THE RADIO RECORD

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Breaking Down the Barriers

We live in a progressive age when accumulated science is being employed by man to make his way easier. The rough pioneer days are forever gone, and one by one those obstacles are being removed which have made harder the life of those who venture beyond city bounds. One of the greatest trials has been isolation, but radio, by conquering space, has alleviated its worst dreads, and the task of the settler is lighter and happier. . . . . .

ONCE again the Christmas season has passed by; for some it will long be remembered as a time of happiness, for others it will slip by almost unnoticed. Far removed from the bustle of the cities and town this festive season is likely to be unnoticed, for, scattered throughout this country, there are thousands of homes so remote that there is nothing to break the dead monotony. In times long passed one day was like another, and Christmas and New Year meant nothing more than perhaps an extra holiday from the daily toil; in most cases it did not mean this.

Announcer Culford Bell, who will describe the gay scenes at Auckland on New Year's Eve.

For those nearer civilisation this has never been the case; there has always been the gaily decorated shops, and the care-free holiday atmosphere. Christmas and New Year's Eve are, for those who dwell near or in the town and cities, times for making merry. There is always plenty of fresh company, many things to see, and a rapidly changing environment.

There are very few who are within range of even a small town who will not go there to see "the fun" on these two nights. But this cannot be for those who are lost in the back country, with probably very little change from their humble fare, their monotonous and often dismal surroundings. There is nothing to convey to them the happy atmosphere of elsewhere.

BUT this order is passing. In 1927 a new force came into being in New Zealand which has dispelled loneliness and carries the air of good cheer and happiness far beyond the reach of any other medium. This is Radio.

One has only to visit one of these outback posts to see the very great part radio plays in the lives of these people. The wireless set is one of the most valued pieces of apparatus in the whole establishment. It is their sole means of communication with the

—Continued on page 8.

The modern Christmas is a time for universal rejoicing. In the rush of urban life and the quiet of the backblocks, Christmas might mean little were it not for the ever-widening influence of radio. Its approach has been heralded by special sessions, culminating in an entire programme devoted to carolling. To rich and poor, near and far, radio, with its message of good-will, penetrates and rents the shroud of oblivion which in these days might otherwise envelop it.

Wireless---a Potent Factor in Education

An Unconscious Influence for Good or Evil

IT has ofttimes been said that the Radio Broadcasting Company should take upon themselves the important task of providing for adult education, apart from the lectures and general broadcasts. It is sometimes urged that a more serious type of entertainment would reflect for the country's good and that light types of programmes only serve to foster "the spirit of the age." As this opinion has been suggested to the English Broadcasting Corporation, the following analysis of the reply of Sir W. H. Hadow, chairman of the B.B.C.'s committee of inquiry on adult education by Kenneth Ullyett in "Wireless Magazine," is of singular interest.

"WE are in full sympathy with the use of broadcasting as entertainment—as 'taking tired people to the islands of the blest'—but it has also other functions." So says Sir Henry Hadow, whose name has become famous in connection with broadcast adult education. And it is broadcast adult education to which he refers when he says "other functions."

Well now, I might sit down to write a paean of praise on the way in which this is done, and on the admirable way in which adult education is added to entertainment without spoiling the symmetry of the whole.

Wrath of Displeasure.

OR I mightn't! I might agree with many who have spoken to me on the subject, or written about it, and attempt to raise your ire against the high-brow effusions of the B.B.C., so that the very caissons of Savoy Hill might rock under the wrath of displeasure of the people.

I'm not trying to do the one or the other. Let me tell you something. I happened to be in the office of a B.B.C. Press official recently when a zealous reporter from the evening paper Press was taking him to task aobut the quality of the programmes (stock topic).

The Pressman stood and talked and talked while I waited patiently, and he said that his editor thought the B.B.C. was putting out rotten programmes, and if it couldn't do better than that, it ought . . . . and so on. You know: just what is said every morning in the up-to-city trains.

AND then the B.B.C. official brought out the B.B.C. stock emergency phrase number one: "My good fellow, if our programmes were really so bad as you think, the number of listeners would drop off. But they don't. The increase in nearly every month this year is greater than that of the corresponding month last year." Which doesn't mean very much, after all.

But that is just the reply you would get if your dream could come true and you could meet the programme man face to face and tell him just what you think of him!

LET me now deliver my dictum: No other entertainment body—the gramophone, cinema or theatre—has ever successfully ventured on educational lines.

The B.B.C.'s present "teach-the-public" policy is wrong. Broadcasting is bound to have an educational effect anyway.

So soon as present commitments have expired, the B.B.C. should make the big experiment of changing its policy, and become popular before trying to educate.

The first dictum is mose important, for broadcasting is not so much more potent than the combined forces of the gramophone and film industries, and what they cannot or don't try to do cannot easily be done by a Government-bound corporation.

In its early days the cinema was a place of amusement; and cinema magnates have made fortunes. Nowadays a kind of topical review is shown, which includes one or two items of such a general interest that they might almost be called educational; I mean scenes in distant countries, nature studies, and whatnot.

Gramophone Records.

EVEN giant gramophone companies have done nothing more than produce entertainment records to suit every need, from tum-tum jazz to "Tannhauser."

Generally speaking, the theatre is in a bad way nowadays. Farces are hard to find, and modern sex plays (or Dreary Dirt, as I like to call them) are the only things which pay. Anyway there isn't anything at all educational about the theatre.

Now, the B.B.C.'s reply to all this is simply that the microphone is more of a living force than "canned" music, acting, or talkies. Which is true.

But it is no excuse for the state of affairs which has arisen, namely, the adoption of the microphone by the highbrows for educational purposes. The living force and the personal element of radio should be used to the advantage of increasing the pleasure obtained. The present state of affairs does not savour of this.

Bodies such as the British Institute of Adult Education seem to have said: "Cinema-goers are hopeless low-brows, and the gramophone companies are too tied up by financial and marketing commitments; but the radio public is a new public; we will try educating them."

It seems to be overlooked that, as I have said in my second dictum, radio is bound to have a progressive educational effect, if only by reason of the quantity of matter broadcast.

Higher Musical Standard.

EVERYBODY acknowledges the fact that the musical standard of this country has been raised in a few years because of broadcasting. The Proms. are popular. Jazz is being fitted into its place. Ordinary folk are learning more of music, and so are enjoying more. That's what I call education—an improvement in intelligence, with a consequently greater capacity for understanding, appreciation, and enjoyment.

And, believe me, this musical education has been done by the music itself and not by critical discourses on "The New Harmony of Bela Bartok" or "The Theory of Fugue and Counterpoint."

This same natural education can be carried out with other things than music. It is the complete and only satisfying jam to go with the powder. Nobody likes to be told in just so many words that they are ignorant, and that this, that, and the other way is what all ought to know.

That is the same as having education shoved down one's throat and because no powder is given with the jam, broadcast education is not universally popular.

Mind you, I'll never say that broadcasting should all the time be given up just to light music. I never mind switching on the set and hearing a personal experience being given by some authority on a topical subject of which I know little.

If only the B.B.C. could pick out the chief item of news in each day's national papers, and find an authority to speak for not longer than ten minutes, then this would make quite good "meat" for the programmes, and would be educating enough in itself.

Many men, and even more women, would willingly listen to a daily topic such as this, whereas they wouldn't give a brass halfpenny about an educational hour, announced as such.

Our Natural "Grousers."

IT is the English nature to "grouse." Indeed, if the average Englishman didn't grouse about anything you might be quite sure that (a) it was above his comprehension, (b) not worth troubling about, or (c) it was something he had done himself!

The B.B.C. is a safe thing about which to grouse, for no amount of grousing will imperil its monopoly or change its policy. But it is not popular because it does not make its appeal to the masses.

Everybody has a low-brow side. Everybody wants radio for amusement and entertainment. Everybody does not want radio for "uplift."

Radio education appeals only to high-brows; it may create high-brows. But it **cannot reach those who really need education; because they are not attracted sufficiently not to switch off the set when a talk is announced.**

WANTED AND FOR SALE.

for column of casual advertisements see page 32.

When Might We Expect Television?

The Present Position Reviewed

(By EDGAR H. FELIX)

The subject of television is one that constantly claims the attention of all who are interested in the progress of radio. From time to time reports appear stating that television is an accomplished fact, and in view of these, Mr. Edgar H. Felix, expert consultant engineer of the Radio Broadcasting Company, has conscientiously examined the claims made by various interests, and this article, the result of these investigations, can be accepted as an authentic review of television as it is.

THE drama is so predominantly the portrayal of human emotions and conflicts that we rarely accredit the influence of mechanical and electrical inventions their full share. Yet numerous devices of science have affected the progress of the drama no less significantly than our ever-increasing knowledge and experience with dramatic structure. As competition undermines public support, the drama must inevitably slow down in artistic progress. Hence we may consider the coming of television as a dangerous threat to the future of the legitimate stage.

How will the stage withstand the competition of a synthetic dramatic performance delivered by radio transmission into millions of homes? It is not difficult to foresee the destruction of the drama, the rivalling or superseding of the motion picture, and the complete alteration of human needs for group entertainment through the perfection of television!

Already radio broadcasting has brought an element of the drama into the home. Radio suffers an obvious disadvantage because the visual element, so highly developed in modern drama, is totally lacking in home reproduction. The home motion picture which, conversely, offers the visual elements of dramatic performance without the aural, has progressed slowly because of high cost and inconvenience. Home talking motion-picture reproducers, combining both the visual and aural elements, are already available, but these devices are even more costly and somewhat more complicated to operate than the home motion pictures without speech. All these devices, then, are either deficient in performance or too costly to offer dramatic entertainment in the home directly competitive with that of the theatre.

But television promises to relieve us of all of these difficulties and imperfections. It will provide the missing visual element to the dramatic entertainment which already comes to us through the radio loudspeaker. It represents the delivery of a synthetic counterpart of every important element of the drama into the home with an apparatus no more difficult to operate than a broadcast receiver. This, at least, is what the proponents of that art would have us believe.

THE effect of television on the drama depends largely upon the simplicity, economy, and technical perfection attainable in home reproduction. Only if the disparity between the realism of home reproduction and that attained at the average sound picture theatre, is really substantial, will television represent anything less than a complete revolution in the relation of the drama to the general public. It is, therefore, relevant to inquire into the capabilities of modern television devices and their prospective development. I am glad to say at the outset that such an investigation leads us to take vastly more hopeful view of the situation, for few would deny that the further undermining of the economic position of the drama would be little short of an artistic catastrophe.

Recently I had the pleasure of witnessing a demonstration of what I consider, after visits to the most famous television laboratories in all parts of the United States, the most highly-developed television apparatus in existence. This extraordinary device, developed by the Bell Telephone Laboratories, reproduces in full colours, faithfully and vividly, the scene enacted at the originating point. To add the element of sound reproduction, perfectly and automatically synchronised with this colour television, represents no technical problem at all; it is merely the application of existing devices in a perfectly conventional manner.

A snapshot taken at the recent very successful garden party given by Aunt Pat to the radio children of 3YA. The centre of interest is a large cake specially decorated with models of the towers of 3YA. Every child present at the party received a piece of the cake. The garden party was held in the grounds of Dr. Robinson Hall.

The Bell system device was recently set up for public demonstration in the auditorium of the Bell Telephone Laboratories at West Street, New York City, in order that representatives of the Press might view its latest accomplishment, the reproduction of colour. Dr. Frederick K. Ives, the presiding genius under whose direction vast research facilities were marshalled to produce this device, invited me behind a dark curtain, arranged somewhat like that in a photographer's developing room. I peered through a slit wide enough to enable me to look through with both eyes. About two feet before me in the blackness stood out a brilliant image in a frame about two inches square, the head and shoulders of a young lady who smiled graciously, as if to a vast audience. All the bright colours of her Spanish costume showed up vividly. In spite of the small size of the peephole image, she appeared life-like and animated. I watched her, fascinated, as she picked up various brilliantly coloured objects at the command of Dr. Ives, who directed her through a telephone circuit. It was not difficult to distinguish a red, white, and blue beach ball, a book, a magazine, an orange and a bouquet of flowers. Two persons, standing closely side by side might even have been accommodated on the miniature screen, although the reproduction of persons in full length would undoubtedly have involved so much sacrifice of detail that the features and expression of the faces would have been unrecognisable.

Indeed, a marvellous creation of the laboratory, this television machine; to the engineer, a technical mavel; to the layman, an amazing curiosity, but with less entertainment value than the first penny peep shows. Details of facial expression were difficult to observe; background was quite indistinct; a slight but none the less annoying flicker was present; altogether it was a delicate device which required the constant and attentive nurture of the skilful engineers and laboratory workers who had created it.

Obviously the device is a predecessor, an opening wedge, revealing the promise of the future, but wholly impractical for use outside the laboratory.

I will not attempt to describe the elements comprising this machine or combination of machines. The engineers who developed it have done that in a series of technical papers which appeared in the Bell System Technical Journal in October, 1927, a hundred pages of technical facts, diagrams, and illustrations. Since that tome was written, the element of colour now supplements the conventional home motion picture projector by a slight alteration of the projector.

WOULD you like one of these television reproducers in your home? Assuming that television broadcasts are available to you, then make room for a series of panels reaching from floor to ceiling, which comprise the control equipment for this marvel of science. As you watch a single person do his or her antics on the diminutive screen, a staff of two or three engineers will scurry about, watching meters, adjusting every element of this highly complex electrical maze. The installation will be no more incongruous in the quiet of your home, and no more costly to purchase or maintain, than a broadcasting transmitter, an automatic cigarette making machine, or a recording seismograph.

TELEVISION, like every system of wire or radio communication, whether of code signals, speech, or photographs, consists of breaking down the subject matter to be transmitted into a series of electrical impulses. The microphone of the telephone and radio converts sound waves into a succession of electrical impulses, counterparts of the sounds themselves. The telegraph operator reduces the message you write on the blank into a series of characters which have the significance of letters of the alphabet to the operator at the other end. With television, the visual subject matter, scenes or picture to be sent is broken down into a series of image areas arranged in an arbitrary order. A signal or impulse sent through wires or by radio successively describes the light or shading of each of these areas. The greater the number of these image areas, the greater the detail and clarity attainable in the reproduction.

Reproduction consists of reconstruction of these vast numbers of impulses or impressions by using them to control a pattern of light arranged exactly like that analysed at the transmission end.

To secure an image a little larger than two inches square, such as I observed in the Bell Laboratories, no fewer than 44,250 impulses or shading impressions are electrically observed, transmitted and reproduced every single second! In addition, synchronising signals are required to assure that each of these enormous numbers of light impressions are properly placed on the reproducing surface. When you appreciate the marvellous

complexity of the operations involved, then you wonder that it has been so simply accomplished. You might expect it to require a four-story building and a staff of twenty men instead of the corner of an auditorium no longer than a millionaire's drawing-room.

So long as we restrict our interest to curiosity or scientific development, we are satisfied with a picture consisting of but 2500 image points which makes a recognisable image on a two-inch square screen. But, for entertainment purposes, we wish both greater size of the reproduction and considerably greater detail. To secure the equivalent of a good magazine picture, three by four inches square, we must analyse and reproduce at least 120,000 points each sixteenth of a second or 1,920,000 instead of 44,250 impulses per second. We should then be able to derive the considerable entertainment of watching an animated image about half the size of a magazine page, created and controlled by a radio signal. Three or four persons could then perform in a complete diminutive stage setting with reproduction sufficiently clear to make their individual facial expressions readily discernible.

This is indeed a modest specification, but to accomplish it required nothing less than fifty-fold the capabilities of the Bell system television machine.

A reasonable request to the research engineer—to fifty-fold the speed of any operation! It is no less difficult than to build a family automobile able to travel along at a speed of 3500 miles per hour. Although certain elements of the television system, like the photo-electric cell and the neon tube, are capable of handling millions of impulses per second, the problem of producing a commercial, fool-proof and economical device on the principles at present known and understood is fairly comparable with an assignment to build the 3500-mile an hour automobile.

ONE of the greatest unsolved problems is to secure communication channels to handle this traffic barrage of signals. To transmit the detailed three-by-four moving picture by present known methods would require 100 wire circuits or, to do it by radio, ether channels equivalent to two broadcasting bands of 100 channels each!

The difficulties seem almost insurmountable, and to predict when this will be accomplished is a guess which only a stock promoter would hazard. So long as television requires the transmission of an impulse for every point of the subject image with sufficient rapidity to repeat the process sixteen or twenty times a second, we are still navigating in the row-boat stage of the problem with an uncharted ocean before us.

What we await is a radical and fundamental discovery which will completely change the nature of the process employed. Until that discovery is made, television will remain little more than a laboratory experiment appealing to the curiosity of those seeking to peer into the future. Emphatically, it is not an entertainment device.

Everyone read some months ago of a drama broadcast from a station in Schnectady, the first television drama ever radiated. It was hailed through the press as a great achievement, and photographs of the artists broadcasting in the studio were freely distributed and published. But no one, to my knowledge, outside of the organisation which transmitted the programme is credited with successfully reproducing it. The publicity man can hardly be blamed for passing out a good and true story, if the newspapers will publish it. Give the television publicist his due; he distributed no misstatement when he announced the broadcasting of a television drama for that, indeed, was accomplished. The fact that no one successfully received it, although a few capable experimenters tried, was a pardonable omission from the story. The whole incident and the publicity it was given was unfortunate, however, for one important reason; unintentionally it gave a false impression that practical home television is an immediate prospect, and that we may expect it to be here to-morrow.

Not many weeks after this publicity the executive in charge of the broadcasting station involved testified before the Federal Radio Commission. After some six months of regular television transmissions, he declared, such transmissions were discontinued because of lack of interest, even on the part of amateur experimenters, and not a single complaint was received from anyone protesting the cessation of these television broadcasts.

We have been told that thousands of experimenters are looking in at television images which are being transmitted by various laboratories, particularly in the eastern part of the United States, but evidently they are not very serious about it.

Another station, in Chicago, which also transmitted television images for six months, stopped its transmissions and no looker-in protest resulted. **The fact is, there were no lookers-in;** many tried to assemble television receivers, but so few succeeded in obtaining any results, and those who did found them so unsatisfactory and lacking in entertainment value, that they soon tired of working patiently for hours to enjoy the thrill of viewing for a bare fraction of a second the flickering and almost unrecognisable image of a human face.

AS I write these lines, I read a two-column story in the New York "Times," a dispatch from London, stating that a much-publicised television inventor transmitted talking film by television "with a substantial measure of success" and that the "voice transmission" was clearer than usually attainable with sound pictures in the theatre. What crass imposition to declare the successful broadcasting of sound as a credit to television!

It is unfortunate that television has been seized upon as an opportunity for the stock promoter because it encourages misleading publicity and discredits legitimate experimental work. But there is a precedent for this premature exploitation of a half-finished invention. Millions of dollars were invested in worthless radio telephone companies in the late nineties and the first years of the present century. These companies made bona fide demonstrations of radio telephony by methods long ago discarded because they were impractical, just as television can to-day be demonstrated.

I do not hold that it is improper to predict the ultimate perfection of television. I am convinced as anyone that it is coming, but the invention which will make it practical and commercially useful has simply not been announced, and has probably not yet been evolved.

We understand certain crude methods of reproducing a moving image at a distance, but it is no more like the television which would threaten the drama than the flint and steel is like an arc lamp. As a matter of fact, the principles used in the most advanced television devices of to-day are fundamentally like those which have been understood and demonstrated since the early 80's. We have recently applied these fundamental principles with greater effectiveness by the use of certain amplifiers and electrical devices used in radio broadcasting and telephone art. But, I repeat, the real and fundamental discovery which will reduce these complex processes to the point where they can be satisfactorily and economically carried on as home entertainment has not been made.

I realise that what I have stated is at variance with the views which have appeared in the Press. Television is promised as just around the corner. That promise has been made for several years. Laboratory staffs are scrambling feverishly with the problem and vast amounts of capital and research resources are marshalled to solve it. Television has intrigued the imagination of men from the beginning of invention. The past performance of our scientists is such that we would hesitate to describe any accomplishment as beyond their powers. The public appetite is clamouring for television and that demand must be satisfied. So the refining process continues and, sooner or later, the magic touchstone will be found which will convert all the experience which has been gained into a practical utility. But whether that day is one year or twenty years hence is pure conjecture. The essential invention, for all I know, may be announced to-morrow.

POSSIBLY we can gain an insight into the facts by considering how long it has taken to develop aviation. Not so long ago we celebrated the twenty-fifth anniversary of heavier-than-air flight. Intensive progress for a quarter of a century has brought aviation to the point where some 50,000 passengers were carried in a year. The fact that one American in four thousand is now an air passenger once a year is an indication that we are on the threshold of commercial development. The automobile, likewise, required a quarter of a century of commercial development and use before it became a general utility of the American family. It may be more than coincidence that twenty-five years also elapsed between the first demonstrations of the radio telephone and its first widespread application, radio broadcasting.

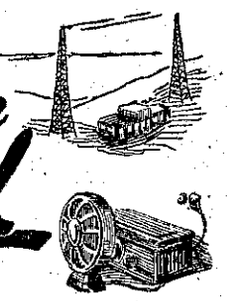
Television has been subjected to intensive research for not more than ten years, although it has engaged the thought of scientists for a somewhat longer period. Solely on the basis of logic and precedent, fifteen years more of development will be necessary to practical and widespread use of television. Very probably, however, television will develop more rapidly, because radio, the automobile and the aeroplane were handicapped by lack of resources, while television is richly endowed. So, while fifteen more years of research and development would not be an unreasonable expectancy in the light of past performances of science, intensive progress may make it a matter of only five years.

Yet we must not forget that we still await a revolutionary invention. That invention will make the course of television as clearly obvious as if we had unexpectedly focused a telescope upon a distant star for which we had been searching. That day will come. Indeed, it may be upon us.

HOW would its coming effect the legitimate drama? If television

(Concluded on page 9.)

Radio Round the World



HOW the engineers at the Belfast broadcasting station recently provided an impromptu Sunday afternoon concert after heavy rains had incapacitated the land-lines from London is told by a correspondent of the "Wireless World." The catastrophe occurred shortly before the programme was due to begin. "Nothing daunted," says the writer, "the engineers transported a gramophone to the transmitter, together with two large amplifiers and 500 volts of high tension, and in an amazingly short time an impromptu programme was being radiated. While this was going on a 'studio' was hastily rigged up in a small office in the adjoining power station, and at eight o'clock it was possible to transmit a religious service with gramophone records of hymns, and later a programme by the Whiteway String Quartet. I am told that it was one of the sights of the century to see this hurriedly assembled combination rehearsing in the power station, surrounded by huge turbo-generators, switchboards, and rotary converters!"

RECENTLY the U.S. Signal Corps radio engineers have developed an innovation in radio transmitting which is highly important and noteworthy. These experts claim to have perfected a system whereby three sets may transmit at the same time on the same aerial. Each transmitter uses a different wavelength without any interference from either of the other sets. The three transmitting sets are all lined up close together, yet there is no interference with the individual transmission of the respective messages.

RADIO, Toulouse, a well-known French broadcasting station, recently sent out an unusual SOS during an evening programme. The message requested any physician hearing it, who had in stock a certain serum necessary for treating infantile paralysis, to communicate as soon as possible with a certain doctor. This gentleman was treating a case of infantile paralysis and had asked the Pasteur Institute to supply him immediately with the important serum, but the Institute was out of it at the moment and the child's life was in grave danger. So the doctor telegraphed to Radio-Toulouse, and this station broadcast his message, with the result that two doctors near to the originator of the request, within an hour's time dispatched supplies of the desired serum and the child's life was saved.

THE recent International Exhibition held at Barcelona was visited by Marquis Marconi. Radio Barcelona announces that Marconi, in an interview with the station director, M. Cordoves, said that the future of broadcasting lay in the use of medium wavelengths—(the new definition of medium wavelengths is now those between 200 and 3000 metres.) As broadcasting meant covering as large an area as possible round the station, only these waves were of use, short waves on the other hand being useful for direct communication between two given points of smaller areas.

WITH the consent of the Polish Ministry of Posts and Telegraphs, the Polskie Radio Broadcasting Company intends to reorganise its entire system. According to the accepted plan, Warsaw is to be endowed with a 120-kilowatt transmitter so constructed that its power can be boosted up, on occasions, to 160 kilowatts, thus making it the most powerful European station. With such a power at its disposal, the company hopes to secure crystal reception within a distance of three hundred miles or more. In addition, the Polish capital will also possess a 2-3 kilowatt station to be used solely for weather forecasts, news bulletins, and lectures mainly of interest to city dwellers.

IN the neighbourhood of Prangins (Switzerland), between Geneva and Lausanne, Radio Schweiz has installed a 50-kilowatt wireless telegraphy station to ensure a regular oversea service to Switzerland. The wavelength to be used will be about 4400 metres. It is also proposed to install a shortwave transmitter on the same site. By special arrangement, although mainly destined to ordinary official and commercial services, should any critical political situation arise, the transmitter will be placed at the disposal of the League of Nations.

RECENTLY a workmen's institute in London was provided with a wireless receiving set on loan, and the members were told when the set was installed that it could only be lent for a short time. When an engineer called to remove it, three months later, he found about forty men listening to a programme of music, really listening as silently as if the artists were in the room. There was general dismay when the engineer told them what his unhappy business was. An optimist suggested that they should club together to buy a set, but the cost of a set like the one they had been using was—to them—prohibitive. Fortunately, the matter did not rest there. The Joint Committee in Cardiff heard of the tragedy and was able to allot one of the Carnegie sets to the institute. The engineer whose former errand was "not a happy one," had the pleasure of being the Fairy Godfather, and when he installed the new set all the men who had been watching billiards slipped into the room, and by the time the installation was complete there was a full house for the opening concert.

AN Australian listener of a statistical turn of mind has written to the "New York Times" on the output of 3LO, the Melbourne station, during 1928. No less than 18,416 songs were broadcast from that station last year, occupying a total of 55,248 minutes, or about 38 days. Classic, orchestral and instrumental numbers occupied 36,000 minutes, and during 31,515 minutes 15,000 modern jazz and old-time dance tunes were played. Over 16,000 minutes of broadcast time were devoted to church service relays, and about 9750 miles of telephone trunk lines were used for outside transmissions. Speakers talked to listeners for over 20,000 minutes on subjects ranging from suet puddings to the ancient tombs of Egypt. News bulletins from 3LO took 17,000 minutes of the year, while it took 7320 minutes to inform farmers of the price of pigs, onions, and other produce, to acquaint investors of the latest stock reports, and to inform those on ships of approaching storms.

THROUGH the installation of a novel group address system, New York baseball enthusiasts can follow every play, without bothering to look at the score board. Every decision of the umpire can be heard clearly and distinctly throughout the stands. In order to accomplish this, a microphone is installed in the umpire's mask. The wires run down his trouser legs to two contact plates in which he stands. The output from the amplifiers is fed to ten six-foot horn loudspeakers located at the proper acoustic points, under the roof of the grandstand. The response of the baseball enthusiasts to this innovation has been so favourable that it is now only a matter of time before similar group address systems will be installed in the big league stadiums throughout the country.

THE well-known American radio station, KDKA, Pittsburg, has recently been making some experiments with building up what they describe as "synthetic sounds." Dr. Frank Conrad, assistant chief engineer, conceived the idea of making up artificially the sound of the chimes of Big Ben, London. This was done by analysing the sound very carefully into its component frequencies and then making up a number of oscillators, each giving one of the required frequencies. By combining the frequencies the same signal is carried to the transmitter and sent out on the air as would be produced by sounding the bell itself before a microphone. To ensure absolute accuracy this artificial bell is set off by means of a second pendulum operating in a vacuum. Although this is very ingenious and scientifically interesting, it seems apparent that for the simple purpose of reproducing the sound of Big Ben, the easiest thing would have been to have made a number of gramophone records of the actual sound, and to have reproduced these through the transmitter.

A "DICTION Medal" was recently awarded in America to Mr. Milton J. Cross, the NBC announcer, who has since written in a New York paper advice to ambitious would-be broadcasting announcers. "Keeping a voice well dressed," he says, "is very important. Accents dress a voice, and, just as a person may overdress, so may a voice with accent and inflection. Too many broad a's and too frequent use of unfamiliar words will make a voice seem affected and unnatural, instead of cultured. Language, like clothing, changes in style, while the use of slang is not considered the best form of speech, occasional use of idiomatic phrases helps. There is nothing that falls so flat on the listener's ear as slang or idiom that is out of date. The announcer must use the speceh of 1929 if he is speaking in that year, and not the speech of 1919, which, strange to say, is actually different."

DURING the blaze, following a recent explosion in New Orleans, a terrific blast of ignited gas blew the home radio set through a room wall of solid brick and plaster, burying it in the debris. Two weeks later it was uncovered from the ruins and was discovered to be giving unimpaired reception. The six valves in the thoroughly battered set were subsequently removed and tested, and showed such perfect performance that they were installed in another receiver.

ALTHOUGH established one year later, and in spite of the fact that the license costs more than double, the German broadcasting system has caught up to Great Britain, and now possesses nearly 400,000 more listeners than registered by the Postmaster-General in the British Isles.

The New Zealand Radio Record

(Incorporating the "Canterbury Radio Journal.")

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WELLINGTON, FRIDAY, JANUARY 3, 1930.

TELEVISION.

THE development of television is reaching a stage when the public are focusing their attention upon it, and asking when it will be in the home. An English television periodical has answered by an announcement printed on its cover in large letters, "Now." The journal points out that the television broadcasts from English stations can be received in the home with a special apparatus attached to the amplifier of the radio receiver.

It adds that television is already here in a practical form, and points out that the delay in its becoming popular is a matter of disposition on the part of those controlling an ether monopoly rather than because of technical difficulties. They are agitating for the broadcasts to assume a form more acceptable to the public—not to the experimenter.

On the other hand, Captain P. Eckersley, late chief engineer of the B.B.C., states: "I am impressed by the enthusiasm of the television and telepicture experts, but am unable to agree that in the present stage of development the science of television allows an immediate service aspect."

It seems, taking all evidence into account, that there are grave difficulties confronting the progress of television in its present form. These are in brief, the size of the image, which is rarely larger than a magazine illustration and does not allow of detail, the necessity of breaking up the image into two million small impulses per second for a satisfactory picture, and the expense and size of the requisite apparatus. Like radio, television is subject to atmospheric disturbances, and the same difficulty is met in overcoming them.

Recent experiments in America lead us to believe that television must be confined to the laboratory until a radically new system has been evolved. The fact that several American stations have ceased to broadcast television strengthens this view. The transmissions from the British stations are interesting to the public, but of use only to the experimenter, and the present indications are that this state of affairs will remain until the whole system is recast.

OSCILLATING VALVES.

