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The Claims of Provincial Areas

WE are glad to publish in our columns, on the next page, a letter from a listener criticising our article in connection with the effort being made by the owners of certain "B" class stations to agitate and organise with a view to securing a subsidy from the funds contributed by listeners for the maintenance of the broadcasting service.. We are quite glad to receive and publish this letter, although it is critical of our own views, in order that listeners may be induced to study this question from all angles. It is a very important question, striking at the whole root of the efficiency of the present broadcasting service. We are not in the least concerned with the interests of any individuals or firms in this discussion. We are concerned wholly and solely with the general good of the broadcasting service as it affects listeners themselves, and therefore are quite prepared to give full publicity to capably-expressed views on the question from whatever angle they be advanced.

THE writer of this letter writes strongly from his point of view. He is suffering from a disability which he desires to see rectified. He is a keen radio enthusiast, and enjoying radio as he does, desires to secure better reception for himself, and to see the number of listeners in his locality increased. His point of view is one with which we can all sympathise. He may be taken as typical and representative of a definite class of people. Their plight constitutes a problem which certainly requires to be tackled. The time is coming when it will have to be tackled, and the question is just what is the best way of facing the problem.

OUR correspondent assumes that we are antagonistic to all "B" class stations, wherever they are situated. In that, he is in error. That is not our attitude at all. We have no antagonism or opposition at all towards "B" class stations. We oppose them only when they enter upon a demand for subsidy from the funds provided by listeners for the maintenance of the broadcasting service. That opposition on our part would be the same whether the broadcasting service is maintained by a company under contract from the Government, as at present is the case, or by the Government, or any other central interest. Our attitude is dictated by realisation of the fact that in the existing stations of New Zealand, a service satisfactory to listeners and the public in general can be provided only by central control, and adequate organisation and administration of the funds available. That system would not prove possible by the provision of a number of isolated, independent and scattered "B" class stations nibbling at the stability of the central fund through demands for subsidies.

Relay Stations Required.

THE problem presented by our Hawke's Bay correspondent is, in reality, that of the provision of relay stations for the major centres of population outside the principal cities. It is an open secret to those familiar with the conception and plans of the original broadcasting service of New Zealand that the provision of relay stations at suitable provincial centres was contemplated as an integral part of the original scheme. It will be agreed, however, that the original scheme has had to evolve as means permitted. The major centres of population from the business point of view obviously required first consideration. Stations, therefore, have been established at Auckland, Wellington, Christchurch, and Dunedin, and their service has been improved as funds have advanced. The capital put into the venture has been, as all listeners know, vastly increased over that originally contemplated, and by that expansion a better service has been given the community than originally aimed at.

THE need for growth within the point of business stability will be recognised. The progress made in respect of numbers of listeners has been fairly satisfactory, but there is still a gap to be bridged before fullest stability and expansion can be assured. This gap is due in part to the number of pirates who are avoiding their obligations, and thereby reducing the income of the broadcasting service and preventing the provision of those extra facilities for provincial centres.

Must Be Complete Scheme.

WITH our correspondent, we realise the problem of the provincial listener, and desire attention to be given to those needs. That problem, however, must be tackled on a consistent, comprehensive, and business-like basis. The points for the provision of relay stations must be carefully selected in relation to the greatest good of the greatest number. Economy of administration and avoidance of clashing with existing stations must be preserved by the relay stations co-ordinating with existing main stations. By such co-ordination and co-operation with the Postal service and existing stations, economy in the provision of transmitting plants will be attained as well as efficiency in administration. Programmes from relay stations will be more cheaply available than original programmes provided by independent "B" stations. The "B" stations that are at present operating have probably not been faced with a demand for copyright fees, but so soon as they become possessed of revenue, either by subsidy from the funds of listeners or advertising, that de-

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What English Listeners Think

Extracts from the Mailbag of "Radio Times"

THE following are short pithy extracts from the "Radio Times," which in England fulfils the same function as ourselves:—

The grumbler is the "outward and visible sign" of that divine discontent that has been the motive power behind the world's progress throughout the ages. I am sure there are grumblers at Savoy Hill. Even the Chief Engineer, on those all too rare occasions when he "comes on the air," has a grumble that things aren't to his liking, but he intends to keep plodding on. I am also equally sure that the grumbler has been one of the best friends of the officials of the B.B.C. —the pointer that shows the way.—J. A. C., Rotherham.

Go on! Pat yourselves on the back. It is easier, I should say, to go through the eye of a needle than to get a letter criticising the B.B.C. on to your letter-page, or any reasonable proposal suggested by a listener adopted by your organisation.—B. R. D., Oxford.

It will be interesting to read a reasoned justification of wireless by any listener. I can find in it nothing more than an added disturbance to the tranquillity of life. Forgive candour. —P. T., Beaconsfield.

What They Think of Jazz.

WHY not let jazz alone? It is all right in the right place. It is all wrong in the wrong place. To hear nothing but jazz is like eating nothing but jam. The former is as bad for the ears as the latter is for the stomach. Season your meal with a little of everything, and you won't get "colly-wobbles"!—"All-Rounder."

Sir Henry hates jazz and is proud of it. I hate Bach and am proud of it, too. I expect we're both fools!—S. F. J., Harwich.

I have a canary whose case hangs in my drawing-room, where the wireless set is, and he also accompanies lustily both the musicians and singers, especially the lady singers. I have noticed, however, that when jazz is played he immediately shuts up and is silent for the duration.—G.W.G.

Having regard to the large number of indifferent dance orchestras and illiterate American vocalists who are all engaged in making this a brighter and better land, it should be easy to run a complete twenty-four hours 'service of dance music only, so that enthusiasts need never waste their time on less important matters. Jazz music also has this advantage that you get a different effect by playing it backwards or sideways, without in any way spoiling the tune.—"Tango Twins," Dorchester.

Ideal Programme.

"THE ideal way to enjoy broadcasting is to listen only to those items which you know will hold your attention. On purchasing 'The Radio Times," try marking in blue pencil those items you are able and wish to hear, and in ordinary pencil those which may appeal to you and in which you should take an intelligent interest. With this method you are never bored and can add considerably to your store of knowledge. Should it appear to be a 'dud week,' don't fuss. It's better to listen to one item with all your attention rather than to a dozen with your mind wandering; besides, the balance at the end of the year will be well in your favour—the law of averages and the selection committee will see to that."—J.L.T., Tufnell Park, N.7.

Claims of Provincial Areas

(Continued from front page.)

mand is almost certain to be made. That will, therefore, be an added expense to that of operating. This little item in copyright fees, considerably more, than is realised on the surface by the outsider, is wholly to the advantage of the relay station as against the independent station.

Multiplicity Not Good.

AS was mentioned in our original article, experience elsewhere is wholly against the provision of a multiplicity of stations. Co-ordination and amalgamation for maximum efficiency are the modern principles. New Zealand, with its limited population and scattered area, provides a unique problem in broadcasting. That problem will be faced and conquered best by a single comprehensive scheme rather than the diffusion of strength at a number of independent points. We are fully sympathetic with the disabilities of centres such as Palmerston North, New Plymouth, Hastings, and Napier, and recognise the claims of their population for improvement. Our whole point, however, is that the improvement which they desire—and which is desired by others interested in the expansion of radio on their behalf—will be best attained by co-operation with the existing organisation, than by the provision of independent stations seeking a subsidy from listeners' funds. A beginning to such co-operation is being effected in New Plymouth, where, as has been announced, a relay station will be provided by the Broadcasting Company in conjunction with the local Radio Society. This may be a beginning of similar schemes for other towns. If the Post and Telegraph Department, following on the recent successful relay from Wanganui, can provide similar trunk lines between other strategic points, a big advance may be possible.

Maximum Good Desirable.

WE appreciate the letter of o. correspondent and gladly give publicity to his views and disabilit As mentioned earlier, our concer with the general body of listeners. it is their money that is being administered, and in their own interests it is essential that its expenditure be such as to provide the maximum service for the maximum number of people. It is our view that those results will be attained best by co-operation and co-ordination and expansion as revenue is available, than by diffusion and the scattering of strength. It is necessary for any new organisation to walk before it can run, and that rule has been followed in New Zealand broadcasting. The result to-day is as satisfactory, we believe, as can be expected, having regard to the circumstances. It certainly is not perfect. There is much progress yet to be made, but as emphasised earlier, that progress can be attained better by cohesion than diffusion. If there are any arguments to the contrary, we are quite prepared to place them before listeners.

H.B. Correspondent Claims Attention

I WAS interested to see in this week's issue of the "Record" the letter now being circularised among "B" class stations, and your comments on same. Well, I have been storing up a grouch against the R.B.C. for some time, and your remarks have put the finishing touches to it. Here is how stations come in here now. Aussies, inaudible; 4YA, seldom heard; 1YA and 3YA, heard occasionally above static and power noises; 2YA, plenty of volume in between fades, but, to put it mildly, simply awful. The only station worth listening to at present is 2ZM, Gisborne, one of those terrible "B" stations. This great little station is heard here every night it is on the air, with plenty of volume and remarkable tone, and can put 2YA in the shade any time. All of which leads to the question under discussion: Should the "B" class stations derive some of the revenue? If the R.B.C. is providing adequate services in the districts wherein the "B" stations are situated, I say they should not derive revenue. But is the company doing this? Speaking as a Hawke's Bay listener, I most emphatically say they are not! I wonder if the broadcasting directors have ever heard their star station in this district? I think not. Have you, Mr. Editor? I cannot think it possible that you can have done so, for if you had, you would not have the audacity to say that the present stations are giving a satisfactory service. In fact, things are so bad here that the local radio society are considering erecting their own station and providing and paying for their own entertainment. Now, Mr. Editor, do you consider we are getting a fair deal during the summer months, when static drowns out the three smaller YA stations. We pay 30/- a year for a broadcasting service and get mostly mush, fading and distortion, and then over and above this, if we want any enjoyment out of our receivers we have to pay for it ourselves. Don't you think that under the circumstances the local station should be subsidised, seeing that the company does not seem to worry whether we get an efficient service or not? If they had the interests of the listener at heart a relay station would have been provided long ago. If they are not prepared to do this, they should subsidise the "B" station that is prepared to fill the breach. With a good service the listeners in this locality could be easily doubled, but, even if a relay station brought not one more license, the company owe it to the present listeners.—J. L. (Hastings).

Wavelengths of American Stations

Comprehensive Changes Made

AS was announced in a recent issue, there has been a change in the wavelengths of the American stations. This step was necessitated by the congestion of the bands upon which these stations were broadcasting. The convention that fixed the wavelengths at the same time regulated the hours during which these stations might go on the air so that these Americans will be found not only in different places on the dial, but will be heard in many cases at different hours. This will mean that we will be able to hear many new stations, while at the same time many will disappear or appear to do so.

Just recently many correspondents have been inquiring about new stations that they have heard so that one may presume that a few of these strangers have already made themselves heard in this country.

Appended is a list comprising those stations that have already been heard in New Zealand on their old wavelengths, followed by a list of those most likely to be heard; that is, the most powerful of the American stations. The first list denotes those which we have recorded as having already been heard in this country, while in brackets will be found the nearest station to the American in point of position on the dial.

The stations are arranged in the order of wavelength:—

WLAC,	Nashville, Tennessee	5	kw.	201.1
KFBL,	Everett, Washington	50	watts	200
KGER,	Long Beach, California .	100	watts	219
KFON,	Long Beach, California .	1	kw. (4ZL)	240
KPQ,	Seattle, W., Washington .	100	watts (3ZC)	248
KEX,	Portland, Oregon	2½	kw. (1ZQ)	254.1
KFKB,	Milford, Kansas	5	kw.	265
KMOX,	St. Louis, Montana	5	kw. (2ZM)	275
KNX,	Los Angeles, California .	5	kw. (2ZF)	286
KTBI,	Los Angeles, California .	500	watts	288.3
KRLD,	Dallas, Texas	10	kw. (4ZB)	295
WBZ,	Springfield, Mass.	15	kw.	303
KDKA,	Pittsburgh, Pennsylvania	25	kw.	306
KGR,	Seattle, Washington	5	kw. (3YA)	306
KOKA,	Byrd Expedition		(2GB)	316
KWFB,	Hollywood, California ..	1	kw.	316
KOUN,	Portland, Oregon	1	kw.	319
WFIW,	Hopkinsville, Kentucky .	1	kw. (3UZ)	319
KOA,	Denver, Colorado	5	kw.	326
KHJ,	Los Angeles, California .	1	kw. (1YA)	333
WENR,	Chicago, Illinois	25	kw. (JOAK)	345
KWKH,	Shreveport, Louisiana ..	10	kw. (2BL)	353
KOA,	Denver, Colorado	12½	kw.	361
KGO,	Oakland, California	10	kw. (JOGK)	380
KNRC,	Santa Monica, California	500	watts (4QG))	384
WBBM,	Chicago, Illinois	10	kw.	389
KZRM,	Manilla		(5CL)	413
KFVD,	Venice, California	250	watts (2YA)	428
KPO,	San Francisco, California	5	kw. (2FC)	442
KFI,	Los Angeles, California .	5	kw. (4YA)	468
WDAE,	Tampa, Florida	1	kw. (3AR)	484
KFRC,	San Francisco, California	1	kw.	492
KPLA,	Los Angeles, California .	500	watts	526

THE following are a few of the high-powered stations in America whose reception, to our knowledge, has not been reported. Would any listener having heard any of these or, indeed, any other unlisted American, kindly advise?

These are arranged in alphabetical order:—

KFAB,	Lincoln, Nebraska	5	kw.	389
KFJF,	Oklahoma City, Oklahoma	5	kw.	204
KFKX,	Chicago, Illinois	5	kw.	254
KGA,	Spokane, Washington ...	5	kw.	204
KJR,	Seattle, Washington	5	kw.	309
KOB,	State Coll., New Mexico .	10	kw.	254
KSL,	Salt Lake City, Utah	5	kw.	265
KSTP,	St. Paul, Minneapolis ..	10	kw.	205
KTNT,	Muscataine, Iowa	5	kw.	256
KVOO,	Tulsa, Oklahoma	5	kw.	263
WABC,	New York City	5	kw.	349
WAIU,	Columbus, Ohio	5	kw.	468
WAPI,	Auburn, Alaska	5	kw.	263
WBAL,	Baltimore, Maryland	5	kw.	283
WBAP,	Fort Worth, Texas	5	kw.	375
WBAW,	Nashville, Tennessee ..	5	kw.	201
WBT,	Charlotte, North Carolina	5	kw.	278
WCAU,	Philadelphia, Penn.	5	kw.	256
WCBD,	Zion, Illinois	5	kw.	278
WCCO,	Minneapolis, Minn.	10	kw.	370
WEAF,	New York City	25	kw.	454
WEBH,	Chicago, Illinois	5	kw.	300
WFAA,	Dallas, Texas	5	kw.	288
WGN,	Chicago, Illinois	15	kw.	416
WGY,	Schenectady, New York .	50	kw.	380
WHAM,	Rochester, New York ...	5	kw.	258
WHAM,	Louisville, Kentucky ...	5	kw.	366
WHO,	Des Moines, Iowa	5	kw.	300
WIBO,	Chicago, Illinois	5	kw.	203
WJAZ,	Chicago, Illinois	5	kw.	203
WJZ,	New York City	25	kw.	305
WKBY,	Buffalo, New York	5	kw.	204
WLBL,	Stevens Point, Wisconsin	2	kw.	333
WLS,	Chicago, Illinois	5	kw.	345
WLW,	Cincinnati, Ohio	25	kw.	428
WLWL,	New York City	5	kw.	273
WMAQ,	Chicago, Illinois	5	kw.	447
WMBI,	Chicago, Illinois	5	kw.	278
WOAI,	San Antonio, Texas	5	kw.	252
WOC,	Davenport, Iowa	5	kw.	300
WOI,	Ames, Iowa	5	kw.	535
WOR,	Newark, New Jersey ...	5	kw.	422
WORD,	Chicago, Illinois	5	kw.	203
WOWO,	Fort Wayne, Indiana ...	5	kw.	258
WPG,	Atlantic City, N. Jersey	5	kw.	273
WPTF,	Raleigh, North Carolina .	5	kw.	441
WRR,	Dallas, Texas	5	kw.	252
WRUF,	Gainsville, Florida	5	kw.	204
WRVA,	Richmond, Virginia	5	kw.	270
WSAI,	Cincinatti, Ohio	5	kw.	375
WSB,	Atlanta, Georgia	10	kw.	405
WSM,	Nashville, Tennessee	5	kw.	461
WTAM,	Cleveland, Ohio	3½	kw.	280
WTFF,	Mt. Vernon Hills, Va. ..	10	kw.	205
WWL,	New Orleans, Louisiana .	5	kw.	353
WWVA,	Wheeling, W. Virginia ..	5	kw.	258

The Screen Grid and the Pentode

A Comparison and Contrast

THE present age in wireless development may be called the age of the multi-electrode valves. The advantages of this type of valve was first demonstrated by the three-electrode valve with which, today, every owner of a valve set is conversant. This was in turn followed, but in no means replaced by the double grid valves to which we have given a little space in recent issues. Now every wireless enthusiast speaks in terms doubtful of concise of the tetrode valves, the screen grid and the pentode. To the former class the accompanying article by R.W.H., a writer to "World Radio," will be of no mean interest.

WE HAVE been familiar for some time now with two entirely different kinds of four-electrode valves, each of which contains filament, plate, control grid, and an extra grid.

In the first of these four-electrode valves to be developed the additional grid is placed between the filament and the grid used for control purposes. The task set it and the way in which it functions are both exceedingly interesting. The attraction exercised upon electrons by positive ions (that is atoms which contain one or more electrons less than their full complement) is a force far greater than that of gravity. It is this force which draws electrons emitted by the filament, through the intervening vacuum within the valve, to the plate. But another influence is also at work; electrons repel one another with a force that is also far greater than gravity.

Consider what happens in the neighbourhood of the filament when the three-electrode valve is working. A cloud of electrons is ejected and the pull exercised by its positive potential draws them towards the plate. But electrons that are just leaving the filament are, so to speak, dammed back by the repulsive force of those which left a tiny fraction of a second earlier.

Each electron is thus subjected to what we may term a backward thrust from those in front of it and a forward thrust from those behind as well as lateral thrusts from those all round, and itself exercises similar thrusts to its neighbours. The net result is that we have in the neighbourhood of the filament a tremendous congestion of electrons, which is known as the space charge.

To overcome this to some extent a high positive potential must be applied to the plate, and even so the electron stream is not so rich as it might be.

The inner grid of the four-electrode valve arranged between the filament and the control grid is kept at a small positive potential. Since it is immersed in the space charge it exerts a very powerful pull upon electrons that have left the filament. As these approach it they feel the pull of the plate; they rush through its meshes and those of the control grid to arrive at the plate. The congestion round the filament is greatly reduced and a smaller plate voltage suffices to maintain the required stream.

High Magnification.

THE second type of four-electrode valve is of particular interest to the long-distance man, since it enables a degree of magnification previously only dreamt of to be obtained with perfect stability.

In the three-electrode valve the capacity between the grid and the plate leads to unwanted feed-back effects. Energy from the plate circuit travels back to the grid circuit through the tiny condenser formed by these two electrodes. Thus, if we try to obtain big amplification by using highly efficient coils and variable condensers in the two circuits, we find that as resonance is approached signal strength builds up rapidly until at a point a good deal short of the amplification theoretically obtainable the valve suddenly bursts into oscillation.

In the screened-grid valve plate-grid capacity is reduced to something so small that its effects, provided that the lay-out and wiring are suitable, are almost negligible. Between the control grid and the plate a screening grid is introduced. This is kept at a fairly high positive potential. It acts as a capacity screen between the two electrodes, preventing feed-back from occurring. Its presence has also another important effect: a very high amplification factor can be obtained in the screened-grid valve, an overall magnification of 30 or 40 from each H.F. stage being obtainable upon such wavelengths as those on the broadcast band.

Curious Effects.

THE four-electrode screened grid valve, however, has one peculiar quality which renders it unsuitable for low-frequency work.

Let us see what happens when the plate voltage is something less than that of the screen. Electrons from the filament, travelling at terrific speed, pass through control and screen grids, reaching the plate. Such is their velocity that the force of their impact upon the plate drives out other electrons, which travel with a smaller velocity away from the plate. Under the influence of its pull these are attracted to the screen grid. It follows that the plate current falls short of what it should be.

A still more curious effect results if we gradually increase the plate voltage: we find that as we do so the plate current does not rise, but *falls*. Owing to the increased electron speed the number driven out from the plate and "mopped up" by the screen increases. This fall in current continues until a point is reached at which the plate potential is only a little less than that of the screen. If we now make the plate gradually more and more positive current rises sharply.

Plotting the results obtained as a curve, we find that we have something not unlike a capital "N," the third stroke being very long and curving off towards the right until it becomes almost horizontal.

On the low-frequency side of the set the voltage changes in the plate circuit may be quite big; hence a valve with such a kinky curve is incapable of providing a large undistorted output. Until something was done to straighten out the curve practically no use could be made of the screen-grid valve's wonderful amplifying powers before note-magnification.

The Pentode.

HOW was the problem to be tackled? A solution was found in a highly ingenious way by the addition of a third grid.

In the pentode, or five-electrode valve, designed for low-frequency purposes, this is placed between the screening grid and the plate. It is connected within the bulb to the mid-point of the filament and is thus strongly negative in comparison with the plate.

Now let us see what happens in the pentode valve. Electrons leave the filament at very high velocity under the influence of the pull of the plate. So great is their speed that they travel through the control grid, the positively charged screen, and the auxiliary grid, whose potential is only a little above zero. On reaching the plate the force with which they collide with its surface drives out other electrons in the way previously described. These leave the plate with a much lower velocity, and they have not journeyed far before they experience the repulsive force exercised by the auxiliary grid because of the presence of electrons upon it.

Owing to their low speed this repulsive force suffices to drive them back again to the plate and to prevent them from escaping to the screen. The auxiliary grid, in fact, acts as a kind of shepherd, heading off would-be wanderers and ensuring their return to the fold. Its effect upon the valve's performances is that the curve is no longer kinky. As the plate voltage is raised the plate current increases until a point is reached at which no raising of the former produces any appreciable increase in the latter.

A "Hexode" Next?

IN its present form the pentode is an output valve with an amplification factor in the neighbourhood of 60. It is not yet capable of handling a very large input, for which reason it cannot be used successfully as the second of two note-magnifying stages in an ordinary receiving set. Where, however, signals of telephone strength are obtainable without any note-magnification a single pentode stage following the rectifier will enable reasonable loudspeaker volume to be obtained. The advantages of using a single pentode stage will be appreciated by the shortwave enthusiast who has probably realised from experience how difficult it is to obtain thoroughly satisfactory working from two efficient note-magnifying stages in cascade in a receiver intended for very high frequencies.

Further developments are promised and it is likely that we shall see in the near future pentodes suitable for other positions in the receiving set. Time may even bring forth a hexode valve with four grids, the first immersed in the space charge, the second acting as control grid, the third functioning as a screen, and the fourth carrying out the shepherding duties which have been described.

The Telescope of Theology

Someone has likened theology to a telescope. It is meant to give you a clearer view of things, but each one wastes time by boasting about his own telescope; one, that his is the oldest, handed down from apostolic times; another, that his is the latest, up-to-date with modern learning. If only we would think, we should see that we were looking at the telescope instead of through it. No wonder we go back from our worship to our work without a glimpse of the Way, the Truth, and the Life. We are of no use to the outside world. It says, "We don't care a bit about the date of your telescope, but we should be very grateful to you if, as we go into another week of life with its duties and temptations, you could show us something to lift up our hearts and make us want to be better men and women than we often are." —The Rev. Arthur Gilbertson, R.N., Plymouth.

Radio Round the World

MR E. G. PEEK, the well-known Wellington entertainer, appeared at lington entertainer, appeared at studio, 3YA, during the Christmas season. Mr. Peek has appeared several times before the "mike" at 2YA, and has received complimentary messages from all over the Dominion. Just recently word was received that his "turn" was picked up and recognised by an old friend who is now a resident of Tasmania. Many listeners will be interested to know that this performer is identical with "George," who appeared very often before the "boys" at Trentham, as principal comedian of that smart little show the "Purple Courtiers."

THE Manawatu Radio Club is in a strong position financially, "and," commented a speaker at the recent annual meeting, "if the club were wound up to-morrow it would probably return members 15s. for their 5s. subscription." Of the five hundred odd members, more than half of the members of the Manawatu Radio Club are resident in the Palmerston North borough, but among those who pay subscriptions are members in Marton, Pahiatua, Eketahuna, Dannevirke, Woodville, Foxton, Shannon, and, in fact, all the neighbouring towns and districts, while the club has one paid-up member living in Sydney.

