Code).
 8.52: Tenor solo and quartet—Mr. R. A. Mitchell and 4YA Harmonists, "Somewhere Town" (Lohr).
 8.56: Relay of orchestral music from Empire Theatre.
 9.6: Weather forecast.
 9.9: Soprano and baritone duet—Miss Roma Buss and Mr. F. M. Tuohy, "The Rose and the Nightingale" (Lohr).
 9.13: Violin solo—Mr. A. R. Watson, "Ballet Music From Orfeo" (Gluck).
 9.17: Mezzo-soprano solo—Miss Mollie Andrews, "If I Had a Dolly" (Lohr).
 9.20: Flute solos—Mr. J. Stewart, (a) "Mazurka, Op. 7, No. 1" (Chopin); (b) "Cantilene" (Barrett).
 9.30: Vocal quartet—4YA Harmonists, "So Glad a Heart" (Lohr).
 9.38: Soprano solo—Miss Roma Buss, "Love, Here is My Heart" (Silesu).
 9.37: Tenor solo—Mr. A. R. Mitchell, "The Old Refrain" (Kreiser).
 9.40: Cornet solo—Mr. George Christie, "I Hear You Calling Me" (Marshall).
 9.46: Baritone solo—Mr. F. M. Tuohy, "I Think of Thee" (Lambert).
 9.50: Relay of orchestral music from Empire Theatre.
 10.0: Close down.

Sunday, June 24

1YA, AUCKLAND (333 METRES), SUNDAY, JUNE 24.

- 3 p.m.: Afternoon session—Selected studio items.
 4.0: Literary selection by the Announcer.
 4.8: Selected studio items.
 4.30: Close down.
 6.0: Children's song service, conducted by Uncle Leo, assisted by cousins from the Grange Road Baptist Sunday School.
 6.55: Relay of service from Baptist Tabernacle. Preacher, Rev. Joseph Kemp. Organist and choirmaster, Mr. Arthur E. Wilson.
 8.30: Relay of band recital by the Auckland Municipal Band, under the conductorship of Mr. Christopher Smith.
 9.30: Close down.

2YA, WELLINGTON (420 METRES), SUNDAY, JUNE 24.

- 3 p.m.: Afternoon session—Selected studio items.
 4.30: Close down.
 6.0: Children's Sunday service, conducted by Uncle Ernest.
 6.55: Relay of evening service, from St. Andrew's Presbyterian Church. Preacher, Rev. R. Howie. Organist and choirmaster, Mr. Frank Thomas.
 8.15 (approx.): Relay of band recital of the Port Nicholson Silver Band from the Grand Opera House. (Conductor, Mr. J. H. Drew.)
 Close down.

3YA, CHRISTCHURCH (306 METRES), SUNDAY, JUNE 24.

- 5.30: Children's song service, conducted by Uncle Sam, who will be assisted by scholars from St. Luke's Anglican Sunday School.
 6.30: Relay of evening service from St. Mary's (Church of England), Merivale. Preacher, Rev. Archdeacon P. B. Haggitt; choirmaster, Mr. Alfred Worsley.
 After-church music will be given from 3YA studio.
 8.15 (approx.): Rebroadcast of 2YA, Wellington, by relay of concert by the Port Nicholson Band from Grand Opera House, Wellington.
 God Save the King.

4YA, DUNEDIN (463 METRES), SUNDAY, JUNE 24.

- 5.30 p.m.: Results to hand of All Blacks tour.
 5.31: Children's song service, conducted by Big Brother Bill, assisted by Cathedral Choristers.
 6.30: Relay of service from Hanover Street Baptist Church. Preacher, Rev. E. S. Tuckwell. Choirmaster, Mr. H. P. Desmoulin.
 8.0: Relay from His Majesty's Theatre of band concert by the Kalkorai Band, under the conductorship of Mr. E. Franklin.
 9.15: Close down.

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(Opp. X.M.C.A.)

Features

(Continued from Page 7.)

A MISCELLANEOUS concert of excellent quality will be broadcast by 3YA on Wednesday evening. "The Gladiator" will be sung by Mr. A. G. Thompson. He will also sing "Harlequin." Mr. T. G. Rogers will sing "Like Stars Above," and Donizetti's "A Furtive Tear." The two lady vocalists Miss Nellie Love and Miss Hilda Hunt, will also be heard in songs well suited to their voices. Quartet items will be a feature of the vocal programme.

A HUMOROUS reciter who is proving a great success at 3YA is Mr. H. Instone, much of whose work is original. On Wednesday evening his items will be "Publicity" and "McBride's System." Instrumentalists on Wednesday's programme will be the Studio Trio, Mr. Harold Beck (cello), Mr. Percy W. Reeves (trumpeter), and Mr. R. C. Brundall, who will play saxophone solos.

ANOTHER miscellaneous programme will be presented on Thursday evening. The vocalists will be the Madame Gower-Burns Grand Opera Quartet. It will be a particularly attractive programme. Elocutionary items will be given by Miss Myra Edmonds. These will be "Twenty Gallons of Sleep" and "Playmate."

A POPULAR programme has been arranged for Friday. The Radio-Hall Quartet will sing some songs which are not well known to listeners, but quite a number of their items will be old favourites. A great variety is being introduced in regard both to type of song and date of composition. One "Old Courtly Rhyme" goes back to 1672, and another is a humorous duet of Shakespeare's time. Among the others will be found popular Irish and Scottish airs as well as a modern fox-trot song.

Also on Friday's programme will be the Studio Trio, Miss Aileen Warren, Mr. George Bennet (in a variety of mouth organ solos), and Mr. Jack Gillespie, who will play his banjo and sing popular songs. Then there will also be Mr. J. P. Darragh, whose stories this time will be of Jewish persuasion.

MANY items of a much-diversified nature are crowded into Saturday evening's vaudeville programme at 3YA. On the programme appear Mrs. D. Cherry (soprano), Miss Marian Woodhouse (contralto), Mr. E. W. Heald (English concertina solos), the Studio Trio, Miss Elaine Moody's Hawaiian Trio, Messrs. E. G. Hunter and V. Lawford (bicycle pump and one-stringed fiddle duets), Mr. Jack Smyth in popular songs and Mr. W. H. Moses (elocutionary items).