THIS menace to the listeners' tranquillity does not cease; in fact it is on the increase. During the Christmas and New Year holidays, when some of the stations were on the air at different times to the others, city listeners found it almost impossible to listen-in when the local station was not operating. Short, sharp squeals, long, prolonged whistles and speaker shattering screams were all we could hear while endeavouring to listen to 3YA on Boxing Day. Whether through ignorance or carelessness the offenders should be brought to account. Ignorance is unpardonable, the owner of a home-built set should have sufficient knowledge to neutralise and operate it, the owner of a commercial neutrodyne should leave it alone and consult a radio expert when it becomes noisy. The careless operator does not deserve to have the privilege of listening-in, and we feel that if measures were taken by the Post and Telegraph Department to bring some of the offenders to account a great service would be done for radio.

An Excellent Announcer

Archdeacon Holbrook Pleases Listeners

THE ARRANGEMENTS made by the Broadcasting Company to let listeners hear the Solemn Requiem Mass at St. Patrick's Cathedral in connection with the death of Bishop Cleary were excellent and a credit to all concerned, says the Auckland "Sun."

The description of the service was carried out by the Very Reverend Archdeacon Holbrook, and a most dignified and graphic effort it was. Listeners, no matter what faith they subscribed to, were thrilled by the announcer's perfect knowledge of the form of service, and his rich Irish voice. In parts of the service, when obviously it would have been out of place for the announcer to have spoken in ordinary tones without disturbing the solemnity of the service, Archdeacon Holbrook's deep, clear whispers went on with the description and so clear was his enunciation that every word he said was heard with clarity. In the background could be heard singing or chanting, yet the announcer's voice did not seem to unduly obtrude itself.

The whole description was carried with the reverence the occasion demanded, and it is not surprising to hear that the cathedral authorities have received many congratulations on Archdeacon Holbrook's work.

Cricket Broadcasts

From all Stations

THE great summer pastime, cricket, is taking a more prominent place in the broadcast programmes this year than ever before. This is one of the results of the visit of the M.C.C. team to New Zealand. The visit is giving a great fillip to the sport, and the part played to that end by broadcasting is considerable. All stations are broadcasting descriptive reviews of the various matches. The stations are also broadcasting resumes of the play in provincial matches.

Radio Development

Leading Countries Differ

IT is remarkable how the practices of different countries vary in the methods of radio development. One would expect that the tendencies in each country would be much the same, but such is not the case. The differences are very marked, both in relation to components and set design. The countries where radio has developed most are England, America and Germany, and in each it is proceeding along different lines.

In set design, the Germans and the English are concentrating on small efficient sets, while the Americans are adding valves at a rapid rate. Even the construction magazines contain descriptions of six, seven and eight valve receivers. These employ transformer coupling, single dial control, solenoid coils, band pass fillers, and push-pull output; they are almost invariably all-electric, using the 2.5 volt valves. All d.c. sets use 5 volts.

The English set is confined to one, two, three, four, and a very rare five-valver, resistance coupled audio, single valve output, two volt valves, basket coils, and two-dial control. The battery sets predominate, and there has not been a panic through the introduction of the electric set. This has happened in America, where perfectly good battery sets have been discarded, and it appears that New Zealand is rapidly following suit.

Like the English, the German set is small, but in general employs transformer coupling, in conjunction with resistance. The popular set is the three-valver. They are not taking rapidly to the all-electric set—those introduced are employing the four-volt valves.

It is interesting to note that different countries prefer different voltage on the filaments—England, two volts; France and Germany, four volts; America, five, while the six-volt valve is found scattered through Europe and the Empire.

War and Peace

League of Nations Union

A SERIES of lectures has been arranged by the Auckland branch of the League of Nations' Union for broadcasting from 1YA. The titles of the lectures and the speakers are as follow:—

January 16—"Introductory Remarks" by Mr. Bernard Martin.

January 23.—"Humanitarian Activities," by the Rev. W. G. Monckton, M.A.

January 30.—"Peace," by Sir Geo. Richardson.

February 6.—"Work of the International Labour Office," by Mr. Tom Bloodworth.

February 13.—"The League and Economic Progress," by Mr. N. M. Richmond, B.A.

February 20.—"Women and Children of War," by Mrs. John Cook, J.P.

February 27.—"Security and Disarmament," by Mr. W. T. G. Airey, M.A.

March 6.—"Closing Thoughts," by Mr. E. C. Cutten, S.M.

Oscillating Valves

Creating Annoyance

APPROPOS our article in a recent issue of the "Radio Record" concerning the howling valve nuisance, we have received a complaint which runs:—

In view of the disturbance created by an oscilating receiver, I cannot understand why the "Radio Record" should publish diagrams of a three-coil regenerative receiver.

This is distinctly unfair, and shows lack of technical knowledge on the part of the writer. It is not only the home-constructed receivers that create annoyance. In fact, a properly neutralised home-built receiver can cause far less annoyance than a factory-made receiver which has had a new set of valves for which it is not neutralised.

We know of two owners of Browning-Drakes who live almost side by side, and the only disturbance created by either receiver is the very faintest breathing noise. A three-coil receiver cannot create a noise in the neighbourhood if it is correctly balanced and carefully handled. The whole trouble is that many of these receivers are not balanced properly, and, of course, create disturbance.

Then there is the enthusiast who alters his neutralising condenser to obtain greater sensitivity, with the result that his neighbours know of his experiments. A broken down by-pass condenser in the radio frequency stages of a neutrodyne will likewise create trouble. All the sets described in the "Radio Record" need annoy nobody, although a warning is always issued when there is the slightest possibility of the set becoming a nuisance to the neighbourhood.

Manawatu Station

Improvements to Plant

THE Manawatu Radio Club, which operates 2ZF, Palmerston North, the oldest broadcasting station in the Dominion, is planning improvements to its transmitting plant. A new generator is to be installed almost immediately, while a 2 h.p. 3-phase motor to drive it has been presented to the club. The extra valves have all been secured, and a special portable amplifier is also under construction for relay work. With this amplifier three microphones can be used simultaneously for special work. The club's revenue last year was £252, and after providing for the cost of the new generator it begins the New Year with a deficit of £10.

The annual report states that the station was lately ordered by the Post and Telegraph Department to reduce the power by half on Sunday night. A protest has been lodged, but to no avail. A proposal to apply for a night each week, in addition to Wednesdays and Sundays, is under consideration. 2ZF claims to be the only amateur station in New Zealand with an orchestra of its own.

Farming with Radio

"LONG distance" farming as part of the tremendously enlarged field for radio with heavy demands for skilled radio men, is foreseen by Dr. Lee De Forest, famous as a pioneer worker in the field of broadcasting, who predicts that radio control of distant mechanisms will constitute an important phase of radio in the future.

"I can visualise many tasks performed by aid of radio control in the future," Dr. De Forest said recently. "In fact, out in the Middle West, where I was born, I can picture the farmer seated in an observation tower, controlling one or more tractors by ultra short-wave radio. The country is so flat that at a few feet elevation a man can see for miles. A transmitter on the tractor itself can flash back a signal to the farmer, indicating the exact state of affairs and how the orders are being carried out just as the electric switch and signalling system in railroading flashes back an indication to the switch tower that a given order has been carried out.

"Of course, there is the question of providing the necessary wave-lengths. To-day, with an overcrowding ether, there appears little chance to squeeze out additional channels, particularly for many individual uses. And yet I am by no means discouraged in my dream; I have great hopes for ultra short-wave radio, combined with directional or beam effects, as a means of securing all the necessary channels for localising application.

"I am sure history will repeat itself, for just as the earlier radio application had to do with actuating a bell or tap recorder and performing other mechanical work, so the future of the radio art will also have to do with controlling machinery. There are greater opportunities ahead for the radio-trained men than we can imagine to-day."

The Radio Year

A Candid Criticism

"THERE is a feeling of satisfaction," says the radio editor of the Auckland "Star," in reviewing the year's achievements, and as an introduction to a candid criticism of the work of the R.B.C.:—

"AS the year 1929 draws to a close one is inclined to look back upon radio achievement throughout the Dominion during the past twelve months. Generally there is a feeling of satisfaction in the retrospect, for New Zealand broadcasting during the year has made considerable progress in many avenues, even though it has failed to reach heights comparable with those attained in Britain and Australia.

"Our programmes certainly have improved—and there was urgent need of improvement. The result has been reflected in a steady increase of licenses, which have now topped the 50,000 mark, and, what is more important, promise to stay well above that mark. Programmes, however, are still lacking in that finish and "balance" which are essential to thoroughly enjoyable entertainment. There is frequent evidence of want of sufficient rehearsal and careful programme building, features upon which the Broadcasting Company might well concentrate much attention during the coming year.

"The undertaking of long-distance relays has been the most outstanding success of 1929. All four stations have undertaken this work, and have done most creditably under initial difficulties which had to be faced. Next year should see big extensions of relay programmes, and there will be a general wish for regular exchanges between Auckland and Wellington.

"IN sports features the broadcasting of running accounts of wrestling contests was the most noteworthy development. In Auckland these accounts were most popular through the special capability of the announcer, but other centres were not so fortunate with their man at the microphone, and the descriptions suffered in consequence.

"There is still very general disappointment at the continuation of the system of announcing items without supplying the names of artists. This is unfair both to the artists and to the general public, and is a special handicap to those who, lying on beds of sickness, still like to listen-in to the nightly radio programmes. It passes the writer's comprehension how the Broadcasting Company can justify their present procedure. When a concert is relayed, the name of every artist comes over the air, yet when performers appear before the studio microphone they do so unheralded except in cold print. Does any other country adopt this method? Let us hope that the New Year will bring a needed change.

"As the 'small fry'—our cheerful little stations 1ZB and 1ZQ—listeners should be grateful for many a delightful programme of records. These small stations have done good service without monetary reward for it in the form of license revenue, and they are to be congratulated upon the success they have achieved.

"The new year dawns with big hopes of radio progress. Revenue should now be assured, and broadcasting ought to be on a sound financial basis. Naturally we shall clamour for extended hours and better programmes, even while we express gratitude for past extensions, especially in the form of the dinner music sessions, which have given broadcasting a big lift in popularity. We look forward to increased relay facilities, provided with regularity, and in fact to a host of minor improvements which the Broadcasting Company indicates are under consideration. The hope of all listeners is that projected improvements will materialise, and that right soon."

Controlling Traffic

Pittsburg System

"TRAFFIC eyes," which automatically control traffic lights when they "see" motor-cars, are in service in Pittsburg, U.S.A.

The purpose of the new system is to eliminate unnecessary traffic delays by giving the right of way continuously to traffic on a main street, interrupting the main traffic flow only when cars are actually waiting on the side street to cross the intersection.

Motorists on one street are given a green or "go" signal continuously until a car on the cross street comes within a sort distance of the intersection, at which time the traffic signal mechanism starts to operate and the lights go through one complete cycle, allow traffic on the one street to pass through, and then stop again with the green light on the other street. The lights then allow traffic to proceed uninterruptedly on the one street until the presence of cars on the other street justifies another change.

Since operation of the signals is regulated entirely by the actual necessities of the traffic law, it is expected that a considerable saving of time will result, especially at night, when delays for which there is no necessity occur.

The purpose of the installation, which is the first in the world, is to determine the practicability of the invention of Dr. Phillips Thomas, research engineer of the Westinghouse Electric and Manufacturing Company.

Simple instructions for operating the lights are given on signs maintained by the Pittsburg Traffic Planning Department. The signs read: "To get the green light, pull up to the line."

The automatic feature of the system is made possible by a new application of the photo-electric cell, or "electric eye," which literally "sees" motor-cars and regulates the signals accordingly. It is the motor-car's shadow, falling on an "electric eye" from an overhead lamp, that assures a sufficiently dense shadow, night and day. Traffic is regulated through this beam of light.

The new system is designed to set automatically right any unusual situation that might present itself. For instance, if an unusually large number of cars in one street threatens to hold up traffic in the other street inordinately long, the signals operate on a definite pre-arranged programme, giving each line of traffic a fair share of time.

Demand for Symphonies

Entire Works Broadcast

COMPLETE symphonies, played by first-class orchestras, are becoming deservedly popular with listeners in the Eastern United States. It was announced lately that six would be performed this winter by the General Electric Orchestra under the famous conductor Walter Damrosch. The first was to be Glazounow's Symphony No. 3, and the others by Beethoven, Tschaikowsky, Mozart, Brahms, and Haydn respectively. Works broadcast recently in New York on Sunday afternoons by the Roxy Symphony Orchestra included Beethoven's Third Symphony (the "Eroica") and Tschaikowsky's Fourth Symphony. The first-mentioned series is being relayed to stations from coast to coast.

Mr. Damrosch said that he received a large number of requests for complete symphonies and he had reached the conclusion that the musical intelligence of his radio audiences warrants their presentation.

"I have refrained from giving too large doses of any one work and included only portions of symphonies in my programmes," he said. "Now, however, I am convinced that the radio listener is as eager and capable of enjoying the same musical fare as a regular concert hall audience."

Broadcasting in Ireland

BROADCASTING service in the Irish Free State, owned and managed by the State, obtains its revenue from three sources—receiver tax, radio advertising, and import duties on radio equipment. In the State there are only 26,000 receiver licenses, which produce about £13,000 yearly, which pays but part of the upkeep of the two stations, one in Dublin and the other in Cork. From advertisements is derived nearly £2000. Most of the income is obtained from the import duty on sets and parts. Last year this amounted to more than £30,000, giving a surplus of £6000.

The Berlin Radio Exhibition

Differed from English and American

THIS exhibition, comprising the products of over 300 manufacturers, could be divided into three sections dealing with transmission, reception, and the work of the German Post Office in encouraging research.

The transmitting section included the whole of the apparatus used by the Witzleben station and the wonderful broadcasting tower, 420ft. high, with a splendid restaurant 170ft. from the ground and a cafe at the top.

Compactness of Receivers.

THE most striking point was the amazing compactness of receiver design and the ingenuity of designers in packing away components in the smallest possible cabinets.

Every maker of repute had at least one cheap three-valve set selling at £2 or less, complete with valves. These sets were all constructed in Trolite mouldings about 8in. square, with the valves and plug-in coils mounted on the top, and most of them had resistance-capacity couplings in a simple detector and two stages of audio.

Selectivity is evidently a very important characteristic of a set for Central European use, and even the simplest and cheapest sets had a loose-coupled aerial circuit.

Portable sets are still almost unknown in Germany, and the three or four exhibited attracted considerable attention. Most were three-valve local-station receivers, but one, the Lorenz, was a six-valve super-het, and picked up 2LO at excellent strength in daylight.

Many Self-Contained Sets.

THE self-contained receiver, as distinct from the portable, was represented in all the leading makes, and could be obtained in every case to work with the mains. Whereas most English sets of this type are primarily receivers, with the addition of a loud-speaker, all those on show were primarily speakers, with the set hidden away at the back, and in some cases the only external difference between a complete receiver and a simple loud-speaker was the addition of one small knob.

A year ago all-mains sets were practically unknown on the Continent, but now there is an enormous variety from which to choose, both for A.C. and D.C.

These sets are built on a metal chassis and enclosed in a metal cabinet which has a switch and fuse incorporated in the lid.

Prices range from £4/10/- for a two-valve set to £27 for a six-valve super-heterodyne, all including valves. Many sets use a screen grid valve, and some can be adapted for short-wave work.

Short waves are coming into favour very rapidly on the Continent, and among the stands of the component manufacturers there were many ingenious tuners which could be used on either short wave-lengths or on the ordinary broadcast band.

Four-volt Valves Universal.

IN the valve exhibits there were not nearly so many types available as we have in this country and all valves designed for battery operation had 4-volt filaments, as the 2-volt and 6-volt ranges are now quite extinct in Germany. The only exception is the Telefunken RV218 and a valve of the LS5 type which works on 7.5 volts.

Screen-grid valves were well represented, a good example having an amplification factor of 500 and an impedance of 700,000 ohms. Pentodes included the three types, the best having an amplification factor of 60, at 300 volts on the anode, the impedance being 33,000 ohms.

H.C. valves were of both types, the indirectly-heated cathode valves taking 1 ampere at 4 volts and the directly-heated variety taking from .25 to 1 ampere at 1 volt. Screen-grid valves were included in both groups, and there were also special double-grid general-purpose valves designed to function on low anode potentials, of the order of 20 volts.

Coming to loud-speakers, the moving-coil instrument had gained an enormous popularity during the past year. Nearly a hundred types were on exhibition and every manufacturer had a demonstration room attached to his stand so that one could compare the different kinds.

Lack of Brilliance.

ON the whole, the quality of reproduction was very good, although somewhat lacking in brilliance according to English standards. Prices ranged from 30/- for movements alone to £20 for large cabinet instruments.

The popularity of this type of speaker has made it necessary for owners of small sets to add power amplifiers, and many of these were on show, mostly mains driven and of the unenclosed chassis type. Push-pull circuits were not common, but most of the amplifiers had parallel output valves. Rectification of the anode supply was carried out by glow discharge valves, metal-oxide rectifiers with one or two exceptions being used only for the field coils of moving-coil speakers.

No horn speakers were exhibited, with the exception of one or two very cheap ones, but there were large numbers of the cabinet cone type, mostly costing about £2. Very large speakers of this type, capable of giving enormous volume, were available, and these were all driven by heavy four-pole movements.

A Complete Range.

AMONGST individual exhibits, that of Grawox was one of the most comprehensive, including every type of speaker from small cabinet models to large public-address instruments.

Every loud-speaker manufacturer also had a gramophone pick-up on view, and it is no exaggeration to say that there was not a single valve set in the exhibition which was not fitted with terminals or sockets for gramophone work.

Breaking the Barriers

(Continued from page 1.)

outside world, that can convey to them the atmosphere which is present therein.

Those who were unable to participate in the Christmas festivities will be indebted to radio for the very fine part it played in the season which has just gone by. The special concerts which were a feature of the programmes conveyed to even the most casual listener that this was Christmas.

The old tunes that they heard and sang when they were children and which, perhaps, they had not heard for many years, came floating over the air, and into every home where radio was established.

The Christmas Eve programmes could not fail to impress one that this was an unusual time. The daily sessions have been increased, and we find that some of the stations are on the air before midday and continue till midnight. All during this time good cheer is going over the air, and when the cheerful voices of the announcers closed the stations down with "A Merry Christmas to you All" one knew that Christmas Day was surely here. This was the grand climax of a remarkable introduction.

THE New Year is to be ushered in with the same pomp and ceremony and the bright scenes of the cities will be conveyed to those who cannot be there in person. In each of the four centres, New Year's Eve is a lively time, great crowds collect in the centres, and at the stroke of twelve the uproar which is temporarily lulled bursts forth, and brings in the New Year with a mighty cheer. From Auckland and Christchurch these scenes will be described and broadcast, but Wellington will strike a more sombre note. From this station will be relayed the watch-night service from the Taranaki Street Methodist Church. Dunedin will introduce the New Year in yet another way, which will gladden the hearts of all those who value Scottish traditions. After the New Year chimes the bagpipes will play "Auld Lang Syne."

Those who wish to make this a night of remembrance, and who have powerful receivers, can tune in the big Australian stations 2BL and 2FC. Both these are broadcasting special New Year programmes, and at twelve o'clock will relay descriptions of the scenes. 2BL will pass to Manly Beach, where huge crowds congregate. A band concert will be presented from the rotunda on the beach, and loud speakers are to be provided along the beach for the purpose of entertaining the crowd. Australian time is two hours behind New Zealand, so that this will mean waiting up till 2 a.m.

Thus from all angles radio has and is doing much to spread the good news that Christmas is again with us.

THE D.X. CLUB

Views and News.

Station Identified

THE station heard by Mr. Rogers on November 23 was 3ZC, Christchurch (1200 k.c.), testing. I received this station again Thursday, 19th inst., testing at midnight, with enough volume to be heard all over the house.—M.B.S. (Palmerston North).

Identification Wanted

Short Wave.

CAN anyone give me the call and location of an American station on about 32 or 32.5 metres? The carrier is on the air nearly every evening, and sometimes a man or a woman apparently read out messages and give birthday greetings, but most of the time the station is open and nothing doing. This station shuts off at about 6.45 p.m., N.Z. summer time, without a call, fair speaker strength. I notice Mr. Sellens mentions apparently the same station in his "Round the World Notes."—E. W. Anglesey, Tadmor, Nelson.

DX Topics

STATION 3DB, Melbourne, has been as loud as 3LO, and sometimes as strong as 2BL, for some months. One of the first stations I tuned in on my set was 3DB, and I immediately sent for verification, as I did not know the call. During September I received his card.

3DB is operated by the "Herald" Broadcasting Company, and operates on a wave-length of 257 metres (1165 kcs.). Address, Capitol House, Melbourne. Power then was 500 watts, but an enclosed letter stated that they were doubling their power and installing new transmitters by October 1, so now they are on 1 k.w.

Their daily transmission period is from 11 a.m., 1.45 p.m., 2.15, 4 p.m., and 5—11 p.m. daily, Australian time. I recently received 3DB at 3 p.m., New Zealand summer, on a sunny day, fair strength, on good headphones, four valve set, but this I regard as freak reception.

KVOO Reported.

I NOTICE in your list of American stations, KSOO, Sioux Falls, S. Dakota. I have for the last few nights been listening to a station on this wave length (270 metres), about one degree below 2ZM. I am almost sure, however, that the call was KVOO, and the town from which it was transmitting sounded like Culp, which must be somewhere near the town of Oklahoma, as during a "request" programme many requests were from people in that town. On December 18 I listened to an appeal broadcast from this station for help for the sufferers in a mine disaster in Oklahoma. This lasted for about ten minutes, and listeners were invited to ring up the station (three telephone numbers were given), with offers of contributions. He said that he would expect the three bells to be ringing continuously for the next 45 minutes. I read about this disaster in the next morning's Auckland paper.

Has any other reader heard this station yet? I notice it is marked KSOO as not being reported as heard in New Zealand. It was received here at fair speaker strength, though slightly fading at times.—J. Burt (North Auckland).

[Probably KVOO, Tulsa, Oklahoma, on 1140 kcs., 263 metres.—Ed.]

A New Station.

I LOGGED a new station last night at good strength. This is KECA (1430 kilocycles), 1000 watts, owned and operated by the National Broadcasting Company, Pacific Coast; network hooked up with KFI. No doubt some may hear this station any time now.

December 18 was a good night with me for reception of the American stations. WLW came through at 7 p.m. at good strength, also heard KFOX, KNX, KGO, KPO, all at good strength; also good reception from the A and B class Australians.—S. Ellis (Okato).

Frequencies Change.

SEVERAL of the Southern California stations will be found in new channels after 3 a.m., November 15 (states a clipping sent by Mr. Ellis). These changes were ordered by the Federal Radio Commission to better serve the public interest, convenience, or necessity, and to reduce interference. The changes in the station licenses are as follow:—

KFWB—Same channel and power, but now operates as a full-time station.

KEJK—Now operates on 710 kilocycles, 500 watts, limited time.

KFVD—Now operates on 1000 kilocycles, 250 watts, limited time.

KGFJ—Now operates on 1200 kilocycles, 100 watts, divides time with KPPC, Pasadena, and KFXM, San Bernardino.

KPLA—Now operates on 1430 kilocycles, 1000 watts, full time.

KGER—Now operates on 1360 kilocycles, 250 watts, shares time with KPSN.

KPSN—Now operates on 1360 kilocycles, 1000 watts, shares time with KGER.

KGB—Now operates on 1330 kilocycles, 250 watts, full time.

IF you are mounting a component in a rather inaccessible position, time will be saved in the long run if you test it before mounting, as endless trouble can be caused by a loose screw or similar slight fault.

Television as it Is

(Continued from page 4.)

were developed to-morrow and dramatic performances could be reproduced in the home through a simple, reliable and practical radio transmission and reception process, would the theatre suffer as a result?

Undoubtedly television would be built upon the same economic foundation as radio broadcasting, depending upon the goodwill support of advertisers for meeting the costs of presentation and distribution. This method of paying the cost is inherently a part of any broadcasting system unless special means are used to secure secrecy of transmission. "Freedom of the air" is too well established a principle in radio law and in the attitude of the American people to permit the use of the ether for a medium of private toll or a secret system of television broadcasting. Furthermore, if such secrecy were attempted, the looker-in audience would be built up too slowly to satisfy the television manufacturers. Therefore, for the same reasons that broadcasting is spread upon the thin air for anyone to reach out and enjoy without payment, television broadcasting will be offered in the same way. That means advertising sponsorship for television programmes.

Advertising is hardly an auspicious framework for the development of a new dramatic art. The requirements of advertising sponsorship impose a limitation of the most serious character on artistic development. We may expect television programmes of the same standard that apply to broadcasting programmes, and that certainly represents no threat to the legitimate drama.

But there is a further and more fundamental consideration which limits the entertainment value of synthetic drama. Drama without an audience is undramatic. The mass feeling of mass entertainment makes it doubly vivid and arouses the emotions as no special performance for a single individual or family group possibly can. Consider your impressions when you sit in an empty theatre, watching a motion picture or a play. There is a stilly emptiness about it all, a miser's happiness, which is no entertainment at all. The ear responds to individual presentation; music stirs the soul. But the eye, witnessing a performance of men and women, wants the response of the mass. The new art of television, when it does come, will be synthetic and merely whet the appetite for the real performance with live men and women upon the stage.

Another limiting factor, which somewhat circumscribes the possibilities of the television drama, is the fact that it must be rendered for a vast audience. The world is to be its theatre. Its artistic plane must, therefore, be made to conform with the tastes of the majority. It must play down to such a vast audience that the true followers of the drama will find television as unsatisfying as a roadhouse cabaret. The real field of television is in the broadcasting of events of news value. Here it will exert a tremendous influence, **but that field in now way encroaches upon the drama.**

But let us not be too consistent in belittling the effect of practical television on the drama. Unquestionably the very novelty of television will bring about a profound disturbance. The magic of receiving drama through the air, when first achieved, will be so extraordinary that it will, for a time at least, engage the attention of an enthusiastic public. Radio broadcasting, musical monstrosity that it was in its early days, seriously affected motion picture theatre receipts. The talking movie aroused the greatest public attention while it laboured in embryonic imperfection.

This novelty interest represents no destruction or permanent loss to the legitimate drama. On the contrary, television will open a vastly greater opportunity for creative talent, for both sound broadcasting and television will require a constant supply of fresh ideas for programme material. Features must be originated every hour of the day and night. This tremendous demand for dramatic novelties so created will provide a training ground for dramatic ingenuity that should develop real capabilities.

The synthetic drama, furthermore, will be a valuable advertising adjunct, aiding in the stimulation of public interest in the legitimate drama. In that capacity, the help of television will outweigh any competition which it offers. When the microphone is supplemented by the photo-electric cell, we shall witness the nationalisation and internationalisation of Broadway through television and radio.

Television will be a new ally to herald to the corners of the earth the possibilities and achievements of the drama. Its influence will be widespread and its contribution helpful. The drama will pervade the ether and find new friends in far corners. So, distant as the day of television seems to be, perhaps not as measured in years but in progress required that day represents only a step forward to a happier and more prosperous drama.

Is Radio Indispensable in Aviation?

Had Lindberg carried Wireless he might Never have Reached Paris

MOST people interested in flying—and who is not?—have at some time or another argued the pro's and con's of taking wireless equipment on long-distance flights. Many fail to understand why it is not always carried, for nobody to-day doubts the value of wireless to travellers by air.

It will be surprising, then, to learn that if Lindbergh had taken a wireless set, he might not have reached Paris. The lightest set of real use to him would have weighed about 68lb., and batteries to give him an hour's transmission, if forced down, would have been a further 36lb.—a total of some 104lb.

He set off with 425 gallons of petrol, weighing 2600lb. His petrol consumption was remarkably low (for most machines this works out at about ½-a-pint per h.p.-hour), and by throttling back gradually as he used up this terrific load of fuel, he was able to extend his radius of action, reckoned as in still air to about 4040 miles.

Nevertheless, even on a perfect course—and he had to do his own navigating—the distance to be covered was 3639 miles, so that his safety margin was only 400 miles.

If he had carried 104lb. of wireless equipment, he would have left this weight of petrol behind, which would have robbed him of 160 miles, a considerable fraction of his safety margin. The process of throttling back would have been impeded by so much more weight which was not disposed of as the journey proceeded, so that the loss of this petrol appears to approach the danger line.

If he was a skilled operator, he might have achieved a range, while in the air, of anything up to 500 miles, using telegraphy; even 800 miles has been known. Once he was forced down, however, this would drop to less than 200 miles. Use of telephony would reduce this figure by about one-third.

There is no difficulty about storing a set on board in these days of remote control. It is desirable, of course, to have it as near at hand as possible in case some unlooked-for defect develops, but this is a risk that has to be taken as part of the adventure.

Two kinds of aerial may be used. There is the single trailing wire, weighted to keep it nearly vertical; or one may be fixed from wing to wing or wing to rudder.

The advantage of the latter type is that they are ready for use should the machine be forced down on to the water, but the weighted type gives the best results, as, for instance, on Captain Courtney's Napier-Dornier-Wal. He was forced down shortly after leaving the Azores. His SOS was going out continually until he hit the water, when he had first of all to erect a telescopic aerial mast on his wing, and sling a wire from it to the rudder, and then switch over from a wind-driven generator, no longer of any use, to his batteries.

These gave him 60 separate minutes of transmitting, or slightly under the full hour if used continuously. As everyone knows, his calls were answered by a ship 104 miles away.

His set, which weighed 90lb., had an advertised range of 100 miles, but this could be "pushed up" to 150, given good conditions.

Opinion is divided as to what range is absolutely necessary to reach shipping. If a pilot going from America keeps to the regular trade route of his season of the year, there are days when he might not be more than 200 miles from a vessel, provided the weather was kind to him.

On the other hand, when his luck is out, he could easily be 800 miles off, and even fifty miles is a long way for a ship to travel when a 'plane is being tossed by the Atlantic rollers.

The Bremen.

THE problem is more acute for a flight from Europe, because a pilot must count on meeting head winds of not less than 30 m.p.h. That is to say, in a 30-hour flight, he will cover nearly a thousand miles less than in still air.

The only heavier-than-air machine to get over, the Bremen, carried enough fuel for 45 hours under favourable conditions, but the headwinds were so strong that the throttle had to be kept full open for the greater part of the journey. The speed worked out at only just over 60 m.p.h., against Lindbergh's 108 m.p.h., yet, given equal conditions, the Junkers monoplane was the faster of the two. When a landing was effected in Labrador the fuel was to all intents and purposes exhausted. Epoch-making as the flight was, it does not help in a discussion of our problem.

The lighting system failed, and to increase the trouble the Bremen ran into very thick fog in the Newfoundland area. Her crew were in total darkness for hours, and it is not easy to see how navigation would have been facilitated had they been given their position and direction by a coastal station.

Remembering all the circumstances one seems justified in saying that it was just as well they did not cut down their "useful load."

Nevertheless, Commander Fitzmaurice has given his opinion that wireless is absolutely essential for all future undertakings of this nature.

There is a general opinion in flying circles that a pilot attempting the east to west crossing would "average," if one may use such an expression, 250-300 miles from the nearest wireless-equipped vessel. The path of the prevailing wind is of varying width, but always sufficient to drive a machine away from the main shipping route.

Increased Consumption.