THE demand for quartz crystals for controlling the frequency of radio transmitters is supplied mostly from Brazil. The present price is about 12/- a pound. To be acceptable to the Naval Research Laboratory, America, they must be single crystals weighing at least two pounds, and must show growth lines on at least two faces. They must be free from imperfections such as internal fractures and inclusions of foreign matter. They must be absolutely clear when viewed in transmitted light.

NEW modern studios have been provided for the Copenhagen (Denmark) station. There are now four studios where formerly there were only two. It has been found that different types of performances require different types of studios, and in this respect the new studios have been brought right up to date. To absorb the sound a special preparation of compressed sugarcane has been utilised. These quarters comprise twenty-two rooms, each of which is designed to give the best broadcasting effect, both from a technical and an artistic point of view.

A PUBLICITY statement from Russia reports that there are 67 broadcasting stations now in operation in that country, serving a quarter of a million listeners. Because of the great area involved, Russia will naturally require many broadcasting stations, although the number of receivers in use is still discouragingly small. Increased public interest promises considerable growth in the future.

A SYDNEY man lately received from his son in the country a radio receiver which had been sent to him for a present, together with a letter explaining that not a word could be heard on the machine. He took the receiver out of the cabinet and found a big spider jammed under one of the valves. The spider was dead and the corpse had set up a short circuit, preventing the set from operating. The spider had been captured by that interesting insect called the mason bee, which has a playful habit of paralysing his victims and storing them up as food for the newly-hatched young ones. Not long ago station 2BL was held up for half a minute through a moth being electrocuted and creating a "short" at the transmitting station. The Brisbane station 4QG was once thrown out of action in a similar fashion.

THE devastating hurricane which recently swept over the West Indies and then flung its force upon Florida has emphasised once more the importance of amateur radio. With the whole world tumbling about people's ears, motor-cars blown over in the streets, cable and telegraphs uprooted and wrecked, there remained only one simple certain means of communication—and that was wireless. It has been the same in all these calamities recently, and before it passes into a commonplace let us pause for a moment to give credit to the fact that the radio link has alleviated the loss of life enormously, and without it the catastrophic effect of these great cyclones would be incredibly greater.

IN a recent bulletin issued by the U.S. Radio Manufacturers' Association, it is stated that 20 per cent. of the sets in use in the States have been built by what they call over there "custom set builders," or what we might describe as skilled amateurs turning thei spare time to the making of sets for their friends and those recommended to them by satisfied users. Many of the so-called radio nuts and circuit hounds of a few y 's back have found in their hobby not merely a fascinating pastime, but a means of embarking in business on their own account, and many of them are enjoying incomes of 10,000 to 15,00 dollars a year (£2000—£3000).

ALREADY great dissatisfaction is being manifested in scientific circles regarding present methods of televising. For some time it has been realised that before television can be really successful a radically different system must be developed. With this aim in view, experimenters the world over have been working steadily. In America there are among this class of experimenters two that are engaging public attention—the scientists of the Bell Laboratories who are investigating a new system of two-way television, and a young experimenter in San Francisco who is busying himself with radiovision without mechanism. This system is different, in that the spinning disc, a feature of modern radio vision, is to be dispensed with. An apparatus calculated to cost at the most £20 is to be the means of bringing television to the homes of thousands of "lookers in." However, this is yet future.

A new record in radio reception has been established by the Canadian National Railways in receiving English short-wave transmission on a moving train. The Continental Limited, moving eastward from Vancouver to Montreal, had installed on the observation car "Fort Osborne" a special short-wave receiver capable of being used for the short waves and the general broadcasting bands. While the Continental Limited was in the station at Vancouver at 8.30 p.m., Pacific Time, the operator picked up 2XAD Schenectady. On the journey towards the east, various short-wave stations were heard, but that best received was 5SW, Chelmsford, England, which came in while the train was passing Favel, 1219 miles west of Montreal, and situated between Sioux, Lookout and Redditt, Ontario. The operator held the English station for 15 minutes, and then took up a popular programme. The time of reception was 4 p.m. Central Time.

FOR months past experiments with loud speakers have been made in the Vienna Central Criminal Court, but so far with little success. There are now four microphones in use in the largest Court, one before the Judge, and the others before the Public Prosecutor, the defending advocate, and the accused. Five loud speakers are placed on the lamp chandeliers and two in the public gallery. But like most Courts of Justice, those of Vienna have not good acoustics, and the microphones will have to be fortified to make audition completely successful. The prisoner, especially, is difficult to hear, which is natural, for he may be supposed to be speaking under stress of emotion, and often reluctantly.

The Baird Television Co. Reply to the B.B.C.

GREAT interest has been aroused in Great Britain by the reply of the Baird Television Company to the B.B.C. with reference to its refusal to broadcast television from its stations. In the course of the reply it was stated that "The Baird system of television advancement makes it, in the opinion of many independent authorities, fit for a public service . . . The decision of the B.B.C. is in contrast to the considered opinion of many independent engineers, including those of the Post Office . . ." There seems an impression abroad that the Baird company has not been fairly treated. Under these circumstances developments are anxiously awaited.

The New Zealand Radio Record

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N.Z. RADIO PUBLISHING CO., LTD.,
P.O. Box 1032, WELLINGTON.

WELLINGTON, FRIDAY, JANUARY 4, 1929.

THE PROVISION OF RELAY STATIONS.

IN another column we give publicity to the letter of a correspondent upon our treatment of the efforts being made by certain "B" class stations to agitate and organise a demand for subsidy from the funds of listeners. At the moment, this may be regarded as not being a vital point, for the contract of the Broadcasting Company is a water-tight one, and provides no place for the diversion of funds to the purpose desired. That contract has yet three years to run. In spite of the fact, however, we consider that it is important to listeners to fully inform themselves of the situation and understand just what is the principle at the root of the New Zealand Broadcasting service. That principle is co-ordination and unified control. The Government of New Zealand, on the inception of broadcasting, rightly adopted a cautious attitude and investigated the systems prevalent in other countries before launching on our New Zealand venture. For that cautious and wise attitude, the responsible officials of the Post and Telegraph Department are wholly to be commended. Because of it, they were finally able to produce a scheme which provided for stations at the four main centres, with an eye on the establishment of relay stations in suitable provincial areas, and for the maintenance of this system by a system of license fees from those enjoying the service. This system has worked out most satisfactorily, and through it has placed broadcasting fully in the public mind as a needed utility.

FOR reasons of their own, certain business houses, both in the main centres which are already served by YA stations, and provincial points where no such stations exist, have within recent months installed transmitting stations of their own. Their purpose in so doing is obviously to secure publicity for their own radio goods and associated wares. After some months of operation, a movement has been initiated amongst these business houses to combine with a view to securing a subsidy from the Government in mitigation of the cost of operating their stations. We published their preliminary letter and set out to listeners the principles that are at stake. The main principle is the efficiency of the service itself. Only a limited sum is available for the development of radio broadcasting, and the best results will be secured only by the central administration of those funds. For it to be allowable for independent business houses to establish transmitting stations for their own purpose, to operate them for a few months, and then endeavour to relieve their burden by unloading that station on to the funds of listeners, either through receipt of a subsidy or possibly later, a sale to the central authority, is to our mind illogical and ridiculous.

THE main point raised by our correspondent has reference to the disability of radio enthusiasts in large provincial areas, isolated from satisfactory reception from the main stations. With that problem we have every sympathy. Its solution, however, will not be found in the indiscriminate provision of "B" class stations or otherwise, but with the logical tackling of the problem of the erection of satisfactory relay stations at strategic points. We believe that the advance hitherto made in radio has been of such a solid character that the time is now ripe for facing this further expansion. In due course, we expect to see a comprehensive and satisfactory scheme adduced and ultimately put into operation.

Radio Licenses Steadily Mount

As on December 21, the figures for the radio licenses stood as follows:—

	Receiving.	Transmitting.	Dealers.	Total.
AUCKLAND	14,223	56	419	14,698
WELLINGTON	17,118	53	595	17,766
CHRISTCHURCH	8,228	35	279	8,542
DUNEDIN	2,928	21	163	3,112
	42,497	165	1,456	44,118

His Majesty the King

Health Bulletin Broadcasts

The concern which the people of New Zealand felt regarding the health of the King was demonstrated to the Broadcasting Company by the many inquiries which were made of the four stations. These inquiries also demonstrated the value of the broadcast news service.

In this regard, a few words of explanation are, perhaps, necessary. There has been some criticism because the full cabled reports concerning the King's illness were not broadcast every evening. This was, of course, due to the fact that this cabled news as published in the newspapers is the copyright of the New Zealand Press Association, and the Broadcasting Company has no authority to use it. The only overseas news that is available to the Broadcasting Company is that which is covered by the Rugby Official Wireless service.

"Good-bye, 2YA"

Farewell Note from Uncle Ernest.

THE Rev. Ernest Weeks wrote to the staff of 2YA the following note, from Rotorua, where he was resting prior to his departure on the Niagara for Britain:

Dear Folk,—You cannot tell how disappointed I was not to be able to run in for a final farewell. But so many things crowded me at the end that it was quite impossible. I do want to tell you all how good it has been to be associated with you all. Enthusiasm is contagious, and folk who live their job and go for it as you people do, are always refreshing.

Be assured of my interest in you all and in the company's activities. I shall always be glad to hear of the development of the good work, and your individual welfare. It has been a fine comradeship, and I have thoroughly enjoyed it.

It was good of Mr. Harris to be at the station last night representing you all as he did, and I appreciated very much Mr. Ball's wire.

With cordial greetings to one and all,
Ever your friend,
UNCLE ERNEST.

Directing 4YA

MR. LEN BARNES, of Wellington, is temporarily filling the position of station manager at 4YA. For some weeks past Mr. Barnes has been relieving at 2YA, first as programme organiser and then as station manager, during the absence of those officers on leave. Mr. Barnes is a well-known music teacher in Wellington and a popular baritone singer at 2YA. He took up his duties at 4YA on Friday, January 4.

"660" VALVES AND LOUDSPEAKERS.

MESSRS. S. SEGAL & CO., LTD., P.O. Box 2956, Sydney, sole agents for Australasia for the famous "660" Glowless Valves and Loudspeakers, manufactured by The Six-Sixty Radio Co., London, England, are desirous of appointing a Distributor or Distributors for New Zealand, and will be glad to hear from any firms interested.

New Male Voice Quartet

Early in the New Year, Auckland will hear a new male voice quartet. Two of the members will be Mr. James Simpson and Mr. Duncan Black, two very popular members of the Clarion Quartet. The new combination is being organised by Mr. Black, and its appearance on 1YA programmes will be welcome.

Wanganui Concerts

Requests for More

CONGRATULATORY letters are still being received by the Broadcasting Company in reference to the recent concert relayed from Wanganui. These letters contain nothing but praise for the transmissioon and for the quality of the programme. One writer describes the whole broadcast as a masterpiece. Requests that these should be more are frequent.

There is every likelihood that more relays from Wanganui will take place. The Wanganui people are enthusiastic and programmes of various types have been offered.

2YA Tests

Next Week's Schedule

NEXT week the tests which are being conducted at 2YA in respect to the merits of the two systems of control—crystal and valve oscillator tube—will be continued as follow:—

Monday, January 14—Crystal.

Tuesday, January 15—Master oscillator tube.

Wednesday, January 16—Crystal (if on the air).

Thursday, January 17—Master oscillator tube.

Friday, January 18—Crystal.

Saturday, January 19—Master oscillator tube.

Sunday, January 20—Crystal.

Station 4YA

Resignation of Mr. J. W. Webb

STATION 4YA, Dunedin, is losing the services of Mr. J. W. Webb, who has been in charge there for three years. Mr. Webb has accepted an excellent position with one of the largest bookselling firms in Dunedin, and his resignation has been accepted with regret by the Broadcasting Company. He will do well in his new position, whither he carries the best wishes of the company. His record as a broadcaster is highly commendable, his ability and achievements, whether as an announcer, in programme organising or in arranging relays and rebroadcasts, being well recognised.

Wanganui Concert

LISTENERS will be interested to know that following on publication of the item concerning the acceptability of contributions from distant listeners, the Queen Alexandra Band, of Wanganui, has received contributions from radio listeners totalling to date £17 4s. 9d. The list of contributors is as follows:—

	£	s.	d.
Previously acknowledged....	8	19	9
A. Collins, Mangamahoe	0	10	0
C. F. Millward	1	1	0
E. H. Whiteman, Kokatahi..	2	2	0
Dr. U. Williams	1	1	0
A. Moore, Waitomo	0	1	0
R. L. Thompson	1	1	0
Ellery Gilbert	1	0	0
L. Kellick	0	10	0
Brush's Stores, Smithfield ..	0	5	0
L. Benjamin	0	5	0
E. C. Lawrence, Marlborough	0	10	0
	£17	5	9

The grateful thanks of the band are conveyed to all who have contributed. The total collected from all sources to date is £349 4s. 9d.

Leaving School?

What are you going to Do?

THE problem which faces all parents who are interested in the future of their children is, "What are we to do with our boys and girls?" Too seldom do they interest themselves sufficiently. This may be due in some small measure to indifference, but principally to inability to size up fully the capabilities of the boy and the merits of the various occupations to which he might be put.

Generally the whole question of a boy's future career is left to luck. He simply drifts around till he "gets a job," without much thought as to whether he is well suited for that particular work, and whether it is an avocation which offers good prospects for him.

Of late, an effort has been made to arouse parents to the full sense of their responsibility in regard to this matter, and also to bring before the rising generation the need for wisely choosing their future calling.

To help towards this end, the Broadcasting Company is arranging for a series of lectures to be given from all stations next month. These lectures will be delivered by men in various walks of life, and the attractions, requirements, and prospects of different callings and industries will be explained as clearly as possible in order that youths and their parents may profit by the advantage of the advice of impartial guides.

Wilkins's Plans

Radio Stations in the South Seas

WHEN visiting the Bergen Broadcasting Station recently, Captain Wilkins, the famous Polar aviator, gave some hitherto unpublished information about his plans for the South Sea expedition.

"My idea is," he said, "that with certain knowledge of the weather in Polar regions it will be possible greatly to improve the weather forecasts all round the world. I have discussed the matter with meteorological experts, who quite agree with me. I consider my work in the Northern regions as completed, and can only regret that there was no land to be found. However, some of my associates will endeavour to erect meteorological wireless stations on the drifting ice there. In future, I shall concentrate upon the South Polar regions and shall try and establish the following stations round the South Pole near the Antarctic Circle; Cape Adare, Sabrina Land, Wilhelm II. Land, Enderby Land, Coats Land, Graham Land, and King Edward VII. Land.

"The eastern part of the Antarctic continent is already partly explored, so that I shall probably be able to erect stations here without too much difficulty. The western part of the continent being rather unknown, I shall try and explore especially the regions between Graham Land and King Edward VII. Land, Owing to the distance it will be necessary to erect a station also between these two places—if possible on about 75 degrees west 75 degrees south.

"Furthermore, I contemplate delineating the border between ice and continent in this region. I calculate that the work will take a year, but I shall be prepared to put in more time."

World's Oldest Tuning Note

THE tuning note so familiar to broadcast listeners dates back far away into the mists of antiquity. For, according to Egyptian archaeology, this tuning note was a sort of offertory to the religious ceremonies in the Temple of Amenophis III, which, with its Colossi, stood on the west banks of the Nile.

The twin colossi have remained intact to this day, and are prominent landmarks. These seated figures are of granite but hollow within, and the whistling note which they gave vent to at Matins was caused by the rising sun heating the air within the statues, the air thereupon coming out with a rush through apertures cut in the base.

This was the time that the priest made his appearance and worked "the oracle" so effectively as to make the faithful believe that the gods were singing to them.

Advertising to Sponsor Wireless

No Licenses for America

In view of the fact that at the present time a suggestion is afoot that advertising on the air should be introduced to permit "B" stations to operate profitably to themselves, the following article in an English magazine, by A. J. Preston, is of no small interest.

IT is always surprising to me that so many British listeners seem to resent the enforced annual payment of 10s. for a license. Those who do not take exception to the actual license are as particular about the fare which they receive in return for it as if the sum had been not 10s., but £10. "Look at the United States!" said one listener to me, the other day. "American listeners have an enormous choice of programmes, for which they do not have to pay a penny!" It so happened that, following a recent tour of the U.S.A., I was in a position to correct the common fallacy that listeners "over there" receive their broadcast programmes free, gratis, and for nothing.

Advertising Cost.

THE American listener does not pay 2.50 dol. to the broadcasting authorities or to the Government for the provision of programmes, nor does he pay a tax on his receiving set. He pays by his response to the indirect advertising of American industries. The majority of the programmes are supplied by manufacturers who have added this means of publicity to their ordinary newspaper advertising. These programmes, with which the names of the manufacturers and their products are coupled, create goodwill among the radio audience. Some firms spend as much as 300,000 dol. in a year on their weekly hour of radio entertainment, and the money so spent is charged to their advertising account.

Sponsors of broadcast programmes in America include manufacturers of all kinds of merchandise, principally articles of everyday use—soap, motor-cars, batteries, baking powder, chewing gum, and the like. It is possible that there may be some listeners who do not purchase these articles. They are the only listeners who get their broadcasting free; the rest, by buying the products advertised, pay for the advertisement.

How the Listener Pays.

TO give you some idea of the vast proportions of American broadcasting, let me quote a few figures. The National Broadcasting Company alone has this year sold to advertisers programme hours to the value of fifty million dollars. This time is only a small percentage of the total transmission hours of forty-eight stations.

There are 693 stations "on the air" every evening in the U.S.A. It is plain that the American listener pays more than his English brother, the total receipts from whose licenses do not total much more than 5,000,000 dollars per annum.

It must be remarked also that, in addition to paying for "space" on the ether, the American advertiser must provide his own artists, orchestras, etc. Many millions of dollars are spent on their fees. All this money spent in advertising must of necessity govern the price of products advertised. The listener, in fact, pays.

It is, however, true, that the American listener gets a greater choice of programmes for his money. Yet in this case also he pays. The average receiver in use over there has not less than five valves, and thus, wherever situated, should bring in several stations. There is no dignity of poverty in the States; a man must compete with his neighbours: he must have the latest model, whether of motor-car or radio set. Why, he argues, should he do without either when both can be had on the "deferred payment" system? If his neighbour buys an "eight-tube" receiver Babbitt must do the same. This spirit of emulation, whether you admire it or not, makes for a prosperous radio and automobile trade.

Whether the American listener gets better value for his money in actual quality of programme is a question of personal taste. There is one fallacy regarding American programmes which I should like to explode—that they contain much material which directly advertises goods on the market. This is not now the case.

Subtlety in Advertising.

RADIO advertising, like newspaper advertising, has increased greatly in subtlety. The old days of "Buy more so and so!" are past. An advertiser sponsoring a programme realises that to try the patience of the listener with continuous eulogistic description of his commodity would be to imperil the goodwill built up by such heavy expenditure. He cannot risk offending his prospective customer or driving him to seek refuge on some other of the many available wavelengths. To-day he is content, in most cases, with a simple announcement at the beginning and end of the programme that "this concert is provided by the makers of so-and-so."

The Case of D.A.

TO what a pitch this subtlety in advertising, this desire not to intrude offensively upon the susceptibilities of the listener, has been carried can be judged from the following instance. The makers of a toilet requisite named "DA——" contracted to use a chain of stations for one hour per week for thirteen weeks. Neither their name nor that of their product was mentioned during the series.

At the conclusion of the first programme the announcer requested those of the audience who were interested in the concert and curious as to the sponsor of it, to remember the letter D, and listen the following week at the same hour for the second letter. At the end of the second broadcast the letter A was mentioned, and so on until the last letter of the product had been broadcast and the word "DA——" spelled out. Listeners then knew to whom they were indebted for the programmes. Thus by means of thirteen broadcasts the name of the preparation was firmly stamped on the minds of listeners who had had the patience and interest to follow the whole series of concerts.

This was "good advertising," but it cost money. Though the price of "DA——" may not have been increased, the day of its reduction had been postponed by the expenditure of so much money. The listener had paid.

The "Crystal and Valve"

Correspondents in Difficulty

IN the issue of the "Record," dated November 30, 1928, was published a crystal and valve circuit with claims of superiority over the usual crystal and single-valve amplifier. Two or three letters have come to "Pentode" in which the constructors seem to be having a little trouble with the valve. Apparently it is not functioning properly in their cases, and one or two hints for their use may provide a basis for experiment for others who have constructed this set. The writer explained the construction of a set from which he has had good results but in this, and in all cases where a valve is called upon to function as high and low frequency amplifier, care has to be exercised to see that the amplifying valve does not rectify. A valve cannot rectify and amplify at high and low frequencies together. Assume the reader has the set in front of him; take out the crystal and listen with the phones. If music is heard at all the valve is rectifying. Instead of explaining why the valve is detecting, a few suggestions will be given to remedy this trouble. First increase the B battery supply, and at the same time give the correct amount of grid bias as specified by the manufacturers of the valve in use. This bias is inserted between the F— terminal on the on the secondary of the transformer, and A—.

The ½-meg. grid leak can be replaced by one of 100,000 ohms or better still a high frequency choke can be substituted. The construction of a suitable choke is given in the "Radio Record" dated December 21.

To repeat the hint regarding the type of valve to use. A high frequency or resistance capacity audio valve is quite unsuitable. Preference should be given to one of the 201 A type. In general, a valve with an impedance between 6,000 to 10,000 ohms should be used, and with 90 volts B battery a 4½ VC battery can be used. Give the grid a negative bias by connecting the F— terminal to C— on the bias battery.

By applying these few tests to the receiver, the results will well repay the little trouble and expense incurred.

Results Too Weak.

I WOULD like to know some particulars about the crystal valve set you described last week in the "Radio Record." I made it up, and followed the diagram closely, made all the wiring as short as possible, but the result was a failure. I could get 2YA all right with it, but then it was nowhere near as good as the crystal and valve amplifier; in fact, it seemed sort of half smothered and thick. As for 3YA and 4YA, all I could hear of them was the faint whistle and no more. I can't understand why the same outfit changed from one to the other should be so unsatisfactory. I really expected to hear boisterous volume from the local station for I get plenty of volume at present, using the crystal and amplifie.. I can pick up the Australian stations and Christchurch weak speaker strength, so this district cannot really be blamed for the poor result. My aerial is about 180 feet long, and 40 feet high, and well out in the open. I would very much like to make your set up, if you can tell me how and where I made a mistake, if any. I used the exact materials you specified. This set would oscillate, and the reaction was good, but—?—(C.D. McG., Wellington).

TRY tapping the aerial coil and give fewer turns, say 15 to 25; then test the valve to find whether it is working as an audio amplifier alone. Do this by disconnecting the .0001 m.f.d. condenser, short-circuiting the ½-meg. grid leak and turning reaction to zero. If 2YA doesn't come in at speaker strength then the trouble is either transformer or crystal. Test the crystal by listening with the phones across the P and B of primary with valve turned out. Across the secondary winding of the transformer the signal strength should be slightly less.

Assuming everything is OK, slip in the grid leak and listen. If the music is distorted or there is a great loss of signal strength, try a new leak, or, better still, substitute an H.F. transformer. Now slip in the .0001 condenser, and if the trouble recurs the valve is rectifying instead of amplifying.

There are one or two remedies for this which have been dealt with above.

Which Circuit is the Better?

"ALTHOUGH I get fairly good results from my crystal set with valve amplifier, I feel impelled to construct one of the sets described recently in the 'Radio Record.' I would use the same components for the amplifier, but would ask which will give the better results—the set described in the issue of 30/11/'28, using reaction, or the double tuning system, and connected to amplifier in the usual way?"

Although the circuit employing two crystals is an improvement on the usual single detector one, the results do not equal those of a circuit in which a single detector is used with the addition of reaction. In this case probably the set employing regeneration is to be preferred as a general receiver. But if, on the other hand, the only station desired to be received comes in powerful enough to operate the detector successfully, then the full wave set is to be preferred, and will give considerably more volume from the local staiton.

Auckland Notes

(By Listener.)

WE have had, as we anticipated, a real radio Christmas. The spirit of good-will has come through the air to so many homes, that one wonders if those who are not listeners realise how much they are missing. Of course, Christmas Eve is a late night; crowds throng the shops, where assistants toil heroically in a vitiated atmosphere; then both classes wend their way homewards, tired, but not too tired to tune-in and to hear the age-old Christmas music such as was broadcast from 1YA. Thus it was that thousands sat up till the clock struck 12, in tired but satisfied enjoyment, soothed by the peace of mind which the loudspeaker conveyed to them. The continuation of the 1YA programme until midnight was a splendid touch. It brought the music of the festive season to many who otherwise would have been denied it. The carol service was highly appreciated, excellently rendered as it was by Madame Mary Towsey's band of vocalists. The earlier portion of the programme was in keeping with the occasion.