4YA NOTES

ON Sunday next 4YA will relay the service from Knox Church, the preacher being the Rev. Tulloch Yule, M.A., B.D. Following the Church service, a studio concert will be presented.

A FIRST-CLASS programme has been arranged for Tuesday evening, when a fine selection of items will be played by the St. Kilda Band, under the conductorship of Mr. James Dixon. In addition to the band items several well-known vocalists and elocutionists will be heard. Mr. Bert Rawlinson will present a group of baritone solos, interpretations of negro spirituals. Mrs. D. Carty (soprano) will contribute a song which was one of the most popular ballads of a decade ago, "Queen of the Earth."

AMONG the bass solos to be sung on Tuesday evening by Mr. F. C. Cooper will be two popular nautical songs, "Drake Goes West" and "Down Among the Dead Men." A humorous vocal duet, "Maggie Lauder," will be presented by Mrs. D. Carty and Mr. Bert Rawlinson. Humorous and serious elocutionary numbers will be presented by Miss Anita Winkel and Mr. Lester Moller.

Pastor W. D. More will also be heard in a humorous address on Tuesday evening.

Among the outstanding numbers from the band on Tuesday evening will be a descriptive selection entitled "A Sailor Life." This composition is comprised of well-known sea songs and nautical music, and will be all the more interesting because members of the band will be heard singing some of the choruses.

AS usual, a bright and mostly humorous programme will be broadcast on Thursday night. Miss Betty Roberts will sing a group of lyrical songs from well-known musical comedies. Mr. J. B. McConnell (light baritone) will sing several popular hits, including Irving Berlin's great success "The Song is Ended." Miss Thelma Blackman, a light soprano artist new to the microphone, will contribute some of the latest popular songs, and also the old favourite "Can't You Hear Me Calling Caroline."

THAT popular combination, the Dunedin Banjo Trio, will also be on Thursday night's programme in a number of popular hits both old and new. Hawaiian guitar duets will be rendered by Messrs. Sheehy and Campbell, and Miss Hilda Scurr and Mr. Carl Moller will attend to the elocutionary portion of the programme.

Glossary of Wireless Terms

UNDER this heading we will give regularly sections of the glossary of wireless terms which is a prominent feature of the N.Z. Radio Listeners' Guide. In that book, although set in the smallest type, it occupies some 18 pages, and is definitely in our opinion the most comprehensive and complete glossary on modern lines which has been made available in the Dominion. For the benefit of our readers the glossary will be reprinted in our columns.

"B" BATTERY.—The alternative name for the high-tension (H.T.) battery. It is employed for applying an electrical potential to the plates (or anodes) of valves. The "B" battery may comprise "dry" or "wet" cells (accumulator type). It comprises several groups of cells totalling 223 volts, or 45 volts in the case of "dry" batteries, waxed into cardboard enclosed blocks, and from 24 volts upwards in the case of "wet" batteries. Care must be exercised not to connect the "B" batteries to the filaments of valves, in place of the "A" batteries, as the valves would be irreparably damaged.

BAKELITE.—An insulating material presenting an appearance very similar to ebonite. Has very high heat-resistant properties. The majority of panels, dials, etc., in radio sets are made of this material.

BALLAST TUBE.—A special valve, usually gaseous, which is installed in B battery eliminators for the purpose of maintaining constant operation of the device irrespective of fluctuations of input or output.

BANK WINDING.—A system of winding adopted so that adjacent turns either on each side or above or below shall not be at a materially different potential. The self-capacity of such a winding is kept at a minimum thereby.

BASKET COIL.—A coil of high efficiency and simple construction which is wound alternately over and under radiating pegs, after the fashion of basket-work.

BATTERY.—This term indicates a chemical instrument for generating, or storing and then releasing, electrical energy. The battery may be wet or dry according to whether the electrolyte or chemical solution is spillable or non-spillable. A "dry" battery would be better known as a "damp" battery. The energy obtainable from a battery is in proportion to the chemical action which takes place.

BEAM TRANSMISSION.—A system developed by the Marconi Co. of England of transmission by radiations concentrated and projected in a desired direction just as the beam of a searchlight is concentrated and directed. The system achieves a gain in secrecy, economy, and range. The wavelength of any beam system is invariably under 50 metres.

BEAT NOTE.—The result of superimposing one oscillatory current on another in order to set up a third frequency or beat. Used in connection with heterodyne reception. See "Heterodyne."

BEAT RECEPTION.—See "Heterodyne."

BIAS BATTERY.—Sometimes known as a "C" battery. Supplies a potential to the grid of a valve in order to make the valve perform its various functions at maximum efficiency and with a minimum consumption of "B" battery current.

BLOCKING CONDENSER.—Another name for a fixed condenser. Its purpose is to give a short path for radio or audio frequency currents, but acts as a bar to direct current such as that which flows from the batteries. On the other hand, a condenser of the right value will pass radio frequencies but block audio frequencies.

BODY CAPACITY.—See "Hand-capacity."

BROADCAST BAND.—The band of wavelengths generally ranging from 200 to 550 metres. American receiving sets are constructed for reception only on this band of wavelengths. In England a large proportion of receiving sets, by the use of plug-in tuning coils, can be adapted for the reception of wavelengths extending considerably over a thousand metres, so that many of the Continental broadcast stations which operate on the longer wavelengths can be tuned in.

OVERSEAS MAILBAG

INTERESTING LETTERS

APPRECIATION OF 1YA.

INTER alia, in the course of a letter to 1YA, Mr. B. L. Spurlock, of Stockton, California, writes:—

"The music comes in fine for a few minutes, and then fades away for a short time, but most all stations in Australia and Japan do the same in my experience in DX chasing, which I take a great delight in. I have between 200 and 300 stations on my list from different parts of the world. I find that a 500 or 1000 wt. station comes in better over water at three times the distance than over land."

Clearer than 4QG.