Whereas a gale of 60 m.p.h. would scarcely cause a captain to leave his usual course, a wind of 40 m.p.h. would mean such an increased petrol consumption that the pilot of an aeroplane would be compelled to seek the fringe of the air current, where the head wind encountered would be less strong.

Other Examples.

THE late Commander MacDonald, who left Newfoundland last year in an attempt to cross in a Moth, could not possibly have carried wireless, since the "lift" and carrying power of his machine were so small that he wanted every ounce for fuel. If he had got here, experts are agreed that it would have been "just" on this account.

As it was, his was a splendid failure.

Another instance where the radio equipment was discarded to lighten the 'plane was the recent attempt of Captain Chichester, of Wellington, to fly from England to Australia. It appeared that the extra weight of the equipment was not warranted.

The tragic yet heroic attempt of Hood and Moncrief to cross the Tasman without adequate equipment has left the world in a doubt which will probably never be solved. Had an apparatus been provided whereby one of the men could communicate with New Zealand and Australia, the frail craft and its occupants might never have met the fate it did.

Kingsford Smith and Radio

EXPERTS are still far from agreement on the point, but judging from results, it seems that a big triple-engined bus can best carry wireless. The Southern Cross was such a machine, and she, on her voyage across the Pacific, carried four men, one of whom was solely a wireless operator.

For the longest hop of this trip she took 1290 gallons of petrol; hence she would certainly not have gained much by leaving her wireless equipment behind.

On the other hand, Kingsford Smith and his companions weathered a heavy storm, and arrived safely at Fiji, owing entirely to the wireless instructions they received.

In her flight to New Zealand, wireless, although providing a useful role in

that we were kept in touch with the movements of the 'plane, was not indispensible. Throughout the critical part of the trip the radio was out of action, while on the return the equipment saved many otherwise anxious moments. The failure of the Southern Cross in her hop across the North-west of Australia, shows the very practical utility of the weighty equipment in difficult circumstances.

THE Marchese de Pinedo's wireless set weighed about one-twentieth of his fuel; that is to say, he only sacrificed 100 miles of his cruising range by taking it. Yet he was forced down on to a heavy sea three or four times this distance from the Azores, and was towed into port as a direct result of his wireless appeal for help.

To come nearer home, Carr and Gillman, the heroes of the Far East attempt, who so narrowly escaped death in the Persian Gulf, after drifting in shark-infested waters for hours, might have maintained unbroken communication with the world at large, if they had sacrificed two or three of the fifty hours which it was possible for them theoretically to remain in the air.

These examples seem to indicate that the long-distance aviator is best advised to select a big machine capable of enormous "lift" to which the addition of 100lb. or so of wireless gear will not be an insuperable handicap, if he risks all on the elimination of the last ounce of weight, his chance of escape in case of mishap over the ocean must remain very slight. The toll of the Atlantic suggests that the risk is not worth while.

Almost Unknown in U.S.A.

ONE can easily understand why some Americans have not carried wireless. In their country it is almost unknown to aviation. The reason is not far to seek. Over there it is the exception for a flight to be over water, and apparatus to dispatch SOS signals is unnecessary. When a machine develops trouble it lands as best it can, and establishes any connection desired by ordinary telephony..

In this country every regular service route crosses the Channel or North Sea, making it imperative to be able to call for help in an emergency. The result is that our pilots are used to wireless, while Americans, speaking broadly, are not.

Transmitting and receiving sets are standard on all Imperial Airways machines, and telephony is carried on practically all the time, either with Croydon or the other terminus. As a rule the pilot inquires the best height at which to cross the Channel, this depending on the air currents at the moment.

There is a world of difference between theory and practice. To make a flight as safe as possible one should certainly take wireless; but the Atlantic flight is a gamble in any case, and it is easy to understand that after weeks of irritating delays, a man might prefer to take a sporting chance, "back his bus," and—take petrol!

Securing Optimum Volume

Reasons why Signals vary in Intensity

MOST listeners know that at every broadcasting station there is a control room, with an engineer on duty all the time broadcasting is in progress. His duty is to control the volume, toning down the too loud passages or giving extra amplification when the sounds which reach the microphone appear to be too weak.

So skilfully is the work of the control engineer done that seldom is it realised how carefully he must be on the watch against underloading and overloading. If you doubt this you can easily make a test for yourself. The next time a strange speaker is announced to give a talk listen to his opening words and probably you will hear the control engineer at work.

After the pleasant voice of the announcer introducing him ceases it is probable that the opening words of the new speaker are spoken either too softly or too loudly. But before half a dozen words have been uttered he has been toned up or toned down to about the same strength as the announcer's voice, and at that strength the control engineer will hold him to the end of his talk, neither too soft nor too loud.

It is not often realised that many other varying forces are at work beside the control engineer, and that all day and all night the broadcasting which comes to your set is being carried across channels that are constantly tending to vary the volume of the reproduction.

Night and Day Differences.

THE words "all day and all night" were used advisedly, for here we have a very important volume control which affects all broadcasting. If one lives quite close to a station he may not realise the difference between day and night transmission heard on the same apparatus, but every country listener knows that when the sun is up the volume goes down, daylight reducing the range of every transmitting station to about half its night strength.

It is only during the hours of darkness that the distant stations start to climb in on a small receiver, and many a long-distance enthusiast sits up till two or three in the morning because he has found that the later the hour the better is his range of reception. This day-and-night effect operates in the general as well as in the particular sense, so during the dark and cloudy winter days reception is far superior to that obtainable in the bright summer weather.

Although the effect of better range during darkness is now so well known, it escaped notice for years after wireless was introduced, and was first appreciated by Marconi in a long-distance test voyage on his yacht the Elettra. This voyage was undertaken after his successful attempt to span the Atlantic by wireless from Poldhu to Newfoundland, and it is a remarkable fact that this astounding trans-Atlantic feat was carried out during daylight, because those responsible were not aware of the far greater likelihood of success after the sun had set! (The real cause of day and night variations is the Heaviside Layer, which has received attention in a previous issue.)

The Effect of Rain.

MANY listeners have noticed that their strength of reception seems to fall off during wet weather, but this is not a true volume variation in the same class as light and darkness. Generally when signals fall off in wet weather it will be found that the insulators are either inadequate in size or number, and that the rain is forming a conductive path across them to earth. The effect would be to leak a certain proportion of the signals away, so it is hardly fair to class this among nature's volume variations, as the provision of insulators which remain dry will completely remove these symptoms.

Out of Tune.

ALL the foregoing affect the signal before it reaches the set. But in the set itself we have many volume controls in addition to the particular components which are so labelled. Most of these apply particularly to the valve sets, but even the crystal types have the effect of detuning.

Everyone has noticed that throwing the set out of tune results in a marked drop in signal strength. The reason for this is that although broadcasting will always reach the aerial (provided that it is within range), the effect of it will only be at a maximum when the tuned circuits are adjusted to exactly the same frequency as the distant station's.

At short distances there is a breakthrough effect which may lead the listener there to suppose that tuning is not very important, but all listeners who live a long way from the nearest station will have noticed how greatly the results improve when the tuning is set exactly right

In every valve set there are many other factors besides tuning which affect the strength of reproduction.

The basis of the operation of every valve set is the provision of suitable "A" and "B" batteries or other source. Everything that goes on in the receiver depends upon these, and obviously the ideal plan for even output would be an absolutely steady source of supply.

The Voltage Drop.

IN practice both battery voltages vary, and to a surprising degree in both cases. Everybody knows that a 4-volt valve must not be supplied direct from a 6-volt accumulator or the extra voltage will ruin it. But not every listener realises that his "6-volt" accumulator does not remain steadily at 6 volts, being more than this figure when newly charged and considerably less before it is recharged.

A good voltmeter will show that the voltage when a newly-charged cell is first in use is 2.2, and this falls slowly all the time that the accumulator is supplying current until it drops to 1.8, when results fall off quickly, and it becomes incapable of supplying the current demanded of it. One is accustomed to think of accumulator

voltages being very steady, but these figures show a drop of something like 15 per cent. between the newly-charged and the run-down accumulator. As the results from many valves vary appreciably with the "A" supply, it is obvious that here we have an important reason for volume variations. Fortunately modern valves are less critical than their predecessors.

Magnified Alterations

ADVANTAGE is often taken of this very fact that filament voltage affects output by connecting a variable rheostat in the filament circuit of an R.F. valve, for the specific purpose of controlling the volume of the output. Here the slightest touch of the rheostat will affect volume to a surprising degree, one reason for this being that the volume control in this case is followed by amplifying valves which magnify the effect of any input variations.

A powerful receiver amplies the input many thousands of times, so that any changes in volume which take place in the earlier stages of the input are enormously magnified before they are reproduced by the loudspeaker.

Variations in "B" voltage supplied to the receiver affect volume in the same way as variations in "A" voltage, but generally not to the same degree.

It will thus be seen that there are many factors working simultaneously to vary volume, and the marvel is not that the strength of the programme is sometimes better than at others but that the cumulative effects of these variations is not too great to spoil our enjoyment of the fare provided by the R.B.C.

Ivy: "Have you got wireless in your house?"

Bob: "'Course. We've got two."

Ivy: "What do you want two for?"

Bob: "One each side of your head so it doesn't go in one ear and out of the other."

Auckland Notes

(By "Call Up.")

A PARTY of 1YA artists recently gave a most successful concert at Thames on behalf of the Thames-Hauraki Cricket Association. There was a large attendance, many of the audience being interested to see what the artists they knew by voice looked like in the flesh, and as a result the cricket association benefitted to the extent of £30. The broadcasters received many thanks for their kindly effort.

ON the occasion of the opening of the magnificent new Civic Theatre, Auckland, on December 20, six loudspeakers were placed outside the theatre to enable the large crowds assembled on the street to hear the speeches of the opening function. Those who were unable to gain admittance greatly appreciated this service.

LOCAL reception of Australian stations has not been very satisfactory lately, being weak even on powerful sets. Some listeners report getting 2YA with extreme volume and clarity during the last fortnight.

RADIO dealers in Auckland have greatly appreciated the extended hours of broadcasting during the week. The majority of them state that Christmas business has been good. Receiving sets and parts seem to be growing in popularity as Christmas gifts, particularly for children who plead for crystal sets from Santa Claus!

ACCORDING to the terms of the recent International Conference on Safety of Life at Sea, all passenger ships and all cargo ships of over 1600 tons gross will be required to be equipped with wireless.

Improved Conditions

Better Valves and New Transformers

A POINT that is often lost sight of when considering the merits of various transformers is that present-day valves are, on the whole, much better than those available a year or two ago. The result of this is that, for a certain standard of performance, the transformer need not be such an expensive component as formerly.

To explain this point more fully, let us imagine we have a receiver having a transformer-coupled stage that is fitted with a valve whose impedance is 16,000 ohms, for a magnification factor of 10. We remove this valve and put in a modern one, having an impedance of 8000 ohms for a magnification factor of 10, which is quite reasonable.

Immediately it is noticed that the lower notes are strengthened and it may so happen that the higher notes are also strengthened in comparison with those of middle frequency. The effect of fitting a new valve in this instance is, therefore, to improve the reproduction.

If one happened to be satisfied with the reproduction of the old arrangement it would be possible to fit a new valve having about the same anode impedance as the old one, but having a greater magnification factor. The overall amplification would, therefore, be increased.

It is further possible for one to fit a new valve of lower impedance, but the same magnification factor as the old valve, and also to fit a transformer having the same ratio as the one used at present, but having less inductance

Such a transformer would be cheaper, because inductance is dependent upon the size of the iron core, its quality and the number of turns of wire. Less iron could be used in the core or fewer turns of wire, whichever happened to be the cheaper.

It is not advisable to use a transformer having poor iron, however, as distortion may be produced. The distortion is produced by the way the iron behaves when it is magnetised, and it may be serious. There is also the question of magnetic saturation to be considered, but the manufacturers usually advise purchasers of their products how much current may safely be passed by the primary winding.

Police use Radio

THE New York police are fully aware of the advantages of rapid communication offered by wireless, for in the near future 500 motor-cars used by the Police Department will be fitted with receiving sets. The messages will be sent from the broadcasting station at police headquarters in a code which the motor-drivers will be trained to understand. Their sets will be tuned to the frequency used, and then locked; and, as the code will be secret, even should criminals discover the frequency, they will still be unable to decipher the messages.

Winding Solenoid Coils

A DRILL is exceedingly handy for the rapid winding of solenoid coils if the hard wood is tightly fitted into one end of the former used, and in the exact centre of this plug is fixed a short length of ¼-in. studding which can be gripped firmly in the jaws of the drill chuck. When winding is to take place, the horizontal hand-grip of the drill is removed and the stud to which it is attached is firmly held in the jaws of the vice. The drill itself is thus fixed parallel with the ground. The coil former is gripped in the way already described, the end of the wire is anchored to the former in the usual way, and the reel is placed in a holder provided with a brake which can be adjusted to give the right tension. If the crank of the drill is not rotated too quickly, the wire runs on quite evenly, and a 60-turn coil can be made with almost incredible rapidity.

New British Stations

THE largest broadcasting station in Northern England, will be erected at Slaithwaite, Yorkshire. The new station will be operated by the British Broadcasting Corporation, and is being erected at a cost of £20,000.

The new station will have two separate forty-kilowatt transmitting sets, and will be similar in design to those now in use at Daventry. The transmitters will require about a year before completion, but will incorporate all of the latest developments known to the broadcasting art. When finished these two new transmitters will replace all those in operation in the northern portion of England.

Work will be started immediately. Two separate aerials will be strung, each supported by two 200-foot steel towers. These two stations will replace about four lower-powered transmitters in the area. Present studios of existing stations will probably be retained and programmes will be relayed from these and from London.

Making a Wireless Set

To make a set you may aspire
So, if you copy me,
You'll take a good-sized length of wire
And fix it to a tree

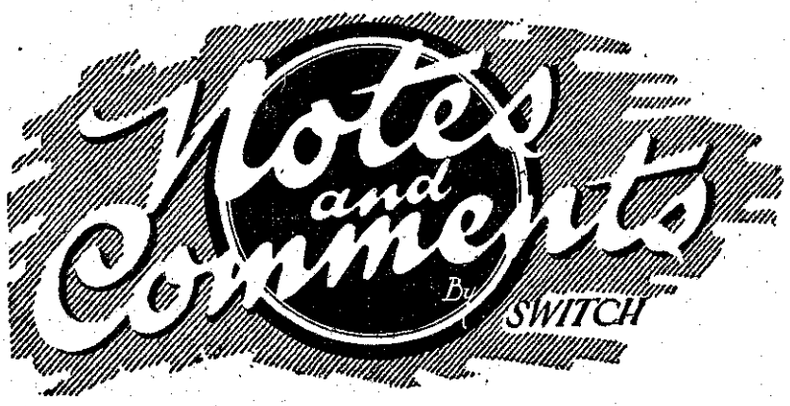
Some insulators add with care,
Then mix up all these terms—
Inductance, megohm, volt, ampere,
With metres, gas, and therms.

Next weigh the cost of ebonite
And use the cheaper kind,
Though experts say this is not right—
Nor is it, you will find.

Then take a brand-new valve and plate,
(But do not take advice)
Work in some cathodes, nine, or eight
I think will quite suffice.

Flavour with zest, and do not get
Depressed if parts don't fit,
You will not make a wireless set—
You'll make a mess of it!

—Leslie M. Oyler.



NOT infrequently "Switch" receives inquiries from listeners to identify broadcast stations they have heard, but they offer very little information. Here is a case in point: "Could you kindly tell me which station it was I heard on Saturday night about 11.30 o'clock broadcasting the waltz, 'Over the the Waves?'" The inquirer includes no suggestion of wavelength nor of the station call. It is absolutely impossible to listen to all the Australian stations simultaneously, and no doubt the station heard was across the Tasman. Probably it was one the "B" class Melbourne or Sydney stations.

ON Christmas morning Wellington listeners who operated multi-valve sets were able to receive 3YA, Christchurch, as loudly as one would desire, and there was scarcely a suspicion of static. In one household the family thought it was 2YA, Wellington, coming in. "Uncle David" at 3YA caused some amusement by quoting as an example the lack of understanding of the true spirit and sanctity of Christmas Day on the part of some youngster, when he related that his neighbouring juveniles celebrated the occasion by an early morning letting off of fireworks!

"SWITCH" happened to be awake on a recent morning between 2 and 3 o'clock when Wellington was visited by a thunderstorm, during which lightning struck the aerial of 2YA, Wellington, and burnt out the aerial tuning equipment, besides shattering some insulators. The flash of lightning which struck the aerial of 2YA was seen to light up the landscape almost as brilliantly as if it were daylight, and the following crash of thunder seemed like the firing of a 16-inch gun. "Switch" congratulates the operating staff of 2YA on being off duty when the lightning struck the aerial, otherwise they would have experienced an unpleasant shock.

A LISTENER who resides fairly close to the transmitting station of 2YA, Wellington, which is on a hill about 550 feet above sea-level, was awakened by the startling crash of thunder when the 2YA aerial was struck by lightning. He was quite convinced that it was his own aerial which had been struck. He was much relieved on finding his aerial intact. It was reassuring to him when it was explained that the 2YA aerial owing to its proximity and tremendous height was a protector of his own aerial.

IN last week's "Notes" mention was made by "Switch" that several listeners in and around Wellington regularly receive 2YA, Wellington, on the loudspeaker per medium of a crystal set. One of the best examples of this which has come under the notice of "Switch" is provided by Captain V. G. Webb, assistant marine superintendent of the Union Company, who at his residence in Watt Street, Wadestown, at a distance of about 2½ miles from 2YA regularly receives that station on his loudspeaker, using only a crystal set without any amplification. 2YA can be heard in any room in his house.

CAPTAIN KERR, of the oil-tanker Invergordon, which was at Wellington a few days ago, reported that they were entertained by 2YA on the loudspeaker with great volume some 400 miles out at sea to the eastward of New Zealand. His wife and little daughter and the chief engineer's wife were on board, and they enjoyed the music from Wellington's big station after a lonely trip down from southern California. While the vessel was at Wellington they lost no opportunities of listening in to 2YA, especially during the Christmas Day sessions.

MR. J. GILLON, a listener, residing in Tinakori Road, Wellington, in a badly screened locality, reports that on Christmas Day, after 2YA had concluded the morning session, using his four-valve portable set attached to his outdoor aerial, he received 4YA, Dunedin, quite distinctly on his loudspeaker. This is a fine performance for daylight reception with a portable set.

RECEPTION of the Australian stations has still been a source of worry to many listeners lately. The sunspots which have been unusually numerous appear to have some influence on long-distance reception. A peculiarity observed in connection with the Australian stations is their protracted cycles of fading. In some instances the cycles have extended over ten minutes. This would account for the various experiences of listeners. One would tune in a station when it was in the throes of a fade, and after waiting a couple of minutes would give it up in disgust. Another would tune in the station when it would be at its approaching maximum, and hold it for five or six minutes.

WHILE community singing appears to have died a natural death in New Zealand, it is still very much alive in Melbourne, Ballarat, and Geelong. Every Thursday over 3000 people assemble in the Melbourne Town Hall for community singing, which is conducted by Mr. Frank Hatherley. The community singing is regularly broadcast by 3LO and 3AR, Melbourne.

THE suggestion published in last week's "Record" that the "silent night" may be dispensed with during the ensuing year is sure to have many advocates. The great mass of listenerse who regularly tune in 2YA, Wellington, no doubt miss that station very considerably on the Wednesdays. Static and weak reception have given the Australian stations a great set-back in popularity among New Zealand listeners during the past two or three months, and they are now relying more than ever for their entertainment on the "YA" stations.

"E.M." (Ngaio) writes:—"Would you please find space for me to express my pleasure with the prolonged service rendered during the holiday season by 2YA, Wellington, which station is first favourite in our home. Several listeners, I am sure, would like to hear the nightingale record put on when it is convenient to the director. Many of us who are from the Homeland would greatly appreciate the said record, especially during this season when our thoughts turn to the dear Motherland."

THE gramophone record items by the Wellington carillon seems to have been rather disappointing. The item was reproduced at the Wellington Speedway on a recent Saturday evening, by means of a public address system. The failure to create a pleasing effect seems to be due to the playing of unsuitable melodies, the main fault being that the tunes are too quick, with the result that a clanging discord is caused by the notes running into one another. Slower melodies would probably remove this trouble.

NEWS by cable states that Miss Gladys Watkins, of Wellington, who has been studying for a year at the famous carillon school at Malines, Belgium, will be carilloneur when the memorial is erected in Wellington. Miss Watkins is sister of Mr. L. F. Watkins, the talented organist of St. Mark's Church, Wellington. At one time it was considered probable that some difficulty would be experienced in obtaining the services of a carilloneur for Wellington's War Memorial, as competent players were scarce. The news of Miss Watkins's possible appointment after a further twelve months' study in Belgium, will be received with satisfaction by listeners far and wide, for it is certain that the Wellington carillon will be broadcast by 2YA when it is installed in Wellington.

THE condenser, which is now such a familiar article to radio folk, dates back nearly two hundred years. Gralath, an electrical experimenter in those days, maintained that the discharge of the early condensers, or Leyden jars, caused nose bleeding with some persons. The Abbe Nollet, in France, used to kill birds with the discharge from condensers to entertain the ladies of the court. To amuse the French King, Nollet sent a discharge through 180 soldiers, and later through a 900 feet line of Carthusian monks. And yet "Switch" has seen a Wellington radio amateur get the surprise of his life when he received a sharp shock from a condenser.

MENTION was made by Mr. N. Keith when lecturing before the Wellington Radio Society at the last meeting, of the possibilities of magnetising a long roll of wire with replicas of sound waves so that they could be reproduced from the wire by a special machine just as gramophone records are made to reproduce sounds from needle indentations. Mr. Keith stated that the idea was practicable and was being further developed. Strangely enough Mr. Charles Forest, formerly of Wellington, and now in Sydney, used the same apparatus about seven years ago for broadcasting purposes in Wellington. The apparatus was imported and loaned him. The idea seems to have lain dormant for some years.

THE New York "Radio World" says: "What is believed to be a new long-distance broadcast record was recently established by KDKA when its broadcast on its regular broadcast wave of the arrival of the Graf Zeppelin at Lakehurst was picked up by Lloyd Grenlie, operator aboard Commander Byrd's ship, the Eleanor Bolling, stationed at Dunedin, New Zealand. The approximate distance covered was 9000 miles. "Switch" is inclined to believe that Mr. Ward, of Taranaki, and some other DX listeners may dispute the above claim for a world's record.

WANTED AND FOR SALE.

For column of casual advertisements see page 32.

Next Week's Features

1YA Notes

THE church service broadcast on Sunday will be that conducted in St. Matthew's Church, and will be followed by a relay of a concert, to be given by the Auckland Municipal Band in Albert Park.

INCLUDED on the programme for Tuesday will be trios by Miss Dorothy Youd, Miss Martha Williamson and Mr. Lambert Harvey. These three artists will also be heard in vocal solos. There will be pianoforte solos by Miss Theo Halpin, and the 1YA Orchestral Octet will give several items. An interesting lecture-recital will be given by Mr. Karl Atkinson, entitled "Chamber Music Without Yawns."

THE Auckland Artillery Band will provide the bulk of the programme for Wednesday evening. Also appearing will be Mr. J. F. Montague in elocutionary numbers, and Miss Daphne Higham, violiniste. Miss Millicent O'Grady (soprano), and Mr. Len Barnes (baritone) will sing duets, including "The Rose of Love," from "The Rose Maiden." Mr. Barnes's solos will include two Kipling poems—"Follow Me 'Ome," and "Route Marchin'," also a French-Canadian poem, "The Wreck of the Julie Plante." Miss Millicent O'Grady's items will be "Nobil Signori, Salute," and "By the Waters of Minnetonka," the latter with violin accompaniment by Miss Daphne Higham. Cornet solos will be played by Bandsmen L. Mackay and K. Smith.

THE Asquiths are appearing on Thursday's programme in one of their very popular drawing-room entertainments; also, Mr. E. Green (basso, with a very fine voice), Miss Nina Scott (elocutioniste), and the 1YA Orchestral Octet. This programme is followed by the usual dance programme until 11 p.m.

A NUMBER of very fine items will be heard on Friday, the artists including Miss Nellie Lingard (contralto), Mr. Frank Sutherland (bass baritone), Miss Margot St. L. Toner (pianiste), and the Studio Trio. Miss M. Toner's main item will be Bach's "Chromatic Fantasia and Fugue." Instrumental selections will be given by Miss Ina Bosworth (violiniste), and Miss Molly Wright ('celliste).

A VERY fine programme has been arranged for Saturday. The artists include Miss Freda Gaudin (soprano), the Bohemian Duo in some of their very popular duets, and Mr. Owen Pritchard, humourist. The 1YA Orchestral Octet will be playing, among other numbers, the overture "Egmont" (by Beethoven).

MR. FRED. BAKER
Baritone at 1YA.
—S. P. Andrew, photo.

MRS. DAISY BASHAM,
Contralto singer and lecturer at 1YA.
—S. P. Andrew, photo.

2YA Notes

ON Sunday evening the service in St. Andrew's Presbyterian Church will be relayed. The preacher will be the Rev. R. Howie, B.A., and the organist and choirmaster Mr. Frank Thomas. Following the church service a studio concert will be given by the Port Nicholson Silver Band. Associated with them as vocalists will be Mrs. Amy Dunn, Mr. Ernest Short and Miss Hilda Chudley. The band items will comprise the hymn "Roseate Hues," a descriptive selection "Down South," a cornet solo by Bandsman Goodall, a selection of "Old English Sea Songs," the Egyptian serenade, "Amina," Rachmaninoff's "Prelude," and Lithgow's popular march, "Invercargill."

ON Monday evening Mr. H. C. South will resume his series of lecturettes on "Books—Grave and Gay." Mr. South's talk on books is quite a feature of 2YA programmes and listeners will be glad to welcome him back to the microphone after his brief rest during the holiday period.

MONDAY evening's concert programme will comprise items by the 2YA Orchestrina, under the conductorship of Signor A. P. Truda. There will be vocal solos by the Misses Mavis and Mona Castle, Mr. S. E. Rodger, and Mr. Stewart Nelson, and a brief organ recital by Mr. H. Temple White. Mr. Victor S. Lloyd, the popular entertainer, will give another of his "experiences," the one on this occasion being of particular interest to those who have followed his narratives from their commencement some 12 months ago.

A BRIGHT "popular" type of programme will be given on Tuesday evening. The 2YA Salon Orchestra, under Mr. M. Dixon, will provide the instrumental portion of the programme, and associated with the orchestra will be Miss Esme Crow, Mr. Claude Moss, Mrs. Eileen Miller, and Mr. Harry Painter. Vocal numbers from musical comedies will be given by Miss Crow. Mr. Claude Moss will be heard in baritone solos, and Mrs. Eileen Miller will feature popular songs. Mr. Harry Painter will provide the humour of the programme, with some humorous recitals and comic songs.

ON Thursday evening the Wellington City Silver Band, with the assistance of the Lyric Male Voice Quartet, Mrs. D. Ross and Miss M. E. Quinn, of Hawera, will give a studio concert. The band will play a selection from "The Bohemian Girl," a descriptive number, "A Sailor's Memories," a selection, "La Militaire," McKenzie's reverie, "Bells of Sunset," and Greenwood's waltz, "Over the Waves." Miss Quinn is a young artist who is well known in the Taranaki district, having been very successful at the local competitions.

THE Etude Quartet on Friday evening will feature excerpts from the musical comedy, "The Cabaret Girl." This work is the composition of the famous musical comedy composer, Jerome Kern, and while being of a light nature, "The Cabaret Girl" is also distinctly melodious. The 2YA Orchestrina, under Signor A. P. Truda, will also contribute to the programme, playing the popular "William Tell" overture, a selection from "Carmen," two musical comedy numbers, "The Spring Maid" and "The Earl and the Girl," and Waldteufel's concert waltz, "Pluie d'Or." Mr. Errol Muir, a popular entertainer, will be heard in two recitals, Lawson's "Ocean's Own" and "The Thriller," a humorous number.

AN entertaining vaudeville programme will be presented on Saturday evening The Salon Orchestra, under Mr. M. Dixon, will play Engelman's "Potted Overture," "A Perfect Day," by Carrie Jacobs-Bond, Jessel's "Parade of the Tin Soldiers," a musical comedy selection, "No, No, Nanette," and several dance novelties. The Melodie Four will be heard in vocal and concerted numbers, and Mrs. Agnes Lewis will sing contralto solos. Two humorous sketches will be given by Messrs. Cedric Gardiner and Peter Dorrian, and Mr. Billy Hart will entertain with popular songs at the piano.

3YA Notes

THE Rev. L. B. Neale will be the preacher at St. Albans Methodist Church on Sunday evening, when the service will be broadcast. A studio concert will follow, to which the contributing local artists will be Miss Sylvia Angus (soprano), Mrs. Nellie Whitworth (contralto), Mr. Leslie Fleming (baritone), and an instrumental trio, consisting of Miss Gladys Vincent, Miss May Garden, and Mr.

Francis Bate. 'Cello solos will be played by Mr. Bate.

MR. E. J. BELL will give his fortnightly "Book Review" on Monday evening. The band engaged for Monday evening is Derry's Military Band, under Mr. J. Scott. A bright entertaining programme will be presented. Mr. W. Roy Hill, one of Wellington's finest tenors, who is visiting Christchurch, will be singing. His items will be "Afton Water," "My Love She's But a Lassie Yet," and "The Bells of Little Weston." Other vocalists will be Mrs. M. E. Sharp, mezzo-soprano, who has won championship medals at Gore and Invercargill competitions, Miss Nancy Bowden (contralto), and Mr. Chas. Harroway (baritone). Humorous recitations will be given by Mr. Ronald Foster.

OPERATIC numbers, both vocal and instrumental, will feature Wednesday evening's programme. A Dunedin artist, Miss Florence Sumner (soprano), will be one of the vocalists. Also singing will be the popular Mrs. D. W. Stallard, who will sing solos from "Satanella" and "Mignon," as well as "Waiata Maori." There will be tenor solos by Mr. W. J. Trewern and baritone solos by Mr. F. C. Penfold. Elocutionary items will be provided by Miss Dorothy Jenkin.

A very fine instrumental programme will be given by Miss Gladys Vincent (violin), Mr. Francis Bate ('cello), and Miss Mary Garden (piano). As a 'cello solo Mr. Bate will play Ponchini's "Chant de Patre."

A TALK to farmers on "The Proper Stage for Cutting Wheat," will be given on Thursday evening at 7.30 by Mr. W. J. Calder, M.Sc., B.Ag. This talk has been arranged by the 3YA Primary Productions Committee. The evening's programme will be mainly classical. The vocalists will be Miss Anita Graham, Miss Agnes Cunningham, Mr. Sydney Andrews, and Mr. Fred A. Bullock. There will be two soprano and contralto duets. Miss Lucy Fullwood (pianiste) and the Studio Octet will be responsible for the instrumental portion of the musical programme.

FRIDAY'S programme will be of a popular type, with a supplementary dance music session, which will be supplied by the Bailey Marston Dance Orchestra. The vocalists will sing some old favourites, which will prove very acceptable. The singers will be Miss Lucy Fullwood, Miss Mary Taylor, Mr. T. G. Rogers, and Mr. E. J. Johnson.