CHRISTMAS morn, too, was a radio one in countless homes. Children had been awake early to pry delightfully into stockings and to play with innumerable varieties of toys. Then at 9 a.m. came Cinderella and her visitors to give a delightfully bright hour to the kiddies. All at the studio microphone seemed to exude cheerfulness, and with story, music, and greetings the hour sped all too quickly. Not the least interesting part was the conveying of birthday greetings to the many tiny listeners whose natal day was December 25. They were all remembered and called, and one can picture their delight at the occasion. Followed at 11 a.m., a relay of the Christmas service from St. Mary's Cathedral, a service which took the joyous music and the imposing ritual of the Anglican Church to homes far and wide. Thus ended Auckland's radio participation in the great day. We missed 1YA from the air at night, but Wellington was there for all valve set owners, and none would grudge the staff of the local station their well-earned Christmas respite, all too brief though they must have found it. Greetings poured in to them from many sources, and were duly reciprocated.

IN the coming days of the holidays there will be busy hours for the station staff, for the collection, arrangement, and rapid broadcasting of all the sporting news which the public craves at this time is far from a light task. Most interest centres here upon the seven days' racing carnival, and despite lack of facilities once accorded, 1YA will handle results of all races expeditiously.

THERE is every chance that the Municipal Band, the finest of its type in Australasia, will again be heard regularly over the air. Representations have been made to the City Council, and when these have been duly considered it is hoped that an agreement will be reached which will be satisfactory both to the Broadcasting Company and to the council itself. The writer can think of no more pleasant surprise for listeners during the New Year than to hear once again through their radio sets the band which we have come to appreciate in a manner that only broadcasting could make possible.

TRADE has been brisk with radio dealers during the past week—much brisker than it was at this time last year, and the body of listeners will grow as a result. It is noticeable that the crystal set is giving place rapidly to the multi-valve one. Thus the number by which licensees will increase during the month cannot be taken as a fair indication of the business done, for in numerous cases no additional license will be necessary. The earphones will have given place to the loudspeaker. There will, of course, be a slacker time for radio business between now and March 31, but thereafter another mild boom in the trade may be anticipated.

THERE should now be no scarcity of tried and proven radio plays, for the B.B.C. has adapted and used quite a number with most satisfactory criticisms from listeners. Among the latest presented have been "The Man from Toronto," "The Landing of the Shark," and W. H. Roberts's "Temperament."

APPROXIMATELY ten letters are received daily by the management of 2YA, from listeners from all parts of the globe. Their nature is very varied. Quite frequently two letters will come in, one 'blasting' their transmission, while the other says that it was the finest that they have ever listened to.

WHITE wood showing through the stain of a scratched cabinet can often be darkened successfully by several applications of a solution of permanganate of potash.

A Corner for Beginners

By Observer

An Experience with Lightning.

WOULD you be good enough to explain the reason for the following, which I experienced on the 13th inst.

At about 5.30 p.m. I noticed a dark ominous looking cloud not far distant and having my set dismantled at the time I thought it advisable to connect my aerial to earth in case of lightning. When connecting these leads together a spark occurred. I repeated the performance and found my aerial was alive, and threw a spark of 1-8 inch. When the leads were from 6 to 8 inches apart a distinct hissing sound could be heard.

Becoming alarmed, I disconnected A and B batteries to make sure there was no contact there. I then suspected a contact with the house wiring, so switched off the meter, but still the current came through. I then inspected the lead-in through the ceiling and found everything O.K. It was not until this cloud drifted well away that the aerial lost its current. I have never experienced this before nor since, and can only suspect the aerial of picking up a current from an electrically charged cloud. Perhaps you can enlighten me.—"SPARK" (Taradale).

This is one of the rare occasions when an aerial has become charged from a passing charged cloud. This cloud, a mass of static electricity, was passing through an insulator—the air. When it reached the aerial it found a means of getting to earth, especially if there was a lightning arrester in the circuit. The spark indicated that the high voltage from the cloud was rapidly passing to earth.

This is a case which points the urgent necessity of installing a lightning arrester, which would prevent the high tension current reaching the set. The spark spoken of merely arcs across the spark gap and passes harmlessly to earth.

Long and Short Aerial Combined.

IT may interest some of your readers if I describe shortly what I have found to be a particularly effective though quite simple aerial.

I have two poles about 45ft. high situated about 160ft. apart, one pole being about 120ft. distant from the house, the other about 40ft., each pole being on opposite sides of the building. A single wire stretches from each and is joined by about six feet of wire with insulators at each end, thus forming two separate aerials of about 110 and 35 feet respectively. Each of these aerials has a separate lead-in, either of which can be attached to the aerial terminal of the receiving set.

By this simple means either a long or a short aerial can be used, the former giving greater volume, the latter greater selectivity.

I have found also that this aerial system is of great use in reducing static. When static is bad I disconnect the earth wire from the set and attach the short aerial to the earth terminal of the receiving set, keeping the long aerial attached to the aerial terminal in the usual way. This certainly reduces volume somewhat, but it also has a most marked effect in reducing static. — PHILIP WILLIAMSON (Whangamata).

Warning to Constructors

IN last week's issue of the "Radio Record" there appeared an article under the title: "An Addition to the Trickle Charger," contributed by W. Winten, which deals with a switch not in accordance with the regulations. In point of actual fact, this switch constitutes a danger, and listeners are warned not to construct the apparatus. The article, as contributed by our reader, Mr. Winten, was submitted to our technical adviser and duly passed by him. This, however, was an oversight contributed to by Christmas pressure, and we take the earliest opportunity of advising listeners as to the actual position: namely, that the switch described is illegal and constitutes a danger in operation.

Vibrating Objects Cause Distortion.

A SHORT time back a correspondent complained of harshness and rattle on certain notes. Among the causes was suggested loose parts. The following, is a development of that idea.

IF you have a powerful receiver and operate a large loudspeaker, you may have been troubled from time to time by slight harshness creeping into the reproduction. Perhaps you have put this down to overloading the valve or to some other trouble in the set itself. At the same time it is quite possible that resonance in some article in the room may have caused it.

A cigarette-box may be standing on the top of the set and may be sympathetically resonating at its own frequency every now and then. There are all sorts of objects in a room (and not necessarily very close to the set) which might vibrate at certain frequencies from time to time. As a matter of fact, it is highly possible that there will be dozens of articles, large and small, vibrating, although it is only in exceptional cases that these vibrations will be great enough to be really noticeable.

Vases and other mantel-piece objects are prone to sympathetic resonance, as also are fire-irons, and small panes of glass in book-cases or china cabinets. If you have fairly sensitive fingers such vibrations can easily discerned by lightly touching suspected objects. In some cases the only cure may be to remove the object entirely from the room. To obtain perfection of results, many more points besides this one of resonating objects would have to be attended to in the acoustics of the room, and although many amateurs may not feel inclined to go to the trouble of a patient investigation of all such effects, they will find it of interest to feel some of the objects immediately adjacent to the loudspeaker. They will be surprised to find how much resonating energy can be developed.

The Lightning Arrester.

A SHORT time ago a correspondent wrote stating that his arrester had been cracked whilst he was screwing it to the aerial wire. He asked whether it would be rendered useless by this break.

The query brings up an important point regarding lightning arresters. Underlying the red sealing cement lies a piece of cardboard protecting the spark gap which breaks down if struck by lightning. If by any chance this happens to become damp it acts as an admirable conductor and passes the aerial current to earth. This would render the signals faint, if not inaudible, so that if signals become unaccountably faint try removing the lightning arrestor, and if that is the cause, replace it by another—don't leave the set without one, it may be unwise.

To return to the query. If this arrester was to be used outside, then the result would certainly be evident as soon as dampness fell. Even if the broken arrester were to be used inside it would be advisable to replace it, as damage may have been done that may cause the correspondent more trouble and cost than the replacement of the lightning arrester.

Noises in the Speaker.

A CORRESPONDENT has been troubled with noises, intermittent crashes like mild static, at times rising to sufficient intensity to distort the notes, especially those on the lower registers.

There are several probable causes, the most common being the following:

Power line leakages: To test for this, disconnect the aerial. If the noise ceases it is mostly surely power-line interference or static. Examine the aerial to make certain that it is at right angles to any power lines. This will minimise noises from induction. If the noise is disturbing to many in the neighbourhood it should be reported to the District Telegraph Engineer.

Batteries.

IF on disconnecting the aerial it is found that the noise continues, then a systematic search must be made through the set. First test the batteries with a voltmeter. A faulty battery can cause a multiplicity of troubles, so that it is wise to blame first the battery. This can be very easily tested, and, if too low, discarded.

Faulty Sockets.

IF a good contact is not being made, the result will be intermittent and distorted reception. The valve with the defective socket will not give satisfactory results, and each following valve will amplify this defect so that by the time it reaches the speaker there is a rare old noise.

A simple test is to tap each valve tightly. A clear ring should be heard in the speaker. If one valve causes an undue noise then that should be the suspect.

Examine carefully the socket, especially the grid and plate contacts, but a word of warning, disconnect all battery leads—short circuits are then impossible. Examine the joints for defective soldering, and force the contacts, if at the side of the socket, a little closer. If the socket is one of the large type with the contacts on the base, bend these slightly upwards. Clean all the contacts, including the prongs of the valves, and, if possible, ply open the slit. This should eradicate the trouble.

In Windy Weather.

IN windy weather faulty joins in the wires in the aerial sometimes give rise to receiver noises. If the aerial wires are soldered this trouble is avoided, but twisted joins become corroded, and when the wires are subject to movement they cause annoying variable contacts.

Swinging of the lead-in wire which brings it into contact with spouts or other conductors or semi-conductors in electrical connection with the earth will also set up noises in the loudspeaker.

Wellington owners who are troubled with constant noises would do well to make this the first line of investigation.

Questions and Answers

GCT.

WOULD you kindly advise me as to the meaning of the term GCT? I have encountered this term quite often in reference to transmitting in journal QST.—S.W.B. (Stratford).

As far as can be ascertained the letters stand for General Central Time, and refer to the mean time adopted by the Central States of America. There are three main divisions of time on that Continent: Pacific (PST), Central (CST) and Eastern Standard Time (EST).

Low Filament Valves.

"VALVE" (Havelock North) wrote last week asking some questions regarding low filament consumption valves. In our replies we stated that no alteration was to be made in the wiring of the set. This is correct, but it should be noted that the set would have to be reneutralised as for any change in the valves. A suitable method was described in the "Beginner Corner" of last week's issue.

Dynamic Cone Rattle.

I HAVE a five-valve factory-made set to which I have recently added a moving coil speaker, with high power amplifier. Although results are very good I know from hearing others that it is not quite as good as it should be. When the volume is turned up very loud there is distortion, which has the effect of a rattle in the speaker. As the moving coil and audio amp. give perfect results on a gramophone with pick-up direct, the trouble must be in the radio. (1) Would you please tell me what is the most perfect detector system? (2) Is plate detection better than the standard grid leak? What valve would you recommend for the best possible result? (3) Is there any chance of distortion in the radio frequency valves? The set does not oscillate when receiving local stations. Thanking you.—"QUALITY" (Hillgrove).

(1) The best detector from a point of view of quality is the plate bend detector. This utilises a high inpedance valve with a negative grid bias. Omit the grid leak and condenser.

(2) Yes, for local reception; but not so sensitive.

(3) Yes. Although the valves may not be actually oscillating, they may be on the verge of oscillation, in which case distortion is inevitable. Also, when receiving very loud pieces, it is always advisable to use a lower resistance grid leak, but when volume is reached to warrant this change an anode bend detector is indicated.

It seems that the correspondent's trouble lies in the amount of filament current he is giving the detector and audio valves. Through an incorrect adjustment of current distortion can be caused, amplified and passed on to the speaker. Other factors may contribute to this—the last valve may be incapable of handling the volume; a transformer may not be acting up to scratch, or the grid leak may need replacing. Go over the set systematically, using the methods previously described, and in all probability the trouble will be tracked down.

Transmitting Morse.

I AM writing to you to see if you could inform me as to whether I will have to obtain a transmission license to transmit Morse messages. I am taking up a course so as to pass for a license (experimental), and so as to learn the Morse. I have been advised that the best way to learn it properly would be to do the oral and also the practical (to transmit Morse to a friend of mine, and to have practices, say, twice a week). It is as to this that I would like to know about, in reference as to whether I will need a license.—"VALVE SET" (Lower Hutt).

Before any transmissions by radio are permitted an experimenter's license must be obtained. You could, of course, practice with a buzzer.

Short-Wave Without an Earth.

MY short-wave set works better and louder with the earth off. Why does that happen? The set is of the usual three-valve type.

This is usual for a short-wave receiver. These, owing to the high frequency current received, are in a more oscillating condition than the broadcast receiver. Tuning has to be extremely sharp so that anything that would broaden this tuning must be avoided. A set will work nearer oscillation point with the ground removed, and as the short waves travel at a very high frequency the intervening space between ground and set is traversed without a conductor.

Reception Intermittently Spoiled.

IN your issue of December 14 you advise users of receiving sets of six or more valves to limit the length of their aerials to 40 or 50 feet. Presumably this includes lead-in. I have a 6-valve set using: "A" 6 volts, "B" 90 volts, "C" 4½ volts, with a cone speaker. My aerial is about 60 feet above the ground, the nearest earthed conductor being a small wooden shed with iron roof, which would be earthed only in wet weather I suppose, wood being a poor conductor. This shed is right under the middle of the horizontal part of the aerial, which part is about 100ft. long. Is this too much? I seem to pull in most of the usual stations. All YA's, except 4YA in the daytime, 2ZK and 2ZF in daytime usually, most of the other small N.Z. stations at night only. 2ZM sometimes comes in quite strongly. The Australian stations only at night and generally not till fairly late now. 2BL, 2FC and 4QG best, but 2GB sometimes very good. The Japs. have been very poor lately—too much daylight I suppose. Melbourne is also very poor, but 7ZL has been fairly good of late. Of the New Zealand stations 1YA is sometimes given to fading; 2YA is strongest, of course, but greatly offends with blasting; 3YA the best station at night; 4YA usually fairly weak. The best music seems to come from 2YA, but 3YA has easily the best collection of vocal talent, especially the contralto voices. Miss Nellie Lowe seems to "Come over" always in much better voice than any singer I have heard yet. Her nights are eagerly watched for. Listeners here are sometimes troubled with a peculiar interference of which we have so far not traced the source. A terrific drumming howl which quite drowns all other reception. It is irregular in occurrence, sometimes being absent for weeks at a time, sometimes being present for four or five days on end. Three sets, quite close together, of which mine is one, seem to get the nuisance the strongest, proving that it is quite local. There is no licensed sending set in the district, so we are very puzzled. Perhaps some of your experts could enlighten us. Power-line leakage doesn't seem feasible on account of the irregular intervals between onslaughts of the nuisance.—**Tongariro, Raetihi.**

The objection to long aerials with powerful sets is that they collect too much noise. Certainly they give more signal strength. The trouble sounds like a power leakage. You should communicate with the district engineer.

Radio Frequency.

"IN a letter to a correspondent you said that the radio frequency valve might be broken. What do you mean by radio frequency?"

THE sounds from the studio are carried to the aerial by a current of electricity. This current cannot be heard by the ear because of two reasons: (1) it travels too fast; (2) it is too weak. Two processes are necessary, the sounds must be steadied up and they must be made louder. This is the purpose of the wireless set. The fast travelling current from the broadcasting station enters the set and is conveyed to the radio or high frequency valve which strengthens the signals but does not steady the current up. This is left for the detector valve. Low frequency valves amplify or make louder the signals which have been steadied up by the detector valve.

Transformer Terminals.

"I AM constructing a set and find that my transformers are marked IP, OP, IS, OS, while the one shown on the diagram is marked primary P, HT secondary G GB. What does it all mean?"

THE letters on your transformer are those formerly used and they donate input and output primary, and input and output secondary. There are two coils in the transformer, the primary and the secondary. The end into which the current enters is called the input. It leaves by the output. The markings on the newer type of transformer denote the points to which the terminals of these windings should be taken in the average set. IP usually comes from the B plus terminal (IP = B plus), OP usually goes to the plate of the valve, hence OP=P. IS comes from the grid bias (C) battery (IS = GB). Finally OS goes to the grid of the valve and is marked G.

THE WOMAN'S POINT OF VIEW

By "VERITY"

In the Mirror

WOMEN are not growing their hair, nor have they any intention of doing so, in spite of many rumours to this effect.

That our hair is longer than it used to be is quite true. Our more feminine fashions demand softer coiffures. One of the smartest cuts is to have a not too close trim at the back, and the sides allowed to grow almost to he line of the jaw.

Thus the pretty outline of a head is retained and the sides are curled to frame the face softly. Curls, in fact, are more popular than ever. They do much to soften the face, especially at evening.

More and more are hairdressers inclined to water waving. If they detect the slightest suspicion of a wave on a client's head they will earnestly entreat her not to have the irons on it. For an hour or more they will pinch and coax a wave, and then, like true artists, step back and admire their handiwork. And well they might, for an ironed wave is not to be compared with the softness of a finger wave.

The side parting still remains the most fashionable, doubtless because it suits the majority of faces, and is more youthful than a middle parting. It gives width to a too-thin face. But if, as in many instances, your hair is inclined to grow far back on the temple, it is wiser to have the parting nearer the middle.

Cookery Nook

Green Tomato Pickle.

3lb. tomatoes.
3lb. onions.
1 cup sugar.
One-third tin treacle.
2 tablespoons mustard.
2 tablespoons flour.
1 teaspoon ground ginger.
½ gallon vinegar.
6 pieces whole ginger.
A little mace.
½ teaspoon whole pepper.
2 tablespoons allspice, and
2 tablespoons cloves (tied in a bag).

Cut up onions and tomatoes and let stand overnight in salt water. In the morning put tomatoes in preserving pan and all ingredients except mustard. Boil for half hour, then add the mustard and boil another ten minutes. Allow to cool, bottle and seal.

"Anchor" Mock Cream.

Put in a saucepan—
1½ pints water.
¾lb. sugar.

Let this boil for about four or five minutes so the sugar will be near the soft ball stage, when it will be easy to beat up and will retain its lightness.

Stir into the boiling water 5 ounces cornflour, mixed with water, and as soon as this begins to thicken stir in 6 ounces "Anchor" skim milk powder which has previously been mixed into a paste.

Stir thoroughly till all are incorporated, and the mixture has the appearance of blanc mange. Put aside to cool. When cool, remove the skin and work with hand so that any lumps are broken down. Next take—

1lb. "Anchor" butter.
¾lb. castor sugar.

Cream together thoroughly, gradually adding the blanc mange. If thoroughly cool the mixture will rise like whipped cream. Finally add—

1 teaspoon vanilla essence.

This cream will keep and improve for several days, and when carefully prepared is very difficult to distinguish from whipped cream.

Sauces.

For all sauces, both sweet and savoury, first mix one heaped tablespoon "Anchor" skim milk powder to each half-pint of water; then follow the usual method.

Green Peas in Jelly.

Green peas (cooked), 1 cup.
One hard-boiled egg.
Granulated gelatine, 2 level tablespoons.
Liquid (from peas), ½-pint.
Pepper and salt.

Soak gelatine in little cold liquid, add remainder of liquid hot. Stir well and season. Pour a little of the dissolved gelatine into a mould, decorate with slices of hard-boiled egg. Fill centre with peas, and pour over remaining liquid. When set, serve with cold meat. French or butter beans may be used instead of peas.

Cauliflower Salad.

Cooked cauliflower.
Cooked peas or French beans.
Onion and dressing.

Peel and chop onion very finely, and mix in dressing. Place sprigs of cauliflower on serving dish with beans and peas around. Pour dressing over cauliflower, and decorate with two or three small tomatoes cut in quarters.

Hot Weather Hints

The Housewife's Problems

HERE are some hints on how to keep the household well, cool, and comfortable in the hot summer days.

Cut down tea, coffee, cocoa and chocolate at meals.

Increase liquids apart from meals, especially early in the morning and late at night.

Drink water, lemonade, orange drink or any fresh fruit drink, also barley water with a dash of lemon. Sip liquids rather than gulp them.

Do without bread, potatoes, puddings, blanc-manges, porridge, pastry, cakes, sweets, and meat.

Eat more uncoked fruit, salads with plenty of oil, and lemon juice as a substitute for vinegar, light savouries, such as scrambled eggs and omelettes.

Increase rather than diminish fat, such as butter and oil to compensate for loss of bacon fat and the fat of meat.

Lastly, do not eat at afternoon or morning tea time and have more uncooked food in general.

Dainty Nursery Dishes

NURSERY folk are captious people when it comes to mealtime, and it is often a problem to serve up food that is attractive and at the same time wholesome.

The two following dishes are well-tried recipes, and never fail to make an interesting nursery luncheon menu. Minced veal alone is not intriguing even to grown-ups, but when served as a miniature mountain with an outer crust of colourful vegetables, it is both attractive and nutritious.

Take ¾lb. of fresh minced veal and 3oz. of cooked ham (also minced), to which is added ¼lb. of bread-crumbs, with pepper and salt to taste. Beat up two eggs and mix into it above ingredients until well bound. A little nutmeg and lemon juice will tickle the toddlers' palate.

Boil some carrots and turnips, separately, in salted water. When cooked, cut into strips about ¼in. thick; butter an oval mould (the vegetable strips will behave better in this shape), and place turnips and carrots alternately until bottom and sides are covered.

Now fill mould with the minced veal. Put small dish over the top and steam for half an hour. Then, if you turn this out carefully, you should have an attractive dish with a striped jacket to set before the children. Pour gravy round, but not over, it. Serve with boiled potatoes and runner beans or cabbage.

My Lover Drives the Herds

My lover drives the herds;
In broken shoes he wanders.
And his shirt is torn.
He is not as tall
As the wild-cherry tree
In my father's garden:
But in my heart he walks
In robes of red and green,
And on his head a helmet,
And in his hand a spear.
He is taller than the mountains,
And he walks in my heart.

—J. B. Morton.

Annotations of Annabel

DEAREST,—Alack the day, the Boxing Day, when, in Capital City pent, rain swished around silk-clad ankles, and cauld blast roared unfeelingly as it played havoc with treasured, spoon-fed, small and weak box-plants unwittingly left overnight on balcony or window ledge. Grey mists swept the land, while over loneliness of wind-blown harbour a few gulls cleaved a solitary way.

SO that most of us stayed indoors, and beamed upon varied loot of generous season of goodwill. Best beloved tokens, perchance, of happily chosen kindnesses are those of unexpected quality; a few cut-class Georgian tumblers, it may be, given by an apparently austere non-participant in revels of Bacchante, who with charming liberality of spirit and purse presents these flashing cups that cheer to the man or Woman Who Did, or doth, as a present-day Grant Allen might say.

MUCH to my taste is a present of parts, a stroke of imaginative comprehension that delights. Tribute I pay to open-mindedness of beautiful friend, whose white crown of immaculately waved hair makes fitting crown for seventy years, and the tenets of whose preachment and practice are those of the Victorian era. On Christmas morning this lovely lavender lady presented to your Annabel, whom darkly she doubts as being a devotee of the great god Nicotine, a de luxe and princely parcel of De Reszke cigarettes. A modern and delightful gift; and pleasant to find that tolerance and sympathy with other modes and manners are not the exclusive possession of a young and exclamatory generation.

FOR the moment dull and triste are the streets, the shops have lost Christmas dash, the youth and beauty betaken themselves to primrose path of the country, long trail of seashore, more or less idyllic calm of valley and high hill

. . . in those lonely places
Where the old plain men have rosy faces
And the young fair maidens quiet eyes.

A drift of tourists occasionally is to be met on the Quay, viewing our ways and women, frivollings and faults. Sometimes 'twould seem as though visitors from overseas come to bury Caesar, not to praise him, so frequent and painful and free are their comments on this young land, which assuredly cannot and does not aspire to enter into competition with older civilisations. One such held forth in strident accents recently in an art shop, whither through largesse of plutocratic relative I had gone to purchase long-coveted chain of jade. Our institutions, politics and commodities were held up to scorn with vivacity and audibility; the extreme chic of the gown worn somehow rendering bad manners more exasperating. Enviable was that frock of silken, supple black velvet, with its "polka dots" of rose and purple and golden gorse, ineffable the sideways droop of pleats, perfect the moulding of short and tightish bodice that subtly clung to a really admirable figure. All of a simplicity sublime, including hat of tagel straw with band and rose of subtly blended colour; and creating a wonder, as I left the shop, clad in that dull but kind fail-me-never, a coat and skirt, why the same idea had not occurred to the unfertile brain of your Annabel.

NOW that there is leisure for books, wisely or unwisely chosen, as the case may be, by friends who dimly suspect one of highbrow tendencies, I commend "The Feet of the Young Men," an author who conceals his brilliant identity under non de plume of "The Janitor." These vignettes of literary and political personalities are right up to the minute, and worth much fine gold to the student of affairs.