A LETTER from Coolangatta, Queensland, states: "For some time we have been enjoying the programme broadcast by your station, and on Friday night last we heard and enjoyed a description of the fight from the Town Hall. We had the Sandman from Brisbane listening in one night, and he agreed with us that the reception was much clearer than 4QG."

FOR the first hour on Friday evening an interesting programme of ballad music has been arranged, including instrumental, vocal, and recital works. The Rev. G. E. Moreton will contribute some clarinet solos, including Rubenstein's "Melody in F," which is a pretty arrangement of this beautiful composition.

The Friday night dance hour will commence shortly after 9 p.m. and continue until 10 o'clock. The latest dance music will be played by Alf Carey and his Savoy Orchestra, being relayed from the Savoy.

A MOST interesting programme will be heard on Saturday when the 4YA Harmonists will present Hermann Lohr's delightful song cycle, "The Little Sunbonnet." The numbers comprise quartets, duets, and solo items, which will be taken by Miss Roma Buss (soprano), Miss Mollie Andrews (mezzo-soprano), Mr. R. A. Mitchell (tenor), and Mr. F. Tuohy (baritone). Instrumental music will be provided by Mr. A. R. Watson (violinist), Mr. J. Stewart (flute), and Mrs. Ernest Drake, L.A.B. (pianiste). Mr. George Christie will play cornet solos, including Kreisler's "The Old Refrain."

ADDRESSES FROM 4YA

AT 4 p.m. on Tuesday, Mr. G. J. Butcher will continue his series of talks on "The Domestic Uses of Electricity."

Mr. R. W. Marshall, manager of the Dunedin Government Tourist Department, will discourse on well-known tourist resorts at 7.30 p.m. on Tuesday.

A FASHION Talk will be given by Miss Buccleuch at 3.30 p.m. on Friday afternoon.

Mr. H. Greenwood, librarian of the Dunedin Athenaeum, will review the latest books at 7.30 p.m. on Friday.

UNDER the auspices of the Workers' Educational Association, Dr. Salmond will lecture on the "Pacific" at 7.30 p.m. on Saturday evening.

Almost Perfect.

WRITING to 1YA from Cooranbong, N.S.W., Mr. G. Wallace says: "I love both 1YA and 2YA. Sometimes 3YA puts over some stunning cornet solos which we greatly enjoy. 4YA also arrives with good punch. Good-bye, 1YA. (Cheerio). Thanks for your programme. Only for static and fading you would be perfect."

Absence of Mushiness.

IN a letter from Bundaberg to 1YA appears the following remark: "We quite enjoy listening to your station. It seems quite evenly balanced from here—no mushiness or harshness like some of our Australian stations, which is not right to mention."

LETTERS TO 2YA

Alaska Dances to Wellington Cabaret.

"WE wish to advise that we are enjoying your programmes practically every night. I pick you up with sufficient volume to be heard on the loudspeaker, and sometimes your station can be heard for a distance of three and four blocks."

"Last night I picked up the programme broadcast from the Columbian Cabaret, and my wife and I had several dances to the splendid music as rendered by the orchestra. When I first picked you up it was 11.45 p.m. our time, and according to the time signals given by your station, there is a difference of 18 and a half hours between Wellington and Anchorage, Alaska. I picked you up Friday, and listened to your Saturday night programme."

Wishing you continued success, and thanking you for the splendid entertainment you are giving us."—P.B., Anchorage, Alaska.

Wonderful Transmission.

"AT this moment your wonderful transmission is rolling in with such wonderful tone and volume as to make my loudspeaker prove its value. When the band plays it is impossible to hear one speak, even if we shout."—"G.W.," Cooranbong, N.S.W.

Two Valves for Long Distance.

"I AM sure you like hearing from Australia how your stations are being received here. I am living on a sheep station 375 miles from Sydney, North-west, and I am using a two-valve set, and it is the best I have seen for long-distance work. I switch on to you about 7.30 here, and can hold you till you close down at 10 p.m. Your station is quite up to the standard of our A class stations here."—"A.W.P.," Boolcarrol, N.S.W.

Appreciation of Programmes.

"JUST a line to let you know that I receive your programme, which are equal to any over here, very clearly and distinctly, with good volume, on my five-valve neutrodyne. Tonight at 10.20 an orchestral item, "Humoresque" from your station was very much enjoyed by several people who were listening in 200 yards away from my house."—"D.C.," Coonamble, N.S.W.

More Appreciation.

"YOUR programmes have been a source of pleasure to me for the past three weeks, primarily because you know how a radio enthusiast feels when he can 'bring them in' from far away. And also because your programmes are well selected, and most please many 'listeners-in'."—"L.B.," Hollywood, California.

Our Mail Bag

J. Surman, Auckland.—George P. Henwood, 56 Lake Road, Takapuna, Auckland, would like you to communicate with him.

DX Champions.

I SEE that Mr. Handley (Wanganui) has logged a station in U.S.A. with the call sign KNRV. I would like to tell him there is no such station in U.S.A. with that call sign. He has made a mistake. The correct call is KNRC, Santa Monica, California. I am very pleased to see that he has logged 50 stations to his great credit. I think this will take some beating, as he is using a set which has a wonderful range for long-distance (Browning Drake). I would like him to write to me to exchange views. My logging to date now since writing last is 42. The station I heard on 235 metres I logged to-night. It was KFTF on 232 metres. They were on jazz music, but very weak and fading badly. The set I am using is a five-valve with Mr. Pierce's earth. I was up until 3 a.m. this morning trying to log the South African station, but no luck; yet 3AS and 3BY were on gramophone music and going well when I closed down.—S. R. Ellis, Okato.

The Radio Bill of Fare.