VARIETY will mark Saturday evening's programme. There will be soprano songs by Mrs. B. Sluis, and tenor solos by Mr. W. J. Bischlager. Mr. Leslie Stewart will sing "The Desert Song," "Hats Off to the Stoker" and "That's How the World Was Made." The Melody Maids will sing at the piano with ukulele. There will be humour by Mr. H. Instone, and bright music by the Studio Instrumental Octet.

4YA Notes

THE Rev. L. McMaster, B.D., of Christchurch, will be the preacher at Knox Presbyterian Church on Sunday evening, when the service will be broadcast. A relay of a concert to be given by the St. Kilda Band, will follow.

QUARTETTES by the Orpheus Male Four, a combination of Dunedin Royal Male Choir soloists, will be a feature of Monday evening's programme. The numbers will include "Bells of Seville," "Cornfield Melodies," "Winter Songs," "An Evening Lullaby," and "I Hear Kentucky Calling"—a variety of items which will please all tastes. Soprano and contralto solos will be sung by Miss Freda Elmes and Miss Netta Wilkie, respectively. Miss Ngata Buswell will recite. Mr. James Paterson will sing "The King's Minstrel," and Mr. H. McAllum "King of the Air." Violin solos will be played by Miss Bessie Paine.

THE Kaikorai Band, under Mr. T. J. Kirk-Burnnand, will provide the programme on Tuesday evening. Assisting vocal artists will be Miss Rita Holmes (soprano), Miss Irene Horniblow (contralto), Mr. J. Montague (tenor), and Mr. R. Martindale (baritone). Recitations will be given by Miss Isobel McGregor, a fine concert performer, who is making her debut in radio.

ON Wednesday evening, at 7.40, there will be a talk to farmers, arranged by the Primary Productions Committee. The Novelty Trio will be introduced to listeners on Wednesday evening. A very bright programme will be presented by these instrumentalists. The singers for the evening will be Miss Letti de Clifford, Miss Margaret Howden and Mr. Les Stubbs. Two duets will be "List to the Convent Bells," and "Life's Dream is O'er." Recitations will be given by Mr. Dale.

Miss Madge Clague, a contralto from England, who has lately been a regular singer at 1YA, will be appear at 4YA on Friday evening. Her items will be "Buy My Strawberries," "The Nightingale of Lincoln's Inn," and "Sea Wrack." Other soloists for the evening will be Miss D. Sligo (soprano) and Mr. W. Hilliken (baritone). Mr. Angus Gorrie will continue his series of recitals on "Young Poets Lost to England During the Great War." The programme will contain items by the Studio Trio, a 'cello solo by Mr. P. Palmer, and some selected records, instrumental as well as vocal.

ON Saturday evening 4YA will relay 3YA.

WANTED AND FOR SALE.

For column of casual advertisements see page 32.

How U.S.A. Broadcasts

Activities of the N.B.C.

MERLIN H. AYLESWORTH, president of the National Broadcasting Company in America, is on a visit to Europe, where he has had something to say about the American system of broadcasting.

Aylesworth believes that service to the public is the one foundation on which the company should base its hopes for permanent support and ultimate prosperity. As a result the measures the things N.B.C. should do or not by the test of whether they will benefit the public.

Aylesworth is not a technician; he will tell you he doesn't know the difference between a kilocycle and a motorcycle, or a short-wave and a permanent wave.

He has a technical staff to deal with those things. But he does try to envision the vast possibilities of radio as an educational and cultural force, as a purveyor of entertainment, information and instruction. His enthusiasm and sense of the dramatic and his refusal to accept as final "it can't be done" often enables him to accomplish the seemingly impossible.

With some sixty-three broadcasting stations to feed, the N.B.C. mainly relies for its upkeep on the income accruing from microphone publicity given to a large group of industrial and commercial concerns who sponsor the programmes.

No direct advertising is permitted, as it is considered that bald "puffs" would raise the antagonism of listeners and would defeat its own ends.

Of the sixty-three transmitters dotted all over the North American Continent, from New York on the east coast, to San Francisco in the west, and from Chicago to Miami in Florida, only three broadcasting stations are actually owned by the company.

Daily transmissions are almost continuous from 7 a.m. until midnight and simultaneously, where necessary, three different entertainments can be relayed to three separate groups of stations included in this system.

A rule has been made that no educational or instructional talks shall last more than 15 minutes, and statistics show that of the total transmissions only 33 per cent. of the time is devoted to speech.

In his opinion, Mr. Aylesworth states that the tastes of listeners had undergone considerable change in the space of two years.

Wireless "Weather"

Peculiar Phenomenon

WIRELESS has a "climate" and "weather" of its own, stated Mr. R. A. Watson Watt in a lecture he delivered before the Royal Meteorological Society recently.

Wireless as a means of communication is essential in modern meteorology, because it alone is capable of giving sufficiently rapid interchanges of data over wide areas. The results of observations made all over Great Britain are in the hands of the central forecaster within an hour, the majority of the data for Europe are received within an hour and a half, and that for the whole Northern Hemisphere within six hours.

THE weakening of signals over different kinds of country, according to time of day and season, and the dependence of atmospheric disturbance on latitude, place and time, are climatological in scope. The quick-period changes, the erratic phenomena of fading, are part of the "weather" of wireless—atmospherics are its "rainfall."

The lecturer declared that the average atmospheric is a hundred thousand times as strong as a readable signal. They have been known to disturb broadcast reception up to four thousand miles from their place of origin.

Atmospherics originate in thunderstorms, and the predominant source of the world's supply of atmospherics at any moment usually lies in a land where it is summer afternoon. The average atmospheric received in England is of such strength as would be sent out by a thunderstorm 2000 miles away.

Speaking of the alleged effects of wireless on weather, Mr. Watson Watt stated that the average rainfall of England requires for its production the expenditure of energy at the rate of a third of a million horse-power per square mile night and day throughout the year.

The total rate of emission energy from the broadcasting stations of Great Britain and Northern Ireland, in the limited periods during which they work, is less than 55 horse-power.

Any effect of broadcasting on weather would therefore be due to "sub-homo opa hic doses" of less than one in a thousand million.

Full Programmes for Next

Sunday, January 5

1YA, AUCKLAND (900 KILOCYCLES)—SUNDAY, JANUARY 5.

3.0 : Afternoon session—Selected studio items.
4.0 : Literary selection by the Announcer.
4.8 : Studio items.
6.0 : Children's session conducted by Uncle Leo.
6.55: Relay of service from St. Matthew's Church (Preacher, Canon Grant Cowan; Organist, Mr. J. H. Philpott).
8.30 (approx.): Relay from Albert Park of concert by the Auckland Municipal Band under the conductorship of Mr. Christopher Smith.
9.45: Close down.

2YA, WELLINGTON (720 KILOCYCLES)—SUNDAY, JANUARY 5.

3.0 : Afternoon session—Selected gramophone items.
4.30: Close down.
6.0 : Children's song service, conducted by Uncle George.
7.0 : Relay of service from St. Andrew's Presbyterian Church. Preacher, Rev. R. Howie, B.A. Organist and choirmaster, Mr. Frank Thomas.
8.15: (approx.) Studio concert by the Port Nicholson Silver Band, under the conductorship of Mr. J. J. Drew, and assisting artists.
Hymn—Band, "Roseate Hues" (Hume).
Selection—Band, "Down South" (Myddleton).
Soprano—Mrs. Amy Dunn, "Jerusalem" ("St. Paul") (Mendelssohn).
J. H. Squire Celeste Octet, "Memories of Mendelssohn" (arrgd. Sear).
Baritone—Mr. Ernest Short, "Glory to Thee, My God, This Night" (Gounod).
Cornet solo with band accompaniment—Bandsman T. Goodall, "Titania" (Rimmer).
Contralto—Miss Hilda Chudley, "For Ever and a Day" (Mack).
Selection—Band, "Old English Sea Songs" (Bailey).
Soprano—Mrs. Amy Dunn, (a) "Ave Maria" ("Cavalleria Rusticana") (Mascagni); (b) "Lilies" (Barry).
Vocal duet—Gladys Cole and Barrington Hooper, "Speak to Me of My Mother" ("Carmen") (Bizet) (Zonophone G087).
Egyptian serenade—Band, "Amina" (Lincke).
Baritone—Mr. Ernest Short, (a) "Give a Man a Horse He Can Ride" (Thomas); (b) "Tally Ho" (Leoni).
Organ—F. Rowland Tims, F.R.C.O., (a) "At Dawning" (Cadman); (b) "Shepherd's Lullaby" (Hewitt) (H.M.V. B3021).
Contralto—Miss Hilda Chudley, (a) "Let Miss Lindy Pass" (Rogers); (b) "The Wind Song" (Rogers).
Selection—Band, "Prelude" (Rachmaninoff).
Vocal duet—Bessie Jones and Barrington Hooper, "How I Will Dance but to Please Thee" ("Carmen") (Bizet) (Zonophone G087).
March—Band, "Invercargill" (Lithgow).
Close down.

3YA, CHRISTCHURCH (980 KILOCYCLES)—SUNDAY, JANUARY 5.

3.0 : Afternoon session—selected gramophone items.
5.30: Children's song service (children of the Methodist Sunday Schools).
6.15: Hymn tunes from studio.
6.30: Relay of service from St. Alban's Methodist Church, Rugby Street:—Preacher: Rev. L. B. Neale. Deputy Organist: Mr. Sydney Jones.
7.45: Studio programme:
Overture—San Francisco Symphony Orchestra, "Midsummer Night's Dream" (Mendelssohn) (H.M.V. D1626-7).
7.57: Soprano—Miss Sylvia Angus, "Beyond the Dawn" (Sanderson).
8.1 : Male choir—Don Cossacks, "Three Folk Songs" (arrgd. Dobrowsen).
8.5 : 'Cello—Mr. Francis E. Bate, "Lamento" (Cagriel Marie).
8.10: Baritone—Mr. Leslie Fleming, "Ideale" (Tosti).
8.14: Organ—Edouard Commette, "Fantasie in G Minor" (Bach).
8.22: Instrumental Trio—Misses Gladys Vincent and May Garden and Mr. Frances Bate, (a) "Extase" (Gaune), (b) "Serenade" (Haydn).
8.31: Contralto—Mrs. Nellie Whitworth, "Christmas Bells" (Liddle).
8.35: Choir—Berlin Union of Teachers, "The Lorely" (Silcher).
8.39: Piano and orchestra—Karol Szreter and Berlin State Opera Orchestra, "Hungarian Rhapsody No. 2" (Liszt), (Parlophone A4109).
8.47: Soprano—Miss Sylvia Angus, (a) "Life" (Curran), (b) "The Almond Tree" (Schumann).
8.53: 'Cello—Mr. Frances E. Bate, "Menuet" (Boellmann).
8.57: Baritone—Mr. Leslie Fleming, (a) "Route Marchin'" (Stock), (b) "Dream Tryst" (Cadman).
9.3 : Boys' Choir—Hofburg Chapel, Vienna, "Joy, Queen of the Wise" (Mozart) (Parlophone R20021).
9.7 : Instrumental trio—Misses Gladys Vincent and May Garden and Mr Frances Bate, "Trio in F.—Allegro and Animato" (Gade).
9.16: Contralto—Mrs. Nellie Whitworth, (a) "To a Nightingale" (Brahms), (b) "True Love" (Brahms).
9.22: Chorus and orchestra, Berlin State Opera, "Aida—Triumphal March" (Verdi) (Parlophone R20018).
9.30: Close down.

4YA, DUNEDIN (650 KILOCYCLES)—SUNDAY, JANUARY 5.

3.0 : Town Hall chimes.
3.1 : Selected gramophone items.
5.30: Children's song service, conducted by Big Brother Bill.
6.30: Relay of service from Knox Presbyterian Church:—Preacher: Rev. L. McMaster, B.D., of Christchurch. Organist: Mr. C. Roy Spackman.
7.55: Weather report.
8.5 : Relay from Band Rotunda, St. Kilda, of concert by the St. Kilda Band.
9.15: Close down.

Monday, January, 6

1YA, AUCKLAND (900 KILOCYCLES)—MONDAY, JANUARY 6.

SILENT DAY.

2YA, WELLINGTON (720 KILOCYCLES)—MONDAY, JANUARY 6.

3.0 : Chimes. Selected gramophone items.
5.0 : Children's session conducted by Uncle Jeff.
6.0 : Dinner session:
Royal Albert Hall Orchestra, (a) "Song of Morning" (Elgar), (b) "Song of Night" (Elgar) (H.M.V. D1236).
'Cello—Gaspar Cassado, "Menuett" (Haydn) (Columbia 03595).
6.11: Tacet.
6.15: Selection—La Scala Orchestra, "Song of the Nightingale" (Napravnik).
Instrumental trio—Kreisler, Kreisler and Rauchiesen, "L'Arlesienne—Intermezzo" (Bizet, arrgd. Kreisler) (H.M.V. DB1166).
Sheffield Orpheus Male Choir, "Hymn Before Action" (Walford Davies) (Regal G30008).
6.27: Tacet.
6.30: Halle Orchestra, "Rosamunde Ballet Music" (Schubert): (1) Andantino, (2) Allegro Moderato, (3) Andante un poco assai (04200).
'Cello—Gaspar Cassado, "Chanson Villageoise" No. 2 (Popper) (Col.).
6.41: Tacet.
6.56: Instrumental trio—Kreisler, Kreisler, and Raucheisen, "Sanctissima" (Corelli, arrgd. Kreisler) (H.M.V. DB1166).
Columbia Symphony Orchestra, "The Flatterer" (Chaminade) (Col.).
Sheffield Orpheus Male Choir, "The Long Day Closes" (Chorley)
6.57: Tacet.
7.0 : News session, market reports and sports results.
7.40: Lecturette—Mr. H. C. South, "Books, Grave and Gay."
8.0 : Chimes.
Overture—2YA Orchestrina under the conductorship of Signor A. P. Truda, "Oberon" (Weber).
8.9 : Mezzo-soprano—Miss Mavis Castle, (a) "The Woodpecker" (Lehmann), (b) "The Starling" (Lehmann).
8.14: Baritone—Mr. S. E. Rodger, "The Last Watch" (Pinsuti).
8.18: B.B.C. Wireless Military Band, "Dance of the Tumblers" ("The Snow Maiden"—Rimsky-Korsakov) (Columbia 02893).
8.22: Contralto solo with violin obbligato—Miss Mona Castle (violin obbligato by Miss Zillah Castle), "One Fleeting Hour" (Lee).
8.26: Selection—2YA Orchestrina, "Ballet Russe" (Luigini).
8.34: Mr. Victor S. Lloyd will relate another of his experiences.
8.46: Tenor—Mr. Stewart Nelson, "Dream Tryst" (Cadman).
8.50: Instrumental—2YA Orchestrina, "Hungarian Rhapsody No. 1" (Liszt).
8.58: Weather report.
9.0 : Relay of organ recital by Mr. H. Temple White, (a) "Pastorale and Allegro" (Plumpton), (b) "Berceuse" (Kinder), (c) "Fanfare" (Lemmens).
9.15: Mezzo-soprano solo with violin obbligato—Miss Mavis Castle, "Fiddle and I" (Weatherley).
9.19: Baritone—Mr. S. E. Rodger, (a) "To-morrow" (Keel), (b) "The Fortune-Hunter" (Willeby).
9.26: Instrumental—2YA Orchestrina, (a) "Serenade" (Pierne), (b) "Hungarian Dance No. 2" (Brahms).
9.34: Vocal duets—Misses Mavis and Mona Castle, (a) "The Swing" (Cooke), (b) "Bed in Summer" (Cooke).
9.40: Tenor—Mr. Stewart Nelson, "Pale Moon" (Logan).
9.44: Instrumental—Cherniavsky Trio, "Minuet—Quartet in E" (Boccherini-Hermann) (Columbia 0845).

Week-all Stations-to Jan. 12

9.47: Contralto—Miss Mona Castle, (a) "To People Who Have Gardens" (Hughes), (b) "The Moon Cradle" (Hughes).
9.53: Instrumental—2YA Orchestrina, (a) "Serenade" (Schubert), (b) "Toreador et Andalouse" (Rubinstein).
10.1 : Close down.

3YA, CHRISTCHURCH (980 KILOCYCLES)—MONDAY, JANUARY 6.

3.0 : Afternoon session—Selected studio items.
5.0 : Children's session conducted by "Scatterjoy."
6.0 : Dinner session—"Columbia" Hour:
Waltz—Symphony Orchestra, "Artists's Life" (Strauss) (02577).
Columbia Symphony Orchestra, "Al Fresco" (Herbert) (01092).
Foxtrot—La Nuova Orchestra, "Di Napoli" (Romani) (3066).
Band of H.M. Grenadier Guards, "La Paloma" (Yradier) (0987).
6.13: Tacet.
6.15: Ketelbey's Orchestra, "In a Monastery Garden" (Ketelbey) (02688).
Waltz—Jacque Jacobs Ensemble, "Over the Waves" (Rosas) (02556).
6.27: Tacet.
6.30: Columbia Symphony Orchestra—"Badinage" (Herbert) (01092).
Waltz—Royal Serbian Tambouritza Orchestra, "Kossovo" (3066).
Waltz—"Symphony Orchestra, "Tales from the Vienna Woods" (Strauss) (02577).
March—H.M. Grenadier Guards, "Twist and Twirl" (Kottaun) (0987).
6.43: Tacet.
6.45: Waltz—Royal Philharmonic Orchestra, "Blue Danube" (Strauss).
Waltz—Jacque Jacobs Ensemble, "Espana" (Waldteufel) (02560).
6.57: Tacet.
7.0 : News session.
7.30: Talk—Mr. E. J. Bell, "Book Review."
8.0 : Chimes.
Studio programme by Derry's Military Band under the conductorship of Mr. J. Scott, and assisting artists:
March—Band, "Belphega" (Brepsant).
8.6 : Baritone—Mr. Charles Harroway, (a) "My Old Shako" (Trotere), (b) "In Old Piccadilly" (Hewitt).
8.12: Mandolin—Mario de Pietro, "Concert Mazurka" (Calace) (H.M.V.).
8.16: Mezzo-soprano—Mrs. M. E. Sharp, "The Ships of Arcady" (Head).
8.20: Waltz—International Novelty Octet, "Cuckoo" (Jonasson) (Zono.).
8.23: Tenor—Mr. W. Roy Hill, (a) "Afton Water" (traditional), (b) "My Love She's but a Lassie Yet" (traditional).
8.30: Serenade—Band, "La Serenata" (Braga).
8.36: Humorous recitals—Mr. Ronald Foster, "I Haven't Got the Nerve (Anon.).
8.42: Organ solo—Chas. W. Saxby, "Classica" (potpourri, arrgd. Ewing)
8.46: Contralto—Miss Nancy Bowden, "Dawn" (Curran).
8.50: Selection—Band, "A Musical Jig Saw" (Aston).
9.2 : Weather report.
9.4 : Banjo solo—Mario de Pietro, "Frivolous Joe" (de Pietro) (H.M.V.).
9.7 : Baritone—Mr. Charles Harroway, "The Little Irish Girl" (Lohr).
9.11: Waltz—Band, "Beautiful Danube" (Strauss).
9.19: Mezzo-soprano—Mrs. E. M. Sharp, (a) "If You were the Opening Rose" (Hewitt). (b) "Wild Geese" (Vaughan de Leath).
9.25: March—Band, "The Vanished Army" (Alford).
9.30: Tenor—Mr. Roy Hill, "The Bells of Little Weston" (Thompson).
9.34: Instrumental—Band, "May Blossom" (Weir).
9.39: Contralto—Miss Nancy Bowden, (a) "Caprice" (Furnell), (b) "Lad's Love" (Coningsby Clarke).
9.45: Organ solo—Chas. W. Saxby, "Classica" (potpourri, arrgd. Ewing)
9.48: Humorous recital—Mr. Ronald Foster, "Bye, Bye" (Will Gardner).
9.52: Male quartet—The Revellers, "Comin' Home" (Deppen) (H.M.V.).
9.55: March—Band, "Old Comrades" (Teike).
0.0 : Close down.

4YA, DUNEDIN (650 KILOCYCLES)—MONDAY, JANUARY 6.

3.0 : Town Hall chimes. Selected gramophone items.
5.0 : Children's session, conducted by Uncle Allan.
6.0 : Dinner session—"Columbia" Hour:
Intermezzo—Milan Symphony Orchestra, "Cavalleria Rusticana" (Mascagni) (02841).
Selection—Herman Finck's Orchestra, "Schubertiana" (arrgd. Finck).
6.12: Tacet.
6.15: Selection—Herman Finck's Orchestra, "Schubertiana" (arrgd. Finck).
Rio Marimba Orchestra, "Three O'Clock in the Morning" (Robledo).
6.27: Tacet.
6.30: Bayreuth Festival Orchestra, "Siegfried—Prelude Act 3" (Wagner).
Waltz—Eddie Thomas' Collegians, "Moments With You" (Shilkret).
Waltz—Eddie Thomas' Collegians, "Moonlight on the Danube" (Gay).
Wurlitzer organ—Stanley MacDonald, "La Rosita" (Dupont).
6.43: Tacet.
6.45: Selection—Regal Orchestra, "Pagliacci" (Leoncavallo).
Rio Marimba Orchestra, "My Isle of Golden Dreams" (Blaufuss).
6.57: Tacet.
7.0 : News session.
8.0 : Town Hall chimes.
Overture—National Symphony Orchestra, "Die Fledermaus" (Strauss).
8.9 : Male quartet—Orpheus Male Four, "Bells of Seville" (Jude).
8.13: Violin—Miss Bessie Paine, "Andante Cantabile" (Tschaikowsky).
8.18: Tenor—Mr. A. S. Blake, "Muleteer of Malaga" (Trotere).
8.22: Recital—Miss Ngata Buswell, "The Great Lover" (Brooke).
8.28: Soprano—Miss Freda Elmes, "Will He Come" (Sullivan).
8.32: Pianoforte—Mrs. Ernest Drake, "Guomenteigen" (Liszt).
8.37: Male quartet—Orpheus Male Four, "Cornfield Melodies" (Gates).
8.41: Contralto—Miss Netta Wilkie, (a) "Rakety Koo" (Friml); (b) "Erisky Love Lilt" (Kennedy Fraser).
8.48: Violin—Miss Bessie Paine, "The Shepherd's Dance" (German).
8.51: Bass—Mr. James Paterson, L.A.B., "The King's Minstrel" (Pinsuti).
8.53: Royal Opera Orchestra, "Faust Ballet Music" (Movements 1 and 4, (Gounod) (H.M.V. C1462).
9.1 : Weather report.
9.3 : Male quartet—Orpheus Male Four, "Winter Songs" (Bullard).
9.7 : Recitals—Miss Ngata Buswell, (a) "How Bannerman Rode the Grey" (Warren), (b) "Tewkesbury Road" (Masefield).
9.15: Tenor—Mr. F. H. Jones, "I Seek For the in Every Flower" (Ganz).
9.19: Pianoforte—Mrs. Ernest Drake, (a) "Pastorale" (Scarlatbic); (b) "Tarantelle" (Karganoff).
9.26: Soprano—Miss Freda Elmes, (a) "Feast of Lanterns" (Bantock); (b) "We'd Better Bide a Wee" (Claribel).
9.32: Violin—Miss Thelma Paine, "Widor's Serenade" (Widor).
9.38: Male quartet—Orpheus Four, "An Evening Lullaby" (Shaw).
9.42: Contralto—Miss Netta Wilkie, "Softly Awakes My Heart" (Saint-Saens).
9.46: Royal Opera Orchestra, "Faust Ballet Music" (Movements 5, 6 and 7), (Saint-Saens).
9.54: Bass—Mr. H. McAllum, "King of the Air" (Stonehan).
9.57: Male quartet—Orpheus Male Four, "I Hear Kentucky Calling" (Moore)
10.0 : March—Band of the Garde Republicaine, "La Pere de la Victoire" (Ganne) (H.M.V. EA450).
10.3 : Close down.

Tuesday, January 7

1YA, AUCKLAND (900 KILOCYCLES)—TUESDAY, JANUARY 7.

3.0 : Afternoon session—Selected studio items, including literary selection by the Announcer.

5.0 : Children's session, conducted by Uncle George.
6.0 : Dinner Session—"Columbia" Hour:
Overture—Basle Symphony Orchestra, "Der Freischutz" (Weber).
6.12: Tacet.
6.15: J. H. Squire Celeste Octet, (a) "Grasshoppers Dance" (Bucalossi) (b) "The Butterfly" (Bendix) (3608).
Musical Art Quartet, "To a Wild Rose" (McDowell) (01506).
Violin—Yvonne Curti, "Madrigale" (Simonetti) (01529).
6.27: Tacet.
6.30: J. H. Squire Celeste Octet, (a) "I Love the Moon" (Rubens); (b) "Two Eyes of Grey" (McGeoch) (01213).
J. H. Squire Celeste Octet, (a) "Amoureuse" valse (Berger); (b) "Valse Bleue" (Margis) (3643).
6.42: Tacet.
6.45: J. H. Squire Celeste Octet, "Valse Caprice" (Rubinstein) (02581).
'Cello—D. H. Squire, "Sarabande" (Sielzer) (04283).
J. H. Squire Celeste Octet, "Perpetuum Mobile" (Weber, arrgd. Crooke) (02581).
6.57: Tacet.
7.0 : News session and market reports.
8.0 : Chimes.
8.1 : Overture—1YA Orchestral Octet under the conductorship of Mr. Eric Waters, "Pique Dame" (Suppe).
8.10 : Vocal trio—Olympian Trio, "O Memory" (Leslie).
8.15: Contralto—Miss Martha Williamson, "Songs My Mother Sang" (Grimshaw).
8.19: Pianoforte—Miss Theo Halpin, "La Paus Que Lente" (Debussy).
8.24: Tenor—Mr. Lambert Harvey, "Where'er You Walk" (Handel).
8.28: Instrumental—1YA Orchestral Octet, "Finlandia" (Sibelius).
8.37: Soprano—Miss Dorothy Youd, "Here's to Love" ("The Sunshine Girl") (Rubens).
8.41: Instrumental—1YA Orchestral Octet, (a) "Ideal Aida" (arrgd. Black), (b) "Faust Frivolities" (arrgd. Black).
8.49: Contralto—Miss Martha Williamson, "Invitation" (Barry).
8.53: Vocal trio—Olympian Trio, "The Gipsy Laughing Chorus" (Balfe).
8.57: Weather report.
8.58: Instrumental—1YA Orchestral Octet, "Talisman Waltz" (Drigo).
9.7 : Tenor—Mr. Lambert Harvey, "Eily Mavourneen" (Benedict).
9.11: Pianoforte—Miss T. Halpin, "Concert Etude" (Liszt).
9.17: Soprano—Miss D. Youd, "It is not Because Your Heart is Mine" (Lohr)
9.21: Instrumental selection—1YA Orchestral Octet, "On With the Dance" (Coward-Braham).
9.30: Gramophone Lecture-Recital, Mr. Karl Atkinson, "Gems from 'Otello'" (Verdi).
10.0 : Close down.

2YA, WELLINGTON (720 KILOCYCLES)—TUESDAY, JANUARY 7.

3.0 : Chimes. Selected gramophone items.
5.0 : Children's session conducted by Uncle Jim.
6.0 : Dinner session—"His Master's Voice" Hour:
Reginald King's Orchestra, (a) "Garden in the Rain" (Gibbons), (b) "The Song I Love" (De Sylva) (B2903).
Waltz—International Concert Orchestra, "Gold and Silver" (Lehar) (Zonophone EF22).
Victor Olof Sextet, "Cherry Ripe" (Scott) (B2697).
6.12: Tacet.
6.15: Waltz—International Concert Orchestra, "The Spanish Dancer" (Di Chiara) (Zonophone EF15).
Victor Concert Orchestra, "Romance" (Tschaikowsky) (Zono. EF7)
Violin—Isolde Menges, "Salut d'Amour" (Elgar) (D1313).
6.26: Tacet.
6.30: Piccadilly Orchestra, (a) "Friend o' Mine" (Sanderson), (b) "None but the Weary Heart" (Tschaikowsky) (B2875).
International Concert Orchestra, "My Treasure" (Becucci) (Zono.).
Victor Olof Sextet, "Minuet" (Boccherini) (B2597).
6.42: Tacet.
6.45: Jack Hylton's Orchestra, "Melodious Memories" (Finck) (C1575).
Waltz—International Novelty Orchestra, "Emperor" (Strauss) (Zono.)
6.57: Tacet.
7.0 : News session, market reports and sports results.
7.40: Lecturette, Representative of the Agricultural Department, "For the Man on the Land."
8.0 : Chimes.
Overture—2YA Salon Orchestra under the conductorship of Mr. M. T. Dixon, "Chal Romano" (Ketelbey).
8.9 : Soprano—Miss Esme Crow, (a) "The Flower" ("Lilac Time"—Schubert-Clutsam), (b) "Here's to Love" ("Sunshine Girl"—Rubens).
8.16: Baritone—Mr. Claude Moss, "For the Green" (Lohr).
8.20: Ballet suite—2YA Salon Orchestra, "Ballet Suite" (Rameau-Motti).
8.28: Humour—Mr. Harry Painter, "After the Accident" (Blake).
8.34: Popular song—Mrs. Eileen Miller, (a) "Baby's Blue" (Hupfeld), (b) "Blossoms" (Black).
8.41: Instrumental trio—Messrs. W. Haydock, S. Chapman, and M. T. Dixon, (a) "Nina" (Kreisler), (b) "Syncopation" (Kreisler).
8.48: Soprano—Miss Esme Crow, "Door of Her Dreams" ("Rose Marie"—Friml).
8.52: Instrumental—2YA Salon Orchestra, request number.
9.0 : Weather report.
9.2 : Baritone—Mr. Claude Moss, "Nelson's Gone A-Sailing" (Lohr).
9.6 : Humour—Mr. Harry Painter, (a) "The Blackest Man I Know" (Clarke), (b) "Some Observations on Spring Cleaning" (Robey).
9.13: Instrumental—2YA Salon Orchestra, (a) "Waltz Ballet" (Granier), (b) "Venetian Love Dance" (Rich).
9.21: Popular song—Mrs. Eileen Miller, "Tune in on Happiness" (Hayes).
9.25: Song suite—2YA Salon Orchestra, "Molloy's Songs" (arrgd. Baynes).
9.30: "Brunswick" Dance Programme:
Foxtrots—Ray Miller's Orchestra, (a) "Let's Sit and Talk about You" (Fields), (b) "In a Great Big Way" (Fields) (4223).
Foxtrots—The Clevelanders, (a) "I'm Thirsty for Kisses, Hungry for Love" (Davis), (b) "A Little Town Called Home, Sweet Home" (Donaldson) (4252).
9.43: Wurlitzer organ—Eddie Dunstedter, (a) "Parade of the Wooden Soldiers" (Jessel), (b) "Ah, Sweet Mystery of Life" (Young).
Waltz—Thematic Orchestra, "Giovanna" (Kountz) (4297).
Foxtrot—Colonial Club Orchestra, "Yo Te Amo Means I Love You" (Bryan) (4241).
Foxtrot—Six Jumping Jacks, "The Monte Carlo Song" (Endor) (4219)
Foxtrots—The Captivators, (a) "I Used to Love Her in the Moonlight" (Lewis), (b) "Step by Step, Mile by Mile" (Silver) (4308).
Waltz—Thematics Orchestra, "Lady Divine" (Kountz) (4297).
10.13: Solo and chorus—Vernon Rickard with Hatch's Melody-Makers, "One Golden Hour with You" (Pollack) (4262).
Foxtrot—Fred Hamm's Collegians, "True Blue" (Garland) (4294).
Foxtrots—Bob Haring's Orchestra, (a) "Down Among the Sugar-Cane" (Tobias), (b) "Because I Know You're Mine" (Derickson) (4283).
Waltz—Colonial Club Orchestra, "Why Don't You Love Me?" (Mason).
10.30: Male chorus—Famous Forty Elks Chorus, "Sweet and Low" (Barnby).
Soprano—Elisabeth Rethberg, "By a Lonely Forest Pathway" (Chapman) (15146).
Foxtrots—Bob Haring's Orchestra, (a) "Deep Night" (Vallee), (b) "Wedding Bells" (Kahal) (4246).
10.42: Organ with trumpet and drum—Lew White, "Sweethearts on Parade" (Newman) (4263).
Organ with guitar and vibraphone—Lew White, "My Tonia" (De Sylva) (4263).
Vocal duet—Frank Luther and Carson Robison, (a) "Old Kentucky Cabin" (Robison), (b) "Blue Lagoon" (Robison) (4222).
Waltz—Hotel Roosevelt Orchestra, "Coquette" (Berlin) (4284).
Foxtrot—Hotel Roosevelt Orchestra, "Till We Meet" (Davis) (4284).
11.0 : Close down.