Deal gently with thy brither man,
Still gentlier sister woman,

is not exactly a slogan, and from Lady Astor to Oswald Mosley, M.P., male and female berates he them, all going to make extremely entertaining reading. Mr. Philip Guedella, who would appear to be one of the brightest "literary gents" in this flashing constellation, is depicted with an excess of clarity and lack of charity that are most diverting; while the comprehending and comprehensive notes on Miss Bondfield, Miss Lawrence, and the rest that come under the lash of criticism give added interest to an outspoken and vivacious chronicle.

IN the closing days of a dying year we fall into retrospect and take cherishing thought of friends who are dear; those whose eyes still shed kindly light upon us, and those others between whom and ourselves yawns inexorable gulf of silence and farewell. We are told "Death is but crossing the world, as friends do the sea," and clinging to its prop of consolation, the wistful human heart till long last remembers

. . . that somehow good
Will be the final goal of ill.

Your
ANNABEL LEE.

Books.

THE PATHWAY.

(Henry Williamson.)

THE earlier books of the winner of the Hawthorndale Prize will be remembered for graceful and beautiful expression of love of the open road, a consummate knowledge of field and hedgerow, and the birds and beasts that haunt their remote loveliness. Moorhen, water-rat, tiny wounded creeping things that have no champion, are as friends of his heart; while in "The Beautiful Years" he wrote poignant and illuminating analysis of the ambition and outlook of a little lonely country lad.

The latest book of this sensitive and brilliant member of the younger literary school is the story of an ex-soldier, who, after mud, grime and cruelty of the war years, finds haven in an old Devonshire country home, and the gentle mate of his heart in the spiritually-endowed Mary Ogilvie, that charming heroine, who mothers and protects all that come within her ken.

The character drawing is quite excellent, we meet types of people we know and like; and incidentally, when necessary, in physical matters there is no mincing words, and a spade is to the author just plain spade.

Incidentally there is much lovely talk of the ways of nature on land and sea. Manifestly the inspiration of the novel is a love of all created things, a poignant sympathy with sorrow, and a passionate pity for the fate, "red in tooth and claw," that overtakes the helpless, while at times there are flashes of insight and description worthy of that great nature lover and magician of the written word, W. H. Hudson himself. For example:

"The dawn! The higher ground of the next field grew darker, and the sky above the hill-line glowed with pale yellow, making the distant trees of Windwhistle Spinney black and distinct. Above the primrose bar light from under the earth's rim, flowed to the starry zenith, with a startling loveliness. The sun was remote; yonder was the light of the world, while he, an aspiring mortal, stood in the dusky field and looked at the Morning Star, raptured to the lips, Mother of Keats' spirit, of the world-free Shelley, the broken-winged bird that was Thompson, of Jeffries, who was a leaf and a feather and the sea."

The air of unrest that permeates a post-war world is not absent, and the book ends on a note of sorrow in the drowning of the visionary and dreamer, whose ideals had crashed around him. R.U.R.

The New Times

"MINTIE."

High on the tree-top
The aerial sways;
Now we have started
On listening days.

News from the city,
And music and song,
Shortening gaily
The nights that were long.

3LO Melbourne
And 3AR, too,
Both hold a budget
Of interest to you.

Gone are the evenings
Of old-fashioned style,
When, for enjoyment,
You drove many a mile.

You sit at home gaily,
Yes, surely it's true,
Since 3LO Melbourne
Came calling for you.

High on the tree-top
The aerial sways;
Now we have started
On listenings days.

—"Wireless Weekly."

Features of Next Week's Programmes

Station 1YA

FOLLOWING the church service on Sunday evening a programme will be presented, the artists being the Hazell-Sutherland Duo. The duo will be welcomed back on the air after a long absence, Miss Hazell having been in Sydney for the past four months. The quality of the Duo's performance has always been well recognised.

FOR Tuesday evening's operatic performance, Madame Irene Ainsley has selected excerpts from Gluck's "Orpheus," the cast including Madame herself, as Orpheus, the other two major parts being filled by Miss Violet Harrison and Miss Marjorie Fair. Madame Ainsley will sing "Yonder" and Miss Marjorie Fair will sing a Mallinson number, "Slow, Horses, Slow," the accompaniment of which is of a very difficult nature. The Majestic Orchestra will contribute orchestral selections as will the Studio Orchestra under Mrs. Evelyn Prime.

Mrs. Dorothy Singer, 1YA Orchestra's conductor, is now in Suva. She recently forwarded a very interesting comment in which she advised that the reception of the orchestra in Suva was excellent and that the items were very much appreciated by local residents.

MR. A. B. CHAPPELL, M.A., will contribute to Tuesday's programme a talk on "Maori Music." Mr. Chappell intimates that there is a good deal of interest in this branch of Maori activity which is not nearly so well known, but quite as interesting as the popular rhythmic tuneful effects of Maori music arranged by Alfred Hill.

THE 1YA Musical and Dramatic Committee at its meeting in November recommended to the company an interesting feature in the form of a debate between members of the University Students' Association. This will take place on Wednesday. Listeners will remember that the last occasion on which the students were heard in a similar role was the relay of the contest between the University of Sydney and the Auckland University College. The students have selected four excellent speakers and the subject, which will be treated on broad and humorous lines, will be "That present-day education is not in the best interests of the community."

THE remainder of the programme on Wednesday evening will be chiefly devoted to organ selections played by Mr. Arthur Wilson. Mr. Wilson will be assisted by Mrs. J. Litherland (soprano), and he will include in his recital items ranging from selections from "Elijah" to the well-known Hawaiian melody "Aloha Oe."

THE programme for Thursday will feature two duos—the Clarions and the Hazell-Sutherland. The Clarion Duo is comprised of Mr. James Simpson and Mr. Duncan Black, who are well known as members of the Clarion Quartet. The Hazell-Sutherland Duo will contribute duets. Miss Hazell will sing "Lilacs," by Cadman, whilst Mr. Frank Sutherland, who has a penchant for songs of the open country, will sing "Out Where the Big Ships Go," and "Archie of the Royal Air Force." The Hebrew Two will present popular and comedy elocutionary numbers. The Auckland Trio will present a further French item, which has been selected by the leader, Mr. Cyril Towsey, in continuation of his schemes of attempting to deal as far as possible at intervals with certain schools of composers. The item will be "Demande a l'oiseau qui s'eveille" (Saint-Saens).

THE vocal portion of Friday's programme will be in the hands of The Olympians, and introduces a new vocalist to listeners in the person of Mr. Geoffrey College, who is the son of the well-known basso, Mr. Arthur College. The Olympians will present choruses and solos of a classical nature, the programme being interspersed with elocutionary selections by Mr. J. F. Montague. The chief of Mr. Montague's items will be a group of New Zealand poems which have been selected by Mr. Montague with great care, having in mind the selection of such poems as will best represent New Zealand authors. The Studio Orchestra will be heard in some very entertaining items.

THE programme for Friday evening will include two vocalists, Mrs. Daisy Basham (contralto) and Mr. Walter Brough (baritone). Mrs. Basham is already well known to listeners through her work in connection with the Basham-Briggs Duo. On this date she will be heard in solo roles which will include selections from "Ruddigore." Mr. Brough has chosen popular numbers, chief of which will be Stamford's arrangement of "Father O'Flynn." Mr. F. W. Barker will present humorous elocutionary numbers, whilst instrumental items will be rendered by the Auckland Trio and the Bohemian Duo. A 'cello solo will also be played by Miss Molly Wright.

2YA Features

AN excellent programme has been arranged for Monday, January 7. The orchestra will play the overture "Zampa," "Alt Wein," "Sleeping Beauty," "The Surprise Symphony," and other fine numbers. Two singers new to 2YA will be heard. Mr. R. T. O'Hagan, a splendid baritone, who has earned high encomiums from competition adjudicators, and others, will sing "O Bright and Fleeting Shadows" (from Verdi's opera "Ernani"), and "Chanson Arabe," by Bemberg. Miss Gladys Webb, a young mezzo-soprano, will sing two brackets of songs, including "The Fuchsia Tree" and "Songs My Mother Taught Me." Mr. Victor S. Lloyd will relate rather an uncanny experience, "The Dream," by Alan, who is well known over the air in London. Other performers are Miss Lily Mackie (contralto), and Mr. Frank Skinner (tenor). The latter will include in his numbers "The Prize Song" (from "The Meistersingers," by Wagner). Pianoforte solos will be played by Miss Vera Tolan.

Tuesday evening will see the first appearance at 2YA of "The Rainbeaux Entertainers." This clever combination has appeared many times in Wellington, and their performance at 2YA will be greatly appreciated by listeners. Their items will include vocal numbers, humorous songs, and sketches, and novelty items.

AN entirely novel programme will be given on Thursday, when at 8 p.m. the "Rhubarbarians" will take over the task of entertaining listeners. There is no need to say who they are, because unfortunately their voices will give some of them away. Rudolph's Dance Orchestra will render 45 minutes of novelty, besides instrumental solos and duets. All formality will be dispensed with for this evening, the official announcer having been invited to become one of the party. There will be no "let up." The microphone will be "on" for the whole two hours in order that all the studio sounds, incidental and extraneous, can be let through.

INCLUDED in the orchestral selections on Friday will be the overture to "Maritana." It will interest many to know that the composer, Vincent Wallace, began the composition of the opera in old Barrett's Hotel, Wellington, in 1842. Other numbers on the programme will include "I Pagliacci" and "Carmen," two delightful selections from two very popular grand operas. Mr. C. P. Edwards, tenor, who has earned a high reputation in Dunedin, will make his first appearance in Wellington this evening. His numbers will include "Sicilliana" (from "Cavalliera Rusticana"), and "E Luceran le Stelle" (from "La Tosca"). Mrs. Alice Harris, already well known to listeners, will sing "Lilac Domino" and "Knowest Thou the Land" (from "Mignon"). Other vocalists are Miss Hilda Chudley (contralto), and Mr. Eric Harrison (baritone). Miss Christina Gordon, L.T.C.L., will be heard in a bracket of pianoforte solos, and two elocutionary items will be given by Mr. Cedric Gardiner.

Saturday's programme will include the Melodie Four, whose items are always very popular and entertaining. Mr. Will McKeon is giving two humorous pieces, while the orchestral selections will include some very delightful numbers.

3YA Notes

FOR band night at 3YA on Monday an interesting group of artists will contribute a very interesting programme. The Municipal Band's contributions will include "Punchinello," "Victory" (a waltz), "Sandon" (hymn), an operatic selection by Verdi, the overture "The Church Parade," with "Cheerful Chimes" as the final march. One of the vocalists will be Miss Irene Seymour (soprano) singing the "Waltz Song" (from "Tom Jones"), "Love's a Merchant" and "Ye Banks and Braes." Mr. Ernest Lang, late of Brisbane, is a baritone whose singing is sure to please. His items will be "Lilies of Lorraine" and "Wonder Will You Tell Me." Miss Marjorie Gilbert (contralto) will sing a song by Alfred Hill and two by Drummond. Miss Elaine Moody and Mr. Chas. Lawrence will be associated in providing entertainment with what they term "Counter Melodies."

ON Wednesday evening there will be an operatic programme (with some variations). The vocalists will be Miss Myra Edmonds, Mrs. Eleanor Muirson, Mr. Thorpe Cherry and Mr. Robert Allison. Miss Myra Edmonds is a popular performer. On this occasion she will sing a selection from Puccini's "La Tosca" and also Auber's "Laughing Song." Mr. Robert Allison is an artist who produces the greatest effect in his renditions, as he will demonstrate in "The Star" and "Lolita." Mr. Thorpe Cherry will sing "Siciliana" (from "Cavalleria Rusticana"), and "Onaway Awake."

THERE will be much interest in the appearance in radio of Mrs. Muirson, who has had considerable singing experience in England and in India. This evening she will sing three songs, one of them being Offenbach's "Night of Stars and Night of Love," from "Tales of Hoffman." Hoffman, a young poet, at the court of Giulietta, a famous beauty, at her palace on the Grand Canal, Venice, falls in love with Giulietta, through the evil influence of a magic ring. To secure the key to her boudoir Hoffman kills Giulietta's patron, Schlemil, in a duel, only to find the faithless Giulietta departing in a gondola with the dwarf Pittichinaccio, as the strains of the well-known barcarolle "Night of Love" are heard from the water.

The instrumental items on Wednesday evening will be provided by Miss Lucy Fullwood (pianiste) and the Carter Sisters, with Miss Joan Carter as the violinist. The comedy element of the evening will be introduced by Mr. H. Instone.

ON Thursday evening there will be another operatic programme, the items being taken from the best known and most popular works—"Maritana," "Il Trovatore," "Carmen," "Faust," etc. The vocalists will be Madame Gower Burns, Mrs. Ann Harper, Mr. Ernest Rogers and Mr. Robert Allison. Miss Charlotte Carter will play 'cello solos and instrumental numbers will be provided by the Carter Trio. Mr. L. T. J. Ryan's contributions to the programme will be elocutionary numbers.

"THE CINGALEE" will be the main feature of Friday's programme. Excerpts from this very popular musical play will be sung by the Radiolians. The instrumental items will be played by the Carter Sisters and Mr. George Titchener will cap the evening's programme with his humorous contribu-

tions. One of these will be "How I Climbed the Pole," and the other will be "That Happy Land" (repeated by request).

On Saturday evening there will be a two hours' continuous vaudeville programme—no breaks. All manner of items will be introduced, making one long session of enjoyment. The perpetrators will be the Gipsy Troubadours Party.

4YA Notes

THE service from the St. Andrew Street Church of Christ will be relayed on Sunday evening. Pastor W. D. More will be the preacher. Following the church service, should the weather be favourable, a first-class concert by the St. Kilda Band will be relayed.

A MOST excellent programme will be relayed by the St. Kilda Band, under the baton of Mr. James Dixon, on Tuesday evening. Most of the numbers are recent compositions or arrangements, among which will be Rimmer's selection, "Melodious Gems," and some very popular marches. Miss Wyn McPeak will contribute contralto solos, and elocutionary numbers will be presented by Miss Roberta Williams.

On Tuesday evening the Rev. W. B. Scott will continue his series of talks on "New Zealand History," his subject being "George Augustus Selwyn," New Zealand's first Bishop.

A PROGRAMME of popular music will be broadcast from Dunedin on Wednesday evening. The Serenaders will entertain with some negro plantation songs, while Miss Mae Matheson (soprano) will sing Goring-Thomas's "A Summer Night," and Miss Dorothy Allan will present the contralto solo "The Hawk." The popular song "The Trumpeter" will be rendered by Mr. W. Harrison (tenor). Violin solos will also be contributed by Miss Eva Judd.

SOME of Dunedin's leading vocalists appear on Friday's programme. Miss Florence Sumner (soprano), will sing Schubert's "Cradle Song" and "The Kerry Dances." Miss Dorothy Skinner (contralto) will present Schubert's "Death and the Maiden" and Eric Coates's "I Hear You Singing." Mr. Neil Black (basso) has chosen a group of old favourites, including "The Old Brigade" and Lord Somerset's beautiful death song, "Echo." Miss Aileen Young will play as a piano solo Chopin's "Nocturne in E Minor." Dance music will be relayed from the Savoy at the conclusion of the studio concert.

AN entertaining and amusing programme will be heard from 4YA on Saturday evening, humorous songs, popular song hits, and most laughable sketches, and light instrumental music comprising the bill of fare. During the evening listeners will hear some particularly fine music rendered by the splendid orchestra at the Octagon Theatre.

Children's Sessions

AT 1YA.

TUESDAY, JANUARY 8.—Uncle Pat in charge this evening with jolly stories and jokes. Not so many cousins performing this month, as they are all away at the beaches. May they all have every such happy holidays.

WEDNESDAY.—Good-evening, Hobo! Have you brought Percy? Of course. Then let us hear what fun you have for us this evening.

THURSDAY.—Peter Pan back after his holiday, so there will be all sorts of exciting things to hear about his camping adventures.

FRIDAY.—Friday night brings Nod and Aunt Jean. Cousins will sing and recite. There will be birthday greetings, and of course Postie busy as usual.

SATURDAY.—Cinderella is not telling what she has hidden in her glass slipper to-night, but says "Just wait and see." We feel sure it is something very jolly.

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

AT 3YA.

MONDAY, JANUARY 7. This night "Scatterjoy" is away at the camp, so we will send some happy greetings to her. Listen-in and hear all the nice things we have to say, and Cousin Ena is coming to fill the night with music for us.

WEDNESDAY.—Chuckle helping to-night, as this is holiday season for everyone but Chuckle—but he has all sorts of New Year titbits to tell you, and sing you, too. And you will all feel quite holiday-like.

THURSDAY.—Who is here to-night? Why, Uncle Hal, with Cousins Francis, Amuri and Berny to while away this short bedtime hour.

FRIDAY.—Our dear funny Brother Bill, with all his humorous stories for the little ones (and the big ones, too, like them, we know). Music by the Cousin Rennie Trio.

SATURDAY.—Aunt Pat assisting Chuckle to-night, and having a lot to tell of the holidays and bright time everyone is having. Cheerio for to-night.

SUNDAY.—To-night is the Children's Song Service, and who have we conducting to-night? Our friend "Soecer"! And the hymns are to be sung by the Church of Christ Sunday School.

The Magic Boy

(Written by Peterkin, with the assistance of Young Listeners of 3YA.)

THERE was once a very brave boy named Jack. When he was fourteen years old he decided to leave home and see a little of the world, so he packed his few possessions in an old canvas bag, said good-bye to his father and mother, and walking down the garden path, passed through the gateway out on to the big wide road.

For many weeks he travelled on. He slept under hedges and in haystacks, and earned what food he needed by doing any odd jobs that came his way. He chopped wood, minded sheep, and carried water. He saw many strange and wonderful sights as he travelled, and then one day, just at the foot of a big hill, he came to a beautiful city. As he walked along the busy street he noticed that every person he passed looked very sad. Though he searched every face he was unable to see even one faint smile. He thought that this was very strange, so he stopped a boy who was passing and asked him the reason why everyone looked so sad.

"Why! Don't you know?" said the lad in surprise. "It is because our Princess is bewitched. A magician from a neighbouring kingdom has turned her into a gold statue because she refused to marry him. Can you wonder why we are sad?"

"How terrible," said Jack. "Can nobody break the spell?"

"I'm afraid not," was the sad reply. "The man who restores the Princess to us will have to be more powerful than the magician and able to work greater wonders than he."

Jack thanked the boy for the information, and after asking in which direction the Royal Palace lay he set off through the town.

"I must try and save the Princess," he said aloud as he walked along. "I know a little of magic, and even if I fail and the magician kills me, I won't mind. I will do my best."

In half an hour's time he reached the Palace and knocked at the front door. A gentleman magnificently robed in blue and gold asked him what he wanted.

"I have come to save the Princess," said Jack. "I am going to defeat the magician who has cast his spell upon her."

The gentleman in blue and gold seemed rather surprised to hear a lad talking like this, but he took Jack to see the King and Queen. They were very pleased when they learned that he was going to try to save their daughter, and they both shook hands with him. The Princess was sitting near by in her chair, a beautiful statue of gold, and Jack fell in love with her almost as soon as he saw her.

"Where is the magician?" asked Jack.

"Who wants me?" asked a gruff voice. The next moment a horrible looking old man strode into the room. It was the magician. Because of his powers everyone was afraid of him, and he did just as he liked and lived in the Palace just like a Prince. He laughed when he saw Jack standing there, and threatened to turn him into a goat.

"You can't," said Jack boldly, "for my power is greater than yours. Bring me a pack of cards."

A pack of cards was given to him, and he asked the Queen to select a card. The Queen took the ace of hearts and put it back on top of the pack.

"Now," said Jack, and he threw the cards at the ceiling. To the amazement of all the cards fell in a shower to the floor, but the ace of hearts remained firmly fixed to the ceiling.

"It will stay there until to-morrow," said Jack, "and when the clock strikes the hour of noon it will fall."

(Continued on page 24.)

Peterkin, of 3YA, is winning a more than local fame by the very fine original stories told for the benefit of his circle of youthful listeners. Here is a notable specimen, the merit of which may induce readers further afield to "tune in" to 3YA during Children's Hour.

Full Programmes for Next

Sunday, January 6

1YA, AUCKLAND (333 METRES)—SUNDAY, JANUARY 6, 1929.

3.0 p.m: Afternoon session—selected studio items.
4.0: Literary selection by the Announcer.
4.8: Studio items.
4.30: Close down.
6.0: Children's Sunday Song Service, conducted by Uncle Leo.
6.55: Relay of service from St. Matthew's Church—Preacher: Canon Grant Cowen. Organist: Mr. J. H. Phillpot.
8.45: Band selection—"Valse Creole" (Tschaikowsky) (Columbia Record 02677).
8.49: Vocal duet—Hazell-Sutherland Duo, "O Divine Redeemer" (Gounod).
8.53: Instrumental trio—"Allegro Moderato" from "Trio in B Flat" (Schubert) (Columbia Records 04138-9).
9.5: Contralto solos—Miss Phyllis Hazell, (a) "Like as the Hart" (Allitsen); (b) "Ombra Mai Fu" (Handel).
9.12: 'Cello solo—"To a Wild Rose" (Macdowell) (Columbia Record 03591).
9.15: Baritone solos—Mr. Frank Sutherland, (a) "The Toilers" (Piciolomini), (b) "The Last Call" (Sanderson).
9.23: Orchestral—"Bridal Chorus" (from "Lohengrin" (Wagner) (Columbia Record 02663).
9.27: Vocal duet—Hazell-Sutherland Duo, "The Day is Done" (Lohr).
9.31: Close down.

2YA, WELLINGTON (420 METRES)—SUNDAY, JANUARY 6, 1929.

3 p.m.: Afternoon session.
4.30: Close down.
6.0: Children's Sunday service conducted by Uncle George.
7.0: Relay of service from Trinity Methodist Church, Wellington South (Preacher, Rev. T. W. Vealie; organist, Miss Evelyn Thawley, L.A.B.; choirmaster, Mr. Eales).
8.15 (approx.): Studio concert.
Overture—New Queen's Hall Light Orchestra, "Hansel and Gretel" (Humperdinck) (Columbia Record 41655).
Tenor solo—Mr. James Osborne, "My Dreams" (Tosti).
Viola solo—Lionel Tertis, "Fugue in D" (Tartini-Kreisler) (Columbia Record 04048).
Choral—Choir of St. George's Chapel, Windsor, "Magnificat in D Minor" (Walmisley) (Columbia Record 9174).
Contralto solo—Mrs. Phyllis Ramsey, "The Lord is My Light" (Allitsen)
Pianoforte solo—Mark Hambourg, "Caprice Chinois" (Scott) (H.M.V. Record E13).
Bass solo—Marcel Journet, "La Calumnia" ("Barber of Seville"—Rossini) (H.M.V. Record DB921).
Violin, harp, and flute trio, "At King's Lake" (Gung'l) (Columbia Record 127).
Tenor solo—Mr. James Osborne, "A May Morning" (Sanderson).
Instrumental sextet—Victor Olof Sextet, "To a Water-Lily" (MacDowell) (H.M.V. Record B2690).
Quartet—English Singers, "Though Amaryllis Dance" (Byrd) (H.M.V. Record E292).
Contralto solo—Mrs. Phyllis Ramsey, "How Lovely Are Thy Dwellings" (Liddle).
March—Coldstream Guards Band, "Marche Militaire" (Gounod) (H.M.V. Record C1176).
Close down.

3YA, CHRISTCHURCH (306 METRES)—SUNDAY, JANUARY 6, 1929.

3 p.m.: Gramophone recital of selected items.
4.30: Close down.
5.30: Children's song service.
6.30: Relay of service from Edgeware Road Methodist Church (Preacher, Rev. Samuel J. Werren; organist, Miss Stella Osborn; choirmaster, Mr. C. James).
7.45 (approx.): After-church studio concert.
Orchestral—"Symphony in G Minor" (Mozart) (First Movement, Allegro Molto) (H.M.V. Record C1347).
7.53: Mezzo-contralto solos—Miss Kathleen Johns. (a) "Still as the Night" (Bohm), (b) "Smiling Through" (Penn).
7.59: Orchestral—Royal Opera Orchestra, "Sylvia Ballet" (Delibes): (a) "The Huntress," (b) "Intermezzo and Valse Lente" (H.M.V. Record C1417).
8.7: Baritone solo—Mr. Cyril Rishworth, "When God Gave You to Me" (Nicholls).
8.11: Male choruses—Parlophone Melody Co., "Convivial Songs" (Parlophone Record A2511).
8.15: Mezzo-contralto solo—Miss Kathleen Johns, "My Dear Soul" (Sanderson).
8.19: Violin solo—Renee Chemet, "Serenade" (Toselli) (H.M.V. Record DA955).
8.23: Baritone solos—Mr. Cyril Rishworth. (a) "Where the Abana Flows" (from "A Lover in Damascus"); (b) "Kashmiri Song" (from "Four Indian Love Lyrics" (Woodforde-Finden); (c) "The Garden of Kama" (Woodforde-Finden).
8.32: Grand organ solo—Marcel Dupre, "Prelude and Fugue in G Major" (Bach) (H.M.V. Record D1402).
8.40: Instrumental and vocal items will follow until 9.30.
9.30: Close down.