JUST a few lines to let you know my opinion of the fare we receive nightly. The idea is that to make the programmes attractive all of them should be as varied as possible. Saturday evening programmes are all that could be desired, and I have heard my friends, most of whom are only casually interested in radio, say "they seem to keep their best concerts for Saturdays." Of course, I am not suggesting that all the programmes should be of a vaudeville type, but some of the programmes—Mondays and Tuesdays especially—could easily include more instrumental variety without detracting from type. The orchestra is a fine combination, and always enjoyable, but I am sorry to see that its coming has resulted in the almost total exclusion of solo items for cornet, flute, clarinet (which was especially good) and violin. And I think most of us miss the splendid mandolin band of Mrs. Mildred Kenny, and the "Mellow Fellows" appear all too seldom, though other quartets who do not give near the general pleasure that the popular "Fellows" do, sing regularly every week. I would like to suggest some violin and clarinet (or flute) solos on Monday, a mandolin band, either of the two that has performed already from 2YA, on Tuesday, playing good music, not jazz, and other instrumental novelties on Friday or Saturday. Mr. Probert's xylophone solo on June 2 was great, and I am sure we would not mind having such items more frequently. One of your correspondents—C.H.W.—inquired about the vibrophone. I quite agree with him that we should hear it. Is it because there is nobody available with sufficient knowledge of the instrument to render a satisfactory solo, that few of us know there is even such an instrument at 2YA?—L. J. Waverley.

"North Taranaki Fan."

I FEEL I must write my opinion of 2YA orchestra. I must congratulate them on the wonderful music. I also will have the honour of being the only or else the first North Taranaki listener to congratulate 2YA. It is just wonderful the programmes they are putting on the air lately. I am situated sixteen miles south of New Plymouth on the main road, and in a line with Mt. Egmont just a shade to the side of Mt. Egmont, and transmission is just great lately, fading very little. If you go north of New Plymouth, Wellington is just perfect, and the same if you go a few miles south of New Plymouth, so old Mt. Egmont is the cause of their trouble. They will have to get up a working bee to shift her.—S. R. Ellis, Okato.

A Good Log.

MY log to date using three valves—detector and two audio—is 169, namely: America, 18; Australia, 74 (many amateurs); New Zealand, 58 (including amateurs); Holland, PCJJ, PCLL; Russia, RFM; Belgium, Radio Belgique; England, 2NM, 5SW, CBL; India, 7CA, 7BY; Japan, JOAK, JOBK, JOCK, JHBB; Manila, P.I., KZRM; Java, ANE, ANH; South America, CB8; Germany, AFK, RSR. All of these stations were received on a set home-made. Practically all the high-powered stations have Q.S.L.-ed me, also several amateurs. Numerous stations are lost through bad static, fading, poor modulation and weak signals. There is a prominent amateur up my way whose key clicks can be heard over twenty degrees on my dials. He naturally spoils reception while on the air. In closing, I must state some of the stations logged extend back five or six years.—J. Raft, Brooklyn.

Band Music Wanted.

I WOULD like one of the bands occasionally to give us more hymn tunes during the evening, say, two or three verses of each hymn. If this could not be done, I suggest some Sunday afternoon you could give us band music of the hymns by gramophone, etc. To me it is the best music offering, and no doubt there are others who would like the change, say, as often as it suited.—A.Y. (Wellington).

How to Help Radio.

THE June 1 issue of the "Record" clearly points out what may happen if the number of licenses is not increased before very long.

The ways and means of obtaining new license holders and listeners constitutes rather a deep problem. The interest of the main bulk of the public must be stirred in favour of radio, and to start with, every present listener can help, to his own advantage, by privately advertising radio as an entertaining, business, and scholastic medium. The entertainment part will perhaps appeal to the majority, although there is no question that a number of listeners purchased their sets for their business value, for instance, farmers for stock and market reports, etc., and so on.

A year or so ago a number of listeners were dissatisfied with the Radio Broadcasting Company's service, and considered it not worth their 30s. per annum. I think the feeling has now changed, and that the general opinion is that the company is giving good service, well worth the license fee.

The company has further indicated its willingness to extend and improve the service. The service must be popular to be successful, and listeners given programmes that they want. I admit this is no small problem, pleasing a large number of critical listeners, a percentage of whom have no tangible idea as to what they do want. However, I feel that the company is proceeding on the right lines, and getting the majority, if not all, listeners behind them.

One effective method of increasing the number of license holders would be to reduce the annual fee, say, to £1. This would be appreciated particularly in the cities, among the poorer classes.

Reliable crystal sets can be procured for £1, and when one is confronted with the necessity of paying £1 10s. per annum to run this set, to many it must be an insurmountable difficulty. If the fee was reduced, I am sure a great many more people would become interested.

Increasing the power output of the stations would further help by increasing the range of the crystal sets, and one-valve speaker sets in and near the cities.

Every listener should be treated as a potential advertiser for broadcasting, and what about more publicity? Advertisements in the daily papers, etc. This is expensive, but, well-drawn and worded ads. catch. Periodical dealers' drives, assisted by longer broadcasting hours by local stations, should also have a beneficial result.

It must not be forgotten that dealers have a great responsibility in selling and servicing sets. What is the good of the Broadcasting Company transmitting ideal programmes, and making the technical side of transmission as near perfect as it can be, when dealers are inattentive to the necessity for good workmanship and quality in the sets they are handling. I expect not a few criticisms levelled at the company should have been directed to faulty sets.

Here again a satisfied customer becomes a good advertiser, a point all dealers should realise.

Broadcasting has passed the novelty stage in this country, and should settle down to business seriously. Co-operation between the Government, Broadcasting Company, dealers, listeners, and Press will work wonders in the progress to ultimate perfection of broadcasting in this Dominion.—W. H. Potter (Horahora).

Receivers' Licenses.

STRANGE, but true, I had this pad in my hand to write you but before starting I thought I would look at the mail-bag of June 8, with the result that "Fairplay" has almost taken the subject away from me. I endorse "Fairplay's" remarks re publishing the names of those who have paid this year's 30s.—say it were done this way: Divide each week's publication to be devoted to each province or part of same, then again subdivide so that any reader would see at a glance if any neighbour who had a wireless had a license. For instance, say Taranaki, start in the southern end, Patea, Hawera, Eltham, and so on—the post offices would be able to supply names at a moment's notice; then again if the names are alphabetical the laziest reader would not fail to see if any "robbers" are about his way. Perhaps if you said that you were going to do the above stage-fright may cause a rush on renewals of licenses; let's hope so. In conclusion, sir, let me state that we fully appreciate the high-class entertainment turned on by the Y.A.s.—H. J. Finlay, Tokaora, Hawera.