3YA, CHRISTCHURCH (980 KILOCYCLES)—TUESDAY, JANUARY 7.

SILENT DAY.

4YA, DUNEDIN (650 KILOCYCLES)—TUESDAY, JANUARY 7.

3.0 : Town Hall chimes.
3.1 : Selected gramophone items.
5.0 : Children's session.
6.0 : Dinner session—"Columbia" Hour:
Selection—B.B.C. Wireless Symphony Orchestra, "La Boutique Fantasque" (Respighi, arrgd, Carr) (Regal G30018).
'Cello—W. H. Squire, "Humoresque" (Dunkler-Squire) (04192).
6.12: Tacet.
6.15: J. H. Squire's Celeste Octet, "Chant Sans Paroles" (Tschaikowsky).
Suite—Plaza Theatre Orchestra, "Gipsy Suite": (1) Valse, Lonely Life, (2) Allegro, The Dance (German) (02537).
6.27: Tacet.
6.30: Suite—Plaza Theatre Orchestra, "Gipsy Suite": (1) Menuetto, Love Duet, (2) Tarantella, The Revel (German) (02538).
Madrid Symphony Orchestra, "Dance of the Neighbours" (De Falla).
6.42: Tacet.
6.45: Venetian Players String Quintet, (a) "Romanza" (Mozart), (b) "Allegro" (Mozart) (Regal G20467).
Pianoforte—Ignaz Friedman, "Romance in E Flat" (Rubinstein).
Basle Symphony Orchestra, "Rosamunde—Entr'acte No. 2" (Schubert).
6.57: Tacet.
7.0 : News session.
8.0 : Chimes. Studio programme by the Kaikorai Band under the conductorship of Mr. Thos. J. Kirk Burnnand, and assisting artists:
March—Band, "The Winning Fight" (Holyman).
Selection—Band, "Evening Bells" (Rimmer).
8.8 : Soprano—Miss Rita Holmes, selected.
8.12: Whistling solo—Sybil Sanderson Fagan, "Some Other Bird" (Bryan) (Columbia 3901).
8.15: Recitals—Miss Isobel McGregor, (a) "Alms in Autumn" (Flyeman), (b) "Grandma's Advice" (Anon.).
8.20: Selection—Band, "The French Maid" (Slaughter).
8.29: Tenor—Mr. J. Montague, "Friend of Mine" (Sanderson).
8.33: Organ solo—Terence Casey, "Keys of Heaven" (novelty variations) (arrgd. Casey) (Columbia 02842).
8.38: Vocal duet—Miss Rita Holmes and Miss Irene Horniblow, "In Springtime" (Newton).
8.41: Descriptive patrol—Band, "Jamie's Patrol" (Dacre).
8.46: Baritone—Mr. Ralph Martindale, (a) "Tommy, Lad" (Margetson), (b) "Invictus" (Huhn).
8.52: Selection—Debroy Somers' Orchestra, "The Singing Fool" (arrgd. Connelly) (Columbia 02920).
9.0 : Weather report.
9.2 : Contralto—Miss Irene Horniblow, "Dido's Lament" (Purcell).
9.6 : Band—"Reminiscences of the Plantation" (Chambers).
9.15: Recital—Miss Isobel McGregor, "A Fantasy" (Garstin).

9.17: Whistling solo—Sybil Fagan Sanderson, "Honeymoon Waltz" (Sherwood) (Columbia 3901).
9.23: Tenor—Mr. J. Montague, (a) "Mother o' Mine" (Laurs), (b) "For You Alone" (Gheel).
9.30: Band Contest selection—"Der Freischutz" (Weber).
9.38: Soprano—Miss Rita Holmes, "Vale" (Russell).
9.42: Cornet solo with band accompaniment—Soloist, Mr. Ira Coughlan, "Il Bacio" (Arditi).
9.45: Baritone—Mr. R. Martindale, "Roll On, Thou Deep and Dark Blue Ocean" (Petrie).
9.49: Organ solo—Terence Casey, "Annie Laurie" (novelty variations) (arrgd Casey) (Columbia 02842).
9.52: Vocal duet—Miss Rita Holmes and Miss Irene Horniblow, "Bird Songs at Eventide" (Coates).
9.56: Concert march—Band, "The Trumpeter's Call" (Anderson).
10.0 : Close down.

Wednesday, January 8

1YA, AUCKLAND (900 KILOCYCLES)—WEDNESDAY, JANUARY 8.

4.0 : Afternoon session—Selected studio items.
4.0 : Literary selection by the Announcer.
4.8 : Studio items.
5.0 : Children's session conducted by Uncle Tom.
6.0 : Dinner session—"His Master's Voice" Hour:
Reginald King's Orchestra, (a) "Garden in the Rain" (Gibbons), (b) "The Song I Love" (De Sylva) (B2903).
Waltz—International Concert Orchestra, "Gold and Silver" (Lehar) (Zonophone EF22).
Victor Olof Sextet, "Cherry Ripe" (Scott) (B2697).
6.12: Tacet.
6.15: Waltz—International Concert Orchestra, "The Spanish Dancer" (Di Chiara) (Zonophone EF15).
Victor Concert Orchestra, "Romance" (Tschaikowsky) (Zono. EF7).
Violin—Isolde Menges, "Salut d'Amour" (Elgar) (H.M.V. D1313).
6.25: Tacet.
6.30: Piccadilly Orchestra, (a) "Friend o' Mine" (Sanderson), (b) "None but the Weary Heart" (Tschaikowsky) (B2857).
Orchestra and grand organ—International Concert Orchestra, "My Treasure" (Becucci) (Zonophone EF15).
Victor Olof Sextet—"Minuet" (Boccherini) (B2697).
6.42: Tacet.
6.45: Jack Hylton's Orchestra, "Melodious Memories" (Finck) (C1575).
Waltz—International Novelty Orchestra, "Emperor" (Strauss) (Zono.)
6.57: Tacet.
7.0 : News and market reports.
7.40: Talk—Madame Mabel Milne, "Health and Diet."
8.0 : Chimes.
March—Auckland Artillery Band under the conductorship of Mr. Wynne Smith, "Honest Toil" (Rimmer).
8.9: Baritone—Mr. Len Barnes, (a) "Follow Me 'Ome" (Ward-Higgs), (b) "Route Marchin'" (Stock).
8.17: Cornet solo—Mr. L. Mackey, "Titania" (Rimmer).
8.22: Recital—Mr. J. F. Montague, "From My Scrapbook" (a second offering)
8.32: Selection—Band, "Tancredi" (Rimmer).
8.39: Soprano solo with violin accompaniment—Miss Millicent O'Grady (violin accompaniment by Miss Daphne Higham), "By the Waters of Minnetonka" (Lieurance).
8.42: Instrumental—Band, "Unfinished Symphony" (Schubert).
8.49: Humour—Billy Jones and Ernest Hare, "Bridget O'Flynn" (King) (Columbia 0637).
8.52: Violin—Miss Daphne Higham, (a) "Serenata" (Moszkowski), (b) "Bartfoi Emlek" (Dance Hongroise) (Drdla).
8.59: Vocal duet—Mr. Len Barnes and Miss M. O'Grady, "Rose of Love" ("The Rose Maiden"—Cowen).
9.4 : Weather report.
9.7 : Selection—Band, "Chu Chin Chow" (Hume).
9.15: Cornet solo—Mr. K. Smith. "Triplets" (Reynolds).
9.20: Soprano—Miss Millicent O'Grady, "Nobil Signori, Salute" (Meyerbeer).
9.24: Pianoforte solo—Percy Grainger, "Moonlight" (Debussy) (Col. 04002).
9.28: Humorous recital—Mr. J. F. Montague, "Simple Simon" (Newman).
9.35: Selection—Band, "The Smithy in the Wood" (Michaelis).
9.44: Baritone—Mr. Len Barnes, "The Wreck of the 'Julie Plante'" (O'Hara)
9.47: Humour—Two Black Crows, "Elder Eatmore's Sermon on Throwing Stones" (Mack) (Columbia 02619).
9.51: Violin—Miss D. Higham, "Danses Tziganes" (Nachez).
9.56: Vocal duet—Mr. Len Barnes and Miss Millicent O'Grady, "The Voyagers" (Sanderson).
10.3 : March—Band, "Rimutaka" (Trussell).
10.8 : Close down.

2YA, WELLINGTON (720 KILOCYCLES)—WEDNESDAY, JANUARY 8.

SILENT DAY.

3YA, CHRISTCHURCH (980 KILOCYCLES)—WEDNESDAY, JAN. 8.

3.0 : Afternoon session—Selected studio items.
5.0 : Children's session, conducted by Uncle John.
6.0 : Dinner Session—"Parlophone" Hour:
Selection—Edith Lorand Orchestra, "The Vagabond King" (Friml).
Waltz—Dajos Bela Orchestra, "The Swallows" (Strauss) (A4010).
6.12: Tacet.
6.15: Selection—Frank Westfield's Orchestra, "Chu Chin Chow" (Norton).
Piano and Orchestra—Raie da Costa and Orchestra, "When Day Is Done" (de Sylva) (A4041).
Wurlitzer Organ—Leslie Harvey, "Absent" (Metcalfe) (A2728).
6.29: Tacet.
6.30: Waltzes—Dajos Bela Orchestra, (a) "Oh, Spring, How Fair Thou Art" (Lincke); (b) "Songe D'Amour Apres Le Bal" (Czibulka).
Dajos Bela Orchestra, "Humoresque" (Dvorak) (E10559).
6.42: Tacet.
6.45: Dance Orchestra—Dorsey Brothers Orchestra, "Was It a Dream?" (Coslow).
Wurlitzer organ—Leslie Harvey, "Until" (Sanderson) (A2728).
Waltz—Dajos Bela Orchestra, "Faust" (Gounod) (A4010).
6.55: Tacet.
7.0 : News session.
7.30: Addington stock market reports.
8.0 : Chimes.
Overture—Grand Symphony Orchestra, "Raymond" (Thomas).
8.9 : Contralto—Mrs. D. W. Stallard, "The Power of Love" (Balfe).
8.13: Violin—Miss Gladys Vincent, "Aucassin and Nicoliette" (Kreisler).
8.17: Tenor—Mr. W. J. Trewern, "Lend Me Your Aid" (Gounod).
8.22: Instrumental trio—Misses Gladys Vincent and M. Garden and Mr. Francis Bate, "Samson et Delila" (Saint-Saens).
8.32: Soprano—Miss Florence Sumner, (a) "Fair Spring is Returning" ("Samson et Delilah") (Saint-Saens); (b) "One Fine Day" (Puccini).
8.39: Selection—Band of H.M. Irish Guards, "The Desert Song" (Romberg).
8.42: Recital—Miss Dorothy Jenkin, "Types at the Play" (overheard at a musical comedy) (Chancellor).
8.47: Cembalo solo—Anna Linde, (a) "Le Cou Cou" (Daquin); (b) "Les Tambourin" (Rameau) (Parlophone E10514).
8.51: Baritone—Mr. Fred C. Penfold, (a) "The Song of the Volga Boatmen" (Chaliapin-Koenaman); (b) "Sing Me to Sleep" (Homer).
8.59: Weather report.
9.1 : Selection—Dajos Bela Orchestra, "I Pagliacci" (Leoncavallo).
9.9 : Contralto—Mrs. D. W. Stallard, (a) solo from "Mignon" (Thomas); (b) "Waiata Maori" (Hill).
9.17: Mandolin band—Circlo Mandolinistico, "La Traviata—Prelude Act 4" (Verdi) (Columbia 02566).
9.21: Tenor—Mr. W. J. Trewern, "Mignon" (D'Hardelot); (b) "Glorinda" (Orlando Morgan).
9.25: 'Cello—Mr. Francis Bate, "Chant De Patre" (Ponchini).
9.30: Soprano—Miss Florence Sumner, "Singing in the Rain" (Maundrell).
9.34: Instrumental trio—Misses G. Vincent and M. Garden and Mr. Francis Bate, (a) "Salve Dimora" ("Faust") (Gounod); (b) "Gavotte" (Thomas).
9.42: Recital—Miss Dorothy Jenkin, "The Telegram" (MS).
9.48: Baritone—Mr. Fred C. Penfold, (a) "The Secret" (Scott); (b) "I Am Fate" (Hamblen).
9.55: Fantasia—Edith Lorand Orchestra, "Faust" (Gounod, arrgd. Wieniawski) (Parlophone E10579).
10.3 : Close down.

4YA, DUNEDIN (650 KILOCYCLES)—WEDNESDAY, JANUARY 8.

3.0 : Town Hall chimes.
3.1 : Selected gramophone items.
3.15: Home Science Talk—"The Sun as Friend and Foe" (under the auspices of 4YA Primary Productions Committee).
4.25: Sports results to hand.
5.0 : Children's session, conducted by Big Brother Bill.
6.0 : Dinner session—"His Master's Voice" Hour:
Overture—National Symphony Orchestra, "Orpheus in Hades" (Offenbach) (Zonophone EF16).
San Francisco Symphony Orchestra, "Caprice Viennois" (Kreisler).
6.12: Tacet.
6.15: New Light Symphony Orchestra, (a) "Spring Song" (Mendelssohn); (b) "Narcissus" (Nevin) (Zonophone EE111).
San Francisco Symphony Orchestra, "Coppelia Ballet" (Delibes).
Violin—Fritz Kreisler, "Tango Albeniz" (arrgd. Kreisler).
6.28: Tacet.
6.30: Philadelphia Symphony Orchestra, "Invitation to the Waltz" (Weber).
San Francisco Symphony Orchestra, (a) "Serenade" (Moszkowski); (b) "Oriental" (Auber) (ED6).
6.42: Tacet.
6.45: San Francisco Symphony Orchestra, "Valse de Concert" (Glazounov).
San Francisco Orchestra, "Liebeslied" (Kreisler) (ED6).
6.57: Tacet.
7.0 : News session.
7.40: Lecturette—Mr. L. W. McCaskill, "Review of principal articles in "The Journal of Agriculture'" (under the auspices of 4YA Primary Productions Committee).
8.0 : Chimes.
Instrumental—Novelty Trio, (a) foxtrot, "A Precious Little Thing Called Love" (Cootes); (b) foxtrot, "Dance of the Paper Dolls" (Piras), (c) "waltz, "Evangeline" (Jolson).
8.10: Soprano—Miss Letti de Clifford, "My Laddie" (Thayer).
8.14: Recitals—Mr. Dall, (a) "The Younger Son" (Service), (b) "Unforgotten" (Service).

8.20: Instrumental—Novelty Trio, (a) foxtrot, "Louise" (Whiting), (b) foxtrot, "On Top of the World Alone" (Whiting), (c) foxtrot, "When My Dreams Come True" (Berlin).
8.32: Vocal duet—Miss Margaret Howden and Mr. Les Stubbs, "List to the Convent Bells" (Blockley).
8.36: Instrumental—Novelty Trio, (a) foxtrot, "The Toymaker's Dream" (Golden), (b) waltz, "A Wee Bit o' Love" (Spencer), (c) foxtrot, "Sweetheart of All My Dreams" (Lowe).
8.46: Contralto—Miss Margaret Howden, (a) "Unmmindful of the Roses" (Lohr), (b) "My Dear Soul" (Sanderson).
8.53: Baritone—Mr. Les Stubbs, "O Flower of All the World" (Woodforde-Finden).
8.57: Weather report.
8.59: Instrumental—Novelty Trio, (a) foxtrot, "Wedding Bells" (Fain), (b) foxtrot, "This is Heaven" (Akst).
9.6 : Recital—Mr. Dall, "Christmas Day at Bob Cratchit's" (Dickens).
9.13: Vocal duet—Miss Margaret Howden and Mr. Les Stubbs, "Life's Dream is O'er" (Asher).
9.17: Instrumental—Novelty Trio, waltz, "Pal of My Sweetheart Days" (Cootes).
9.20: Soprano—Miss Letti de Clifford, (a) "The Second Minuet" (Besley), (b) "One Morning Very Early" (Sanderson).
9.27: Instrumental—Novelty Trio, (a) foxtrot, "Um Tcha, Um Tcha, Da Da Da" (Blight), (b) foxtrot, "Honey" (Whiting).
9.33: "Brunswick" Dance Programme:
Foxtrot—Colonial Club Orchestra, "Walking with Susie" (Gottler).
Foxtrot—Copley Plaza Orchestra, "Old-Fashioned Lady" (Silver).
Accordion solo—Galla Rini, "Polka Brilliante" (4060).
Foxtrot—Dave Rubinoff's Orchestra, "A Garden in the Rain" (Gibbons) (4344).
Foxtrot—Colonial Club Orchestra, "That's You Baby" (Gottler) (4347)
Waltz—Dave Rubinoff's Orchestra, "Blue Hawaii" (Baer) (4344).
9.51: Tenor—Allan McQuhae, "Mother Machree" (Young) (4332).
Foxtrot—Copley Plaza Orchestra, "Dream Mother" (Lewis) (4323).
Foxtrot—Copley Plaza Orchestra, "I Never Guessed" (Vallee) (4333).
10.0 : Comedian—Sandy MacFarlane's Orchestra, "My Highland Rose" (MacFarlane) (4235).
Foxtrot—Bob Haring's Orchestra, "My Cairo Love" (Zamecnik) (4316)
Foxtrot—Copley Plaza Orchestra, "Lady of the Morning" (Messenheiner) (4333).
Waltz—Bob Haring's Orchestra, "By-and-By, Sweetheart" (Yellen).
10.12: Accordion solo—Galla Rini, "Sicily of Mine" (Tarantola) (4060).
Foxtrot—Colonial Club Orchestra, "Love Me or Leave Me" (Kahn).
Foxtrot—Hal Kemp's Orchestra, "The Things that were Made for Love" (Tobias) (4307).
10.21: Comedian—Dick Robertson, "I Kiss Your Hand, Madame" (Lewis).
Foxtrot—Hal Kemp's Orchestra, "That's What I Call Heaven" (Solman) (4307).
Waltz—Regent Club Orchestra, "Dear, When I Met You" (Brown).
Piano solo with trumpet—Lew White, "Caressing You" (Klages) (4339)
Foxtrot—Colonial Club Orchestra, "My Sin" (De Sylva) (4342).
Foxtrot—Cotton-Pickers, "Rampart Street Blues" (Robinson) (4325).
10.39: Comedian—Sandy MacFarlane, "Will You Come to Bonnie Scotland where the Blue Bell Grows?" (MacFarlane) (4235).
Foxtrot—Cotton-Pickers, "Kansas City Kitty" (Leslie) (4325).
Foxtrot—Slatz Randall's Orchestra, "I Get the Blues when it Rains" (Klauber) (4331).
Waltz—Regent Club Orchestra, "Underneath the Russian Moon" (Kendis) (4314).
10.51: Pianoforte—Lee Sims, "If I Had You" (Shapiro) (4339).
Old-time Orchestra—Blue Ridge Ramblers, (a) "Old Joe Clarke" (traditional), (b) "Golden Slippers" (traditional) (313).
11.0 : Close down.

Thursday, January 9

1YA, AUCKLAND (900 KILOCYCLES)—THURSDAY, JANUARY 9.

3.0 : Afternoon session—Selected studio items.
4.0 : Literary selection by the Announcer.
4.8 : Studio items.
5.0 : Children's session, conducted by "Peter Pan."
6.0 : Dinner session—"Columbia" Hour:
Suite—Ketelbey's Concert Orchestra, "In a Fairy Realm" (Ketelbey): (1) The Moonlit Glade; (2) The Queen Fairy Dances; (3) Gnomes March (02694/5).
6.12: Tacet.
6.15: Columbia Symphony Orchestra, "March of the Bojaren" (Halvorsen).
'Cello—Gaspar Cassado, "Melodie Arabe" (Glazounov).
New Queen's Hall Light Orchestra, "Wood Nymphs" (Coates) (02591).
6.26: Tacet.
6.30: New Queen's Hall Light Orchestra, "Summer Days" Suite (Coates): (1) In a Country Lane; (2) On the Edge of the Lake; (3) At the Dance (02590/1).
6.42: Tacet.
6.45: J. H. Squire Celeste Octet, "Memories of Mendelssohn" (arrgd. Sear).
Columbia Symphony Orchestra, "Bridal Procession" (Grieg) (02522).
6.57: Tacet.
7.0 : News and market reports.
8.0 : Chimes.
Overture—1YA Orchestral Octet, under the conductorship of Mr. Eric Waters, "Semiramis" (Rossini).
8.11: Bass—Mr. E. Green, "A Devonshire Wedding" (Phillips).
8.15: Recitals—Miss Nina Scott, (a) "The Sands o' Dee" (Kingsley); (b) "Little Mary Fawcett" (Witty).
8.22: March—1YA Orchestral Octet, "Trot de Cavalerie" (Rubinstein).
8.29: Novelty—The Asquiths, Twenty Minutes Drawing-room Entertainment.
8.49: Selection—1YA Orchestral Octet, "Night in Madrid" (Glinka).
8.59: Weather report.
9.2 : Instrumental—1YA Orchestral Octet, "Before Dawn" (O'Neill).
9.8 : Bass—Mr. E. Green, (a) "The Derelict" (Gordon); (b) "Love, Could I Only Tell Thee" (Capel).
9.15: Recital—Miss Nina Scott, "The Clown" (Walsh).
9.20: Instrumental—1YA Orchestral Octet, (a) "Carolina Moon" Waltz (Davis); (b) "Old-Fashioned Rose" (foxtrot) (Burke).
9.27: "Columbia" Dance Programme.
Foxtrot—Ben Selvin's Orchestra, "Broadway Melody" (Brown).
Foxtrot—Leo Reisman's Orchestra, "My Castle in Spain" (Friend).
Foxtrot—Broadway Nitelites, "You Were Meant for Me" (Brown).
Foxtrot—The Knickerbockers, "That's the Good Old Sunny South" (Ager) (01544).
9.42: Entertainer—Norman Long, "What Did the Village Blacksmith Say" (Squires) (01533).
Foxtrot—Ben Selvin's Orchestra, "He, She and Me" (Lombardo).
Foxtrot—Paul Whiteman's Orchestra, "Louise" (Whiting) (07022).
Foxtrot—Ipana Troubadours, "Deep Night" (Henderson) (01539).
Waltz—Paul Whiteman's Orchestra, "Blue Hawaii" (Baer) (01021).
Waltz—Paul Whiteman's Orchestra, "My Angeline" (Wayne) (07020).
10.0 : Duet—Flotsam and Jetsam, "We Never Know What to Expect" (Flotsam and Jetsam) (01530).
Foxtrot—Piccadilly Players, "Make Believe" (Kern) (01408).
Foxtrot—Jan Garber's Orchestra, "Guess Who" (Davison) (01489).
Foxtrot—Piccadilly Players, "Why Do I Love You" (Kern) (01408).
Foxtrot—Paul Specht's Orchestra, "My Annopolis and You" (Weinberg) (01539).
10.15: Organ—Frederick Curzon, "For Old Times Sake" (de Sylva) (Regal).
Foxtrot—Gil Dech's Syncopators, "My Mammy" (Lewis) (01520).
Foxtrot—Stellar Dance Band, "If I Had You" (Shapiro) (Regal).
Foxtrot—Harry Reser's Syncopators, "Here Comes the Show Boat" (Rose) (01585).
Foxtrot—Harry Reser's Syncopators, "Where Did You Get That Name?" (Klein) (01583).
10.30: Entertainer—Norman Long, "Overture 1929" (Carlton) (01533).
Foxtrot—Gelder's Kettner Five, "Shout Hallelujah 'Cause I'm Home" (Dixon) (Regal G20476).
Foxtrot—Paul Whiteman's Orchestra, "Nola" (Arndt) (07022).
Foxtrot—Stellar Dance Band, "How About Me?" (Berlin) (Regal).
Foxtrot—Gelder's Kettner Five, "Happy Days and Lonely Nights" (Rose) (Regal G20476).
Waltz—Paul Whiteman's Orchestra, 'Coquette" (Berlin) (07021).
10.48: Duet—Flotsam and Jetsam, "When I Grow Old, Dad" (Flotsam and Jetsam) (01530).
Foxtrot—Stellar Dance Band, "Flower of Love" (Dreyer) (Regal).
Foxtrot—Paul Whiteman's Orchestra, "Chinese Lullaby" (Bowers).
Waltz—Gil Dech's Syncopators, "I'll Always be in Love with You" (Ruby) (01520).
Waltz—Stellar Dance Band, "Marie" (Berlin) (Regal G20486).
11.0 : Close down.

2YA, WELLINGTON (720 KILOCYCLES)—THURSDAY, JANUARY 9.

3.0 : Chimes. Selected gramophone items.
3.30: Lecturette—Miss Flora Cormack, "Hollywood Styles in New Evening Gowns and Fur Coats."
3.40: Selected gramophone items.
5.0 : Children's session conducted by Aunt Gwen.
6.0 : Dinner session—"Parlophone" Hour:
Overture—Grand Symphony Orchestra, "Zampa" (Herold) (A4020).
Waltz—Dajos Bela Orchestra, "Morgen blatter" (Strauss) (4038).
6.12: Tacet.
6.15: Orchestra of the Opera Comique, Paris, "Scenes Pittoresques" (Massenet) (A4047).
Waltz—Edith Lorand Orchestra, "Vienna Waltz" (Drdla) (E10531).
6.27: Tacet.
6.30: Waltz—Dajos Bela Orchestra, "Marien Klange" (Strauss) (A4038).
Dajos Bela Orchestra, "Ideale" (Tosti) (A4015).
Waltz—Edith Lorand Orchestra, "Merry Vienna" (Zishrer) (E10531).
6.42: Tacet.
6.45: Waltz—Edith Lorand Orchestra, "Song of Autumn" (Waldteufel).
March—Queenie and David Kaili, "Hawaiian March" (Ellis) (A2372).
Valse intermezzo—Edith Lorand Orchestra, "The Flowers' Dream" (Translateur) (E10570).
Selection—H.M. Irish Guards Band, "The Desert Song" (Romberg).
6.57: Tacet.
7.0 : News session, market reports and sports results.
7.40: Lecturette—Mr. A. J. Nicholls, Representative Hutt Valley Horticultural Society, "Spraying."
8.0 : Chimes. Studio concert by Wellington City Silver Band, and assisting artists:
March—Band, "Dawn of Freedom" (Rimmer)
Selection—Band, "Bohemian Girl" (Balfe).

8.16: Tenor—Mr. Chas. Williams, (a) "Wait" (D'Hardelot), (b) "Sunday" (Brahms).
8.22: Baritone—Mr. Will Goudie, (a) "Achal by the Sea" (Lawrence), (b) "Tommy Lad" (Margetson).
8.29: Descriptive selection—Band, "A Sailor's Memories" (Hawkins).
8.39: Recital—Miss M. E. Quin, "The Highwayman" (Noyes).
8.45: Vocal quartet—Lyric Quartet, "Spin, Spin" (Jungst).
8.49: Wurlitzer organ—Jesse Crawford, "I Love to Hear You Singing" (Haydn Wood) (H.M.V. EA585).
8.52: Soprano—Mrs. Dorothy Ross, "A Summer Night" (Goring Thomas).
8.56: Waltz—Band, "Over the Waves" (Greenwood).
9.2 : Weather report.
9.4 : Orchestral with chorus—Nat Shilkret and Salon Group, "Stephen Foster Melodies" (H.M.V. C1657).
9.12: Bass—Mr. W. Binet Brown, (a) "Out of the Deep" (Lohr), (b) "A Devonshire Wedding" (Phillips).
9.19: March—Band, "The Middy" (Alford).
Selection—Band, "La Militaire" (Raymond).
9.34: Humour—Miss M. E. Quin, "The Little Hatchet Story" (Anon.).
9.41: Vocal quartet—Lyric Quartet, "Simple Simon" (Macey).
9.45: Reverie—Band, "Bells of Sunset" (Mackenzie).
9.53: Soprano—Mrs. Dorothy Ross, (a) "Only the River Running By" (Hopkins), (b) "A Dream" (Bartlett).
10.0 : March—Band, "Victoria" (Lithgow).
10.4 : Close down.

3YA, CHRISTCHURCH (980 KILOCYCLES), THURSDAY, JANUARY 9.