4YA, DUNEDIN (463 METRES)—SUNDAY JANUARY 6, 1929.

5.30: Children's song service conducted by Big Brother Bill.
6.30: Relay of service from St. Andrew Street Church of Christ.
8.0: Relay from St. Kilda of concert by the St. Kilda Band.
9.15: Close down.

Monday, January 7

1YA, AUCKLAND (333 METRES)—MONDAY, JANUARY 7, 1929.

SILENT DAY.

2YA, WELLINGTON (420 METRES)—MONDAY, JANUARY 7, 1929.

3.0 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results to hand.
5.0: Close down.
6.0: Children's session, conducted by Uncle Jeff and Aunt Gwen.
7.0: News session—market reports and sports results.
7.40: Lecturette—Mr. Hare Hongi, (Mr. H. W. Stowell)—"Maori Language and Pronunciation."
8.0: Chimes of the G.P.O. clock.
8.1: Overture—Orchestra, "Zampa" (Herold).
8.11: Baritone solo—Mr. R. T. O'Hagan, "O Bright and Fleeting Shadows" (from "Ernani") (Verdi).
8.16: Violin solo—Tossy Spiwakowsky, "Sonata XII." (Paganini) (Parliphone Record E10561).
8.20: Mezzo-soprano solos—Miss Gladys Webb, (a) "The Fuchsia Tree" (Quilter); (b) "Songs My Mother Taught Me" (Dvorak).

Week-all Stations-to Jan. 13

8.26: Entr'acte—Orchestra, (a) Alt Wein" (Godowsky); (b) "The Sleeping Beauty" (Tschaikowsky).
8.35: Tenor solo—Mr. Frank Skinner, "The Prize Song" (from "The Mastersingers") (Wagner).
8.40: Pianoforte solos—Miss Vera Tolan, (a) "Polonaise" (Chopin); (b) "A May Evening" (Palmgren).
8.46: Contralto solos—Miss Lily Mackie, (a) "The Sands of Dee" (Clay); (b) "In Hebrid Seas" (Kennedy Fraser).
8.53: Instrumental—Orchestra, repeat number.
9.0: Weather forecast.
9.2: Mezzo-soprano solos—Miss Gladys Webb, (a) "Love's Rhapsody" (D'Hardelot); (b) "If My Songs Were only Winged" (Hahn).
9.7: Symphony Orchestra, "Surprise Symphony" (Haydn).
9.17: An experience related by Victor S. Lloyd, "The Dream" (Alan).
9.29: Baritone solo—Mr. R. T. O'Hagan, "The Arab Song" (Bemberg).
9.33: 'Cello solo with orchestral accompaniment, Mr. Geo. Ellwood, "Melodie Arabe" (Glazounow).
Orchestral—"Village Dance" (Glazounow).
9.41: Contralto solos—Miss Lily Mackie, (a) "Will He Come?" (Sullivan); (b) "Rain" (Curran).
9.47: Harpsichord and viola da gamba duet—Anna Linde and Paul Grummer. "Sonata in C" (Adagio—Allegro) (Handel) (Parlophone Record E10582-3).
9.59: Tenor solo—Mr. Frank Skinner, "The Garland" (Mendelssohn).
10.2: Barcarolle—Orchestra, "Barcarolle" (from "Tales of Hoffman) (Offenbach).
Dance—Orchestra, "Scarf Dance" (Chaminade).
10.12: Close down.

3YA, CHRISTCHURCH (306 METRES)—MONDAY, JANUARY 7, 1929.

3.0: Afternoon session—Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session, conducted by Aunt Pat.
7.15: News session.
8.0: Chimes. Concert by Christchurch Municipal Band under the conductorship of Mr. A. Schnack) and assisting artists.
8.1: March—Band, "Punchinello" (Rimmer).
8.8: Soprano solo—Miss Irene Seymour, "Waltz Song" (from "Tom Jones") (German).
8.12: Baritone solo—Mr. Ernest Land, "Lilies of Lorraine" (Connor).
8.16: Waltz—Band, "Victory" (Baynes).
8.26: Mounter Melodies—Miss Elaine Moody and Mr. Chas. Lawrence, "Counter Melodies" (MS.).
8.39: Novelty—Clapham and Dwyer, "Golf" (Clapham and Dwyer) (Parlophone record A2524).
8.47: Contralto solo—Miss Marjorie J. Gilbert, "Love is a Merry Carpenter" (Alfred Hill).
8.53: Hymn—Band, "Sandon" (Dykes).
9.0: Weather forecast.
9.2: Choral with orchestra—Pertile, Ferraris, Righetti and Baromeo, "Un Ballo in Maschera" (E Scherzo, od e follia) (Verdi), (Parlophone Record R20007).
9.6: Soprano solos—Miss Irene Seymour, (a) "Love's a Merchant" (Carew); (b) "Ye Banks and Braes" (Scottish).
9.12: Waltz—Djos Bela Orchestra, "Faust Waltz" (Gounod) (Parlophone record 4010).
9.16: Baritone solos—Mr. Ernest Lang, "I Wonder Will You Think of Me" (O'Hagen).
9.20: Selection—Band, "Verdi" (Round).
9.32: Counter Melodies—Miss Elaine Moody and Mr. Chas. Lawrence.
9.44: Vocal duet—"The Flowers that Bloom in the Spring" (from "The Mikado") (Sullivan) (Parlophone record A2544).
Xylophone novelty—Rudy Star Three, "Polly" (Zamecnik) (Parlophone record A2548).
9.52: Contralto solos—Miss Marjorie J. Gilbert, (a) "A Light Song and a Bright Song" (Drummond); (b) "Be Happy".
9.55: Overture—Band, "The Church Parade" (Ord Hume).
March—Band, "Cheerful Chimes" (Lithgow).
God Save the King.

4YA, DUNEDIN (463 METRES)—MONDAY, JANUARY 7, 1929.

SILENT DAY.

Tuesday, January 8

1YA, AUCKLAND (333 METRES)—TUESDAY, JANUARY 8, 1929.

3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session conducted by Uncle Pat.
7.15: News and market reports.
7.45: Book review.
8.0: Chimes.
8.1: Overture—Orchestra, "Chal Romano" (Gipsy Lad) (Ketelbey).
(Synopsis: This overture opens with a broad theme in the style of a Gipsy folk song of strongly marked character. A plaintive melody which follows (given to clarinet and oboe), suggests the sadness of the rejected lover. Then the key changes to the tonic major, and the melody develops into a passionate love-theme. The Gipsy folk-song, suggesting Fate, interrups the conclusion of the love song, and leads into a dance tune, first played by violin solo, and then developed at some length, descriptive of the light-hearted nature of the Gipsy girl. The love-theme is now heard again (in a quicker tempo than originally), with scraps from the girl's dance tune interwoven with it. A kind of recitative for 'cellos suggests the lover pleading with the girl, but the Gipsy folk-song heard immediately after expresses the hopelessness of his appeal, and she dances away to join the Gipsy revels which (with a final reference to the Gipsy folk-song just before the end) brings the overture to a conclusion.
8.11: Soprano solo—Miss Violet Harrison, "Now Sleeps the Crimson Petal" (Quilter).
8.15: Male choruses—Parlophone Melody Co., "Convivial Songs."
1. There is a Tavern. 2. Drink to me only. 3. Little Brown Jug. 4. Loch Lomond. 5 Happy is the Day. (Parlophone Record A2511).
8.19: Baritone solo—Mr. L. Gibson-Blackie, "Pale Moon" (Logan).
8.23: Song suite—Orchestra, "Old Favourites" (Arrgd. Seredy): 1. Sailing. 2. Old Oaken Bucket. 3. Alice, Where Art Thou? 4. Listen to the Mocking Bird. 5. Ben Bolt. 6. Nancy Lee. 7. Love's old Sweet Song. 8. Cheer, Boys, Cheer.
8.33: Contralto solo—Madame Irene Ainsley, "Yonder" (Oliver).
8.37: Relay of musical interlude from Majestic Theatre Orchestra under the conductorship of Mr. J. Whiteford-Waugh.
8.41: Talk—Mr. A. B. Chappell, M.A., "The Maori—His Music".
9.0: Weather forecast.
9.2: Violin solo—Edith Lorand, "The Old Tower of St. Stephen" (Brandl-Kreisler) (Parlophone Record E10549).
9.6: Soprano solo—Miss Marjorie Fair, "Slow, Horses, Slow" (Mallinson).

9.10: Overture—Orchestra, "Iphegie en Aulide" (Gluck).
Presentation of excerpts from "Orpheus" (Gluck), produced under the direction of Madame Irene Ainsley.

CAST.

Orpheus ..... Madame Irene Ainsley.
Euridice ..... Miss Violet Harrison.
Amor ..... Miss Marjorie Fair.

9.24: Contralto recitative and area—"I Mourn My Loved One."
Soprano solo—"Weeping Sorely, I Stray."
Contralto solo,—"Go, and With Thy Lyre."
Entr-acte—Orchestra, "Eine Kleine Nachtmusik" Suite (Mozart).
Soprano solo—"The Gods if They Call Thee."
Soprano solo—"Away With Morning."
Solo and chorus—"Oh, Be Merciful."
Chorus—"In This Realm."
Entr'acte—Orchestra, "Eine Kleine Nachtmucik" Suite (Mozart)
Soprano and chorus—"On These Meadows."
Contralto solo—"How Pure Alike."
Chorus—"From the Realm of Souls Departed."
Soprano and contralto duet—"Come, on my Trueness Relying."
10.0: God Save the King.

2YA, WELLINGTON (420 METRES)—TUESDAY, JANUARY 8, 1929.

3 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results.
5.0: Close down.
6.0: Children's session, conducted by Uncle Jim.
7.0: News session—market reports and sports results.
7.40: Lecturette—"For the Man on the Land," by a representative of the Agricultural Department.
8.0: Chimes of the G.P.O. clock. Studio concert by the Rainbeaux Entertainers.
8.1: Overture—Orchestra: "Morning, Noon and Night" (Suppe).
8.11: Opening chorus—The Company: "League of Laughter" (Jordan).
8.15: Quartet and chorus with guitar and mandolin accompaniment—Messrs. Child, Jackson and Sale: "Old Virginny" (Bland).
8.21: Instrumental—Orchestra: (a) "Song of the Volga Boatmen" (Trdtl); (b) "Praeludium" (Jarnefeldt).
8.29: Soprano and chorus—Mrs. H. Jackson: "That Saxophone Waltz" (Mungo).
8.33: Humour—Two of the Beaux: "The Wage Earner Arrives Home—Year 1949" (Original).
8.38: Novelty—Orchestra: (a) "Naila" (Large); (b) "In a Clock Store" (Orth).
8.48: Baritone solo—Mr. B. Child: "Nirvana" (Adams).
8.52: Humorous songs—Mr. H. Jackson: (a) "Hurricane History" (Cecil); (b) "Firstly, My Dear Brethren" (Hayes).
8.56: Instrumental—Orchestra: Repeat Number.
9.4: Weather forecast.
9.5: Yokel duet—Mr. and Mrs. Jackson: "O Sarah, Oh 'Enery" (Longstaffe).
9.10: Soprano solo—Mrs. B. Child: "A Gipsy Maiden, I" (Parker).
9.14: Medley—Messrs Child, Jackson, Stairmand, Bert Russell and Jim Powell: "The Market" (Blair and Wilcock).
9.20: Comedy: Original.
9.24: Instrumental—Orchestra: (a) "Humoresque" (Dvorak); (b) "Hungarian Dance No. 4 in G-Minor" (Brahms).
9.32: Bass Solo—Mr. A. Edwards: "Down Devonshire Way" (Stevens).
9.36: Humorous songs—Mr. H. Jackson: (a) "Bandy Bandolero" (Tilsey—Wallace); (b) "Never Fool Round a Mule" (Manson).
9.44: Duet—Mr. and Mrs. Child: "When the Love Bird Leaves Its Nest" (Wade).
9.48: Mandolin and guitar—Messrs. Sale and Jackson: "Scottish Songs."
9.53: Finale—The Company: "Goodnight" (Scott Gordon).
9.58: Musical comedy selection—Orchestra: "Belle of New York" (Kerker).
10.8: "God Save the King."

3YA, CHRISTCHURCH (306 METRES)—TUESDAY, JANUARY 8, 1929.

SILENT DAY.

4YA, DUNEDIN (463 METRES)—TUESDAY, JANUARY 8, 1929.

8.0: Town Hall chimes.
8.1: Gramophone concert.
4.25: Sports results.
4.30: Close down.
6.0: Town Hall chimes.
6.1: Children's session, conducted by Big Brother Bill.
7.15: News session.
8.0: Town Hall chimes.
8.1: Concert by the St. Kilda Band and assisting artists.
March—Band: "Voice of the Guns" (Alford).
8.5: Waltz—Band: "Reflections" (Bordogni).
8.13: Bass solos—Mr. J. McNaughton: (a) "Star of Eve" (Wagner); (b) "The Garden of Your Heart" (Dorel).
8.20: Pipe organ, piano, trombone and harp—Shilkret's Rhythm Melodists: "When You're with Somebody Else" (Gilbert). (H.M.V. Record EA336).
8.24: Contralto solo—Miss Wyn McPeak: "Harbour Night Song" (Sanderson).
8.27: Selection—Band: "Melodious Gems" (Rimmer).
8.38: Recital—Miss Roberta Williams: "Island of Molene" (Anon).
8.42: Solo and chorus with orchestra—Zonophone Light Opera Coy.: "Gems from the Yeoman of the Guard" (Sullivan). (Zonophone Record A321).
8.46: Baritone solos—Mr. Albert Bicknell: (a) "In Summertime on Bredon" (Peel); (b) "Linden Lea" (Vaughan-Williams).
8.51: Instrumental bass solo with band accompaniment: "Cyclops" (Rimmer).
8.59: Weather forecast.
9.1: Address by Rev. W. B. Scott: "Early New Zealand History—George Augustus Selwyn, Our First Bishop."
9.16: March—Band: "The Howitzer" (White).
9.20: Intermezzo—Band: "Minuet in G" (Beethoven).
9.26: Bass solo—Mr. J. McNaughton: "My Ain Folk."
9.30: Duet with orchestra—Lucrezia Bori (soprano) and Titto Schipa (tenor): "Sono Andati?" (from "La Boheme"), (Puccini). (H.M.V. Record DB911).
9.34: Trombone fantasia—Band: "The Firefly" (Moss).
9.40: Contralto solos—Miss Wyn McPeak: (a) "Crescent Moon" (Sanderson); (b) "Let Me Sit in Your Garden" (Russell).
9.46: Recitals—Miss Roberta Williams: (a) "One's Life" (Anon); (b) "Castles in the Air" (Anon).
9.51: Baritone solo—Mr. Albert Bicknell: "Sons of the Sea" (Coleridge-Taylor).
9.54: Chorus with orchestra: "Sea Songs" (H.M.V. Record EB25).
9.58: March—Band: "Mount Hobson" (Sutton).
10.2: "God Save the King."

Wednesday, January 9

1YA, AUCKLAND (333 METRES)—WEDNESDAY, JANUARY 9, 1929.

3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Studio items.
4.25: Sports results to hand.
4.30: Close down.
6.0: Children's session, conducted by Hobo.
7.15: News and market reports.
8.0: Chimes.
8.1: Overture—Berlin State Opera House Orchestra, "Mignon Overture" (Thomas) (Parlophone Record E10557).
8.9: Organ and vocal—Mr. Arthur E. Wilson and Mrs. J. Litherland, (a) "Allegretto" (Hoydn); (b) "A Song in the Night" (Sheppard); (c) soprano solo, "Hear Ye, Israel" (Mendelssohn); (d) "Serenade" (Widor).
8.29: Debate—Messrs. C. R. Straubel, J. N. Wilson, J. C. Andrews and A. B. Thompson. "That Present-day Education is Not to the Benefit of the Community."
9.29: Weather forecast.
9.31: Fantasia—Edith Lorand Orchestra, "Faust" (Gounod-Wienlawski) (Parlophone Record E10579).
9.39: Organ and vocal—Mr. Arthur E. Wilson and Mrs. J. Litherland. (a) "Bridal Song" (Goldmark); (b) "O Worship the King" (Hymn study) (Reed): (c) soprano solo, "The Shepherdess" (MacMurrough); (d) "Aloha-oe" (Hawaiian melody).
10.0: God Save the King.

2YA, WELLINGTON (420 METRES)—WEDNESDAY, JANUARY 9, 1929.

SILENT DAY.

3YA, CHRISTCHURCH (306 METRES)—WEDNESDAY, JANUARY 9, 1929.

3.0: Afternoon session—Selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session, conducted by Aunt Pat.
7.15: News session.
7.30: Addington stock market reports.
8.0: Chimes.
8.1: Overture—Berlin State Opera House Orchestra, "Stradella" (Flotow) (Parlophone Record A4004).
8.9: Mezzo-soprano solo—Miss Myra Symonds, "Vissi d'Arte" (from "Tosca") (Puccini).
8.13: Pianoforte solo—Miss Lucy Fullwood, "Impromptu Op. 142" (Schubert).
8.21: Baritone solo—Mr. Robt. Allison, "The Star" (Rodgers).
8.25: Violin solo—Miss Joan Carter, "Romanze" (Heitsch).
8.29: Recital—Mr. H. Instone, "The Swagger Tells Another" (own composition).
8.34: Instrumental—Carter Sisters Trio, selections from "Il Trovatore" (Verdi).
8.44: Contralto solos—Mrs. Eleanor Muirson, (a) "Night of Stars and Night of Love" (Offenbach); (b) "I Know of Two Bright Eyes" (Clutsam).
8.50: Tenor solo—Mr. Thorpe Cherry, "Siciliana" (from "Cavalleria Rusticana") (Mascagni).
8.54: Waltz—Edith Lorand Orchestra, "Blue Danube" (Strauss) (Parlophone Record A2411).
9.2: Weather forecast.

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9.3: Fantasia—Dajos Bela Orchestra, "Pique Dame" (Tschaikowsky) (Parlophone Record A4021).

9.11: Mezzo-soprano solo—Miss Myra Edmonds, "Laughing Song" (from "Manon Lescaut") (Auber).

9.15: Pianoforte solo—Miss Lucy Fullwood, "Valse," Op. 36, No. 7 (Arensky).

9.19: Baritone solo—Mr. Robt. Allison, "Lolita" (Buzzi-Peccia).

9.23: Violin solo—Miss Joan Carter, "Madrigale" (Simonetti).

9.27: An amusing recital—Mr. H. Instone, "A Holiday on the Farm" (Kendall).

9.32: Instrumental trios—Carter Sisters Trio. (a) "Elegie" (Massanet); (b) "Love's Dream After the Ball" (Czibulka).

9.42: Contralto solo—Mrs. Eleanor Murchison, "Echo" (Somerset).

9.46: Choir and orchestra—Grand Irmler Choir, "The Flying Dutchman" (Spinning Chorus) (Wagner) (Parlophone Record A25000).

9.50: Tenor solo—Mr. Thorpe Cherry, "Onaway, Awake" (Cowan).

9.54: Fantasia—Edith Lorand Orchestra, "Faust" (Gounod-Wienlawski) (Parlophone Record E10579).

10.2: God Save the King.

4YA, DUNEDIN (463 METRES)—WEDNESDAY, JANUARY 9, 1929.

7 p.m.: Request gramophone concert.
7.40: News session.
8.0: Town Hall chimes.
8.1: Orchestral—Royal Opera Orchestra, "Carmen Ballet" No. 1 and No. 2" (Bizet) (H.M.V. Record C1424).
8.9: Vocal quartets—Serenaders, (a) "Uncle Ned" (Foster); (b) "Oh, Sussana."
8.16: Violin solo—Miss Eva Judd, "Allegro Con Brio" (Beethoven).
8.21: Contralto solo—Miss Dorothy Allan, "Landscapes No. 1" (Willeby).
8.24: Light orchestral—Salon Orchestra, "Aloha Sunset Land" (Kawelo) (H.M.V. Record B2581).
Male voices with piano—The Revellers, "Was it a Dream?" (Coslow) (H.M.V. Record EA402).
8.32: Tenor solo—Mr. W. Harrison, "Morning" (Speaks).
8.35: Orchestral—Chicago Symphony Orchestra, "Valse Triste" (Sibelius) (H.M.V. Record ED5):

(Synopsis: It is night. The son who has been watching by the bedside of his sick mother has fallen asleep from sheer weariness. Gradually a ruddy light is reflected through the room: there is a sound of distant music: the glow and music steal nearer until the strains of a valse melody float distinctly to our ears. The sleeping mother awakens, rises from her bed, and in her long, white garment, which takes the semblance of a ball dress, begins to move slowly and silently to and fro. She waves her hands and beckons in time to the music, as though she were summoning a crowd of invisible guests. And now they appear, these strange visionary couples, turning and gliding to an unearthly waltz rhythm. The dying woman mingles with the dancers—she strives to make them look in her eyes, but the shadowy guests one and all seem to avoid her glance. Then she sinks exhausted on her couch, and the music breaks off. But presently she gathers all her strength, and invokes the dance once again with more energetic gestures than before. Back come the shadowy dancers, gyrating in a wild, mad rhythm. The weird gaiety reaches a climax; there is a knock at the door, which flies wide open; the mother utters a despairing cry; the spectral guests vanish; the music dies away—Death stands on the threshold.)

Orchestral—San Francisco Symphony Orchestra, "Funeral March of a Marionette" (Gounod) (H.M.V. Record ED5).
8.43: Soprano solo—Miss Mae Matheson, "A Summer Night" (Goring Thomas).
8.46: Recitals—Miss Rona Scott, (a) "The Ruling Passion" (Anon); (b) "The Story of a Stamp" (Anon).
8.54: Baritone solo—Mr. R. B. Macdonald, "O Ship of My Delight" (Phillips).
8.57: Wurlitzer organ solo—Jesse Crawford, "The Dance of the Blue Danube" (Fisher) (H.M.V. Record EA404).
9.1: Weather forecast.
9.3: Vocal quartet—The Serenaders, "Come Where Love Lies Dreaming" (Foster).
9.7: Pianoforte solo—Miss Aileen Young, "Nocturne in G Minor" (Chopin).
9.11: Contralto solo—Miss Dorothy Allan, "The Hawk" (Conningsby-Clarke).
9.14: Grand organ and cornet—R. Arnold Greir, "Softly Awakes My Heart" (from "Samson and Delilah") (Saint-Saens) (Zonophone Record A309).
Band novelty—Savoy Orpheans Band, "London and Daventry Calling" (H.M.V. Record C1251).
9.26: Tenor solo—Mr. W. Harrison, "The Trumpeter" (Dix).
9.30: Violin solos—Miss Eva Judd, (a) "Alba" Op. 25, No. 1 (Nevin); (b) "Serenata" (Maszkowsky).
9.39: Soprano solo—Miss Mae Matheson, "Believe Me If All Those Endearing Young Charms" (Moore).
9.42: Orchestral novelty—New Light Symphony Orchestra, "In a Clock Store" (Orth) (H.M.V. Record C1308).
9.46: Recital—Miss Rona Scott, "The Freckle-Faced Girl."
9.51: Baritone solo—Mr. R. B. Macdonald, "Prince Ivan's Song" (Allitsen).
9.55: Military band selection—H.M. Coldstream Guards, "Iolanthe" (Sullivan) (H.M.V. Record C1308).
10.0: Close down.

Thursday, January 10

1YA, AUCKLAND (333 METRES)—THURSDAY, JANUARY 10, 1929.