[We are investigating the possibility of carrying out the suggestion of publishing the list of licensed receivers.—Ed.]

Effect of the Eclipse.

DURING the recent eclipse of the moon I had my set tuned in to 3LO, Melbourne. As the eclipse commenced the signals became gradually weaker, a general weakening as distinguished from a "fade." At the half eclipse the signals swelled slightly, only to diminish again. From then on until the total eclipse the signals grew weaker and weaker until they were barely audible. These results were on a Gillman 3 Radio Freq. Det. 2 Audio. As the eclipse passed away the transmitted signals became gradually stronger. I send in this

Taranaki Trouble

FADING AND DISTORTION

EXPERIENCE OF NEW PLYMOUTH

IT has long been established that broadcast reception over water is incomparably better than over land. And it has also been proven, especially in the United States where huge sums have been expended in "fading" research work, that certain country areas provide bad reception from certain directions, and some places are so screened by metal deposits that it is impossible, through what is known as "absorption," to receive broadcasting at all satisfactorily from certain directions.

In New Zealand we have striking examples of these difficulties, several areas providing their own individual problems. In New Plymouth, reception of 2YA, Wellington, in a specific area is so subject to distortion and fading as to cause a well-intentioned protest from those listeners residing therein.

THE North Taranaki Radio Society which has its headquarters in New Plymouth has recently demonstrated to its official representative at Wellington, Mr. G. W. Morgan, who was visiting New Plymouth, that the fading and distortion of 2YA in a prescribed area of that town is very pronounced. Mr. Morgan, on his return to Wellington, mentioned his experiences at New Plymouth, which tend to prove that the poor reception of 2YA, Wellington, is due to purely local causes at New Plymouth—possibly mineral deposits deep within a section of the base of Cape Egmont. The "trouble area" of New Plymouth appears to be well defined, for at points two miles away 2YA, Wellington, was received flawlessly. Mr. Morgan was able to verify this by a personal test. He also went up to the mountain house on Mount Egmont and the occupant demonstrated to Mr. Morgan that reception of 2YA, Wellington, was well high perfect there.

Desire to Change Wavelength.

THROUGH Mr. C. E. Bellringer, M.P. for Taranaki, the North Taranaki Radio Society asked the Postmaster General to sanction a test transmission by 2YA, Wellington, on the wavelength of 1YA, Auckland. The society stated that when 1YA, Auckland, operated on the wavelength of 2YA, Wellington—420 metres, reception of 1YA in New Plymouth was very unsatisfactory, the characteristics being identical with those now being experienced with 2YA on the same wavelength. On 1YA's changing its wavelength to 333 metres, reception of that station improved very considerably, and became quite satisfactory in North Taranaki on receivers of four valves and upwards. We would further point out that when 2YK, Wellington, and other Wellington stations were in operation on very low powers, reception of their transmissions were not marred in the same way as that of the present Wellington station. It is submitted, therefore, with due respect, that the transmission route is only a minor factor in the present case.

The Official View.

THE P. & T. Department's radio officials, however, contended that the change in wavelength would not have the effect desired in New Plymouth.

The Broadcasting Company have notified the North Taranaki Society that the wavelength change of 2YA, Wellington, would be by no means a simple task which could be effected in a few minutes, and it is doubtful whether the change could be made without seriously interfering with the normal schedule. The company went on to say: "Again, assuming that the wavelength of 333 is more favourable to the reception of 2YA in New Plymouth, a difficulty would arise in that 2YA would, with its output of

report with the hope that it may be of some use in the compilation of fading data.—Carl R. McDermott, Arapuni.

Good Log at Little Cost.

I NOTE with interest Mr. Ireland's "log," and think considering the set I use, that I can show a better one. The set is an all-wave one-valve, which cost me about £6. I would be interested to hear of anyone who can beat my log with a small set. Following is the log:—New Zealand: 12 on broadcast band and 16 on short wave. Aussie: 15 on broadcast and 2 on short wave. America: B.C., KFON; S.W., 2XAF, 2XAD, 2XG. England: S.W., 5SW. Russia: S.W., RFM. Holland: SW, PCJJ. Grand total, 52. The set that logged these stations has only been going a few months, my first log being 2YA on March 16, 1928. By the way, could any reader tell me the call-sign of the C. A. Larsen. I wonder how many of your readers have heard England, Russia, Holland, America, and over 40 stations in New Zealand and Australia. Before I close I would like to congratulate the company on the splendid programmes, especially 2YA's new orchestra.—Patrick Circuit, Hastings.

screening of the mountain ranges between Wellington and Hawke's Bay.

There is not the slightest doubt that there are screening effects caused by hills, for my experience in this goes back to 1911, when I was out in Ceylon as assistant electrical engineer, P.W.D., and it fell to my lot to assist in the erection of the wireless signal station at Colombo, which, as you may know, is on the west coast of the island. This station was unable to receive any signals from ships approaching from Australia or the Far East, between a position of 50 miles or so south-east and a point about due south of the island. From the time the first signals were received they gradually became stronger, until that position was reached when there was a complete blank till the vessel was about due south of the island, which pointed to the fact that the high mountains in the Central and South Central provinces of the island absorbed, or rather screened, the wireless station at Colombo.

AT Home, too, there are numerous well-known examples of this screening effect. Manchester (2ZY) is received very faintly or with difficulty in any of the counties south-east of that station, but it is received quite easily on the Continent! Newcastle (5NO) comes in quite well along the east coast and East Midlands, but very badly in the west, and this station, and 2LO London can be tuned in much more easily and with greater volume by residents in the north of Scotland than the Glasgow station (5SC); the South Downs screens London from residents along the south coast, and so on. If you refer to a map of the British Isles you will notice the positions of the ranges of hills relative to the cities mentioned above.

As I mentioned before, the question raised by your Hawke's Bay correspondent is similar to the instances given above, for Christchurch is in a direct line along the water's edge and over the water from Hawke's Bay.