3.0 : Afternoon session—Selected studio items.
5.0: Children's sssion, conducted by Uncle Frank.
6.0: Dinner session—His Master's Voice hour:
Royal Albert Hall Orchestra, "Carmen—Prelude Act I" (Bizet).
National Symphony Orchestra—"Sylvia Ballet—Cortege de Bacchus" (Delibes) (EB24).
Organ—Reginald Foort, "Schon Rosmarin" (Kreisler) (B2664).
6.12: Tacet.
6.15: Marek Weber's Orchestra—"L Tosca" Selection (Puccini) (C1413).
National Symphony Orchestra, "La Traviata—Prelude" (Verdi).
6.27: Tacet.
6.30: Selection—National Symphony Orchestra, "Bohemian Girl" (Balfe).
Royal Albert Hall Orchestra—"Carmen—Prelude Act II" (Bizet).
Organ—Reginald Foort, "A Brown Bird Singing" (Haydn Wood).
6.42: Tacet.
6.45: National Symphony Orchestra—"Aida" (Verdi) (Zonophone A340).
Selection—H.M. Coldstream Guards Band, "H.M.S. Pinafore" (Sullivan) (C1283).
6.57: Tacet.
7.0: News session.
7.30: Talk to farmers—"The Proper Stage for Cutting Wheat," Mr. W. J. Calder, M.Sc., B.Ag. (arranged by 3YA Primary Productions Committee).
8.0: Chimes.
Suite—Studio Instrumental Octet, under the conductorship of Mr. Harold Beck, "St. Paul's Suite" (Holst): (1) Jig; (2) Ostinato.
8.10: Mezzo-soprano—Miss Anita Graham, "Hushed is My Lute" (Phillips).
8.14: Pianoforte—Miss Lucy Fullwood, "Valse Caprice" (Pausig).
8.22: Baritone—Mr. Fred. A. Bullock, "The King of Thule" (Liszt).
8.26: Flute Quartet—London Flute Quartet, "Scotch and Irish Airs" (arr. Stainer) (Columbia 4155).
8.29: Soprano—Miss Agnes Cunningham, (a) "Allah" (Hue); (b) "To the Birds" (Kramer).
8.33: Suite—Studio Instrumental Octet, "St. Paul's Suite" (Holst); (1) Intermezzo; (2) Finale—The Dargason.
8.44: Tenor—Mr. Sydney Andrews, (a) "Allah be With Us" (Woodforde-Finden); (b) "Where the Abana Flows" (Woodforde-Finden).
8.50: Soprano and mezzo-soprano duet—Lido Duo, "Song of the Birds" (Rubenstein).
8.53: Instrumental—Studio Instrumental Octet, (a) "First Symphony—Second Movement" (Beethoven); (b) "Turkish March" ("Ruins of Athens") (Beethoven).
8.59: Weather report.
9.1: Male choir—Don Cossacks, "Three Folk Songs" (arr. Dobrowsen).
9.5: Mezzo-soprano—Miss Anita Graham, (a) "Morning Song" (Quilter); (b) "Recompense" (Sanderson).
9.11: Pianoforte—Miss Lucy Fullwood, "Polichenelle" (Rachmaninoff).
9.17: Baritone—Mr. Fred. A. Bullock, (a) "Fill a Glass with Golden Wine" (Quilter); (b) "Damask Roses" (Quilter); (c) "Brown is My Love" (Quilter).
9.23: Instrumental—Studio Instrumental Octet, "En tr'acte and Mazurka" (Delibes).
9.30: Soprano—Miss Agnes Cunningham, "Louise" (Charpentier).
9.34: Instrumental trios—Cherniavsky Trio, (a) "Quartet in E—Minuet" (Boccherini-Hermann); (b) "By the Waters of Minnetonka" (Lieurance) (Columbia 0845).
9.40: Tenor—Mr. Syd. Andrews, "Oh, 'Tis a Glorious Sight to See" (Weber).
9.44: Studio Instrumental Octet—"Three Dale Dances" (Wood).
9.54: Soprano and contralto duet—Lido Duo, "Nearest and Dearest" (Luigi).
9.57: Male Quartet—Seiberling Singers, "A Japanese Sunset" (Deppen).
10.0: Close down.

4YA, DUNEDIN (650 KILOCYCLES), THURSDAY, JANUARY 9.

SILENT DAY.

Friday, January 10

1YA, AUCKLAND (900 KILOCYCLES), FRIDAY, JANUARY 10.

3.0 : Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Studio items.
5.0: Children's session, conducted by Nod and Aunt Jean.
6.0: Dinner session—His Master's Voice hour:
Suite—London Symphony Orchestra, "Czar Sultan" Suite (Rimsky-Korsakov) (D1491).
Waltz—International Concert Orchestra, "Waltz Dream" (Strauss).
6.12: Tacet.
6.15: Suite—New Light Symphony Orchestra, "Peer Gynt" Suite (Grieg): (1) Ingrid's Lament; (2) Arabian Dance (C1571).
New Light Symphony Orchestra, "Prelude in G Minor" (Rachmaninoff) (Zonophone EF24).
6.27: Tacet.
6.30: Suite—New Light Symphony Orchestra, "Peer Gynt" Suite (Grieg): (1) Return of Peer Gynt; (2) Solveig's Song (C1572).
New Light Symphony Orchestra, "Prelude in C Sharp Minor" (Rachmaninoff (Zonophone EF24).
6.42: Tacet.
6.45: Philadelphia Symphony Orchestra, "Danse Orientale" (Glazounov).
Waltz—International Concert Orchestra, "Sari" (Kalman) (Zon.).
March—Philadelphia Symphony Orchestra, "March of the Caucasian Chief" (Ippolitoff-Iwanoff) (E521).
6.57: Tacet.
7.0: News and market reports.
8.0: Chimes.
Relay of concert from Lewis Eady Hall.
8.31: Symphony Orchestra, "Love, the Magician" (De Falla) (D1453).
8.35: Contralto—Miss Nellie Lingard, "Verdi Prati" (Handel).
8.39: Selection—Studio Trio, "L'Enfant Prodique" (Wormser).
8.47: Soprano—Dusolina Giannini, "Ungeduld" (Schubert (H.M.V. DB1265).
8.51: Pianoforte—Miss Margot St. L. Toner, "Reverie" (Debussy).
8.56: Bass-baritone—Mr. Frank Sutherland, "Don't Marry Monday" (Richards).
9.0: Weather report.
9.2: Choral—Westminster Abbey Choir, "Exsurge Domine" (Byrd, arr. Fellowes) (H.M.V. C1678).
9.6: Pianoforte—Miss Margot St. L. Toner, "Chromatic Fantasia and Fugue" (Bach).
9.13: Contralto—Miss Nellie Lingard, (a) "Evening Boat Song" (Schubert); (b) "Serenade" (Gounod).
9.20: Violin—Miss Ina Bosworth, "Concerto—Slow Movement" (Mendelssohn).
9.27: Organ—W. G. Alcock, "Reverie" (Lemare) (H.M.V. C1376).
9.31: Bass-baritone—Mr. Frank Sutherland, (a) "The Jolly Beggar" (Dear); (b) "Love Me or Not" (Secchi).
9.38: 'Cello—Miss M. Wright, (a) "Traumerei" (Schumann); (b) "Allegretto" (Wolstenholme).
9.44: Soprano—Dusolina Giannini, "Allerseelen" (Strauss) (DA1029).
9.47: Instrumental—Studio Trio, "L'Arlesienne" (Bizet).
9.54: St. Louis Symphony Orchestra, "Fingal's Cave" Overture (Mendelssohn (H.M.V. D1299).
10.2 : Close down.

2YA, WELLINGTON (720 KILOCYCLES)—FRIDAY, JANUARY 10.

3.0 : Chimes. Selected gramophone items.
5.0: Children's session conducted by Big Brother Jack.
6.0: Dinner Session—"His Master's Voice" Hour:
New Light Symphony Orchestra, "Merry Wives of Windsor" (Nicolai).
Waltz—Marek Weber's Orchestra, "Moonlight on the Alster" (Fetras).
6.12: Tacet.
6.15: Intermezzo—New Light Symphony Orchestra, "Hearts and Flowers" (Tobani), (Zonophone EF20).
Waltz—Marek Weber's Orchestra, "Wine, Women and Song" (Weber).
Wurlitzer Organ—Reginald Foort, "By the Blue Hawaiian Waters" (Ketelbey), (C1459).
6.26: Tacet.
6.30: New Light Symphony Orchestra, "The Glow Worm Idyll" (Lincke).
Victor Salon Orchestra, "Indian Love Call" ("Rose Marie"), (Friml).
Victor Salon Orchestra, "The World is Waiting for the Sunrise" (Lockhart), (EA186).
Novelty—Balalaika Orchestra, "Song of the Volga Boatmen" (Russian folk song), (EA48).
6.43: Tacet.
6.45: De Groot's Orchestra, "The Merry Widow" (Lehar), (B2945).
Wurlitzer organ—Reginald Foort, (a) "Leave Me Alone" (Dvorak); (b) "Songs My Mother Taught Me" (Dvorak), (C1459).
6.57: Tacet.
7.0: News session, market reports and sports results.
7.40: Lecturette—Mr. J. W. Fergie, N.Z. Railways, "Excursions by Rail."
8.0: Chimes.
Overture—2YA Orchestrina, under the conductorship of Signor Truda, "William Tell" (Rossini).
8.10: Tenor—Mr. Will Hancock, "The First Rose of Summer" (Kern).
8.14: Contralto—Mrs. Ray Kemp, "Kalua" (Kern).
8.18: Band of the Garde Republicaine of France, "Carmen—Entr'acte" (Bizet), (Columbia 02747).

8.26: Soprano—Miss Gretta Stark, "Dancing Time" (Kern).
8.30: Recital—Mr. Errol Muir, "Ocean's Own" (Lawson).
8.37: Selection—2YA Orchestrina, "Carmen" (Bizet).
8.45: Vocal duet—Mr. and Mrs. Ray Kemp, "Journey's End" (Kern).
8.49: Tenor—Mr. Will Hancock, "At the Ball" (Kern).
8.53: Selection—2YA Orchestrina, "The Spring Maid" (Reinhardt).
9.1: Weather report.
9.3: Vocal duet—Miss Gretta Stark and Mr. Will Hancock, "Shimmy With Me" (Kern).
9.7: Chorus—Light Opera Company, vocal gems from "Lilac Time" (Schubert-Clutsam), (Columbia 02823).
9.15: Selection—2YA Orchestrina, "The Earl and the Girl" (Barfatt).
9.25: Humour—Mr. Errol Muir, "The Thriller" (Arthur).
9.32: Vocal duet—Mr. and Mrs. Ray Kemp, "Looking All Over for You" (Kern).
9.36: 'Cello—W. H. Squire, "Melody in F" (Rubinstein-Popper).
9.40: Vocal duet—Messrs. Hancock and Ray Kemp, "Forgive Me if I Speak" (Kern).
9.44: Baritone and chorus—Mr. Ray Kemp and Etude Quartet, "London, Dear Old London" (Kern).
9.48: Chorus—Etude Quartet, "Dancing Time" (Kern).
9.52: Concert Waltz—2YA Orchestrina, "Pluie D'or" (Waldteufel).
10.0: Close down.

3YA, CHRISTCHURCH (980 KILOCYCLES)—FRIDAY, JANUARY 10.

2.15: Relay from Lancaster Park of Cricket Match—First Test Match, England v. New Zealand, interspersed with selected gramophone items.
5.0: Children's session conducted by Mr. Storyman.
6.0: Dinner session—"Columbia" Hour:
Ketelbey's Concert Orchestra, "In a Persian Market" (Ketelbey).
Violin—Efrem Zimbalist, "Liebeslied—Old Vienna Waltz" (Kreisler).
6.12: Tacet.
6.15: Morceau—Plaza Theatre Orchestra, "The Busy Bee" (Bendix).
Dance—Plaza Theatre Orchestra, "My Lady Dainty" (Hesse).
J. H. Squire Celeste Octet, "La Serenata" (Braga), (9116).
Cinema organ—G. T. Pattman, "Firefly" (Nicholls), (01348).
6.27: Tacet.
6.30: Columbia Symphony Orchestra. "March of the Toys" (Herbert).
Waltz—New Concert Orchestra, "Hydropaten" (Gungl), (02672).
Violin—Efrem Zimbalist, "Zapateado" (Sarasate), (04221).
6.42: Tacet.
6.45: Waltz—New Concert Orchestra, "Jolly Fellows" (Bruder), (02672).
J. H. Squire Celeste Octet, "Serenade" (Titl), (9116).
Waltz—Eddie Thomas' Collegians, "Beautiful Ohio" (Earl), (02651).
6.56: Tacet.
7.0: News session.
8.0: Chimes.
Overture—Kauffman's Orchestra, "The Gypsy Baron" (Strauss).
8.9: Vocal quartet—Valencia Quartet, "The Lass of Richmond Hill" (Trdtl).
8.13: Guitar and piano—Roy Smeck and Art Khan, "Itching Fingers" (Robison), (Zonophone EE119).
8.16: Bass—Mr. E. J. Johnson, "The Norseman's Song" (Allitsen).
8.20: Dance music—Bailey-Marston Dance Orchestra, "I'm Just a Vagabond Lover" (Franco).
8.24: Soprano—Miss Lucy Fullwood, "Youth and Spring" (Steele).
8.27: Tenor—Mr. T. G. Rogers, "Roses" (Adams).
8.30: Dance music—Bailey-Marston Dance Orchestra, "Mean to Me" (Ahlert).
8.34: Contralto—Miss Mary Taylor, "Love's Old Sweet Song" (Molloy).
8.39: Selection—Band of H.M. Coldstream Guards, "H.M.S. Pinafore" (Sullivan), (H.M.V. C1283).
8.47: Tenor and bass duet—Valetta Duo. "Love and War" (Cooke).
8.51: Dance music—Bailey-Marston Dance Orchestra: (a) "The Desert Song" (Romberg); (b) "Dream Mother" (Burke).
8.59: Weather report.
9.1: Bass—Mr. E. J. Johnson "The Deathless Army" (Trotere).
9.5: Vocal quartet—Valencia Quartet, "When the Heart is Young" (Buck).
9.9: Humour—Wish Wynne, "A Bedtime Story" (Wynne), (H.M.V. B2720).
9.15: Mezzo-soprano, Miss Lucy Fullwood, "Laugh and Sing" (Drummond).
9.18: Dance music—Bailey-Marston Dance Orchestra: (a) "Shoo Shoo, Boogie Boo" (Whitney); (b) "The Boomerang" (David).
9.26: Tenor—Mr. T. G. Rogers, "The Garden I Fashioned for You" (Oliver).
9.30: Dance Music—Bailey-Marston Dance Orchestra: (a) "Outside" (Flynn); (b) "I Wanna Go Places and Do Things" (Whiting).
9.38: Contralto—Miss Mary Taylor: (a) "The Little Silver Ring" (Chaminade); (b) "Coming Home" (Willeby).
9.45: Dance music—Bailey Marston Dance Orchestra: (a) "Walking with Susie" (Gottler); (b) "Pagan Love Song" (Brown).
9.53: Vocal quartet—Valencia Quartet, "John Peel" (Williams).
9.57: Dance music by the Bailey-Marston Dance Orchestra:
"Jericho" (Myers).
"Sweethearts on Parade" (Lombardo).
"This is Heaven" (Yellen).
"Ever So Goosey" (Wallace).
"Breakaway" (Gottler).
"Broadway Melody" (Brown).
"You Were Meant For Me" (Brown).
"Baby" (McHugh).
"The Toymaker's Dream" (Golden).
"That's You, Baby" (Gottler).
Dance music by the Bailey-Marston Dance Orchestra until 11 p.m.
11.0: Close down.

4YA, DUNEDIN (650 KILOCYCLES)—FRIDAY, JANUARY 10.

3.0: Town Hall chimes.
3.1: Selected gramophone items.
4.25: Sports results to hand.
5.0: Children's session, conducted by Aunt Sheila.
6.0: Dinner session—"His Master's Voice" Hour:
Piccadilly Orchestra—(a) "My Beloved Gondolier" (Tibor), (b) "Souvenir de Capri" (Becce), B2575).
New Light Symphony Orchestra, "Just a Memory" (De Sylva), (EB18).
Violin and cinema organ—Elsie Southgate, "I Hear You Calling Me" (Marshall), (Zonophone 5109).
6.12: Tacet.
6.15: Waltzes—Marek Weber's Orchestra, "Pot-pourri of Waltzes" (Robrecht), (C1544).
Waltz—Hilo Hawaiian Orchestra, "Sweet Hawaiian Dream Girl" (Williams), (Zonophone EE156).
6.26: Tacet.
6.30: New Light Symphony Orchestra, "Scene de Ballet Marionettes" (Glazounov), (B2754).
Violin and cinema organ—Elsie Southgate, "Rose in the Bud" (Tate), (Zonophone 5109).
New Light Symphony Orchestra, "Persiflage" (Francis), (B2754).
Jack Hylton's Orchestra, "When the White Elder Tree Blooms Again" (Doelle), (C1616).
6.44: Tacet.
6.45: Salon Orchestra, "My Blue Heaven" (Whiting), (EF18).
Waltz—Hilo Hawaiian Orchestra, "Sleepy Honolulu Town" (Earl), (Zonophone EE156).
Jack Hylton's Orchestra, "I Kiss Your Hand, Madame" (Erwin).
6.56: Tacet.
7.0: News session.
8.0: Town Hall chimes.
Overture—Philadelphia Symphony Orchestra, "Rienzi" (Wagner), (H.M.V. ED3/4).
8.13: Soprano—Miss D. Sligo, (a) "The Cuckoo Clock" (Grant-Schaefer), (b) "L'Ete" (Chaminade).
8.19: Recital—Mr. Angus Corrie, "Young Poets Lost to England During the Great War."
8.34: Instrumental—4YA Broadcasting Trio, "Trio in G Major" (Mozart).
8.46: Contralto—Miss Madge Clague, (a) "Buy My Strawberries" (Oliver), (b) "The Nightingale of Lincoln's Inn" (Oliver), (c) "Sea Wrack" (Harty).
8.56: Pianoforte solo—Mrs. Ernest Drake, "Sonata Op. 31 No. 3" (Beethoven).
9.1: Weather report.
9.2: Instrumental—4YA Broadcasting Trio, (a) "The Mill" (Raff), (b) "Menuet No. 1" (Ramian), (c) "Menuet No. 11" (Ramian).
9.7: Baritone—Mr. W. Hilliker, (a) "When the King Went Forth to War" (Kolnewan), (b) "The Ragged Vagabond" (Randolph).
9.14: 'Cello—Mr. Phil Palmer, "Scherzo" (Tabb).
9.20: Male quartet—The Revellers, "Wake Up, Chill'un, Wake Up" (Robison), (H.M.V. EA609).
9.23: Soprano—Miss D. Sligo, "Hark, Hark, the Lark" (Schubert).
9.27: Instrumental—4YA Broadcasting Trio, (a) "Anitra's Dance" (Grieg), (b) "Why?" (Schumann).
9.32: Chorus—Russian State Choir, "Storm on the Volga" (Pastschenko), (H.M.V. C1498).
9.40: Piano—Mrs. Ernest Drake, "Ballade in G Major" (Brahms).
9.44: Instrumental—4YA Broadcasting Trio, "Valse des Fleurs" (Tschaikowsky).
9.51: Baritone—Mr. W. Hilliker, "Why Do the Nations" (Handel).
9.55: Selection—Piccadilly Orchestra, "The Waltz Dream" (Strauss), (H.M.V. B2684).
10.1: Close down.

Saturday, January 11

1YA, AUCKLAND (900 KILOCYCLES)—SATURDAY, JANUARY 11.

3.0: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Studio items.
4.25: Sports results to hand.
5.0: Children's session, conducted by Cinderella.
6.0: Dinner session—"Columbia" Hour:
Selection—Court Symphony Orchestra, "The Windmill Man" (02909).
J. H. Squire Celeste Octet, "Scene de Ballet" (de Beriot), (02937).
Halle Orchestra, "Hungarian Dance No. 5 in G Minor" (Brahms).
6.13: Tacet.
6.15: Plaza Theatre Orchestra; "The Three Bears" (Phantasy), (Coates).
J. H. Squire Celeste Octet, "A Vision of Christmastide" (Harrison).
6.27: Tacet.

6.30: Regimental Band of H.M. Grenadier Guards, "La Benediction des Poignards" (Meyerbeer), (02931).
Bournemouth Municipal Orchestra, "Echoes of the Valley" (Gennin).
J. H. Squire Celeste Octet, "Symphonie Pathetique—Second Movement" (Tschaikowsky, arrgd. Robertson), (02937).
Halle Orchestra—"Hungarian Dance No. 6 in D" (Brahms), (01677).
6.43: Tacet.
6.45: Bournemouth Municipal Orchestra, "The Merry Brothers" (Gennin).
Regimental Band of H.M. Grenadier Guards, "Lo, Here the Gentle Lark" (Bishop, arrgd. Godfrey), (02931).
Herman Finck's Orchestra, "Christmas Memories" (Arrgd. Finck).
6.59: Tacet.
7.0: News and information—Market reports.
8.0: Chimes.
Overture—1YA Orchestra Octet, under the conductorship of Mr. Eric Waters, "Egmont" (Beethoven).
8.11: Humour—Mr. O. M. Pritchard, "Phanciphul Phun."
8.16: London Mouth-organ Band, "The Return" (Leslie), (Regal G20564).
8.19: Vocal quartet—Shannon Quartet, "The Quilting Party" (Trdtl., arrgd. Bowers), (Regal G20521).
8.22: Novelty—Bohemian Duo, (a) "Happy Days and Lonely Nights" (Davis), (b) "Beloved" (Kahn).
8.30: Instrumental—1YA Orchestral Octet, "Schubert's Sketch Book" (Arrgd. Erbacht).
8.39: Soprano—Miss Freda Gaudin, "Down in the Forest" (Landon Ronald).
8.43: Humour—Charles Penrose and Bryan Glennie, "The Dog and the Cornet" (Grey), (Regal G20395).
8.47: Instrumental—1YA Orchestral Octet, "Russian Dances No. 3 and 4" (Bortkiewicz).
8.56: Weather report.
8.59: Soprano solo—Doris Vane, "Love the Pedlar" (German), (Columbia).
9.3: Novelty—Bohemian Duo, (a) "Blue Hawaii" (Baer), (b) "Pagan Love Song" (Friend).
9.12: Concerted, Miniature Musical Comedy, "The Balcony Girl" (Simpson), (Columbia 02878).
9.20: Soprano—Miss F. Gaudin, (a) "Song of Florian" (Godard), (b) "Just a Quiet Little Spot" (Penn).
9.27: Instrumental—1YA Orchestral Octet, "Shiver My Timbers" (Elliott-Smith).
9.37: Pianoforte solo—Turner Layton, "Piano Medley of Layton and Johnstone Successes" (Columbia 02881).
9.41: Humour—Mr. O. M. Pritchard, "Mhor Phanciphul Phun."
9.48: Selection—1YA Orchestral Octet, "Madame Pompadour" (Fall).
9.58: "Columbia" Dance Programme:
Fox-trot—Ipana Troubadours, "Building a Nest for Mary" (Greer).
Slow fox-trot—Piccadilly Players, "Bogey Wail" (Wallace), (01567).
Fox-trot—Ipana Troubadours, "I Used to Love Her in the Moonlight" (Fiorito), (01617).
Waltz—Rhythmic Troubadours, "My Irish Paradise" (Tilsley), (Regal G20559).
10.12: Vocal duet—Layton and Johnstone, "Lady Divine" (Shilkret), (01658).
Fox-trot—Piccadilly Players, "I'll Always be Mother's Boy" (Green).
Fox-trot—Paul Whiteman's Orchestra, "When My Dreams Come True" (Berlin), (07024).
Fox-trot—Piccadilly Players, "There'll be You and I" (Green).
Fox-trot—Piccadilly Players, "I'm Tickled to Death I'm Me" (Butler).
10.27: Cinema organ—Regal Cinema Organ, "Long Ago" (Elliott), (Regal).
Fox-trot—Lou Gold's Orchestra, "Reaching for Someone" (Leslie).
Fox-trot—Lou Gold's Orchestra, "Walking With Susie" (Gottler), (Regal G20528).
Fox-trot—Bert Lown's Loungers, "Big City Blues" (Gottler), (Regal).
Waltz—Cafe Royal Band, "Forever" (Yellen), (Regal G20551).
Waltz—The Cavaliers, "My Dear" (Kahn), (01646).
10.43: Vocal solo—Ruth Etting, "You're the Cream in My Coffee" (De Sylva).
Fox-trot—Paul Whiteman's Orchestra, "S'posin'" (Razaf), (07027).
Fox-trot—Piccadilly Players, "My Mother's Eyes" (Baer), (01646).
Fox-trot—Paul Whiteman's Orchestra, "Laughing Marionette" (Collins), (07027).
Fox-trot—Lou Gold's Orchestra, "Breakaway" (Gottler), (Regal)
11.0: Close down.

2YA, WELLINGTON (720 KILOCYCLES), SATURDAY, JANUARY 11.

3.0: Chimes. Selected gramophone items.
5.0: Children's session, conducted by Uncle Toby and Aunt Gwen.
6.0: Dinner session—Columbia hour:
Royal Italian Band, "Marcia Reale" (Gabetti) (01182).
Court Symphony Orchestra, "In Venice" (Sellars) (896).
Kinema organ—Stanley MacDonald, "Was it a Dream?" (Coslow).
Royal Italian Band, "Garibaldi's Hymn" (Olivieri) (01182).
6.12: Tacet.
6.15: Ketelbey's Concert Orchestra, "Sanctuary of the Heart" (Ketelbey).
'Cello—W. H. Squire, "Melody in F" (Popper) (04178).
6.26: Tacet.
6.30: W. H. Squire's Celeste Octet, "Mignon" (1) Introduction and Romance; (2) Polonaise (Thomas) (02749).
Cello—W. H. Squire, "Silver Threads Among the Gold" (Danks, arr. Squire) (04178).
6.42: Tacet.
6.45: Band of H.M. Grenadier Guards, "Turkish Patrol" (Michaelis) (4111).
Kinema organ—Stanley MacDonald, "Nicolette" (Batten) (Regal).
Waltz—Jacque Jacobs's Ensemble, "Vienna Life" (Strauss).
Idyll—H.M. Grenadier Guards Band, "Smithy in the Woods" (Michaelis) (4111).
6.58: Tacet.
7.0: News session, market reports, and sports results.
8.0: Chimes.
Overture—2YA Salon Orchestra, under the conductorship of Mr. M. T. Dixon, "Potted Overture" (Engleman).
8.10: Vocal quartet—Melodie Four, "Last Night" (Kjerulf).
8.18: Hawaiian—Golden Hula Quartet, (a) "Hula" (traditional); (b) "Hawaiian Love" (Lopez).
8.25: Popular songs at piano—Mr. Billy Hart, (a) "Pagan Love Song" (Brown); (b) "Singin' in the Rain" (Brown); (c) "Your Mother and Mine" (Edwards).
8.35: Instrumental—2YA Salon Orchestra, (a) "A Perfect Day" (Carrie Jacobs-Bond); (b) "Parade of the Tin Soldiers" (Jessel).
8.43: Humorous sketch—Messrs. Cedric Gardiner and Peter Dorrian, "The Hat Trick" (Peach).
8.50: Contralto—Mrs. Agnes Lewis, "Meadow Sweet" (Brahe).
8.54: Instrumental—2YA Salon Orchestra, request number.
9.2: Weather report.
9.4: Baritone—Mr. R. S. Allwright, "The Tar's Farewell" (Adams).
9.8: Vocal quartet—Melodie Four, request number.
9.12: Musical comedy selection, 2YA Orchestrina, "No, No, Nanette" (Youmans).
9.20: Humorous sketch—Messrs. Cedric Gardiner and Peter Dorrian, "While You Wait" (Peach).
9.27: Hawaiian instrumental—Golden Hula Quartet, (a) "Imi Au Ia Oe" (King's Serenade) (Kalakaua); (b) "Isles of Aloha" (Dietrich).
9.34: Tenor—Mr. Frank Bryant, (a) "Here in the Quiet Hills" (Carne); (b) "Thoughts" (Fisher).
9.40: Contralto—Mrs. Agnes Lewis, "Five Little Piccaninnies" (Anthony).
9.44: Pianoforte duet—Victor Arden and Phil Ohman, "Fashionette" (Glogau) (H.M.V. EA529).
Instrumental novelty—Shilkret's Rhythm Melodists, "Sweet Nothing" (Rettenberg) (H.M.V. EA529).
9.50: Bass—Mr. W. W. Marshall, "Gypsy Dan" (Russell).
9.54: Vocal quartet—Melodie Four, "I Wish I Had My Old Pal Back Again" (Wallace).
9.58: Instrumental—Orchestra, dance novelties.
10.8: Brunswick dance programme:
Fox-trot—Brunswick Orchestra, "I'd Rather Be Blue" (Rose).
Fox-trot—Red Nicholls's Five Pennies, "I Never Knew" (Kahn).
Fox-trot—Brunswick Orchestra, "My Man" (Pollack) (4213).
Vocal solo—Nick Lucas, "Heart o' Mine" (Rose) (4215).
Fox-trot—Los Angeles Biltmore Hotel Orchestra, "Wedding of the Painted Doll" (Brown (4232).
Fox-trot—Biltmore Hotel Orchestra, "Broadway Melody" (Brown).
Waltz—Biltmore Hotel Orchestra, "Love Boat" (Brown) (4232).
Vocal solo—Nick Lucas, "Old Timer" (Rose) (4215).
Fox-trot—Biltmore Hotel Orchestra, "You Were Meant for Me" (Brown) (4231).
Fox-trot—Jungle Band, "Tiger Rag" (La Rocca) (4238).
Tenor—William O'Neal, "Softly, as in a Morning Sunrise" (Romberg) (4208).
Royal Creolians, "It's Tight Like That" (Dorsey) (4244).
Fox-trot—Paramount Hotel Orchestra, "I'll Never Ask for More" (Turk) (4203).
Fox-trot—Hotel Roosevelt Orchestra, "I Want to Be Bad" (De Sylva) (4204).
One-step—Rhythm Aces, "Jazz Battle" (Smith) (4244).
Tenor—William O'Neal, "Stout-hearted Men" (Romberg) (4208).
Fox-trot—Paramount Hotel Orchestra, "When the World is at Rest" (Davis) (4203).
Fox-trot—Hotel Roosevelt Orchestra, "Button Up Your Overcoat" (De Sylva) (4204).
Fox-trot—Red Nicholls's Five Pennies, "Who's Sorry Now?" (Kalmar).
11.0: Close down.

3YA, CHRISTCHURCH (980 KILOCYCLES), SATURDAY, JANUARY 11.

2.15: Relay description of cricket match from Lancaster Park—England versus New Zealand Test match.
5.0: Children's session, conducted by Aunt Pat and Brother Bill.
6.0: Dinner session—Parlophone hour:
Fantasia—Edith Lorand Orchestra, "Johann Strauss" Fantasia (Strauss) (A4044).
Piano and Orchestra—Raie da Costa and Orchestra, "When Day is Done" (De Sylva) (A4041).
6.12: Tacet.
6.15: Hawaiian—David Kaili, "Honolulu March" (A2464).
Kinema organ—Leslie Harvey, "Where the Shy Little Violets Grow" (Warren) (A2695).
Waltz—Dajos Bela Orchestra, "The Grenadiers" (Waldteufel).
Saxophone—Arnold Brilhart, "Fascination" (Bernie) (A2676).
6.28: Tacet.
6.30: Waltz—Dajos Bela Orchestra, "Polish Life" (Nedbal) (A4008).
Piano and orchestra—Raie da Costa and Orchestra, "Sweetheart, I'm Dreaming of You" (Carter) (A4041).
Dajos Bela Orchestra, "Dancing Demoiselle" (Fall) (A4008).
6.42: Tacet.
6.45: Selection—Edith Lorand Orchestra, "Dollar Princess" (Fall).
Waltz—Dajos Bela Orchestra, "Casino Tanze" (Gungl) (A4081).
6.57: Tacet.