3 p.m.: Afternoon session—selected studio items.
4.0: Literary selection by the Announcer.
4.8: Studio items.
4.25: Sports results to hand.
4.30: Close down.
6.0: Children's session, conducted by Uncle Mack.
7.15: News and market reports.
8.0: Chimes.
8.1: Orchestral—Dajos Bela Orchestra, "Electric Girl" (Helmburgh-Holmes) (Parlophone Record A4009).
8.5: Vocal duo—Hazell-Sutherland Duo, "Sincerity" (Clarke).
8.9: Instrumental trio—Auckland Trio, "Trio" (Pleyel).
8.17: Bass solo—Mr. Duncan Black, "Ho, Jolly Jenkin" (Sayers).
8.21: Xylophone solo—Billy Whitlock, "Helter Skelter" (Whitlock) (Parlophone Record A2502).
8.25: Contralto solo—Miss Phyllis Hazell, "Lilac" (Cadman).
8.29: Recital—Messrs. Thomas Harris and Jack Mackle, "Brutus and Cassius" (Shakespeare).
8.37: Soprano with orchestra, "Margherita Salvi, "The Barber of Seville—Il Son Docile" (Rossini) (Parlophone Record A5002).
8.41: Vocal duet—Messrs. James Simpson and Duncan Black, "If I Might Come to You" (Squire).
8.45: Violin solo—Miss Ina Bosworth, "Sicilienne" (Bach).
8.49: Baritone solo—Mr. Frank Sutherland, "Out Where the Big Ships Go" (Hewitt).
8.53: Orchestral—Dajos Bela Orchestra, "Eldgaffeln" (Landen) (Parlophone Record A4009).
8.57: Weather forecast.
8.59: Vocal duet—Hazell-Sutherland Duo, "Love, the Cuckoo" (Fortescue).
9.3: Tenor solo—Mr. James Simpson, "A Memory" (Park).
9.17: Orchestral—Julian Fuhs' Symphony Orchestra, "Rhapsody in Blue" (Gershwin) (Parlophone Record E10645).
9.25: Bass solo—Mr. D. Black, "Cradle of the Deep" (Knight).
9.29: Humour—Hebrew Two, "Happy Abe and Dismal Ike."
9.39: Contralto solo—Miss Phyllis Hazell, "Tired Hands" (Sanderson).
9.43: Tenor solo—Mr. J. Simpson, "Ninetta" (Brewer).
9.47: Instrumental trio—Auckland Trio, "Demande A L'Oiseau Qui S'Eveille" (Saint-Saens).
9.54: Baritone solo—Mr. F. Sutherland, "Archie of the Royal Air Force" (Longstaffe).
9.57: Vocal duet—Messrs. Black and Simpson, "Song of the Sword" (Bond).
10.3: God Save the King.

2YA, WELLINGTON (420 METRES)—THURSDAY, JANUARY 10, 1929.

3 p.m. Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results to hand.
5.0: Close down.
6.0: Children's session, conducted by Aunt Gwen.
7.0: News session—market reports and sports results.
8.0: Chimes of the G.P.O. clock.
8.1: Special programme by "The Rhubarbarians."
A few introductory remarks by One of the Chiefs.
8.3: Instrumental—Rudolph's Dance Orchestra, (a) "You're a Real Sweetheart" (Friend); (b) "In a Bamboo Garden" (Donaldson).
8.11: Vocal—the Soothing Serenaders of the Rhubarbarians, selected.
8.15: Pianoforte—The Deputy Chief Rhubarbarian, (a) Selected; (b) "Virginian Creepers" (Mayerl).
8.22: Sketch—The Chief and a Lady Friend, "Lady Godiva."
8.28: Trumpet solo—One of the Musical Rhubarbarians, "Because" (D'Hardelot).
8.32: Vocal—The Ballad Singer, "When You and I Were Young, Maggie!"
8.36: Instrumental—Rudolph's Dance Orchestra, (a) "Just Like a Melody Out of the Sky"; (b) "Because My Baby Don't Mean Maybe Now."
8.44: Humorous character sketch—One of Them, "Perlmutter, M.P."
8.52: Instrumental—Rudolph's Dance Orchestra, (a) "My Bouquet of Memories" (Young); (b) "Ho, Ho, Ho, Hogan" (Tucker).
9.0: Weather forecast.
9.1: Pianoforte duet—Two Rhubarbarians, "Poet and Peasant" (Suppe).
9.8: Vocal—One of the Minstrel Troups, "Down in De Cane Break."
9.12: Instrumental—Rudolph's Dance Orchestra, (a) Tango, "Chelita" (Harris); (b) Waltz, "Jeannine" (Shilkret); (c) Foxtrot, "I'm Wingin' Home" (Tobias).
9.24: Sketch—The Rhubarbarians, "3LO, Melbourne."
9.30: Trombone solo—Another Musician, "Switchback" (Hurla).
9.34: Humour—The Jester, "Song of the Prune."
9.38: Xylophone solo—Rhubarbarian Drummer, "Colonel Bogey" (Alford).
9.42: Vocal—Baritone member, Selected.
9.46: Saxophone solos, (a) "Song of India" (Rimsky-Korsakov); (b) "Valse Hilda" (Doerr).
9.52: Sketch—The Chief and his Lady Friend, "The Stocking."
9.56: Instrumental—Rudolph's Dance Orchestra, (a) One Step, "Felix the Cat" (Kortlander); (b) Tango, "Carita" (Burton); (c) "Was it a Dream" (Waltz) (Coslow).
10.2: National Anthem

3YA, CHRISTCHURCH (306 METRES)—THURSDAY, JANUARY 10, 1929.

3 p.m.: Afternoon session—selected studio items.
4.25: Sports results.
4.30: Close down.
6.0: Children's session, conducted by Uncle Hal.
7.15: News session.
7.30: Talk under the auspices of the Canterbury Progress League.
8.0: Chimes.
8.1: Rebroadcast of 2YA, Wellington.
8.7: Baritone solo—Mr. Robert Allison, "Hear Me, Gentle Maritana" (Wallace).
8.11: Pianoforte solos—Miss Frances Hamerton, (a) "A Prelude" (Swinstead); (b) "Finnish Lullaby" (Palmgren).
8.21: Soprano solo—Aria—Madame Gower-Burns, "Teacha La Notte" (from "Il Trovatore") (Verdi).
8.25: Violin solo—Edith Lorand, "The Old Tower of St. Stephen" (Brandl-Kreisler) (Parlophone Record E10549).
8.29: Contralto solo—Aria—Mrs. Anne Harper, "Sequidilla" (from "Carmen") (Bizet).
8.3[illegible] Instrumental trios—Carter Sisters, (a) "Melody in F" (Rubenstein); (b) "Variations on Robin Adair" (Harvey).
8.43: Recital—Mr. L. T. J. Ryan, "A Backwood Penance" (Clark).
8.49: Tenor solo—Mr. Ernest Rogers, "All Hail, Thou Dwelling" (from "Faust") (Gounod).
8.53: Tenor and baritone duet—Grand Opera Duo, selected.
8.57: Weather forecast.
8.59: Fantasia—Edith Lorand Orchestra, "Norma" (Bellini) (Parlophone Record A4011).
9.7: Baritone solo—Mr. Robert Allison, "The Toreador's Song" (from "Carmen") (Bizet).
9.11: Violin solos—Edith Lorand, (a) "Minuet in G" (Beethoven); (b) "Schon Rosmarin" (Kreisler) (Parlophone Record E10549).
9.15: Soprano solo—Aria—Madame Gower-Burns, "Mother, You Know the Story" (from "Cavalleria Rusticana" (Mascagni).
9.19: Cembalo solos—Anna Linde, (a) "Le Coucou" (Daquin); (b) "Le Tambourin" (Rameau) (Parlophone Record E10514).
9.23: Tragedy and comedy—Mr. L. T. J. Ryan, "Earthernware" (Weston and Lee).
9.31: Soprano and contralto duet—Grand Opera Duo, "Butterfly and Suzuki" (from "Madame Butterfly") (Puccini).
9.35: Instrumental trios—Carter Sisters, (a) "The Herd Girl's Dream" (Labitsky); (b) "Home, Sweet Home" (Billi).
9.40: Tenor recitative and aria—Mr. Ernest Rogers, "On With the Motley" ("Il Pagliacci") (Leoncavallo).
9.44: Organ solo—Sigmund Krumgold, "Gipsy Love Song" (Herbert) (Parlophone Record A2339).
9.48: Contralto solo and aria, followed by final quartet—Mrs. Anne Harper and Grand Opera Quartet, (a) "King of the Shades" (from "Un Balle in Maschera") (Verdi); (b) "One Morn, If I Remember Well" (from "Rigoletto") (Verdi).
9.56: Orchestral—Frank Mestfield's Orchestra, "Classica" (Potpourri of famous airs) (Arrg. Tilsley) (Parlophone Record A2195).
10.4: Close down.

4YA, DUNEDIN (463 METRES)—THURSDAY, JANUARY 10, 1929.

SILENT DAY.

Friday, January 11

1YA, AUCKLAND (333 METRES)—FRIDAY, JANUARY 11, 1929.

3.0 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the Announcer.
4.8: Studio items.
4.25 Sports results.
4.30: Close down.
6.0: Children's session, conducted by Nod and Aunt Jean.
7.15: News and market reports.
8.0: Chimes.
8.1: Overture—Orchestra, "Raymond Overture" (Thomas).
8.10: Vocal quartette—Olympians, "Opening Chorus."
8.15: Soprano solo—Miss Dorothy Youd, "Piper June" (Carew).
8.19: Harpsichord and viola da garma duet—Anne Linde and Paul Grummer, "Sonata in C" (Adagio—Allegro) (Handel) (Parlophone records E10582-3).
8.31: Baritone solo—Mr. Geoffrey Colledge, "Sea Fever" (Ireland).
8.35: Recitals—Mr. J. F. Montague, (a) "White Roses,"; (b) "What They do at the Springs."
8.43: Suite—Orchestra, "Dance of the Hours" (Ponchielli).
8.53: Contralto solo—Miss Martha Williamson, "Hills of Donnegal" (Sanderson).
8.58: Pianoforte solo—Karol Szreter, "Soiree Devienne" (Strauss-Grunfeld (Parlophone record A4013).
9.6: Weather forecast.
9.8: Tenor solo—Mr. Lambert Harvey, "Wait" (D'Hardelot).
9.12: Orchestral—Orchestra, (a) "The Answer" (Lemare. arrgd. Bellingham); (b) "The Blue Danube" (Strauss).
9.21: Soprano solo—Miss Dorothy Youd, "Here's to Love" (Wall).
9.26: Violin solos—Edith Dorand, (a)" Minuet in G" (Beethoven); (b) "Schon Rosmarin" (Kreisler) (Parlophone record E10549).
9.20: Baritone solo—Mr. G. Colledge, "Harlequin" (Sanderson).
9.34: Recital—Mr. J. F. Montague, "A Group of New Zealand Poems."
9.42: Contralto solo—Miss M. Williamsom, "My Prayer" (Squire).
9.46: Instrumental trio—Dajos Bela Trio, "Meditation" (Thais) (Parlophone record E10580).
9.50: Tenor solo—Mr. L. Harvey, "Golden Petals" (Philipot).
9.54: Musical comedy selection—Orchestra, "Madame Pompadour" (Fall).
10.0: Vocal quartet—Olympians, "Love's Old Sweet Song" (Molloy).
10.4: Close down.

2YA, WELLINGTON (420 METRES)—FRIDAY, JANUARY 11, 1929.

3.0 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results.
5.0: Close down.
6.0: Children's session, conducted by Big Brother Jack.
7.0: News session—market reports and sports results.
8.0: Chimes of the G.P.O. clock.
8.1: Overture—Orchestra, "Maritana" Overture (Wallace).
8.12: Soprano solo—Miss Alice Harris, "Far Away Lies a Land" (from "Mignon") (Thomas).
8.16: Pianoforte solos—Miss Christina Conlon L.T.C.L., (a) "Barcarolle" (Liadow); (b) "The Island Spell" (Ireland).
8.23: Baritone solo—Mr. Eric Harrison, "Serenade" (from "Lilac Time") (Schubert-Clutsam).
8.37: Recital—Mr. Cedric Gardiner, "The Day of Kings" (Owens).
8.27: Instrumental—Orchestra, "I Pagliacci" (Leoncavallo).
8.42: Contralto solo—Miss Hilda Chudley, "None but a Lonely Heart" (Tschaikowsky).
8.46: Instrumental trio—Dajos Bela Trio, "Meditation" (Thais) (Parlophone record E10580).
8.50: Tenor solo—Mr. C. P. Edwards, "Le Luceran le Stelle" (When the Stars were Shining Brightly" (from "La Tosca") (Puccini).
8.54: Instrumental—Orchestra, (a) "Serenata" (Moszkowski); (b) "Dornroschcin" (Tschaikowsky).
9.2: Weather forecast.
9.4: Soprano solo—Mrs. Alice Harris, "Lilac Domino" (Culliver).
9.8: Instrumental—Orchestra, repeat number.
9.16: Baritone solos—Mr. Eric Harrison, (a) "Queen of My Heart" (Cellier); (b) "Desiree" (Parker).
9.23: Humour—Mr. Cedric Gardiner, "The Sea Serpent" (Thomas).
9.38: Contralto solos—Miss Hilda Chudley, (a) "Requiem" (Shanks); (b) "Darkness" (Hurlstone),
9.45: Choral with orchestra—"Un Ballo in Maschera" (E Scherzo od e Follia) (Verdi) (Parlophone record R20007).
9.49: Tenor solos—Mr. C. P. Edwards, (a) "Siciliano" (from "Cavalleria Rusticana") (Mascagni); (b) "My Desert Flower" (from "Chu Chin Chow") (Norton).
9.56: Instrumental—Orchestra, "Carmen" (Bozet).
10.1: God Save the King.

3YA, CHRISTCHURCH (306 METRES)—FRIDAY, JANUARY 11, 1929.

3.0 p.m.: Afternoon session.
4.25: Sports results.
4.30: Close down.
6.0: Children's session, conducted by Brother Bill.
7.15: News sessions.
8.0: Chimes.
8.2: Rebroadcast of 2YA, Wellington.
8.8: Opening chorus and soprano solo—Radiolians and Mrs. Claris Shaw, (a) "Sleepy Ceylon"; (b) "She's Alright" (Monckton—Rubens).
8.14: Violon solo—Miss Joan Carter, "First Rose of Summer" (from "The Cabaret Girl") (Kern).
8.19: Bass solo and chorus—Mr. W. J. Richards, "Pearl of Sweet Ceylon" (Monckton).
8.23: Cinema organ solo—Eddie Horton, "O Mi Paloma" (Merton) (Parlophone record A2557).
8.27: Soprano and tenor duet—Radiolian Duet, "Pretty Poll" (Monckton).
8.31: Instrumental trio—Carter Sisters, selections from "Queen High" (Gensler-Hanley).
8.41: Aspiring humorosities—Mr. Geo. Titchener, "How I Climbed the Pole" (Little Titch).
8.46: Contralto solo, followed by tenor solo—Miss Mildren Russell and Mr. Gregory Russell, (a) "My Cinnamon Tree" (Monckton); (b) "The Ladies" (Monckton).
8.54: Vocal with steel guitar and ukulele—Queenie and David Kali, "Breeze" (Hanley) (Parlophone record A2439).
Hawaiian—Queenie and David Kaili, "Hawaiian March" (Ellis) (Parlophone record A2372).
9.2: Weather forecast.
9.4: Overture—Grand Symphony Orchestra, "Zampa" (Herold) (Parlophone record A4020).
9.12: Chorus and bass solo—Radiolians and Mr. W. J. Richards, "Hail the Noble" (Monckton).
9.16: Violin solo—Miss Joan Carter, "Say Au Revoir, but not Goodbye" (Kennedy).

9.21: Soprano solo—Mrs. Claris Shaw "My Heart's at Your Feet" (Monckton).
9.25: Selections from "Princess Charming"—Ronnie Munro's Dance Orchestra (Parlophone record A2367).
9.33: Tenor contralto duet and quartet, Radiolian Due and Radiolian Quartet. (a) "You and I" (Monckton); (b) "The New Year" (Monckton).
9.39: Instrumental trios—Carter Sisters, (a) "Camille" (Waltz) (Donaldson); (b) "Dear, On a Night Like This" (Foxtrot) (Conrad); (c) "Paradise Isle" (Walts) (Goering-Pettis).
9.53: Seriosities—Mr. Geo Titchener, "That Happy Land" (Dance).
9.57: Selection—Edith Dorand Orchestra, "The Dollar Princess" (Fall) Parlophone record E10512).
10.5: Contralto solo and chorus, followed by finale bass and chorus—Miss Mildred Russell and Radiolians, and Mr. W. J. Richards and Radiolians, (a) "The Dance I'll Lead" (Monckton); (b) "Dear Little Cingalee" (Monckton); (c) "Island of Gay Ceylon" (Monckton).
Close down.

4YA, DUNEDIN (463 METRES)—FRIDAY, JANUARY 11, 1929.

3.0 p.m.: Town Hall chimes.
3.1: Gramophone concert.
3.15: Talk on "Fashions," by Miss Buccleuch, of the D.S.A
3.30: Relay of afternoon tea music from the Savoy.
3.40: Studio items.
4.0: Relay of music from the Savoy.
4.15: Gramophone items.
4.25: Sports results.
4.30: Close down.
6.0: Town Hall Chimes.
6.1: Children's session, conducted by Aunt Sheila and Big Brother Bill.
7.15: News session.
8.0: Town Hall chimes.
8.1: Orchestral—Royal Opera Orchestra, "Sylvia Ballet" (Delibes); (a) "The Huntress"; (b) "Intermezzo and Valse Lente" (H.M.V. Record C1417).
8.9: Contralto solos—Miss Dorothy Skinner, (a) "Angus Macdonald" (Roeckel); (b) "Death and the Maiden".
8:15: Orchestral—Royal Opera Orchestra, "Faust Ballet Music" (Gounod) 1st and 2nd Movements (Allegretto and Adagio (H.M.V. record C1462).
8.19: Bass solo—Mr. Neil Black, "Forging the Anchor" (Rodney).
8.23: Orchestral—Royal Opera Orchestra, "Faust Ballet Music" (Gounod), 3rd and 4th Movements (Allegretto and Maestoso) (H.M.V. Record C1462).
8.27: Mezzo-soprano solos—Miss Florence Summer L.A.B., (a) "Cradle Song" (Schubert); (b) "Robin Adair."
8.34: Pianoforte solo—Miss Aileen Young, "Nocturne in E Minor" (Chopin).
8.38: Contralto solo—Miss Dorothy Skinner, "I Heard You Singing" (Coates).
8.41: Orchestral—Royal Opera Orchestra, "Faust Ballet Music" (Gounod (5th, 6th and 7th movements) (Moderato con Moto, (Allefretto) (Vivo) (H.M.V. record C1463).
8.49: Bass solos—Mr. Neil Black, (a) "The Old Brigade" (Weatherley); (b) "Echo" (Somerset).
8.56: Vocal quartet—Galli-Curci, Homer, Gigle and De Luca, "Fairest Daughter of the Graces" (from "Rigoletto") (Verdi (H.M.V. record DQ102).
9.0: Weather forecast.
9.3: Violin solo—Renee Chemit, "Serenade" (Pierne) (H.M.V. record DA955).
9.7: Mezzo-soprano solo—Miss Florence Sumner, "The Kerry Dances" (Molloy).
9.11: Grand opera—Special presentation of "The Valkyrie" (Wagner)—4th instalment—(H.M.V. records D1330-3):
Soprano and baritone with orchestra and chorus—"Wotan Pronounces Brunnhilde's Fate."
Soprano and baritone with orchestra and chorus—"Wotan Explains his Decree."
Soprano with orchestra—"Brunnhilde Pleads with Wotan."
Soprano and baritone with orchestra—"Brunnhilde Implores the Protection of Fire."
Baritone with orchestra—"Wotan's Farewell" (Wotan bids Brunnhilde farewell).
Baritone with orchestra—"Wotan Casts Brunnhilde into a Deep Sleep."
Baritone with orchestra—"Wotan Summons the Magic Fire."
Baritone with orchestra—"The Rock is Surrounded by Magic Fire." (Finale).
10.0: Close down.
9.43: Relay of dance music from the Savoy.

Saturday, January 12

1YA, AUCKLAND (333 METRES)—SATURDAY, JANUARY 12, 1929.

3 p.m.: Afternoon session.—Selected studio items.
4.0: Literary selection by the announcer.
4.8: Studio items.
4.25: Sports results to hand.
4.30: Close down.
6.0: Children's session, conducted by Cinderella.
7.15: News and market reports.—Book review.
8.0: Chimes.
8.1: Overture—Berlin State Opera House Orchestra: "Stradella" (Flotow), (Parlophone Record A4004).
8.9: Vocal solo—Mrs. Daisy Basham: "The Golden Song" (from "Lilac Time"), (Schubert-Clutsam).
8.13: Instrumental trio—Auckland Trio: "Trio in A-Major" (MacFarren).
8.21: Baritone solo—Mr. Walter Brough: "Father O'Flynn" (Arrgd. Stanford).
8.25: Vibrophone novelty—Rudy Star Three: "Diane" (Rapee). (Parlophone Record A2548).
8.29: Contralto solo—Mrs. Daisy Basham: (a) "Mighty Lak a Rose" (Nevin); (b) "I've Been Roaming" (Horn).
8.36: Humour—Mr. F. W. Barker: "Wilkins Micawber in Further Discussion" (Dickens).
8.41: 'Cello solo—Miss Mollie Wright: Selected.
8.45: Vocal Duo—Bohemian Duo: "Mandalay" (Lewis).
8.53: Xylophone novelty—Rudy Star Three: "Polly" (Zamecnik), (Parlophone Record A2548).
8.57: Weather forecast.
8.59: Baritone solos—Mr. W. Brough: (a) "What a Wonderful World It Would Be" (Lohr); (b) "The Company Sergeant Major" (Sanderson).
9.7: Instrumental Trio—Auckland Trio: "Waltz" (Scott).
9.15: Humour—Mr. F. W. Barker: "How Rifleman Brown Came to Valhalla."
9.20: Contralto solo—Mrs. D. Basham: "O, Foolish Fay" (Sullivan).
9.24: Orchestral—Frank Westfield's Orchestra: "Classica" (Potpourri of famous airs, arrgd. Tilsley). (Parlophone Record A2195).
9.32: Vocal duo—Bohemian Duo: (a) "Breeze" (Hanley); (b) "Hawaiian Blues" (Parish).
9.36: Programme of dance music.
11.0: Close down.

2YA, WELLINGTON (420 METRES), SATURDAY, JANUARY 12, 1929.

3 p.m.: Chimes of the G.P.O. clock.
3.1: Selected gramophone items.
4.30 and 4.55: Sports results.
5.0: Close down.
6.0: Children's session, conducted by Uncle Toby and Aunt Gwen.
7.0: News session, market reports, and sports results.
8.0: Chimes of the G.P.O. clock.
8.1: Overture—Orchestra. "Southern Stars" (Ascher).
8.5: Quartet—Melodie Four, "Stars of the Summer Night" (Anon.).
Vocal—David and Queenie Kaili, "Ukulele Dream Girl" (Low), (Parlophone record A2364).
Novelty—Clapham and Dwyer, "Golf" (Clapham and Dwyer), (Parlophone record A2524).
8.17: Tenor solo—Mr. Frank Bryant, "Rosamund" (Forster).
8.20: Instrumental—Orchestra. (a) "Serenade" (Von Blon); (b) "Passepied" (Delibes), (violin solo with orchestral accompaniment).
8.32: Humour—Mr. Will McKeon, "A Pastoral Play" (Spurr).
8.39: Duet—Messrs. S. Duncan and R. S. Allwright, "Fickle-Hearted Mimi" (Puccini).
8.43: Soprano with orchestra—Lottie Lehmann, "Berceuse de Jocelyn" (Godard), (Parlophone record R20019).
8.47: Bass solo—Mr. W. W. Marshall, "Asleep in the Deep" (Petrie).
8.51: Instrumental—Orchestra, repeat number.
8.59: Weather forecast.
9.1: Tenor solo—Mr. Sam. Duncan, "An Evening Song" (Blumenthal)).
9.5: Instrumental—Orchestra, "In a Persian Market" (Ketelbey).
9.12: Baritone solo—Mr. R. S. Allwright, "Wimmen, Oh, Wimmen" (Boosey).
9.16: Bagpipe solos—Pipe-Major Wm. Ross, (a) "Mrs. J. McColl" (March); (b) "The Piper's Bonnet" (Strathspey); (c) "Cammeronian Rant" (Reel), (Parlophone record A2320).
9.20: Humour—Mr. Will McKeon, "Cockney Studies" (original).
9.27: Instrumental—Orchestra, "Lilting Lucia" (arr. Black).
9.32: Quintet—Melodie Four, "The Merry Frogs" (Speiser).
9.36: Instrumental Orchestra, dance novelties.
9.51: Dance programme.
11.0: Close down.

3YA, CHRISTCHURCH (306 METRES), SATURDAY, JANUARY 12, 1929.

3 p.m.: Afternoon session—Selected studio items.
4.30: Close down.
6.0: Children's session.
7.15: News session.
7.30: Sports results.
8.0: Chimes.
Vaudeville entertainment—A complete two hours' continuous programme will be provided by the Gipsy Troubadours' Part;
10.0: Dance programme.
11.0: Close down.

4YA, DUNEDIN (463 METRES), SATURDAY, JANUARY 12, 1929.

7.15 p.m.: News session.
8.0: Town Hall chimes.
8.1: Relay of orchestral music from the Octagon Theatre Orchestra, under the conductorship of Monsieur Henri de Rose, Mus.Bac.