SINCE my arrival in the Dominion I have been very anxious to "dig" into these phenomena, but up to the present have not had the time. Now, with the winter months here, I think it is the right time to start, and with that object in view I should like very much to have your co-operation and also that of your readers, as this is certainly not a "one-man" job.

[We have suggested to Mr. Keith that the building of a corps of observers might be left till the honorary listeners are appointed at definite points throughout the country, as they may be able to record the data desired most easily and effectively. If, however, any listeners have observations of value on the standard of reception and other points referred to that would be of help if collated, we will be glad to have them, and either publish them or hand them to Mr. Keith for his attention.—Ed.]

ABSORPTION

INTERESTING PHENOMENA

AN EXPERT VIEW.

Mr. D. Neill Keith (Seaton): It is with interest that I read accounts from your contributors of the large number of stations tuned-in by them from different parts of the world, and it has occurred to me that these contributors (of whom there are quite a number) who are very enthusiastic and full of patience could assist in (shall I say?) a little research work in tracking down "X's" or the phenomenon of fading or absorption, or other very interesting and useful problems, and there are quite a large number of these, which would be of great service to wireless in general.

Take, for example, the recent report from your correspondent in Hawke's Bay, who reports receiving Christchurch better than Wellington. That, without a doubt, is due to the



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Night Expresses South Island

Extending the successful enterprise of time-saving Night Expresses in the North Island, the New Zealand Railway Department will inaugurate, on 10th June, a complete service of Night Expresses on the South Island Main Trunk.

Trains will be despatched from Christchurch at 10.30 p.m. on Sundays, Wednesdays and Fridays for Invercargill, and on Sundays, Tuesdays and Thursdays from Invercargill at 6.40 p.m. for Christchurch.

To ensure comfort in travel steam heated carriages (including sleepers) will be provided.

Popular Service of Progress

Our Short Wave Corner

MR. F. W. Sellens (Northlands) writes:—

Information has been received during the week from PCJJ that they are again increasing their hours of transmission. The amended times are as follows, all New Zealand mean time:—

Wednesday—3.30 a.m. to 7.30 a.m.; 10.30 a.m. to 1.30 p.m.

Friday—3.30 a.m. to 7.30 a.m.

Saturday—3.30 p.m. to 6.30 p.m.

Sunday—1.30 a.m. to 4.30 a.m.

The Saturday afternoons transmission is special for New Zealand and Australian listeners. The wave-length remains at 31.4 metres.

I HAD a letter since last writing from Mr. Gerald Marceuse, of 2NML, Catenham, Surrey. He states that his regular times of transmission are now (New Zealand mean time): Sunday, from 5.30 p.m.; Monday, from 4.30 a.m.; Thursday, 10.30 a.m. till 12.30 p.m.; and Saturday, 10.30 a.m. till 12.30 p.m. He does not state his wave-length, but I suppose it is the same as before, 31.4 metres.

Saturday, June 2.

5SW was very weak at 6.30 a.m., but rapidly improved, and was fair 'phone strength at 7.25 a.m., when I closed down.

PCJJ was first tuned in at 1.15 p.m., and was held till they signed off.

2XAF signed off at 2.30 p.m., but was not received very well.

2GA, Wellington, was working 3AT, Christchurch. 2ME, on 28.5 metres, was testing from 6.30 p.m. till 7.30 p.m., and was very good strength, but went off the air several times for a moment or two.

RFM was on the air during the evening.

Sunday, June 3.

2BO and 2BU, both of Wellington, were testing in the morning, and 2BE, Hastings and 2BA, Wellington in the afternoon.

2XAF, on 31.4 metres, were relaying dance music and vocal items from the Arcadia Ballroom, Buffalo, New York, and closed down at 3.30 p.m.

RFM was the only station heard during the evening.

Monday, June 4.

3LO was the best I have ever heard him on 32 metres, being good loud-speaker strength from 6 a.m. till I closed down at 7.25 a.m.

2ME were also testing, but signed off as soon as I tuned them in.

2XAD were first heard at 12 a.m., but were very weak then. Volume increased till 2.5 p.m., when they signed off. The last half-hour was fair strength, but howling valves spoilt reception.

Tuesday, June 5.

An orchestra was coming through faintly from 5SW at 6.35 a.m., and was much better an hour later.

Wednesday, June 6.

PCJJ at 5.20 a.m. were good 'phone, but short, jerky fading was bad. Volume increased, but continued unsteady

all through. They signed off at 6.39 a.m., after singing the Dutch National Anthem.

5SW were also very unsteady, so much so, that announcements were not intelligible except for odd words.

2BO and 2BU, Wellington were testing in the evening.

Thursday, June 7.

5SW was very fair 'phone at 6.20 a.m., when an orchestral item was heard quite well. An hour later reception was good 'phone strength. RFM was strong in the evening, but static was very bad.

Friday, June 8.

PCJJ was tuned in at 5.45 a.m., and a number of organ selections were enjoyed. Volume, although weak at first, reached fair speaker strength at 7 a.m.

At 6.30 a.m. "Drink to Me Only" was heard very well from 5SW. At 7 a.m. a playlet was being transmitted, and, except for unsteadiness, was well received.

RFM was the only telephony station heard during the evening, but morse spoilt reception.

Most of the evening was spent listening to KHAB (Southern Cross). Static and unsteadiness marred reception, but it proved very interesting.

SHORT-WAVE TROUBLES

THE "DEAD SPOT" DIFFICULTY

A QUESTION OF CHOKE.

THOSE who are investigating the interesting possibilities of short waves for the first time will find a number of things to contend with that are of only slight importance in the broadcast band.

The question of "dead spots" due to aerial characteristics is probably the most usual trouble. These occur most commonly when the receiver is tuned to a frequency at or near the fundamental frequency of the aerial or one of its harmonics. Another reason for the dead spots arises from the difficulty in securing a radio-frequency choke which will have a uniformly high impedance to the enormous frequency range used in short-wave receivers.

In a broadcast receiver the frequency ratio between the maximum and the minimum is roughly 3 to 1. This is the same ratio that exists between say 30 and 10 metres, although the whole "band" in this case is only twenty metres wide. From this it may be seen that it is a difficult problem to make a choke satisfactory from 200 to 10 metres, or over a 20 to 1 frequency range.