7.0: News and information session.
8.0: Chimes.
8.1: Dances—Studio Instrumental Quintet, under the conductorship of Mr. Harold Beck, "Characteristic Waltzes" (Coleridge-Taylor): (1) Bohemienne; (2) Rustique; (3) De la Reine.
8.11: Happy songs at piano with ukulele—Melody Maids, (a) "The Song I Love" (De Sylva); (b) "That's You, Baby" (Conrad).
8.18: Organ—G. T. Pattman, "Cherie Waltz" (Valentine) (Col. 01344).
8.21: Popular songs—Mr. Leslie Stewart, (a) "The Desert Song" (Romberg); (b) "Hats off to the Stoker" (Arundale).
8.28: Instrumental—Studio Instrumental Octet, (a) "Rasaura" (Burgmein); (b) "Coquette" (Arensky).
8.38: Soprano—Mrs. B. Sluis, "Love's a Merchant" (Molly Carew).
8.42: Humour—Mr. H. Instone, "A Trip into the Backblocks" (own arrgmt.).
8.50: Instrumental—Studio Instrumental Octet, (a) "At Dawning" (Cadman); (b) "Valse Mauresque" (Coleridge-Taylor).
8.58: Tenor—Mr. Wm. J. Bischlager, "Ailsa Mine" (Newton).
9.2: Weather report.
9.4: Organ—G. T. Pattman, "Worryin' Waltz" (Fairman) (Col. 01344).
9.7: Happy songs at piano with ukulele—Melody Maids, (a) "Honey" (Simons); (b) "There's a Rainbow 'Round My Shoulder" (Jolson).
9.14: Instrumental—Studio Instrumental Octet, "Plantation Holiday" (Seebold).
9.24: Popular songs—Mr. Leslie Stewart, "That's How the World Was Made" (Nicholls).
9.28: Xylophone solo—Rudy Starita, "Minuet" (Paderewski) (Col. 01143).
9.31: Soprano—Mrs. B. Sluis, (a) "Early One Morning" (Old English), (b) "March Winds" (Mead).
9.37: Instrumental—Studio Instrumental Octet, "Spanish Serenade" (Friml).
9.42: Humour—Mr. H. Instone, "Married Men" (own arrgmt.).
9.48: Saxophone solo—Andy Sanella, "Jack and Jill" (Sanella), (Columbia).
9.54: Tenor—Mr. Wm. J. Bishlager, (a) "Macushla" (MacMurrough), (b) "In Old Madrid" (Trotere).
10.0: "Brunswick" Dance Programme:
Fox-trot—Jesse Stafford's Orchestra, "Kewpie" (Rose), (4249).
Fox-trot—Jesse Stafford's Orchestra, "A Precious Little Thing Called Love" (Davis), (4249).
Fox-trot—Red Nicholls and His Five Pennies, "Roses of Picardy" (Wood), (4286).
Waltz—Pianoforte solo—Rosita Renard, "Blue Danube" (Strauss).
10.16: Vocal duet—Francis Luther and Carson Robison, "Carolina Moon" (Davis), (4202).
Fox-trot—Red Nicholls and His Five Pennies, "Allah's Holiday" (Friml), (4286).
Fox-trot—Gerunovich's Roof Garden Orchestra, "I'm Telling You" (Rose), (4190).
Fox-trot—Jungle Band, "Paducah" (Redman), (4309).
10.28: Soprano—Marie Tiffany, "Little Grey Home in the West" (Wilmot).
Fox-trot—Gerunovich's Roof Garden Orchestra, "I Found You Out When I Found You In" (Ponce), (4190).
Fox-trot—Royal Creolians, "Third Rail" (De Mars), (7072).
Vocal duet—Francis Luther and Carson Robison, "You Can't Take My Mem'ries From Me" (Davis), (4202).
10.41: Organ solo—Lew White, "Coquette" (Berlin), (4301).
Fox-trot—Ray Miller's Orchestra, "No One in the World But You" (Robison), (4194).
Fox-trot—Brunswick Orchestra, "Dardanella" (Fisher), (4218).
Waltz—Regent Club Orchestra, "Poor Punchinello" (Lewis) (4206).
10.50: Soprano—Marie Tiffany, "Pale Moon" (Indian Love Song), (Logan).
Fox-trot—Brunswick Orchestra, "Redskin" (4218).
Waltz—Regent Club Orchestra, "Loneliness" (Pollack), (4206).
11.0: Close down.

4YA, DUNEDIN (650 KILOCYCLES)—SATURDAY, JANUARY 11.

3.0: Town Hall chimes.
3.1: Selected gramophone items.
5.0: Children's session, conducted by Big Brother Bill.
6.0: Dinner session—"Parlophone" Hour:
Waltzes—Dajos Bela Orchestra, (a) "Sulamith" (Hansen-Milde), (b) "Mignonette" (Nicholls), (E10571).
Dajos Bela Orchestra, "Eldgaffeln" (Landen), (A4009).
6.12: Tacet.
6.15: Frank Westfield's Orchestra, "Classica" (Arrgd. Tilsley), (A2195).
Organ—Sigmund Krumgold, "Indian Love Call" (Friml), (A2339).
Waltz—Dajos Bela Orchestra, "You, Only You" (Arnold), (E10592).
6.27: Tacet.
6.30: Raie da Costa Ensemble, "Funny Face" Selection (Gershwin),
Waltz—Dajos Bela Orchestra, "The Sphinx" (Popy) (E10592).
6.42: Tacet.
6.45: Orchestra Mascotte, (a) "The Flowers' Dream" (Translateur), (b) "Whispering of the Flowers" (Von Blon), (A2559).
Organ—Sigmund Krumgold, "Gypsy Love Song" (Herbert), (A2339).
Dajos Bela Orchestra, "Electric Girl" (Helmburgh-Holmes), (A4009).
6.58: Tacet.
7.0: News session.
8.1: Relay of Vaudeville Programme from 3YA, Christchurch.
10.0: "His Master's Voice" Dance Programme:
Fox-trot—Connecticut Yankees, "Where Are You, Dream Girl?" (Davis), (EA605).
Fox-trot—Ted Weems' Orchestra, "Here We Are" (Warren) (EA602).
Fox-trot—Connecticut Yankees, "Pretending" (Porter), (EA605).
Fox-trot—Ted Weems' Orchestra, "Piccolo Pete" (Baxter), (EA602).
10.12: Vocal duet—Gladys Rice and Franklyn Baur, "You're the Cream in My Coffee" (de Sylva), (EA616).
Fox-trot—Gus Arnheim's Orchestra, "Now I'm in Love" (Shapiro).
Fox-trot—Jack Hylton's Orchestra, "Ever So Goosey" (Butler).
Fox-trot—Ted Weems' Orchestra, "Am I a Passing Fancy" (Silver).
Waltz—Connecticut Yankees, "Underneath the Russian Moon" (Kendis), (EA565).
Waltz—Hilo Hawaiian Orchestra, "Sparkling Waters of Waikiki" (Davis), (EA574).
10.30: Tenor—Morton Downey, "The World is Yours and Mine" (Green).
Fox-trot—Ted Weems' Orchestra, "What a Day!" (Woods), (EA606).
Fox-trot—Connecticut Yankees, "The One That I Love Loves Me" (Turk), (EA565).
Fox-trot—Coon Sanders' Orchestra, "The Flippity Flop" (Coslow).
Fox-trot—Jack Hylton's Orchestra, "The Toymaker's Dream" (Golden), (EA578).
10.45: Vocal duet—Billy Murray and Walter Scanlon, "Oh, Baby, What a Night" (Brown), (EA613).
Fox-trot—Gus Arnheim's Orchestra, "This is Heaven" (Yellen).
Fox-trot—Gus Arnheim's Orchestra, "One Sweet Kiss" (Jolson).
Fox-trot—Park Central Orchestra, "True Blue Lou" (Robin), (EA610).
Waltz—Gus Arnheim's Orchestra, "Sleepy Valley" (Sterling), (EA583).
11.0: Close down.

Sunday, January 12

1YA, AUCKLAND (900 KILOCYCLES)—SUNDAY, JANUARY 12.

3.0: Afternoon session—Selected studio items.
4.0: Literary selection by the announcer.
4.8: Studio items.
6.0: Children's session conducted by Uncle Leo.
6.55: Relay of service from St. Andrew's Church. Preacher: Rev. Ivo Bertram. Organist: Dr. Neil McDougall.
8.30: (approx.): Relay from Albert Park of concert by the Auckland Municipal Band under the conductorship of Mr. Christopher Smith.
9.45: Close down.

2YA, WELLINGTON (720 KILOCYCLES)—SUNDAY, JANUARY 12.

2.45: Relay from Basin Reserve of concert by Wellington Combined Bands Association in aid of Wellington Free Ambulance.
6.0: Children's song service conducted by Uncle George.
7.0: Relay of service from Vivian Street Baptist Church. Preacher: Rev. F. E. Harry. Organist: Mr. Chas. Collins. Choirmaster: Mr. J. R. Samson.
8.15 (approx.): Studio concert by the Wellington Municipal Tramways Band, and assisting artists:—
Hymn—Band, "O God Our Help in Ages Past" (Dyke).
Overture—Band, "The Bohemian Girl" (Balfe).
Contralto—Miss Mary Bald, "Crossing the Bar" (Jarman).
San Francisco Symphony Orchestra—"Rosamunde—Entr'acte" (Schubert), (H.M.V. D1568).
Tenor—Mr. E. W. Robbins, recitative and aria, "Comfort Ye" and "Every Valley Shall be Exalted" ("Messiah"), (Handel).
Pianoforte—Mischa Levitski, (a) "La Campanella" (Paginini-Liszt); (b) "Staccato Etude" (Rubinstein), (H.M.V. D1489).
Baritone—Mr. Peter Connell, "O Song Divine" (Temple).
Waltz—Band, "Lolita" (Lithgow).
Weather report.
Choral—B.B.C. Choir: (a) "Pilgrims' Chorus" (Tannhauser"), (Wagner); (b) "Grand March" ("Tannhauser"), (Wagner).
Contralto—Miss Mary Bald: (a) "Irish Lullaby" (Needham); (b) "At Dawning" (Cadman).
Selection—Band, "Euryanthe" (Weber).
Tenor—Mr. E. W. Robbins: (a) "Ships of Arcady" (Head); (b) "For You Alone" (Geehl).
J. H. Squire Celeste Octet, "Polonaise—Mignon" (Thomas).
Baritone—Mr. Peter Connell, "Beloved, It is Morn" (Aylward).
Hymn—Band, "All People That On Earth Do Dwell" (Trdtl).
March—Band, "Old Comrades" (Teike).
Close down.

3YA, CHRISTCHURCH (980 KILOCYCLES)—SUNDAY, JANUARY 12.

2.45: Rebroadcast of 2YA Wellington (relay from Basin Reserve of concert by Wellington Combined Bands Association).
5.30: Children's song service (children of Baptist Sunday Schools).
6.15: Chimes from Studio.
6.30: Studio programme:
Piano and Orchestra—Arthur de Greef and Royal Albert Hall Orchestra, "Hungarian Fantasia" (Liszt) (H.M.V. D1306-7).

6.46: Negro spirituals—Paul Robeson (a) "Scandalise My Name" (Burleigh), (b) "Sinner, Please Doan' Let Dis Harves' Pass" (Burleigh), (H.M.V. B2771).
6.54: Instrumental—Victor Olof Sextet, (a) "To a Water Lily"; (b) "To a Wild Rose"; (c) "In Autumn" (Macdowell) (H.M.V B2690).
7.0 : Relay of service from Oxford Terrace Baptist Church—Preacher: Rev. J. Robertson, M.A. Organist: Mr. Melville Lawrie. Choirmaster: Mr. K. G. Archer.
8.30 (approx.): Studio Concert:
Prelude—New Light Symphony Orchestra, "Prelude in G Minor" (Rachmaninoff) (Zonophone EF24).
8.33: Mezzo-contralto—Mrs. Graham Jamieson, (a) "The Moon Drops Low" (Cadman); (b) "The White Dawn is Stealing" (Cadman).
8.38: Baritone—Mr. R. Lake, "The Two Grenadiers" (Schumann).
8.41: Pianoforte—Miss Dorothy Davies, "Rhapsody in C" (Doblinger).
8.50: Mezzo-soprano—Mrs. Wilfred Owen, (a) "Come and Find the Quiet Places" (Coningsby Clarke), (b) "Rest at Midday" (Hamilton).
8.56: Tenor—Mr. L. C. Quane, "All Hail Thou Dwelling" (Faust) (Gounod)
9.0 : Violin solo—Fritz Kreisler, "Shepherd's Madrigal" (Kreisler).
9.3 : Mezzo-contralto—Mrs. Graham Jamieson, "An Old Garden" (Hope Temple).
9.7 : Baritone—Mr. R. Lake, (a) "Sacrament" (MacDermid); (b) "How Fair Art Thou My Lovely Queen" (Brahms).
9.13: Instrumental—Christchurch Broadcasting Trio, "Trio in G Minor—(a) Andante; (b) Poco Adagio; (c) Rondo all Ongarese" (Haydn).
9.27: Mezzo-soprano—Mrs. Wilfred Owen, "Spring Has Come" (Coleridge-Taylor).
9.30: Tenor—Mr. L. C. Quane, (a) "Oft in the Stilly Night" (Irish Air); (b) "Where'er You Walk" (Handel).
9.37: New Light Symphony Orchestra, "Prelude in C Sharp Minor" (Rachmaninoff) (Zonophone EF24).
9.40: Close down.

4YA, DUNEDIN (650 KILOCYCLES)—SUNDAY, JANUARY 12.

3.0 : Town Hall chimes.
3.1 : Selected gramophone items.
5.30: Children's song service, conducted by Big Brother Bill.
6.30: Relay of service from Trinity Methodist Church—Preacher: Rev. H. E. Bellhouse. Choirmaster: Mr. J. Simpson. Organist: Miss E. Hartley.
7.55: Weather report.
Selected items from the Studio.
8.30 approx.): Relay of Studio programme from 3YA, Christchurch.
9.30: Close down.

Choosing Valve Holders

THE valve holders used in a receiver are generally chosen by their construction and, of course, price.

Modern valves are, on the whole, so well constructed that solid valve holders are suitable, although an exception may be made of the detector. This valve usually has a fairly large magnification factor and any noise that may be set up in the detector circuit is magnified by the complete low-frequency amplifier.

There are occasions, however, when it is most important to consider the electrical properties of valve holders. I am not referring to such matters as the size or fit of the contact sockets or the connections between the socket and the terminals, although these must obviously be correct.

I am referring to the high-frequency losses of the valve holder.

The grid, anode, and filament contact sockets, and the connecting terminals, are held in a shell of insulating material. This is seldom of ebonite. It is usually of bakelite, for the reason that this material is easily and cheaply moulded. Good bakelite is not always employed. Nevertheless, the resistance between one terminal and another is usually many megohms, which is so high that the leakage is of no importance.

What does matter is the high-frequency loss resistance. There is capacity between the terminals. The condenser has as its electrodes the metal connections, and as its dielectric the insulating material. Now the condenser formed by the grid and filament connections, and for that matter the other connections as well, is across the tuned circuit connected to the valve. If, therefore, the losses of the valve holder are high, the signal strength will be reduced and the selectivity impaired.

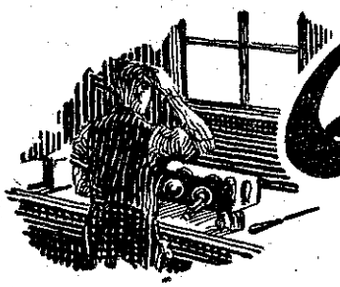
One might imagine the losses could not be so high as to produce noticeable effects, but when the tuned circuit has a very good tuning coil, such as one of the Touchstone type, the amplification may be reduced by as much as 30 per cent. One should remember this when about to purchase the valve holders for a new set, and when the coils are particularly good ones every endeavour should be made to obtain the valve holders particularly specified by the designer of the set.

—STAN MOORE.

Tinning a Soldering Iron

A WELL-TINNED soldering iron can be used frequently, and will remain properly tinned if put away for a time, so that it is worth going to a little trouble to tin the iron properly. The actual tinning consists simply in providing the business end of the iron with a thin layer of solder. To do this you must first of all clean the tip of the iron, for about three-quarters of an inch back from the end, by filing it carefully. (A particularly good job is made by finally polishing the surface with emery cloth.) Heat the iron as if for soldering, and whilst it is still hot spread a thin layer of flux on the tip of the iron, immediately after rubbing the tip on a few pieces of soft solder placed on a tin lid.

If the iron is properly heated, the solder will adhere to the tip of the iron and form a bright coating all over it. This will last for a long time, but will need renewal if iron is overheated, when it must be re-tinned in the same way again. Always have a clean cloth handy when soldering, so that any impurities or dirt may be removed as soon as noted.



Questions and Answers

A.C. Mains as Aerials.

COULD you tell me if devices plugged into electric light sockets, so as to use the wires as aerials, are of any practical utility? asks "Aerial" (Temuka).

A.: By blocking the mains current with two by-pass condensers of the capacity of 1mfd. or more, the A.C. lines may be used as an aerial. It is preferable, and, in fact, it is almost essential, to use the specially constructed "Ducon" adaptors, for this purpose. If one makes this kind of apparatus for himself, he may encounter trouble both with the actual apparatus and with the power board authorities. The "Ducon" type of aerial is by no means as sensitive as a good aerial. Current is not drawn from the mains.

Short-wave Radio.

BEING interested in short-wave radio and wishing to construct a small set, I should like to know if any improvement could be added to the two-valve receiver, published in the "Radio Record," April 26, 1929.—H.E.R. (Wellington).

A.: No. This is one of the most successful sets we have ever described. It has given satisfaction wherever it has been constructed, and we have not received any complaints, and difficulties are rare. This is an excellent set for an enthusiast to commence with. The diagram of the Reinartz circuit is quite a good one, but we consider that "Round the World Two" is better.

Encountering an Harmonic.

I CAN tune in our local station on two distinct readings. Is this unusual? —W.H.H. (Wanganui).

A.: You have encountered the station's harmonic on double the frequency of the transmitting station. Every note, with a few exceptions, has a harmonic or a second note of double its own frequency. More than one of these may exist, but each one of these will be a multiple of the original frequency or fundamental. The stronger the harmonics the weaker the fundamental.

Various Requests.

COULD you tell me the following? asks B.G.F. (Paekakariki) :—

1: The most suitable kind of earth?

A.: See our article published November 11, 1928, for a full account of various earth systems.

2: Can 'phones be used with an A.C. set?

A.: Yes, but they should not be plugged in following a big power-valve or a stage of push-pull. In this case plug the 'phones in to the plate of the first audio-valve and B plus.

3: In a recent "Radio Record" there appeared a small paragraph headed "How can I slow down my set?"; following this was a line "see page 32." What does this mean?

A.: The line does not refer to the preceding text; it was a misconception on the part of the printer.

Reaction Trouble.

WHEN I bring up the reaction condenser the set oscillates strongly and signal is strongest in that howl. Bringing it past this signals are weak, but on moving the condenser to either side the set howls again. The set will oscillate with the volume control shut off.

A.: It appears that reaction is too fierce. Try reversing the connections to the reaction condenser and taking off some of the turns on the reaction coil. Reduce the voltage on the detector, and, if possible, try another detector.

2: My aerial is approximately 30 feet high. If I increase the height, should there be any difference?—"Screen Grid" (Dunedin).

A.: After about 30 feet the increased signal is not proportional to the increased height. There should be an improvement, but not very great.

Valves for Short-wave Receiver.

ARE two 415's suitable for detector and first audio in a short-wave receiver? asks J.W.P. (Wellington).

A.: Yes. If troubled with feed back and other similar noises due to over-amplification, try a 409 as first audio.

Screen-grid Short-Wave.

I HAVE had difficulty with the screen-grid short-wave receiver in the "Listeners' Guide," write "G.P." (Berhampore). When the A+ is connected to the screen the filament switch will not turn out the filaments and the set will not oscillate.

A.: You have made a mistake in the filament wiring in that the switch is being short-circuited. There should not be any connection between A+ and the set other than through the switch. The only connection to the shield is made after the wiring has passed the switch. In other words, the connections are these, A+ to switch, switch to shield.

2. How much grid-bias should I use?

A.: This depends on the valve and the "B" voltage, but probably three to four and a half volts will be ample.

Note: If the set will not oscillate try a few more turns on the tickler, higher "B" voltage, and if possible another R.F.C. (See an article by "Cathode" in a recent issue for the construction of an efficient R.F.C.)

Loudspeaker Strength from a Crystal.

IS it possible to operate a loudspeaker from a crystal set without an amplifier? asks "A.W.L." (Wellington).

A.: In some localities, yes, but usually no. See "Notes by Switch."

Adding Another Stage.

I have the components of a three-valve receiver, and I wish to add another valve. What procedure would you advise?" "S.W." (Gisborne).

A.: Build the four-valve Browning-Drake described in the "Radio Listeners' Guide." This may necessitate the construction of new coils, but the trouble is well worth it.

Set Oscillating.

I HAVE a six-valve factory receiver which was equipped with American valves. I have now changed to non-American valves and find that the set whistles on certain stations. Has the neutralisation been affected? "W.H.B." (Feilding).

A.: Probably when a set is equipped with American valves it is not wise to change to other makes, especially for detector and radio-frequency stages. There are equivalents in most other makes, but our experience has shown that the best results can be obtained with the original valves. The audio stages are not so critical; in fact, it is sometimes to advantage to use a semi-power valve of another make in the last stage.

2. How can one convert kilocycles to metres?

A.: Divide the frequency in kilocycles into 300,000.

Audio Troubles.

I HAVE recently added another stage of audio amplifications to my three-valve set, but when I apply 3 to 4½ volts negative grid-bias to the first audio a noise like a sawmill is heard. By applying a positive 1½ volts bias to the first audio the signals are clear, but equal only to three valves. I have tried all the usual methods of tracking the trouble, and checked the wiring, and am sure everything is correct. "A.C.A." (Wanganui).

A.: This seems like audio instability and the symptoms regarding the grid-bias seem the reverse to what you have stated. In other words, when you apply the 4½ volts negative bias you get the symptoms that you should get with 1½ volts positive bias. Are you quite certain that this is not the case? Have you tried bringing the grid return of the audio valve to A—? You might try the following. A better transformer for the primary winding does not appear to match the high impedance of the proceeding valve and choke in the B+ lead to the audio valve by a by-pass condenser between B+ of the transformer and the filament negtive. The by-pass condenser should be from 1 to 4 mfds., and capable of withstanding the voltage of the "B" battery. If possible try another valve in the last stage to replace the Pentode.

Factory Set Gives Trouble.

I HAVE a six-valve factory receiver equipped with 201A's and lately a howl has developed which can be stopped only by increasing the grid voltage to nine and spoiling tone. My batteries are running down at a very rapid rate.

A: A by-pass condenser between B+ R.F. and earth has broken down, causing instability and short-circuiting part of the "B" battery. This replacement is very simply made if you know the receiver you are dealing with, but in the event of your not knowing the set we should advise you to send the set to the local agents for that receiver. (G. G. MacQuarrie). Better tone would result through using a valve of the 112 type in the last stage. This could take nine volts grid bias. 171 valve would be even better, but at least 135 volts would be required and 20 volts bias.

Improving Reception.

I HAVE a 2-valve receiver which by turning out the detector acts as a crystal and one-valve amplifier for 2YA. I am intending to use an eliminator, and wish to obtain foremost good quality. Could you supply the following information?—R.R. (Wellington).

1: Would you advise replacing the A.409 with a power-valve or with a pentode?

A.: Real quality can not be obtained with only one valve; we should advise the use of another stage with resistance capacity coupling between the detector and the first audio. The first valve could be your A.409 and the last a semi-power valve of the 112 type. (See "All

RADIO DIRECTORY

What to Buy and Where

CITIES

AERIAL MASTS	Domestic Radio Co., Ltd., 300 Queen Street, Auckland.
ALTONA & HAMMARLUND-ROBERTS SETS.	Johns, Ltd. Chancery Street, Auckland.
AMPLION LOUDSPEAKERS	All Radio Dealers.
BURGESS RADIO BATTERIES,	All Radio Dealers.
CROSLEY RADIO RECEIVERS	G. G. Macquarrie, Ltd., 120 Willis Street, Wellington.
CROSLEY RADIO	Abel, Smeeton, Ltd. Rep.: G. MOSES. James Street, Whangarei.
CROSLEY RADIO	Abel, Smeeton, Ltd., 27-29 Customs St. E., Auckland.
EMMCO RADIO PRODUCTS	Johns, Ltd., Chancery St., Auckland.
EMMCO RADIO PRODUCTS	Thos. Ballinger & Co., Ltd., Victoria St., Wellington.
EMMCO RADIO PRODUCTS	L. B. Scott, Ltd., Worcester St., Christchurch.
KING RADIO RECEIVERS	F. J. W. Fear & Co., 63 Willis Street, Wellington.
LISSEN RADIO PARTS AND KITS	All Radio Dealers.
LOUDSPEAKER AND TRANSFORMER REPAIRS	A. E. Strange, 404 Worcester Street, Christchurch.
MAJESTIC RADIO RECEIVERS	Kirkcaldie & Stains, Chief Wellington Agents, Lambton Quay.
MULLARD VALVES	All Radio Dealers.
PILOT 1930 PARTS AND KITS, ETC.	Abel, Smeeton, Ltd., 27-29 Customs Street East, Auckland.
PILOT 1930 PARTS—PILOT SUPER WASP KITS, GILFILLAN, KELLOGG and ATWATER KENT SETS	Harrington's, N.Z., Ltd., 138-140 Queen St., Auckland. 40-42 Willis St., Wellington.
RADIOLA RECEIVERS and Expert Radiola Service.	Farmers' Trading Co., Ltd., Hobson Street. Auckland.
RADIO REPAIRS AND SERVICE	E. G. Shipley, 185 Manchester Street, Christchurch.

COUNTRY TOWNS

CROSLEY RADIO	J. C. Davidson, Main Street, Pahiatua.
CROSLEY SETS	Abel, Smeeton, Ltd. Rep.: C. Buscoe. 403 Devon Street, New Plymouth.
CROSLEY RADIO	D. A. Morrison & Co., Victoria Avenue, Wanganui.
MAJESTIC ELECTRIC RADIO	Berryman's, The Home of Music, Palmerston North.
MAJESTIC, ATWATER-KENT AND RADIOLA ELECTRIC SETS	Radio House, Hamilton. G. S. Anchor, Manager.
PHILIPS VALVES AND APPARATUS	All Good Radio Dealers.

About the All Electric," page 65, for the valves in this class.) If you intend to buy a semi-power valve which will certainly give better results than the general purpose A.409 you might just as well purchase the resistances (grid leaks) and condenser for the extra stage. The resistances in the plate circuit should be 100,000 ohms, and in the grid circuit half to one megohm. The by-pass condenser should have a capacity of about .1mfd.

2. Do you agree with the statement that after about three months' use a power-valve is equal only to a general purpose valve?

A.: Certainly not. The life of a general purpose valve during which time it functions as a power-valve is equal to that of an ordinary valve, roughly 1000 hours.

3. Would an eliminator delivering 8 to 10 milliamps at 100 volts be sufficient? Would one delivering 15 milliamps at 135 volts be better?

A.: The latter would be the better; the first would be almost unsatisfactory. Very good quality cannot be obtained with much less than 150 volts.

Screen Grid Detector Two.

COULD you supply details regarding the screen grid detector two described in your paper of November 1?

A.: As was stated at the time, this was merely a reprint from another magazine for the sake of experimenters, and as we have not built the receiver ourselves, we cannot give any details. They will be found in "Popular Radio and Aviation" of May 1, 1929. Perhaps some reader can lend you a copy as it is now out of print. A short time back Mr. G. Patchett (264 Rintoul Street Wellington) offered a copy to any reader receiving same.

2: I have a .0005 condenser. Could this be used instead of one of the others specified?

A.: The capacity will have to be reduced by means of a series fixed condenser of .0005 mfds. to .00025.

ANOTHER correspondent, H.L.M. (Whangarei), has asked a similar question and he is referred to the above answer.

Pentode's Crystal and Valve.

WOULD you supply information on the following points, concerning this receiver, asks "Carborundum" (Wellington):—

1. Could 34 gauge D.C.C. be used for the tickler instead of 28 gauge?

A.: Yes, use approximately the same number of turns.

2. What voltage should be used for "A" and "B" batteries?

A.: The "A" battery depends on the valve used. A four volt valve is the best proposition. This will require three dry cells with a resistance to break the voltage down to four. The "B" battery should be as high as possible, preferably two or even three blocks of 45 volts each.

3. Could a number of 4½ volts flashlight batteries be coupled in series to make a "B" battery?

A.: They could, but this is not recommended owing to the large number of connections necessary. The battery would be very expensive.

4. What valve is recommended and what voltage?

A.: Use a 4-volt general purpose valve.

5. Would a switch to cut out the "A" and "B" batteries at the point of entry be an advantage?

A.: The rheostat is all that is necessary.

"A" Battery Short-circuited.

MY "A" battery is running down in about a week and I have traced out all the wiring and can't find a short circuit. All stations are very weak. "Puzzled" (Epsom).

A.: Despite the fact that the wiring has been checked we still suspect a short circuit. It may be in the valve socket and such that the two filament prongs are connecting. Look for such a fault as A— and A+ both connected to earth or B—, or it seems that the short circuit is taking place in an unusual manner. If it cannot be located, take the set to a radio specialist, who can easily check the circuit with a meter.

Amplifier Problems.

WHICH of Philips' 6-volt valves would you recommend me to use in the amplifier and detector stages or four-valve Browning-Drake? "V.L.C." (North Otago).

A.: It is not stated whether the combination is A.C. or D.C. For A.C., E415 detector and first audio; C603, power-valve. For D.C. detector A415, first audio A409, power-valve B405.

2. In the first stage of the amplifier describing "All About the All-Electric," would E424 be a suitable valve in place of 227?—Yes.

3. I have provided a variable resistance in conjunction with the 1 mfd. condenser. Instead of earthing the grid returns could I take them to suitable C.T. tappings with advantage?

A.: If the centre tap across the filaments is earthed the grid return can be taken to a suitable grid-bias tapping and the condenser and resistance omitted. If the condenser and resistance are to be used grid-bias is automatically provided. In the diagram submitted resistance 0-10,000 ohms are used as grid resisters, but these are too high, they will not pass the current taken by the plates of the valves; 0-3000 ohms will be ample. When two 171 are used in push-pull the correct resistance is 1250 ohms.

Linen Diaphragm Speaker.

I HAVE found, writes "Tank" (King Country), that speech on my linen diaphragm speaker is very unnatural; music seems all right.

A.: There is probably a tension on the unit. Have the reed extended by means of a thread and coupling. If you cannot get this done locally, Fear and Co., Wellington, can do it for you.

Generator Disturbs Reception.