8.11: Popular song-hits—Miss Jacqueline Burke, (a) "I Am Thinking of You" (Kirsch); (b) "Dream Kisses" (Jerome).
8.18: Barn dance—Bert Firman's Dance Orchestra, "My Lady Dainty" (Hesse), (Zonophone record 5118).
8.22: Humorous Scottish song—Mr. Buster Brown, "Rob Roy McIntosh" (Lauder).
8.26: Humorous sketch—Miss Anita Winkel and Major F. H. Lampen.
8.36: Humorous songs at the piano—Miss Eileen Cooper, (a) "We Ain't 'arf Proud o' Dad" (Cory); (b) "Jumpers" (Lohr).
8.43: Relay of orchestral music from the Octagon Theatre.
8.58: Weather forecast.
9.0: Light baritone solo—Mr. Norman Scurr, "At the End of an Irish Moonbeam" (Golden).
9.4: Humour—Jno. Henry and Blossom, "The Story of Lady Godiva" (H.M.V. record B2485).
9.10: Popular song-hit—Miss Jacqueline Burke, "Because I Love You" (Berlin).
9.14: Fox-trot—Victor Arden and Phil Ohman's Orchestra, "Rag Doll" (Brown), (H.M.V. record EA401).
9.18: Humorous Scottish songs—Mr. Buster Brown, (a) "The Wedding of Sandy McNab" (Lauder); (b) "Bella, the Belle o' Dunron" (Lauder).
9.2[illegible] Comedy sketch—Miss Anita Winkel and Major F. H. Lampen.
9.35: Humorous song at the piano—Miss Eileen Cooper, "His Little Teddy Bear" (Levey).
9.38: Grand organ solo—Arthur Meale, "Blue Danube Waltz" (Strauss, arr. Meale), (H.M.V. record B2695).
Vocal trio with violin, harmonica, guitar, and jew's harp—"Climbin' Up de Golden Stairs" (Dalhart), (H.M.V. record EA382).
9.46: Popular song-hits—Mr. Norman Scurr, (a) "Lucky Day" (Henderson); (b) "That's My Weakness Now" (Stept).
9.54: Solo and chorus with orchestra—Zonophone Light Opera Co., "Gems" from "Patience" (Sullivan), (Zonophone record A336).
10.2: Close down.

Sunday, January 13

1YA, AUCKLAND (333 METRES)—SUNDAY, JANUARY 13, 1929.

3 p.m.: Afternoon session—Selected studio items.
4.0: Literary selection by the announcer.
4.8: Studio items.
4.30: Close down.
6.0: Children's Sunday session.
6.55: Relay of service from St. James' Church. Preacher, Rev. E. R. Harries. Organist, Mr. Walter Impett.
8.30: Overture—Royal Albert Hall Orchestra, "Coriolan Overture" (Beethoven), (H.M.V. record D690).
8.41: Baritone solo—Mr. Stan. Pritchard, "The Lord is My Light" (Allitsen).
8.45: Pianoforte solo—Vladimir de Pachmann, "Raindrop Prelude" (Chopin), (H.M.V. record DB858).
8.49: Soprano solos—Miss Cecilia Duncan, (a) "Bird Songs at Eventide" (Coates); (b) "Ave Maria" (Luzzi).
8.57: Instrumental quartet—Catterall Quartet, "Allegro and Adagio, Quartet in G" (Beethoven), (H.M.V. records D997/8).
9.12: Baritone solos—Mr. Stan Pritchard, (a) "Thou Art Passing Hence" (Sullivan); (b) "Slow, Horses, Slow" (Mallinson).
9.20: Violin solo—Fritz Kreisler, "The Old Refrain" (Kreisler), (H.M.V. record DA269).
9.24: Soprano solo—Miss Cecilia Duncan, "Silver Threads Among the Gold" (Danks).
9.28: Orchestral—Royal Albert Hall Orchestra, "Hungarian Rhapsody No. 2" (Liszt), (H.M.V. record D144).
Close down.

2YA, WELLINGTON (420 METRES)—SUNDAY, JANUARY 13, 1929.

3 p.m.: Afternoon session.
6.0: Children's song service, conducted by Uncle George.
7.0: Relay of evening service from St. Gerard's Redemptorist Church. Organist, Mr. H. Mount. Choirmaster, Mr. F. J. Oakes.
8.15 (approx.): Studio concert.
Overture—Symphony Orchestra, "The Mastersingers" (Wagner), (H.M.V. record D1260).
Baritone solo—Peter Dawson, "Honour and Arms" (Handel), (H.M.V. record C1500).
Violin solo—Renee Chemet, "Serenade" (Pierne), (H.M.V. record DA955).
Contralto solo—Miss Mona Carrick, "The Lost Chord" (Sullivan).
Pianoforte solo—Mischa Letitzki, "Hungarian Rhapsody No. 6" (Liszt), (H.M.V. record D1383).
Tenor solo—Mr. Edwin Dennis, "Jesus, Do Roses Grow So Red" (Nevin).
Orchestral—State Opera Orchestra, Berlin, "William Tell" (Rossini) (Parlophone record AR1003).
Soprano solo—Ninon Vallin, "Air Des Bijoux" (Gounod), (Parlophone record AR1002).
Organ solo—G. T. Pattman, "Liebestraume" (Liszt), (Columbia record 01003).
Baritone solo—Ricardo Stracciari—"Toreador's Song" (from "Carmen"), (Bizet), (Columbia record 04173).
Violin solo—Renee Chemet, "Serenade" (Toselli), (H.M.V. record DA955).
Contralto solos—Miss Mona Carrick, (a) "Beloved It is Morn" (Aylward); (b) "Vale" (Russell).
Instrumental—Mascotte and Dajos Bela Orchestra, (a) "The Flower's Dream"; (b) "Whispering of the Flowers" (Parlophone record A2559).
Tenor solos—Mr. Edwin Dennis, (a) "Give a Man a Horse He Can Ride" (Galbraith); (b) "The Moon Drops Low" (Cadman).
Selection—H.M. Coldstream Guards, "The Shamrock" (Myddleton), Columbia record 02542).
Close down.

3YA, CHRISTCHURCH (306 METRES)—SUNDAY, JANUARY 13, 1929.

3 p.m.: Afternoon session—Selected studio items.
4.30: Close down.
5.30: Children's song service.
6.15: Hymn and carol chimes.
6.30: Relay of service from the Church of Christ, Moorhouse Avenue. Preacher, Mr. Haddou, M.A. (principal of Bible College, Dunedin). Organist, Miss E. Hepburn. Choirmaster, Mr. H. Ames.
7.45: Studio programme.
Overture—Berlin State Opera Orchestra, "The Mastersingers" (Wagner), (Parlophone records A4029/30).
7.57: Baritone solo—Mr. Robt. Anderson, "Nearer My God to Thee" (Carey).
8.1: Bagpipe solo—Argyle Reel and Strathspey Band, "Braemar" (Parlophone record A2453).
8.10: Mezzo-contralto solo—Mrs. Jean Anderson, "Angels Guard Thee" (Godard).
8.14: Piano and orchestra—Alfred Cortot and London Symphony Orchestra, "Concerto in A Minor," Op. 54 (Schumann), (1st Movement—Allegro Affettuoso), (H.M.V. records DB1059/60).
8.30: Contralto and baritone duet—Mr. and Mrs. Robt. Anderson, "Nocturne" (Denza).
8.34: Tenor and choir—Jno. McCormack, "The Palms" (Faure), (H.M.V. record DB984).
8.38: Orchestral—Chicago Symphony Orchestra, (a) "Xerxes" (Largo), (Handel); (b) "Slavonic Dance in G Minor" (Dvorak), (H.M.V. record D1432).
8.46: Baritone solo—Mr. Robt. Anderson, "The Living God" (O'Hara).
8.50: Contralto solo—Mrs. Jean Anderson, "How Lovely are Thy Dwellings" (Liddle).
8.56: Tenor with orchestra—Tito Schipo, "Ave Maria" (Schipo), (H.M.V. record DB873).
9.0: Piano with orchestra—Alfred Cortot, "Variations Symphoniques" (1st, 2nd and 3rd Movements), (Poco Allegro-Allegretto quasi andante-Molto piu lento), (Franck), (H.M.V. records DB1069/70).
9.16: Boy soprano with organ—Master Lough, "Hear Ye, Israel" (Mendelssohn), (H.M.V. record B2627).
9.24: Military band—National Military Band, "Weymouth Chimes" (arr. Hare), (Zonophone record 5119).
9.0: Close down.

4YA, DUNEDIN (463 METRES)—SUNDAY, JANUARY 13, 1929.

5.30 p.m.: Children's song service, conducted by Big Brother Bill.
6.30: Relay of service from Moray Place Congregational Church. Preacher, Rev. Albert [illegible]ead, M.A.
8.0: Relay from St. Kilda of concert by the St. Kilda Band.
9.15: Close down.

Tribute to English Music

IN an article headed "Queen's Hall," a contributor to the "Deutsche Allgemeine Zeitung" writes:—"England in general is not a musical nation. At any rate, her known composers can be conveniently counted on the fingers of one's hands. Against this, the Englishman has, in a great measure, made his own another capability which is, perhaps—let us say so quietly—just as good. The Englishman understands how to make music. He does not, it is true, understand production, but he does understand reproduction.

"The English broadcasting organisation, the British Broadcasting Corporation, was at once able to make these remarkable properties of the Queen's and Albert Halls its own. Who does not remember—in so far as he can obtain distant reception—the great national concerts of the winter of 1926-27, in which, among others, the best German conductors and composers directed the giant orchestras, wielding the baton over orchestras of 250 performers? And in spite of these giant sound effects it will have been already remarked at that time that the reproduction through the London and Daventry stations was throughout perfect, that here was offered a broadcasting enjoyment capable of satisfying the most fastidious music-lover.

"Let no radio listener who can manage it with his receiving set neglect to hear the Promenade Concerts, and, in winter, the National Concerts. For the English know indeed how to make music!"

Our Mail Bag

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

A Country View.

MAY I congratulate 2YA on their broadcasting these days. We always appreciate them up here, as we are about 18 miles from a town, and never hear much news, etc. Mr. Drummond's "Goodnight" is always looked for at 10 p.m. I picked up a station last Sunday, and the announcer was changing microphones and playing records. His call was 2AZ, and was coming through very loud, which made me think it was a New Zealand short-wave station. Wishing you the best of luck.—H. PEARCE (Pukeroa).

DX Results.

IN reply to Mr. Holmes' query in this week's "Radio Record," I heard the station just below KGO on November 28, and took the call to be KCM, California. The announcer stated it to be a test programme from KCM Special Service Station, —— Park, California. On this night fading was very bad, and I listened to him until 11.25 p.m., and he was still going when I went to bed at 11.50. The suggestion of Mr. Ellis is very good, so here's my latest:

KFKB, Kansas, heard on November 29 at 8.40 p.m. on his morning session.

KGJK, Beverley Hills, Calif., on November 4 at 9.45 p.m., and on November 29 a station on about 270 metres which sounded like KMX, Hollywood, concluding number was "Sally of My Dreams."

Looking forward to seeing some of the other latest DX.—A. E. IRELAND (Taradale).

Another Supporter.

I NOTICED Guy C. Holmes' letter in the "Radio Record" saying that the Yank just above 2BL is KWKH. I think that he is wrong. At about the date of the query I received a degree or two above 2BL, Station WGNR, Chicago. I cannot find his call in any book, so he must be a new station. Mr. Holmes says he gets a station on about 380 metres. This is WBBM, Chicago, 389 metres, according to call-books, but about 380 according to my dials. He is very close to 4QG. I agree with Philip Williamson as to the Yank hetrodyning with 1YA, but have not yet sorted him out. Mr. Ellis' idea of a DX club I would heartily recommend, and most sincerely hope you will give the idea your consideration. Re "valve set," I have not heard the C. A. Larsen for the last two months, but he is very loud when he does go. Although about two degrees below 2YA I can hear a carrier wave usually in the afternoon, but never yet have I heard any sign of speech or music or even Morse on it. In conclusion, I would like to congratulate the company on their excellent Wanganui relay. I would also like to know the whereabouts of Stations BOA and 1OOZ, which both figure prominently in Mr. Mason's log.—PATRICK ARCUITT (Hastings).

The Magic Boy

(Continued from page 15.)

The magician turned pale, for he knew he could not do such a wonderful trick as this, and all the ladies and gentlemen of the court looked in wonderment at Jack, and hoped that he would not fail in his task, for nobody liked the magician.

All through the remainder of the day and all through the night armed men remained on guard to see that no one touched the card, and the next morning many people gathered there to see the card fall when the clock struck twelve. A warm wind was blowing through the windows, so the magician immediately closed them and shut all the doors as well, so that the card would not be blown down by the wind, for he knew that if he could make the card remain on the ceiling after the clock had struck, Jack's trick would be laughed at.

At last the clock began to strike. Thousands of eyes looked up at the card.

"Ten—eleven—twelve," sounded the clock, and almost before the last note had sounded the card fell to the floor right at Jack's feet. A tremendous shout rose into the air. The Princess immediately became her own beautiful self, and with a smile thanked Jack for having released her from the magician's power. As for the magician—he fled. The people chased him through the town and thrashed and beat him until his clothes were in rags, and he thought every bone in his body was broken. They chased him back into his own kingdom and slammed the gate on him.

Back at the Palace, everyone was making a great fuss of Jack and telling him what a wonderful lad he was. With a smile he showed them how he did the trick. On the back of the ace of hearts was a thin slice of soap about the size of a sixpence.

"You see," said Jack, "I put the soap on the back of the top card, and when it struck the ceiling the weight of the cards fastened it there. I knew that the soap would dry in about twenty-four hours, and that the vibration caused by the striking of the clock would make the card fall. It really wasn't a very clever trick."

"Yes, it was," replied the King. "And you are an honest lad for not wishing to deceive us. We are very grateful to you for restoring our daughter to us. I will make you the richest man in the land."

And all the people shouted "Hurrah! Three cheers for Jack."

The Wave-lengths of Amateurs

FURTHER advice has come to hand regarding the wavelength of amateurs as published a short time back.

All amateurs who have been given permission to operate on the wave-band of 30-32 metres are now permitted to use the new band of 7000-7300 kilocycles (41-42.8 metres).

A Wonderful Museum

Unique Collection of Musical Instruments

THERE is in the heart of Western London a little-known but delightful collection, hidden away in a gilded and ornate dungeon beneath the Royal College of Music. It consists of rare and ancient musical instruments, and is the result of the life-long hobby of the late Sir George Donaldson, a once famous art dealer of Bond Street, who died in 1925 and left these treasures to the Royal College.

Many of them are historically interesting, such as the guitar of David Rizzio Perhaps he played it to Mary Queen o' Scots on the day he was dragged from her presence and stabbed to death. The "virginal" may have been that on which Queen Elizabeth showed her undoubted skill. Instruments such as these, no doubt well known in their day, have long been forgotten: the "pandurina" (Spanish, dated 1700); the "pochetto," a tiny two-stringed fiddle with a ram's head carved in ebony; the "rebec," a three-stringed fiddle; the "espinette," with five strings; the "orphion," a portable lute-shaped pianette with shoulder-straps; the "colascione," a two-stringed lute; the "theorbo," eleven-stringed lute; the "baryton," a kind of 'cello; the "melophone," played by moving little rings with the fingers; the "dulcian," the "cor Anglais," and many more.

Of Kit violins (sordini) there are several curious examples, some of them two-stringed. A "clavycytherium" (earliest known piano) dates from the fifteenth century.

There are many really beautiful works of art amongst them. The "theorbo" has a dancing party engraved on the ivory, which is quaint beyond description. One case is filled with hurdy-gurdies "vielles," drawing-room instruments a hundred years ago). But the lutes are gems; one of them is 6ft. 6in. high and broad in proportion; it is difficult to imagine how it could have been played.

THE collection takes one back centuries, and one can picture the Romeo of the period accompanying his love-ditty beneath the window of his inamorata with the "orphion" hanging round his neck. Many a melodious midnight ramble has the 200-year-old Neapolitan mandoline shared, and prime ballerine may have learnt their first "steps" from the tiny, delicate sordini. A musical missal known as a "gradual," with its illuminations and heavy gold lettering, must be worth a small fortune; it dates from the fourteenth century.

TELEVISION, though still in the experimental stage, is moving rapidly. The apparatus, both transmitting and receiving, is being improved, so much so, that almost every American radio journal contains some new improvement, however slight. Already many of these journals are devoting large sections to this fascinating subject, while some of the latest issues give the full constructional details of a receiver.

Successful Transmission of Pictures

New Service for the B.B.C.

TO the average member of the public, the transmission of pictures probably represents an entirely new scientific development, but in actual fact it is over 20 years since the first pictures were transmitted, so that the Fultograph system is novel only in the method by which the results are achieved.

The earliest users of photo-telegraphy were, of course, the large daily newspapers and the systems developed for this purpose have now been brought to a very high degree of efficiency. At the same time the methods employed are extremely elaborate, expensive, and difficult to operate. Photo-electric cells are generally used both at the transmitter and receiver, so that after reception of the picture it has to be developed and printed in the same way as an ordinary photographic negative.

The systems of synchronisation are also in most cases somewhat troublesome to keep in adjustment, and at each end one or more trained operators are required.

Received at Manchester.

THE broadcast was arranged to take place between the hours of 2 p.m. and 2.45 p.m. The transmissions were made from the big experimental station, Daventry (5XX), situated slightly to the north-west of the capital.

A large number of keenly interested spectators assembled at 2 p.m. at the Radio Exhibition, Manchester, to watch the reception of the first still pictures broadcast by the B.B.C. from the London studio. For the reception, two instruments were used, one in conjunction with a portable wireless receiver and the other with a large amplifier. This was to demonstrate that the picture receiver could be operated with any type of wireless receiver giving reasonable loud-speaker reproduction.

Up to the moment of the picture transmission, music was being received on two loud-speakers, one on each set; then the announcement was heard that three pictures would be transmitted, one of the King, one of an aeroplane, and one of a cartoon by Mr. Raven Hill entitled "Seeing is Believing."

Following this there was heard a sustained tuning-note which had been sent out to enable the operators to adjust the receivers correctly. This note suddenly changed to signals similar to a continuous series of dashes in the Morse code. Simultaneously with this change the cylinders on the picture receivers began to revolve, and the first picture transmission from a B.B.C. station had begun.

Each picture transmitted took four minutes to complete. Owing to a technical hitch only two pictures were broadcast. The picture of the King resembled an ordinary sepia photograph and the cartoon appeared, not in "black and white," but in sepia and white. Both were very distinct, and that of the King was an amazingly good representation. The line drawing of the cartoon made a sufficiently exacting test of the synchronising gear out of which the Fultograph emerged successfully. The apparatus seems singularly simple to operate, and the tracing of each picture could be watched as the transmission proceeded.

The Fultograph System.

THE Fultograph receiver is in two parts, the smaller of which is the rectifying panel and the larger the clockwork-driven machine with synchronising equipment on which is supported the roller, to which the sensitive paper is attached. The signal impulses which recorded the separate density of each of the little dots of which the picture is made up were sent out, it is understood, on a modulation frequency of between 4000 and 5000 cycles a second. The Fultograph transmitter was actually at Savoy Hill and the signal impulses transmitted by land line to Daventry, where they were emitted on the ormal wavelength of 5XX. On the cylinder of the Fultograph is placed a piece of specially sensitised paper on which appears a coloured mark of density corresponding to the strength of the signal impulses.

Further Demonstration.

APART from the series of pictures broadcast which the B.B.C. are to give from Tuesday to Friday each week, it has been arranged that demonstrations are also to take place at Birmingham, Liverpool, Newcastle, Glasgow, Bournemouth and Eastbourne during the week so that prospective purchasers can see the instrument in action. The special paper on which the picture is printed will be manufactured by a well-known firm of photographic printing paper manufacturers, and is not expected to be expensive. The sensitising solution will also be marketed.

The receiving instrument will be manufactured in England, and two prices have been provisionally fixed for the models which are now on sale. One model, of oak, is listed at £22 15s., and the other, of mahogany, at £24 15s. These prices are exclusive of the price of the rectifying valve, which will be 10s. 6d. extra.

IT has been stated that in the endeavour to get unfamiliar numbers, the musical records of the last 40 years have been turned up, and there is no piece anywhere in Australia, or for that matter, in the world, which has not been played from either of the two "A" class stations in Sydney, 2FC and 2BL.

Canadian Radio Business Good

WHOLESALERS and retailers in Toronto are well pleased with the radio business this autumn. The volume of sales shows a gain over the same period of last year, varying from a small gain to a month's gain over last year. One wholesaler has sold more receivers this year than he had up to the end of October of last year. From 90 to 95 per cent. of the receivers sold are electrically operated. Battery sets have a very small sale to-day in the big cities of the Dominion. The problem that is facing Canadian radio dealers now is that of exchanging old sets for the new electrical ones. No definite plans have as yet been made to take care of this situation, which is becoming more important each day. The average price paid for receivers, according to Toronto dealers, varies from 225 dollars to 300 dollars. Cheap sets are not in demand. The present buyer is prepared to make the purchase of a good receiver, preferably a console model. This trend shows that people are becoming satisfied with radio receivers of the present type. The sets selling at these prices average about one-third higher in price than the same set sells for in the United States.

THE Home Office not only approves the installation of broadcast receivers in reformatories, but recently contributed a sum of money toward such an installation.

The Mystery of the Receiver

An Old Subject from a New Angle

(By "Pentode")

WHEN an electric current is passed through a wire, magnetic lines of force are set up about the wire, creating a magnetic field. The intensity of this field depends upon the amount of current flowing through the wire and also the distance from the wire. This is dealing with a straight piece of wire, and an example of this can be seen in the precautions taken in arranging land lines used in telegraphic communication. When run between poles the wires are zig-zagged and run to different insulators on adjacent poles. Conversations on one wire which runs parallel to a second wire for any distance would interrupt communication on the second line.

If a wire through which a current is flowing is wound in the shape of a coil, the field is considerably increased. In the plain solonoid coil, that is, a single coil with open ends, the field is most intense along the axis, and lines of force spread out, round the coil from end to end.

This field exists round coils through which current, either direct or alternating, is flowing. In the case of alternating current, the direction of flow is constantly changing, and the polarity of either end changes with the alternations. The speed at which these alternations occur is called the frequency, usually denoted as so many cycles per second. High frequency or wireless waves have a frequency of many million per second, while audio frequency currents vary from 30 to 20,000 cycles or alternations per second. It can be seen then that wireless or high-frequency current differs from low frequency current only in the number of alternations that occur per second, and in both cases a field will be produced if either of these currents pass through wire in the form of a coil.

In the case of audio frequency work, an iron core is introduced to further increase this field. Unless this iron core is magnetically saturated it will absorb the magnetic energy produced in the coil and being in most cases a shell type transformer, serve as a medium through which these lines of force travel from one end of the coil to the other, at the same time confining this field within itself.

Radio Frequency Transformers.

AS it is more with radio frequency coils that we are interested, we can assume a receiver, employing two high frequency stages, is constructed with coils lying a few inches apart and all in the same plane. Small radio frequency currents are set up in the aerial coil when in tune to a station. These currents are amplified by the valve producing similar currents in the second coil, only much more amplified.

The second valve amplifies these alternations still further. As the field of a coil depends on the current flowing, the last coil will have quite an appreciable field, and if visible, the lines of force would be seen to be cutting the lines of force of the first and second coils. When the output of a valve is fed back by accident or design, to the input, that valve commences to oscillate, and if the oscillations are uncontrollable, the circuit is out of control and refuses to amplify.

It is to the suppresison of these oscillations that radio engineers have devoted so much time during the last few years.

Controlling Interaction.

VARIOUS methods have been devised. The first, and most obvious, is to separate the coils so that the field from one does not reach the preceding coil. This is impracticable as the field increases as amplification proceeds, and coils would have, on occasions, to stand yards apart. An arrangement known as the Hazeltine circuit surmounted the difficulty to some extent by arranging the coils at such an angle that the lines of force from one coil cuts those from the other at right angles, thus producing no coupling.

A further, and to the writer's mind an improved method of reducing this back coupling effect, is to reduce the field of each coil by an arrangement of winding.

Straight cylindrical coils with open ends are known as solonoid coils. If this coil was bent in the middle so that two halves lie side by side with the previous opposite ends brought together, the coil is known as a binocular. In the electrical properties concerning inductance, etc., the solonoid and binocular are practically identical. In the case of the latter, however, the field is restricted and considerably reduced.

The torridal coil is very similar, being merely a solonoid coil bent round instead of being bent sharply in the middle as in the binocular. When these field restricted coils are used in a receiver they can be placed comparatively close to each other without sufficient coupling existing to set the valve oscillating. Yet another method adopted by many commercial manufacturers is the introduction of damping into the circuit in the form of resistance.

Why a Valve Oscillates.

WHEN a tuning system, say a coil and condenser are tuned to a given station, small oscillations which continue as long as the station feeds minute amounts of energy to keep them going, are set up in that coil. If the station stops, then these minute oscillations also stop. These small impulses of current are fed to the grid of a three-electrode valve, in the plate circuit of which is a coil which can be adjusted with respect to the first coil.