CHOKE COIL OPERATION.

If a choke is to have general utility so it may be used in all classes of circuits it must be operated above its

natural period. For example, if a choke is to be used at 1000 kilocycles (300 metres) it must be designed so its natural period or frequency is lower than this. For all frequencies above the natural period the choke acts as a condenser, that is, it has capacitive reactance. This is necessary since if it were not inductive it would be equivalent to introducing a coil in the plate circuit of a tube. If a shunt or parallel plate feed circuit is used this would result in regeneration and an unstable circuit.

If, then, the choke is made so it acts as a condenser at 1500 kilocycles, which is the lowest frequency to which a short-wave receiver ordinarily tunes, it will necessarily have a very low impedance at 30,000 kilocycles (10 metres).

The best chokes that are available have an equivalent capacity of about three microfarads at this frequency, and although this is an extremely small capacity the frequency is so high that the reactance is only approximately 1755 ohms. This capacity is so low that if it is introduced across the output of the tube it virtually short-circuits it.

RESISTOR IN SERIES.

FOR this season it is advisable to use about a 10,000 ohm resistor in series with the choke for very high frequencies. This resistance is low enough so the voltage drop through it is not excessive, and yet it very materially increases the total impedance at the high frequencies.

At the lower frequencies the impedance of the choke increases and this makes it possible to use a small regeneration condenser. In the commercial short-wave receivers on the market it is often difficult to secure good regeneration due to the difficulty mentioned above. In many cases an attempt to overcome this is made by increasing the capacity of the regeneration condenser to 250 or more microfarads, which is double that of the tuning condenser.

By using the suggested combination it is possible to secure good regeneration with less than 100 microfarads, so a midget condenser of this capacity may be used with a saving in initial expense.

COMPENSATING PLATE VOLTAGE

TO compensate for the drop in the 10,000 ohm resistor it may be advisable to increase the detector plate voltage to 67.5 volts. Where the short-wave set is one of the "converters" designed to plug into the detector socket the voltage may be increased by connecting a 22.5 volt battery of the "C" type in series with the plate circuit. If the converter is used with a set having a B eliminator this is usually unnecessary, as the regulation of the eliminator is high enough on this tap to automatically increase the voltage quite a bit and compensate for most of the drop.

HONOUR FOR EDISON

A UNIQUE RECOGNITION.

EDISON'S name is inseparable from radio, for after all, it was his discovery of the "Edison effect," as it was called, in the common electric light bulb, which was the germ idea in the invention of the radio valve by Professor Fleming. News now comes to hand that the New York Society of Arts and Sciences has awarded to Thomas Alva Edison the 1928 gold medal.

This is the first time any living scientist has been recognised by the society, which has hitherto confined its activities closely to the liberal arts.

As soon as arrangements are completed, the medal will be presented to Mr. Edison as a testimonial, international in scope. Ambassadors, ministers, and representatives of foreign governments, Cabinet members, heads of leading scientific societies, universities, and industries have pledged participation.

"Mr. Edison in accepting and expressing his appreciation, with characteristic modesty, reiterated his desire that he be known by his work alone and that any recognition be given to things accomplished by him, rather than to himself as a man," said Mr. Russell, president of the society, who has just returned from a trip to Florida to tell Mr. Edison of the action.

"To a stand so fine, the society cannot help but defer," he continued. "At the same time it would be wrong, both to Mr. Edison and to the millions who venerate him, to allow his own modesty to stand in the way of his full recognition, not only as the greatest but also the most loved of American scientists."

"The society feels that in making the award it is putting into effect the desire of all people to pay tangible tribute to the genius and character of Mr. Edison."

Mr. Edison, after receiving Mr. Russell, consented to sit for a bas-relief head to be used in connection with the presentation. Among those who are sponsoring this occasion are:

Andrew W. Mellon, Herbert Hoover, Harry S. New, William M. Jardine, Otto H. Kahn, Dr. James H. Angell, Julian S. Mason, Roy W. Howard, Arthur Brisbane, Ralph Pulitzer, Dr. Simon Flexner, Paul D. Cravath, Clarence H. Mackay, Cardinal Hayes, Bishop Manning.

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Notes from Auckland

(By Listener.)

OTHER than from orchestras, New Zealand stations have very few chances of conducting theatre relays, but Auckland is fortunate in securing, on one night per week, the star item of any performer who may be appearing at the Majestic Picture Theatre. Thus we have been enabled to hear such delightful entertainers as Jack Lumsdaine, who is ranked as a big item in Australian radioland, and Ernest McKinley. This week Reno is appearing in xylophone items, and the relaying of two of these on Tuesday evening was a revelation to many listeners of the capacity of the instrument as well as of the capability of the player.

AUCKLAND'S winter racing carnival drew its tens of thousands to Ellerslie, and it is safe to say that it drew as many tens of thousands to the loud speaker or to the earphones, for it is surprising how few listeners miss a description of a race meeting. There are hundreds of folk who would never go near a racecourse, and who, from their religious or moral convictions, regard it as a place to be shunned; yet they quite enjoy listening in to the descriptions so well given by Mr. Allardyce. The popular sports announcer has enhanced his reputation here in the north by the splendid manner in which he described every event in the three days of racing.

MADAME IRENE AINSLEY is an indefatigable worker in the cause of radio entertainment, and must spend endless time in the preparation of excerpts from grand operas which she and her capable little party produce weekly. The latest, a selection of gems from "Il Trovatore," though it utilised only three vocalists, will be voted one of the best yet. It was rather astounding to hear only three voices, and two of them female voices, start off the "Anvil Chorus," but the general effect was altogether pleasing.

NOTHING presents a greater difficulty in relay work than the handling of the municipal organ recitals from the Town Hall. The placing of the microphone has been fixed only after long experiment, so that there will not be blasting from the fortissimo passages of the grand organ, and also that delicate pianissimo renderings will not be altogether lost. So great is the range of volume, however, that, if one is to enjoy our city organist to the full, it is necessary to manipulate the dials at times. No true lover of organ music minds doing this; in fact it gives him a feeling of personal control of the instrument.