I have tried to work a five-valve battery set where there is a 220 voltage generator used for lighting, etc., but am troubled with interference.

A.: The trouble can be lessened by the use of by-pass condensers. (See our article, "Noises and Their Elimination," Vol. 3, Nos. 9 and 10.)

A.C. Browning-Drake.

IS the A.C. Browning-Drake worth making up? asks "R.F." (Te Kuiti). You state it is unselected.

A.: The A.C. Browning-Drake is an excellent set, especially the four-valve model described in the "All About the All-Electric." Like all four-valve receivers it is unselective, but in the country this is not a disadvantage.

2. Could you refer me to the "Radio Record" containing information concerning this receiver?

A.: It has been very fully dealt with in "All About the All-Electric," which publication every constructor of A.C. Browning-Drakes should own.

3. What will be the capacities of two condensers, one 25 plates and the other 15?

A.: If the plates are small the capacities will probably be .00035 and .00015, (or .0002); if they are large, .0005 and .00025.

FOR short-wave reception the grid-leak value is quite critical, the best resistance generally being somewhere between four and eight megohms.

CHARGING and discharging of an accumulator should only be done within the limit or rates laid down by its maker.

NO accumulator should be allowed to stand discharged or partly discharged, for long periods, or sulphation is sure to set in.

A Power-pack for "250" Valves

For D.C. or A.C. Operation

(Continued from last week.)

Tapped Secondary Windings.

CONSTRUCTORS wishing to commence operations on 300 volts with a Raytheon will wind the full secondary coils, tapping each one at a suitable point so that the reduced voltage may be used as long as desired. Care must be taken to follow the proper procedure in placing the taps and in connecting the coils, otherwise the two halves of the secondary may be acting in opposition, and new voltage will be the result.

The number of turns to be utilised will be 1850 on each half of the secondary winding. This will give an initial voltage of 360, which will drop to less than 300 by it reaches the plate of the last valve. The Raytheon is quite equal to handling the voltage.

The first coil is wound with 1850 turns, and a tap is taken out; then the remaining turns are put on. The second coil is to be wound, turning in the same direction and putting on a number of turns equal to those on the first coil in excess of 1850. A tap taken out, and then 1850 turns to complete the coil.

The beginning, or larger number of turns of coil No. 1 is then connected to the end, or larger number of turns of No. 2, and from this connection the centre tap is taken.

The two taps connect to the respective "filament" terminals of the Raytheon socket, and the end of coil 1 and the beginning of coil 2 are coiled up and insulated with adhesive tape.

This same method may be utilised to obtain several tappings—the taps will be near the finish of the first coil, and then repeated in reverse order at the beginning of the second coil. The 300 volts will suit the 245 valve.

Filament Windings.

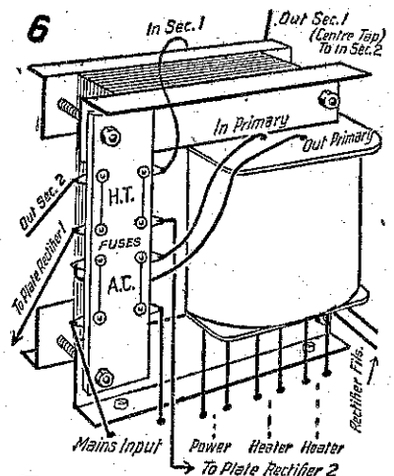
AFTER insulating the secondary windings, any filament windings that may be required are put on. These windings are usually of heavy wire, 18's., as heavy current is to be drawn for a.c. valve heating. The actual voltage of each winding and the amperes to be drawn, will depend upon the valves to be used in the receiver.

The power stage filament supply may be put on first, and for one or a pair of 7½ volt valves, 47 turns of 18's d.c.c. will be required, allowing 2½ amperes to be drawn. If a single valve is used, only 1¼ amperes will be drawn, which will tend to increase the voltage, so that a tap might be provided at the second turn from one end, or provision made for the introduction of a few ohms resistance into both legs of the filament circuit. The power-valve winding is not centre-tapped, as the electrical centre will be accurately determined by means of a potentiometer of 30, 60, or more ohms across the filaments, giving a variable tap by means of the arm, which is directly connected to earth unless a grid-bias resistance is included in the circuit. This method of centre-tapping power filaments was dealt with in the "Record" of May 24 last.

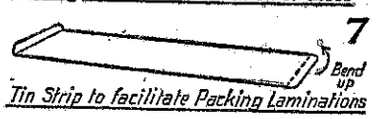
The Radiotron 227 valve requires 2½ volts, 1¼ amps. The De Forest and Ceco equivalents require the same, and the Osram 3½ volts 2 amps. The Philips E424 and several others in the heater series of the same make require 4 volts and .9 amp., or just under one ampere.

Windings to give any voltage required by the above or other valves are as follow:—

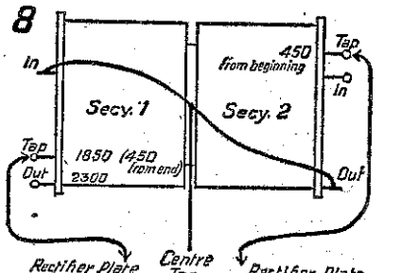
Volts.	2 amps. turns.	1 amp. turns.
1½	9 to 10	9
2	13	12
2½	16	15
3	19	18
4	25	24
5	32	30
6	38	36
7½	47	45
8	51	48



Transformer
Showing Fuse Panel and Position of Leads



Tin Strip to facilitate Packing Laminations



Tapping High-Tension Coils

The above table will give voltages as near as possible to those required, but it is necessary for constructors to exercise care with their a.c. heater current in order not to give any excess. A small amount of resistance can always be introduced to reduce voltage, half in each filament or heater leg.

The above table is correct for 18's wire, which is easier to manipulate than heavier gauges when winding. A good plan is to provide a separate winding for each 2 or 2½ amps., as good regulation is thereby secured. Heavier wire gives rather less drop when large current is drawn.

Two 4-volt windings are easily accommodated in one layer, and three 2½-volt. Centre-taps are not required on these windings, as the centre is usually determined by the tapped resistance method, though it is not critical with some valves.

Shellac all filament windings, and allow it to dry before covering with insulation.

If any filament windings are put on for future use, one end should be connected to earth (metal floor) and the other coiled up small and insulated by wrapping in adhesive tape.

The transformer dimensions given allow for one layer of 18's for rectifiers between primary and secondaries, and outside the latter one layer 18's for power valves, and three other layers for heater supply.

The outer windings may project very slightly outside the spool ends on the straight sides, but not at the corners.

The Smoothing Chokes.

TWO smoothing chokes of identical proportions are to be provided, and the specifications here given will produce a pair of chokes that will be equal to the task imposed upon them.

The inductance will be about 20 henrys each, when carrying up to 130 mills, with two gaps of 1-16in. in each. The number of turns of 30's s.w.g. on each will be 5750, but constructors not having a revolution counter may save the trouble of counting by simply filling each spool, which will take half of the 3¼lb. of wire allowed for the pair.

The cores are constructed of 1¼in. stalloy, built to the same thickness. The long piece—that which is packed inside the centre of the spool—is 4¾in. The other sizes are 3½, 2, and ¾-inch, all 1¼ wide. The spool ends are 2¾in. square, and the outside length 2¼in. bare. Remember that there will be a high potential difference between the winding and the earthed core, so let the preliminary insulation be good—empire cloth or two brown papers in addition to a layer of tape.

The only great difference between the construction of a choke and a transformer is in the arrangement of the core. In order to provide the "gap" in the choke, it is necessary to cut four sizes of stalloy, one heap of each to the thickness to which the core is to be built. The centre of the spool is packed tightly with the longest pieces, to which the thicknesses of cardboard which determines the gap may be fastened with seccotine, when the remainder of the core may be assembled with the three smaller sizes.

The direct-current resistance of each choke will be 260 ohms, or 520 ohms the pair, which is fairly low for an eliminator choke. If a current of 50 mills is passing through the pair the drop will be 26 volts, 70 mills will drop 38 volts, and 100 mills will drop 52 volts.

This drop in voltage is well provided for in the specified turns, especially when it is noted that the drop in filament rectifiers of the 281 type is practically negligible up to 60 mills, after which the internal resistance gradually rises.

Wooden clamps 1¼ wide by 3-8 thick and 4 5-8in. long are drilled with bolt holes, centres 3 7-8in. apart.

The chokes are secured to the baseboard by means of holes drilled through it, and through which screws are passed from underneath to secure the lower edge of the bottom pair of clamps. The lead-outs should be at the lower end of the spool, as they pass through the baseboard in every instance in order to connect to the smoothing condensers.

The wire is run in "without" insulation, but it is just as well to put in a layer of tissue-paper occasionally as a precaution, keeping it close at the ends.

Two dozen 3ft. lengths of stalloy will be required for each choke, about 80 of each size of cut piece for each.

The chokes and transformer cores are earthed by placing under them a few thicknesses of tinfoil folded up, thus making good contact with the metal floor. The tinfoil in which adhesive tape is packed answers well.

For a greater output than 130 mills the chokes would have to be constructed of 1½in. stalloy built to the thickness, and the window enlarged in both directions to take the same number of turns of 28's wire.

The Smoothing Condensers.

A DIAGRAM shows a neat arrangement of the smoothing condensers in the base, but other makes may necessitate a different arrangement in order to suit the space. It is a wise plan to make the container after the condensers have been procured. The four 4 mfds must be of 800 to 1000 volts test—half the test voltage is the working voltage, and a margin is always good.

The 2 mfd. output condensers may be of 400 or 500 volts test, of which the audio output is the only one approaching the nominal working voltage.

It may interest constructors to know something of the actual function of the main smoothing condensers marked C1, C2, C3 in the circuit diagram.

The function of C1 is that of reducing "ripple" or hum. Its capacity should not be too low, because a reasonably high capacity improves regulation.

The condenser between the two chokes, C2, is merely to reduce ripple, and has no effect upon regulation. If this condenser is not of suitable value it can cause trouble by resonating with the previous choke at 100 cycles on a 50-cycle supply. The extra demand is all made upon C3.

Some circuits employ only 2 mfds. in this position, but it pays to be liberal with the smoothing capacity.

The last capacity, C3, controls audioquality in a perhaps somewhat indirect way. There are large audio-frequency variations in the plate current of the last valve or valves, and it is the duty of C3 to supply the extra current required when a heavy signal arrives on the grid of the power-valve. This condenser is, then, acting as a storage capacity, and when an extra demand is made its voltage drops, but is rapidly raised again. The output through the last choke is steady, direct current, and as fluctuating demand cannot be met.

If the capacity of C3 is too low, the extra demand will not be met, and so distortion results.

Laboratory experiments have shown that increasing the capacity of C3 up to 6 mfds. gives constant improvement with each microfarad added. From 6 to 8 mfds. there is still improvement, but less marked, and after 10 mfds. no difference is noticeable. This shows 8 mfds. to be adequate for ordinary purposes, and the writer's own experience shows this to be the case.

An important point to note is that the common or negative sides of all the 4 mfds. are connected together, but this must be done with insulated wire, which connects to centre-tap of the B supply and the high grid-bias output. If this lead is earthed the bias resistors are cut out of the circuit.

As C1 has to withstand the full a.c. voltage of half the combined secondaries, it may well be of 1000-volt test rating.

Any condenser following a choke is liable to receive heavy surges from that choke at the moment the mains current is switched off, and as that surge voltage is added to that already held by the condenser, the total voltage may be very much higher than the working voltage. This is one reason for having a high test rating for the condensers.

The Diagrams.

NO. 6 shows the transformer complete, as viewed from the back of the eliminator. Note the convenient position of necessary filament and heater leads, which are cut short and soldered to the flex, each joint to be insulated with tape. The rectifier filament leads will also go down through holes in the base. The fuse panel is clearly shown. Keep fuses near edge of panel so that solder tags bolted on back will project. Use 1-8in. brass bolts and washers to suit. Each pair of bolt holes drilled with centres 1in. apart.

No. 7 shows the strip of tin already mentioned, and No. 8 the method of tapping and connecting up two separate high-tension secondaries. The plate leads are both connected to either the taps for the lower voltage, or to out 1 and in 2 for the high voltage.

No. 9 gives the approximate position of leads through spool ends. Mark these out with the 1 3-8in. running in the direction shown.

The Voltage Divider.

THE type of voltage divider for tapped resistance to be employed consists of a continuous high resistance of wire, connected across the positive and negative, and provided with taps at certain points to give a selection of plate voltages. Connected to the negative end of this resistance is a further resistance made up of two 400-ohm wire-wound potentiometers in series. These connect through to the high-voltage secondary centre-tap, and will provide two variable grid-bias voltages.

There are a number of voltage dividers on the market, most of them arranged to reduce 200 volts to the necessary voltages for the average receiver. In this case we have 400 volts available for the plate of the power valve, and this voltage must be reduced to suit other stages of the receiver. We can utilise a 200-volt potential or voltage-divider if we precede it by extra resistance of the value that will effect the necessary reduction. The "pilot" voltage divider is one that would be suitable, and by placing an additional one in series for extra resistance, the 400 volts will be suitably cut down. In case of utilising a make of divider capable of carrying less than 60 mills, it is a better plan to use de Jur or Ward-Leonard fixed resistances totalling about 12,000 ohms as the extra resistance. These are connected in series and placed between the power-valve lead-off from the second choke and the high-voltage end of the voltage divider. The "pilot" divider is made up of resistances of 4000, 3650, 2250, 2800 ohms, totalling 12,700 ohms. The 4000-ohm end is B — and the tappings available will be 180, 135, 90, and 45 volts. For a low detector voltage it will be necessary to include on the panel a variable high resistance of 500,000 ohms and include it in series with the 45-volt tap connection to the panel socket. The voltage divider may be made up in any way, provided that the total resistance of about 22,000 to 24,000 ohms is included, also adding in the grid-bias value. Many constructors will have to use the type of voltage divider that they are able to procure. Few dividers will dissipate sufficient heat to allow of their being used as extra resistance, so it will be safer to use de Jur or Ward-Leonards if the divider available is of very low dissipation, as considerable heat is generated in the extra resistance.

Make the total resistance work out as follows:—Divider 12,000 ohms, extra resistance 12,000 ohms, grid-bias resistors, 800 to 2000 ohms, giving a total of about 25,000 ohms. A thousand ohms difference either way is not very important.

Testing Headphones

THE best method of ascertaining if a pair of headphones is in good condition is to disconnect them, put the 'phones on, and place the end of one of the leads between the teeth. Rub a key or nail upon the other lead and the weak currents set up in them will cause a scraping sound in the earpieces which will correspond with the rubbing of the key. If the sound is very weak in one earpiece and not in the other, you will have ascertained which is wrong, and if both give distinct and clear scraping noises you will know that the 'phones are very sensitive, for no ordinary battery is being used for the test, and only a sensitive instrument will give results.

A.C. Detectors

Avoiding Hum

ONE of the difficulties encountered when an alternating current power-pack is employed (and also valves having heaters supplied with alternating current) is of eliminating the last traces of hum.

It is a comparatively easy matter so to arrange the circuit and the parts used that there is very little hum, and it is only when efforts are being made to reduce or cut out this last trace of hum that every part of the circuit must be carefully examined.

Particular care is necessary with the detector, and the question as to whether leaky-grid or anode-bend is to be used is sure to crop up, for the reason that when a leaky-grid detector is employed there is almost bound to be a certain difficulty in cutting out the hum. This is because the wire joining the grid condenser and leak with the grid of the valve is extraordinarily sensitive to stray fields, and the valve itself may collect hum or noise.

It is easy to prove this by placing the fingers near the detector valves. I have found that no effect is produced by placing the fingers on the top of the bulb of a certain type of mains valve, but that a loud hum is set up as the fingers are moved along the bulb towards the base of the valve.

The reason for the leaky-grid type of detector being so liable to pick up hum is because between the grid wire (and the grid of the valve itself) and the filament is a relatively high impedance, in the form of the grid condenser. When this condenser is removed the grid is in direct connection with the filament through the tuning coil and low-frequency voltages, therefore, cannot be set up on the grid.

It follows, then, that the anode-bend type of detector is much less sensitive to hum than the leaky grid type. It may not be convenient to employ anode-bend detection, however; then one has very carefully to arrange the position of the detector valve itself, and also of its grid condenser and leak.

The grid leak should be joined directly between the grid terminal of the valve holder and the filament circuit, and the grid condenser be connected with as short a wire as possible. Different valves of grid leak resistance should always be tried, of course.

Using a Milliammeter

TO use the milliammeter to the best advantage one should know the normal current passed by each individual valve as well as the total for the whole set. It then gives to the operator the same sort of guidance about the condition of his set as a patient's temperature gives to a doctor. There are two other extremely useful purposes served by the milliammeter when used in the way mentioned. It provides an infallible indication of the presence of oscillation in the detector circuit when condenser and grid leak rectification is used.

Short-Wave

Report from W9XF

MR. S. CONNER, of Wellington, sends the following letter received from W9XF, Chicago, Illinois: "This transmitter was constructed for the purpose of relaying the programmes of station WENR to foreign countries, where they may be rebroadcast by foreign stations. It is operating on an experimental license granted by the Federal Radio Commission.

The transmitter is located on the site of the WENR transmitter, which is 3½ miles south of Downer's Grove, Illinois, or about 23 miles south-west Chicago. The power output is 5000 watts. The transmitter is operating on a frequency of 6020 k.c. at the present time. We are authorised to use the frequencies of 11,800 and 20,500. Separate transmitter will be built to operate the frequencies at a later date.

W9XF transmits all the programmes of WENR, and all announcements include the call letters of both stations.

We would be pleased to have further reports from you, especially as to tone quality and fading. We would like to know whether fading is of short duration, or it is rapid enough to produce an audible tone.

The address of W9XF is: "Great Lakes Broadcasting Co., Straus Buildings, 310 South Michigan Avenue, Chicago, Illinois, America."

A Useful Suggestion

Stabilising R.F. Stages

THE following paragraph from an English magazine might help those who had difficulty in stabilising a two stage R.F. receiver such as the 2 R.F. Browning-Drake.

"You know how troublesome it has proved to me to screen two high-frequency amplifying stages successfully. But I have succeeded in carrying out this difficult piece of wireless work, and I considered that my success came from two things.

"The first of these two things was the employment of proper screening boxes for the screening of the variable condenser and the high-frequency transformer of each of the two stages. Before I forget, let me give you a useful tip on this screening. It is to place two screening boxes a good four inches apart. This spacing makes all the difference.

"The second of the two things which brought me success was an idea entirely my own. It was to use lead-covered cable for the connecting wires in the amplifier and to earth the lead covering. The idea was used by German engineers in the war."

Protecting Components

Avoiding Trouble with Breakdowns

EVERY radio component has a definite voltage or current limitation. If we impress too much voltage across a fixed condenser we destroy its internal insulation. Likewise, excessive current in the filament of a valve can burn it out. As a general rule, components are worked well within their safety lines. In one or two instances, however, care must be taken that the right standard or type of component is used for a definite job.

A typical example of this is the fixed condenser which figures in resistance-capacity audio stages. This condenser is joined between the plate of one valve and the grid of another. The grid of this second valve will also be joined through a grid leak via the grid bias, and to A—, earth, B—, and so on. Thus practically the full voltage of the "B" supply will be impressed upon that coupling condenser.

Obviously then, this particular component must be of such construction that it can withstand that pressure. For this reason, one generally sees that for such work a mica condenser is advised in set specifications. Mica condensers are quoted for the simple reason that mica dielectric condensers of any origin are invariably capable of standing moderate voltages, whereas there are a good many paper dielectric condensers which are not quite as satisfactory as they should be in this respect.

This is unfortunate for the one or two very satisfactory paper condensers that are available. In power packs one has to be very careful in regard to fixed condensers. Here you are liable to get the full voltage of the A.C. mains impressed across the terminals of such a component.

A Very Important Point.

WITH A.C. mains one comes against greater voltages than nominal ratings. The specified voltage of A.C. mains will be calculated on a basis of what is known as a root mean square. The alternating current is rising and falling from zero to a maximum all the time, and 250-volt mains will have a voltage rising to well over 300.

One does not have to take this into account in any ordinary current resistance calculations, but it is of importance in regard to fixed condensers, and that is why condensers that are tested at voltages round about double that at which the mains are rated should be used. Additionally, of course, in power packs one comes up against voltage surges which have to be taken into account.

A properly constructed air condenser is practically indestructible, but, as the dielectric constancy of air is unity, this scheme can only be employed at the sacrifice of compactness. A 4-mfd. air condenser suitable for a power pack would assume something of the dimensions of a bookcase.

Loud Speakers.

TURNING to the current handling capacities of other components, do not operate on the assumption that, provided the gauge of wire used seems to be such that a certain amount of current can be passed through it, one is safe if he works within those margins. An obvious example is the loud-speaker.

By passing a current of D.C. character through the wrong way, the permanent magnets which figure in many kinds of speakers can be demagnitised. The result will be insensitivity. In the case of an audio choke, too much D.C. may temporarily reduce the inductance to a value worthless for the purpose.

Injury can be done to some types of audio transformers of small sizes. By short-circuiting the primary winding across the "B" supply the core characteristic can be completely upset. The smallness of these audio transformers is generally achieved by using a nickel and iron alloy for the core stampings, instead of Stalloy, which is a silicon steel.

It should be noted that electrolytic condensers of the type generally met with in these circumstances require careful handling. A common rating is 1500 or 2000 mfds. at 12 volts or so. This 12 volts represents a definite limitation. If much more than this is impressed across its two terminals the component may be completely ruined.

Also, electrolytic condensers, being of a polarised nature, must be connected up in one definite way.

And, in conclusion, a word or two about fuses. An H.T. fuse should figure in every valve set. The purpose of such may be twofold. Valve filaments can be protected against burn-outs by shorted H.T., and protect the H.T. battery itself from the injurious results of short-circuit. In the case of a mains unit a fuse should figure in each of the input leads, and these fuses should be such that they break down at currents not too much in excess of those dealt with by the apparatus.

WANTED AND FOR SALE.

for column of casual advertisement see page 32.

Further News from Siam.

MR. P. ARAM, radio engineer of the Siamese Posts and Telegraphs, reports the following alterations to data appearing in these notes recently. HSIPJ, 16.9 metres, transmits on Sundays from 12 p.m. to 2.30 a.m., and Mondays from 6 a.m. to 8 a.m. HS4PJ sends on 37 metres, Wednesdays 1 a.m. to 3 a.m. and 6 a.m. to 8 a.m.; Saturdays, 1 a.m. to 3 a.m. All New Zealand summer time. Announcements in English, French, German, and Siamese. Reports welcomed. Address: Radio Chief, Bangkok, Siam.

A new short-wave telegraph station is under construction at Singora in Siam. This station, which has been allotted the call-sign HSJ, is intended for communication with New York and Yacuiba, Bolivia, and will be equipped for C.W. transmission on the wavelength of 12.9, 15.7, 25, and 37.4 metres.

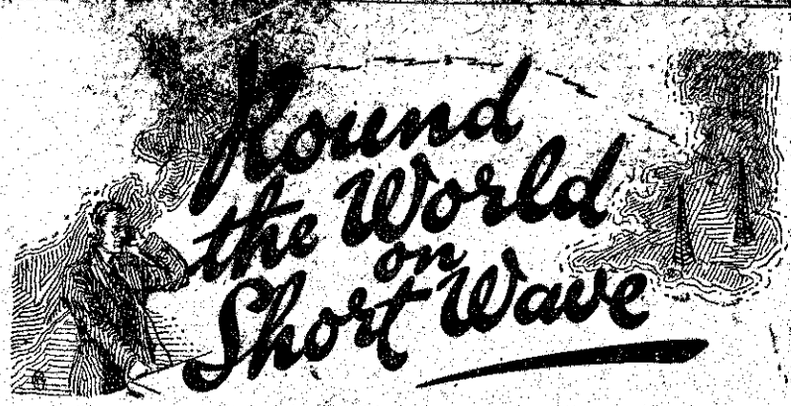
Zeesen (Konigsusterhausen) to Increase Power.—Since August 26 the Konigsusterhausen short-wave transmitter has been broadcasting regularly on 31.38 metres (9560 kilocycles). Its power for the present is 8 kilowatts, but within the next few weeks it is to be increased.

Eiffel Tower Station Experimenting.—Experimental transmissions on short waves by the Eiffel Tower, Paris, are now taking place every Wednesday and Thursday between 8.15 a.m. and 9 a.m. New Zealand summer time. Several wavelengths are being tried out.

Short Waves from Franz Joseph's Land.—News has been received that the experimental wireless station erected on Franz Joseph's Land in the Polar regions, is now in regular operation. Transmissions are carried out each morning between 8 and 10 a.m. (New Zealand summer time) on a wavelength of 43 metres; the call-signs are TSJ, TSR, and TSCH.

Trans-Atlantic Telephony to Milan.—With the extension to Milan of the trans-Atlantic telephony service, on short wave, the American Telegraph and Telephone Company have enabled their subscribers to communicate with twenty-one different countries.

China and U.S.A.—The Chinese Posts and Telegraphs will open in January, 1930 a short-wave wireless telegraphy service with the United States.



THIS page is conducted in the interests of shortwave enthusiasts. A weekly log comprising notes of reception and interesting topical events is contributed by Mr. F. W. Sellens, Northland, Wellington, but all listeners are invited to send in paragraphs of general interest.

Reception during Week ending December 28, 1929.

The American stations continue to be very weak during the afternoon. KZRM, Manila, is about the most consistent station just now.

RA97, Siberia, 70 Metres.—Static as usual has been very bad on this station, but the Russian is worth trying for every evening now as they broadcast some very fine music, which is received at good strength, static permitting.

W9XF, Chicago, 49.83 Metres.—Was at its best on Wednesday (Christmas Day). From 6.30 till 8 p.m. they came in good speaker strength, concluding with "Good morning, everybody. Merry Christmas, lots of luck," etc., in the announcer's usual cheerful voice. This station was heard on other evenings, but not nearly so loud.

PCL, Holland, 38.8 Metres.—Was heard on Tuesday morning talking to Bandoeng at R8. Reception was excellent.

A stranger on about 28 metres appeared to be the station at the Java side as it was heard calling Amsterdam. This was the only station that could be found on duplex at that time.

W2XAF, Schenectady, 13.4 Metres.—On Sunday, Wednesday, and Thursday this station was heard, volume only being R3 by 4 p.m. After this time on Sunday volume rapidly increased to R8 by 4.30 p.m., but on the other days the gain in volume was very little.

PCJ, Holland, 31.4 metres.—This station was only heard on Saturday this week. It appears to have ceased transmitting on Fridays. From 6 a.m. on Saturday, when volume was R8, reception slowly went off to R4 at 7.30 a.m. Rapid fade was bad at first, but this improved when the signals were weaker, readability being better during the last half hour. During the afternoon they were not audible till about 4 p.m., but were quite good at 4.30 p.m., being R5, increasing to R8-9 by 5 p.m., and remaining at that till 6 p.m.

Best wishes for a happy and prosperous New Year were extended to all listeners. A "PCJ" booklet will shortly be available telling all about this short wave station, and I understand short-wave broadcasting in general. Australian and New Zealand listeners were advised to apply to the Sydney and Wellington offices of Philips Lamps, Ltd., where supplies would soon be to hand.

Zessen, Germany, 31.38 metres.—Again the German was only once heard during the week, this was on Tuesday morning soon after 6 a.m., when strength was R3-4.

7LO, Nairobi, 31 metres.—R3 is the best I could manage with 7LO during the early morning.

Bangkok, Siam, 29.5 metres.—On Saturday morning, just before 6 a.m., I tuned in a station which was probably Bangkok. Music was heard, and although not quite the same style as the Siamese are so fond of, it was entirely different to what we are accustomed to. After 6 a.m., what appeared to be a play was heard. Volume was R5.

VK2ME, Sydney, 28.5 metres, and GBX, England, 27.5 metres about).—On Monday evening these stations were on duplex as usual at R9 and R6 respectively. It appears that it was arranged that the Lord Mayor of Melbourne was to speak at Melbourne through 2ME early on Tuesday morning, but apparently this did not eventuate on account of conditions, according to the talk that was heard from Melbourne via Sydney. 2ME at 5.29 a.m. on Tuesday was R9, with the regeneration condenser "all out," loudspeaker on one-valve. GBX also was good, being R8, but not so clear as Sydney.

KZRM, Radio Manila, 26 metres (about) has been good every evening from 10 p.m. (except Monday, their silent day). Apparently the weather is not too good there, as twice during the week the Philipine Constabulary Band were unable to pay in their usual open-air bandstand. Volume is good at 10 p.m., but by 12 p.m. it is much better.

G5SW, Chelmsford, 25.53 metres, is still too weak from 7 a.m. to hear properly, but on Saturday a vast improvement in volume was noticed, strength being R6 to start. Readability was spoilt by gushiness.

KDKA, Pittsburgh, 25.4 metres.—Sunday was the only day for volume was reached, and then not till after 4.30 p.m., when messages to the Byrd Expedition were being read. On Thursday, a Christmas service was broadcast for the residents of the Far North and for the members of the Byrd Expedition. Seasonable greetings were also sent. Volume was R5 at 4.30 p.m. Strength on Wednesday and Saturday was too poor for listening.

W6XN, Oakland, California, 23.35 metres, was only heard on Sunday, R1 at 2.30 p.m., increasing to R8 by 5 p.m. After that, strength slowly went down again.

W2XAD, Schenectady, 19.5 metres, is not worth much any good with now. On Wednesday and Saturday they were barely audible for a short time. Thursday was a little better. A church service was heard from about 9.15 a.m. at R2-3. This volume remained fairly constant till after 1 p.m. Soon after this they were lost.

PLG, 16.38 metres; PLE, 15.74 metres; PMN, 14.5 metres, all of Java, were heard on duplex on several evenings.

PCK, Holland, 16.3 metres; Monte Grande, 15.09 metres, and **Nauen, on 14.83 metres,** were also heard on duplex.

Unidentified Stations.

ON 64 metres (about) at 12 p.m., Saturday, a stranger was heard on this wavelength at R8. Music but talk were broadcast, but static much too severe to allow me to get the call.

41.6 metres (about). On Tuesday and Saturday mornings, about 6 a.m., a foreigner was talking. Signals were very weak each morning, but on Tuesday "Hullo Bandoeng" was heard.

30.9 metres (about)—just below 7LO, Nairobi, on Friday morning an English voice was heard at R4 about 6.30 a.m. Static and gushiness spoilt readability. It appears to be duplex. This station, or another on the same wave-length, was heard again about 12 p.m. on Saturday. Music at R5 with slow fades to R3, with "Hullo, station ——" was heard. The voice was English, but could not get call.

28 metres (about). Station either calling or giving the call of Amsterdam. Strength R8, but very gurgly; heard on Tuesday morning and Saturday night.

A NEW motor lifeboat which has just superseded the old pulling and sailing craft hitherto stationed at Cornwall, is the first vessel of the type to be fitted with wireless telephony. The first installation is rendered necessary on account of the fact that the lifeboat has an effective range for service up to 80 miles from her station.

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