THE broadcasting company catered to the fullest for sporting listeners on June 2. The relays of racing were interspersed with descriptions of an exciting football struggle at Eden Park.

LISTENERS who have come into touch with members of the musical committee associated with IYA cannot but be struck by the enthusiasm shown by these ladies and gentlemen. It is too early yet to notice the fruits of their labours, for programmes have to be prepared a long way ahead, but the writer is assured that these fruits will soon be ready for the gathering, and that they will tickle the palates of all set owners who tune in the Auckland station.

OUR short-wave enthusiasts have had a great time this week, and all who could read Morse rapidly have followed some portion of the messages sent out by Captain Kingsford-Smith's party. One short-wave lad sat up all through the Sunday night, and appeared at work next morning tired, but triumphant. Incidentally, he was of much assistance in supplying information to the daily press.

EFFECTIVE RANGE STATIONS

AN interesting table has come to hand from America. It sets out the effective service ranges of broadcasting stations of various powers. The table, which was based on hundreds of observations, was prepared for the Federal Radio Commission, and was accepted by the Commission in determining the spacing of stations on the same channel for the powers indicated.

The table is of interest from the small range, which is considered as the high-grade service area.

Power Watts	High Grade Service Miles Sq. Miles	Rural Service Miles Sq. Miles
5	1 3.14	10 31.4
10	1.5 7.06	15 706.9
50	3 24.2	22.5 1590.4
100	4 50.2	27.5 2375.3
250	5 78.5	37.5 4072.3
500	10 314	65 15,275
1000	12 452	90 25,447
2500	20 1570	130 45,220
5000	30 2327	180 80,425

FARMERS in France have formed a Radio Agricultural Association. Reports of interest exclusively to farmers are transmitted, from Paris every afternoon, and additions have been made to the daily weather report so that it may be of greater value to the farmers. Members pay an annual subscription of 1s. 9d.

GOOD CRYSTAL RECEPTION

LONG AERIAL AND NOVEL EARTH.

A crystal set owner, residing at Mur-roon, 82 miles south-west of Melbourne, obtains remarkably good results by using a long aerial and good "earth." He says: I have a crystal set, and I have carried out experiments with several lengths of aerials. With 70ft. of wire I could get 3LO only, with 90ft. I could get faint signals from 3AR. I then tried 110ft., and this further improved 3AR. I then connected the two aerials to the set — 90ft. and 110ft. I could then get 3AR even stronger than 2LO. I have now erected an aerial 200ft. in one length, using 7-strand open wire. I can now get the following stations in the order named: 3LO, 3AR, 2FC, 2BL, 3CL, and 3UZ. I have heard 2FC every night but one for the last 12 days, and on three occasions before 8 p.m. I can only get outside stations when 3LO and 3AR are giving lectures, news service, or announcements. At the same time the interference is too strong to get inter-State stations when local stations have band music going. My set is not super selective, but it gives very good volume. I often have three sets of head phones connected for 3LO and 3AR programmes, reducing the number to one for 3CL, Adelaide, which station I often get late on Sunday night. I find fading bad from Adelaide. I feel sure that a well-made crystal set could be used almost anywhere in Victoria if used in conjunction with a large aerial and a good earth connection. I will describe my earth connection. It is efficient and durable. I obtained a sheet of galvanised flat iron, 26 gauge, 5ft. by 3ft., bent round and soldered, forming a funnel 3ft. by 16in. across, with the earth wire soldered to this, and let it into the ground with the top about level with the surface. I removed all the surface and loamy soil, and replaced with good clay, leaving about 6 inches of the funnel on top filled with water.

CLEANING CRYSTALS

AN EFFICIENT METHOD.

Dust, although invisible to the eye, collects on all open crystals, and greatly reduces the volume of reception. What is the best way to clean the crystal of a crystal detector?

Never use water as a cleansing medium for crystals. If a crystal is of the detachable type (that is, one that can be removed from the containing cup after the small setscrew is loosened), take it from the cup. It will be wise to provide yourself with a pair of long-nose pliers or some similar tool for handling the crystal after it is cleaned, as the oil from the hands makes a coating on the crystal, which reduces its electrical efficiency. After the crystal is removed, dip a small, clean brush into some alcohol and with this remove as much of the rust on the crystal as possible. Allow this to dry thoroughly and then repeat the operation to insure that the crystal shall be as clean as possible. Then, with the long-nose pliers, replace the crystal in the cup and tighten the setscrew.

If your crystal detector is not provided with a glass cylinder, protecting the crystal from dust and dirt, it will be a good idea to clean your crystal every three or four weeks, to insure good reception at all times; for nothing will reduce the efficiency of a crystal detector like dust.

AMERICAN PORTABLE MAST

NEW MILITARY DEVELOPMENT.

Engineers of the United States Signal Corps have developed a steel tubular radio mast, eighty feet high, for use with the most powerful mobile sets in the army communication service.

Easier to erect and much stronger than the wood and steel poles now in use, the new mast overcomes serious deficiencies in the old equipment, the engineers believe.

An aerial system which is large in both ground area and height is required for the more powerful portable sets. Heretofore the army has used a sectional mast, made of hollow spruce section 50 inches long, with a steel tube coupling inserted between sections. The method of erection was to lift the mast high enough to slip a section on to the bottom, this process being repeated until the desired height had been attained.

For mast heights up to forty feet this method proved satisfactory, but for the larger aerial it was found to have two serious faults. The weight of the larger mast was such that it was necessary to provide a derrick for lifting, and the eighty-foot mast was susceptible to frequent failure because of weaknesses.

The new steel mast is made in sections eight and a half feet long. It is assembled on the ground and then raised by a short gin pole and block and tackle. The mast is guyed in four directions. During erection the two side guys steady the mast, the front guys are fastened to the gin pole to lift the mast and the rear guys arrest the movement of the mast at the vertical position.

The aerial forms an umbrella pattern with twelve wires. These wires are ninety-eight feet long, with a ball connector fastened into the mast cap. The other end is connected through four insulators in series to 150 feet of sash cord rope. A counterpoise is used instead of an earth.

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1928-29

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