These impulses of current appear in this plate coil in an amplified form. As the current takes practically no time to travel through the valve between the two coils, the two sets of oscillations can be assumed to be in phase. Now we come to an interesting point.

It has been stated that oscillation in the first or grid coil are kept in motion by the incoming oscillations from the station to which the system is tuned. By gradually increasing the coupling between the plate and grid coils energy is given by the plate coil in the form of oscillations exactly in phase with those of the grid coil and in turn with those of the station. "Every little helps," says the grid coil, and it oscillates with renewed vigour. This is desirable from a point of reception, as enormous amplification, far in excess of that of the amplification of the valve itself, is obtained. There comes the natural question. Why not increase this feed back still further and obtain all the amplification that is desired. Well, let us see just what would happen.

Controlling Feed Back.

ASSUMING this coupling to be gradually increased, there comes a time when the valve would generate oscillations itself, still at the same frequency as that of the station, but absolutely uncontrollable by the transmitting station. If the station stops altogether, the valve would still oscillate, and as it is the station the operator is listening to and not one's oscillating receiver (which is very often decidedly not the case), whatever the station is broadcasting will be entirely marred by one's own generated oscillations. Also, as has been stated before, a valve will not amplify when oscillating itself.

The amount of back coupling necessary to produce these oscillations depends on a number of factors. The chief one being the resistance of the grid coil. If of a high resistance, then more coupling and more energy will have to be imparted to start this state of self oscillation. In the average broadcast receiver, these coils are of a fairly low resistance and it needs only a little feed back to produce this undesirable effect. Assuming that these various coils are not of the binocular or similar types, and no arrangement is made whereby lines of force cut at right angles, then the feed back can be utilised in overcoming the resistance of the grid coil by placing additional resistances in one of the leads. This explains then how some commercial manufacturers keep the valves below oscillating point by damping one, or each of the tuning systems.

Effect of Screening.

THERE is still the best method of all to be considered, and that is the screened stages. By this is meant the total isolation of each stage, comprising usually coil and condenser, by a metal screen. To be quite successful this has to be an absolutely tight compartment and made of a metal with a good electrical conductivity. It is out of the question to make one of pure gold, which is one of the best known conductors. Running down the list we soon come to copper, which is quite the best practical material to use. Aluminium follows close behind and there is very little to choose between the two.

When magnetic lines of force, or rather we should say, alternating magnetic lines of force, come in contact with the conductor, a current drains away through that conductor. This energy then, passing through space, is converted to an electric current when in contact with a conductor. As an example, the outside aerial receives the wireless waves which are resolved into a flow of electricity down the lead into the set.

Let us consider again the screening between successive stages. These small currents produced leak away and are known as eddy currents. Having leaked away, they cannot come in contact with the coil, from which they are screened, and no feed back is produced.

Suggestions for Screening.

A few remarks regarding screening will, perhaps, not be out of place, and if mentioned here, will, perhaps, be more readily understood.

It has been stated that reaction or feed back reduces the resistance of the grid coil. In a receiver employing reaction intentionally, the construction, guage of wire and spacing, etc., of the grid coil is of little importance. This is a statement which numerous readers will, no doubt, question, but when looked on from the theoretical aspect, it will at once be realised that to bring the grid coil to maximum efficiency, simply needs the addition of more reaction. But this is beside the point.

If a screened receiver is built to reduce all chances of a feed back occurring with no reaction, then the grid coil of all the valves will have to be designed to be of as low a resistance as possible. Thick wire well spaced is indicated, and the coil kept as far from the sides of the screening box as possible. Condensers will have to be of good quality, and all insulation to be very thorough.

This article has dealt entirely with the coupling existing between coils. In a later number, the writer intends to consider the other path, through which

Primary Batteries

Make Useful Standbys

OF recent years the primary cell in many of its various forms has died a natural death. The storage battery or accumulator has rightly taken its place, but even now there are times when a primary battery could be brought to service in the absence of an accumulator. There is one form of primary cell that has not gone out of fashion and is as popular to-day as ever. That is the Leclanche. The old jar type of cell is still used in its original form for power to operate electric bells, signalling devices, etc. The well-known dry battery is really a dry (or nearly dry) Leclanche, which has the electrolyte made into a jelly and enclosed in a zinc container.

A few weeks ago the writer had the misfortune to have a run-down battery on the very evening when visitors were expected. Of course it is an old tale to have a run-down battery when the set is not going too well, but the complaint was genuine this time and there were no facilities for getting a charge that would suffice even for a few hours. Electricity is just the same whether derived from an accumulator or from a primary battery, so a few minutes were spent in hunting ingredients likely to be useful. A bichromate battery was aimed at first, but this was cast aside, as there was no bichromate of potash. Instead a permanganate of potash battery was made which, though unorthodox, saved the situation and, in fact, has been in use since.

A Good Primary Battery.

HERE are given the details for making this battery, which can be assembled in a few minutes, maybe helping other constructors out of similar difficulties. Each cell gives an E.M.F. of 1.8 volts, which drops to 1.65 after a few hours' continuous run, so the total voltage will have to be made by joining two or more cells in series.

TO make one cell, procure a porous pot, a zinc rod and carbon rod. An old wet Leclanche pot can be cleaned out and will provide the porous pot and carbon rod. Next get a glass or earthenware jar of sufficient size to allow the porous pot and the carbon rod to stand side by side. Now fill the porous pot and jar about three-quarters full of sulphuric acid, strength 10 per cent. This is made by pouring one part of sulphuric acid by volume into parts of water. Pour in slowly, stirring meanwhile, and taking care that the heat generated will not crack the container. **Always pour the acid into the water when diluting sulphuric acid.**

The level of acid is the same inside the porous pot as in the outer jar.

Crystals of permanganate of potash are now dropped into the jar in the acid between the porous pot and jar, in which is standing the carbon jar.

Operating the Battery.

AS the solubility of this compound is 1 in 20, about an ounce of permanganate will be sufficient. The cell is now ready to operate and all that remains is to insert the zinc rod inside the acid in the porous pot all the time the cell is in operation. When not in use the zinc rod must be lifted out and laid aside until the cell is required again.

To prolong the life of the zinc, a small quantity of metallic mercury can be run into the bottom of the porous pot. A spot or two is sufficient and will give the zinc a coating of mercury.

By employing a saturated solution of potassium bichromate in the 10 per cent acid in the outer jar, the true bichromate cell which has certain advantages, is made. The chief advantage of doing this is that the cell is odourless in operation, while the one without the solution of potassium bichromate gives off a slight chemical smell.

It is as well to remember that the zinc rod is negative and carbon positive in all primary cells. To increase the output amperage of this cell the internal resistance has to be lowered. This is obtained by using a larger carbon surface. Two carbon rods connected together give nearly double the current output, but maintain the same voltage.

Theory of Operation.

THE theory of operation of all primary cells is practically the same in each case. When a zinc and carbon rod are immersed in sulphuric acid and the two projecting ends are connected together with a conductor, hydrogen "ions" are liberated from the zinc and pass over through the liquid to the carbon rod. These "ions" are considered to be very small charges of electricity, carrying very minute particles of the gas hydrogen with them. These particles of hydrogen are too small to form a bubble and rise to the surface, so they collect on the carbon rod and very soon form a layer of insulating gas. This causes a reduction in the current and the cell is known as "polarised."

This polarising action of a simple cell, of zinc and carbon in sulphuric acid, takes only a few minutes, and in this form it is useless except for the supply of current of a very intermittent nature. Some depolarising agent has to be used, and the different chemicals used for taking out the hydrogen constitute the different types of primary cell.

The principal type is the use of an oxidising agent. This contains active oxygen, which combines with the hydrogen to form water, a harmless compound.

Permanganate of potash, bichromate of potash, and concentrated nitric acid are all oxidising agents, and are all used in the container outside the porous pot. The Leclanche employs manganese dioxide, which also liberates free oxygen. A further action also takes place in the Leclanche. Manganese dioxide is known as a "catalytic" agent, which denotes a substance which helps two other compounds to unite. In this case the other two are nitrogen and hydrogen, forming ammonia. Sal-ammoniac or ammonium chloride is used in Leclanche cells, and when in contact with the zinc rod, hydrogen and nitrogen are liberated, which combine in the porous pot to form merely ammonia. The ions have then been robbed of their hydrogen contents and fly to the carbon rod above forming, in their millions, the current of electricity. No layer of insulating hydrogen bubbles form on the carbon, and therefore a continuous stream of current is obtainable until either the zinc or acid wear out.

H.F. Amplification

IN H.F. stages many experimenters use a high value of H.T. voltage without a biasing battery, and whilst this may result in a considerbale degree of amplification in some cases, it is wastful of H.T. battery current, and does not usually produce the best tone quality. Reducing this H.T. voltage will obviously have the effect of saving H.T. battery current, and will frequently be found to improve the tone quality on stations not too far distant.

A still better method, of course, is to introduce a suitable value of grid-bias voltage, which has the effect of improving the quality very greatly and at the same time cutting down the H.T. current. In an actual test two H.F. amplifiers consumed 12 milliamperes in the plate circuit when the H.T. voltage was 90 volts; the H.T. current consumption dropped to 7 milliamperes for the two valves at an H.T. voltage of 66 volts and to 3.4 milliamps when the H.T. voltage was reduced to 45 volts.

Ya feed back may occur, namely, through the electrodes of the valve itself. These articles will be dispersed among constructional articles, and it is hoped that the constructor will be able to grasp the theoretical as well as the constructional side of this very absorbing subject.

Re-touching Radio Cabinets

THE first impressions go a long way, and the visiting person who is listening to a neighbour's radio will be far more impressed if the receiver is housed in a smart cabinet. Many enthusiasts confine all their energies to the perfection of the reproduction of the broadcast, taking the set out of the cabinet each time an adjustment is made, with the result that the cabinet is scratched and marked with soldering paste, etc. Why not spend a few hours on the outside appearance, and improve the receiver as a piece of furniture.

Filling.

FIRST dismantle everything, unhinging the lid, and unscrew all fixtures. Deep scratches and holes will have to be filled with wax, and this will have to be coloured to the same shade as the cabinet. If light oak, then the ordinary dark-coloured beeswax. Dark oak can be made by powdering a small quantity of walnut stain dye and mixing with the melted beeswax in a small tin. Stir with a small pointed stick, which can be used to hold a small quantity of the melted wax, to fill in scratches, etc.

Modelling wax of the correct colour, as used for making wax flowers, makes an excellent filling. This is melted, and a small quantity run into the hole. When set, the wax is trimmed off with a sharp knife or chisel, taking care not to mark the surrounding woodwork.

The whole cabinet is now rubbed with fine glasspaper. No. 0 is fine enough. Rub with the grain always, and do not go deep enough to hurt the stain underneath the polish. Rub lightly until the surface feels smooth to the touch. Sundry scratches that have not been filled with the wax will show the whiter wood underneath, and the colour of the whole will have to be made uniform. Use a water stain for this purpose, moisten a small piece of cloth, and rub over the whole cabinet lightly. Where the wood is bare through a scratch or knock, the water stain will be absorbed, but where polished, the stain will just lie on top, and can be wiped off with a clean cloth.

Staining.

VARIOUS water stains can be made from ingredients which are more or less household commodities. Very light oak stain can be made by dissolving a small quantity of bichromate of potash in water. This colour develops in a few hours when exposed to the air. Potassium permanganate dissolved in water makes a darker stain for oak or walnut cabinets.

Quite a good mahogany stain can be made from red ink mixed with Indian black, in various proportions, until the desired colour is obtained.

After this coating of colour, rub over with a rag just damped with clean water, and allow to thoroughly dry.

French Polishing.

IF the cabinet is bruised by being knocked, try to restore the flat surface by applying cloths dipped in boiling water to the bruise. The wood will swell where it has been injured, and "bring out" the dent. Before polishing, the whole must be perfectly dry. With a fine camel-hair brush, give the cabinet a coat of shellac varnish, made by dissolving shellac gum in methylated spirits. Three parts fill a container with the shellac crystals, and pour on methylated spirits to fill the jar. By shaking occasionally, the shellac will have dissolved in about six hours.

Give two coats with the brush, and then proceed to polish with a rubber. French polishing is a skilled art in itself, but quite a presentable job can be made by the amateur if he remembers one or two details.

A piece of cotton wool is wrapped in a small sheet of clean linen, sufficient to make a convenient pad for rubbing. Saturate the cotton wool with the varnish, lay over the linen, and rub on the cabinet from end to end. Do not go over the same place twice until the first coat is dry, unless the rubber is lubricated with linseed oil. Allow to dry after one or two coats in this way, and with the fine sandpaper, take off the surface again.

A good polish cannot be obtained until the grain of the wood has been filled in. By applying varnish, allowing to dry, and sandpapering down again, the tops of the hills, as it were, are taken off, and the valleys gradually filled in. To give the final high finish, rub a few drops of linseed oil on the rubber each time the cotton wool is moistened with shellac, and continue to rub in a circular motion. Too much oil will give a dull finish, while too little makes the rubber stick. After a while, the knack will be acquired, and a high polish will result, which should be left overnight to thoroughly harden before handling. A few pence spent in getting new wood screws as substitutes for those whose heads are disfigured, will add to the general appearance.

A few hours spent with the cabinet in this way will seemingly add another fifty per cent. to the value of the receiver.

Importance of By-passing

ALTHOUGH the better grade manufactured receivers to-day are including by-pass condensers with a view to obtaining greater efficiency, the value of this practice is not always fully appreciated by the set-builder and experimenter. Both high-frequency and audio-frequency currents should be provided with the shortest possible path, in all cases avoiding circuitous and high-resistance detours through batteries, mains supply units, transformers, and so on. Moreover, the audio frequency should be kept out of the H.F. end, and the high frequency should be kept out of the L.F. end.

L.F. By-pass.

TAKING the detector and the first L.F. stage as a typical case, by-pass condensers may be used to keep the radio-frequency component out of the transformer primary, and to keep the audio-frequency component out of the high-resistance B supply unit or B battery. A suitable H.F. choke is inserted between the plate of the detector valve and the transformer primary together with a small by-pass condenser on the plate side of the H.F. choke connecting with the filament negative.

The audio-frequency energy is by-passed by a one-microfarad condenser between the B positive and the filament negative. This will be found to improve the tone quality and also generally the volume. The by-pass for the H.F. end invariably provides greater sensitivity and volume, particularly with a regenerative detector which may sometimes fail to oscillate freely in the absence of such by-passing.

Volume and Sensitivity.

BY-PASSING for the L.F. component is provided by a filter condenser of 1 or 2 microfarads between the B positive and the filament negative leads. The use of a by-pass in this position results in better tone quality and a reduction of background noises, whether with B supply unit or partly run-down B batteries. Generally, an amplifier not so equipped may be materially improved by by-passing all B positive connections to the filament negative.

Finally, an H.F. by-pass arrangement which is not often employed but which will increase sensitivity and volume to a considerable extent in many cases is to place a by-pass condenser of .006mfd. between the filament negative and the B positive lead which goes to the primary of the H.F. transformer. This will be found specially useful in cases where the B battery or the B supply unit has considerable internal resistance.

Our Crystal Corner

By "Galena"

Difficulty to Log 2YA.

"COULD you please inform me as to whether I am likely to get 2YA in Paekakariki on a crystal set? I have already tried without any results whatever. Is this due to my set? enclose diagram, which I took from a back number of the 'Radio Record.' I did not follow the circuit exactly, as I had not the necessary space in my box to use a 3in. former. Does this make any difference? My aerial is 'Electron' wire, 7ft. high, 75ft. long, without insulators, as I thought the rubber insulation would do. I hope you can help me.—Keith Dixon (Paekakariki).

The crystal set comprises 77 turns of 24 d.c. wound on a 2in. former and tapped at the thirty-ninth turn. The tuning is carried out by means of a condenser. Paekakariki is about 25 miles air line from 2YA, so that it is, or should be, just within crystal range. In testing the actual timing capacity K.D. must make certain that his tapping is at the right turn. Try varying it.

The aerial is not particularly good. It should be carefully insulated and if possible increased in length and height. Stranded copper wire enamelled would probably be better. Seven feet is far too low to receive 2YA in Paekakariki. Try about 30 feet.

The type of earth has not been specified. From reports, certain places in Paekakariki have difficulty in getting a good ground. Try earthing a kerosene tin and keep it filled with water.

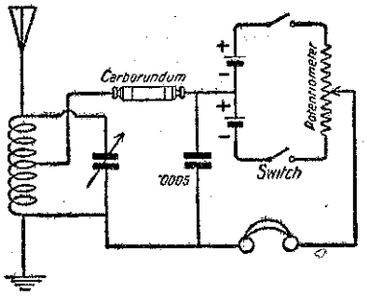
A 2in. former can be used, but a 3in. is preferable. In general a smaller former means more turns and finer wire less turns.

To Prevent the Aerial Snapping.

A CORRESPONDENT, E. R. Hill, has sent in quite a good suggestion concerning the aerial. Where a tree is to be used as one aerial mast and an ordinary mast for the other he suggests that three sashweights be secured to the mast end of the halyard supporting the aerial. When the tree sways the weight will move up and down, accordingly keeping an even strain and prevent the tugging on the aerial. The pulley wheel must, of course, run freely.

Battery Potential for the Carborundum.

AS explained in the "Corner" previously, a permanent detector is much improved by the suitable application of a current of electricity. Special units are procurable for this purpose, but their price rather precludes their use except to the fortunate few. However, by the following method the same effect can be obtained for the expenditure of a very small sum, that is, for the cost of a two-cell torch battery and a potentiometer; the latter is a high resistance rheostat with three tappings. Just recently the writer saw these on sale for a ridiculously low figure, a few pence, but the usual price is a matter of a shilling or two. The usual method of applying voltage to a carborundum-steel combination, such as those obtainable in cartridge form, is shown in the diagram. The ordinary tuning circuit is shown at the left, the crystal in this case being shown connected to a tap on the tuning coil, but may be connected to the aerial end if found an advantage. The circuit is tuned by a .0005 variable condenser, with about 56 turns on the coil, or .00025 with about 78 turns, the wire being better spaced about half its own thickness. The diameter of coils is 3 inches. The foregoing particulars are given for those who wish to construct a complete receiver, but any existing crystal receiver may have the carborundum cartridge put in and the biasing arrangement added. The biasing is accomplished by means of a potentiometer of 400 ohms resistance. The arm is connected to one side of the 'phones, and the two other contacts



to the negative and positive, respectively, of two small flashlight dry cells. A connection is taken from between the two cells to one end of the crystal and to a fixed condenser of .0005 capacity, which functions as a by-pass. A switch should be provided for each battery as shown, and this may conveniently be a double-pole single throw, so that both are switched off together when not in use. It is immaterial which end of the detector is connected to the central point of the battery, as the potentiometer allows the application of a voltage of positive or negative from 0 to 1½ volts.

If one cell is omitted its position is bridged over with wire, and it is then necessary to find out the correct position of the detector by reversing it. Only one side of the switch would then be required.

Weak Signals.

IT often happens that signals become very weak, and the crystal owner is at a loss to find the cause. Aerial and earth may seem all right, yet the signals are decidedly weaker than they used to be. Where shall we look for the trouble? If it is an adjustable crystal that is in use, then one cause of trouble may be that the cat's whisker may be rusty, or, perhaps the crystal surface may be dirty. A snip with a pair of scissors will cure the former, and the crystal itself may be broken to form a new surface, or replaced. In any crystal set, the crystal should be kept bright and clean, but don't handle it with the fingers. A small pair of forceps should be used whenever it is to be handled.

To clean the crystal, a few drops of methylated spirits should be applied, and the crystal put out in the sun to dry. Lowering the crystal into a small quantity of spirits would be more effective, but care must be exercised not to allow it to touch the bottom of the container, lest it should pick up more dirt than it originally possessed.

Always keep the set clean. Dust should not be allowed to accumulate under any circumstances, for this reason it is advisable to construct a cabinet, no matter how simple it may be.

Dust and Dirt.

ANOTHER possible cause of trouble is an accumulation of dust and dirt on the diaphragms of the telephones. This can be removed by any careful listener, with a piece of soft, oiled cloth. Dust will settle between the contact plugs, and can easily weaken reception.

The trouble may also lie out of doors in the form of soot, or dirt, of the insulators, or a dirty contact at the lead-in, this being especially true of sets where no valves are used. Another cause of weak signals is a poor earth connection, but this was fully dealt with in our special issue of last week.

Faulty Phones.

SOMETIMES the cause of weak signals lies in the telephones or the loudspeaker, even although these do not appear rusty or damaged in any way. But if they have been dropped to the floor or otherwise roughly handled, it is quite possible for such treatment to have demagnetised them (especially if they have been purchased a year or so ago), or connected to the amplifier the wrong way round for some time. If this fault is suspected, however, it can be easily checked by borrowing a pair of good 'phones for a time and trying them out when the improved reception will show whether the 'phon s are at fault.

Another common fault is the fluctuating of programmes, i.e., when the set has the habit of "going off." If an amplifier is in use the first thing to look for is the accumulator connecting bar, which may be making a loose or dirty contact and thus causing the filaments to be starved.

'Phone leads or, indeed, any flexible lead-in may give rise to this fault, the wire inside the insulation having become frayed, thus making intermittent or loose contact. In both the above cases the remedies are obvious. Another cause of this kind lies out of doors, for it may be that the aerial or the lead-in is swinging against some obstruction. If the wire happens to touch a gutter pipe or some such thing the signals will go to earth instead of through the set, so do not run the leads too near buildings, walls, etc., but have them sufficiently tight to make sure there are no stray contacts.

Dust and dirt between the condenser plates is another cause of scraping, but is easily located because the scraping noise corresponds to the movement of the condenser.

Blind Spots.

ANOTHER puzzling fault is so-called "blind spots" in a crystal set. Actually blind spots cannot exist in a crystal set, yet the owner of a crystal may be puzzled at the disappearance of his signals at one particular reading.

An acquaintance of the writer was for some considerable time puzzled with this annoying fault, and he was at a loss where to look for the trouble. Finally the condenser was critically examined and the trouble laid bare. He had been making a few alterations and had been using the soldering iron to join some wires to a lug on the condenser. Some of the solder had overflowed and a small portion lodged between a fixed and a moving plate. The moving plate was not quite straight, and in one particular place touched the fixed plate, and so the "blind spot."

A RUN-DOWN accumulator should be taken as soon as possible to the charging-station and should not be allowed to stand aside indefinitely.

Notes and Comments

By "Switch"

A RADIO friend related with great enthusiasm the other day how he found that by connecting a cone loudspeaker and large horn-type loudspeaker in series, he is obtaining superb tonal results. This bright discovery lost some of its glamour when the writer informed his friend that he habitually runs two loudspeakers of the cone and horn-type simultaneously. Tones which one loudspeaker is inclined to miss are generally brought out by the other. The two speakers should be kept close together to obtain the best effect.

THE dismal character of Boxing Day kept many Wellington listeners at home, and their enjoyment was admirably catered for by 2YA, Wellington, and 3YA, Christchurch, both of which were available at good loudspeaker strength with multivalve sets during the afternoon. A capital musical programme made things brighter, and the racing results given out from time to time interested those inclined to sporting.

"I RECKON 2YA, Wellington, has been a regular God-send to my family lately," said a Wellington newspaper man to the writer this week. He explained that his little son had been ordered to bed for three weeks, by the doctor, and to be kept quiet. The little fellow was not easily reconciled to this proposal, but when he was permitted to lie in bed with the headphones listening to 2YA by the hour he was quite satisfied.

MANY people who are almost stone-deaf are able to enjoy broadcast listening with the headphones on. A Wellington gentleman who cannot hear unless he is shouted at, stated to "Switch" that with a one-valve set he gets splendid volume from 2YA, and can hear everything quite plainly. "Not a note or word is missed," he says, and he advises other deaf folk to try broadcast listening as a diversion.

SOME Wellington people are saying atrocious things about a gentleman who switches into the wave of 3YA, Christchurch, and lets his valve howl continuously. Whether 2YA is on the air or not matters nothing to this merry howler; he gets on to 3YA and stays there hard and fast, with a slight see-saw in his howl. A couple of listeners 'phoned "Switch" asking him to diagnose the trouble, suggesting that the howl was a heterodyne note from an Australian station. However, it was quite evidently merely a howling valve.

AT a late gathering of Wellington listeners one enthusiast mentioned that he had used his telephone for an aerial in an experiment. He seemed somewhat abashed when informed that his action was contrary to the P. and T. Department regulations, and if he had been detected he would have been liable to prosecution. This tinkering with telephones seems to be a favourite move of some experimenters.

ON race-meeting days Wellington daily newspaper offices are besieged by telephone inquiries as to the results of certain races. Since the popularity of broadcast listening there has been a considerable reduction in the number of the telephone inquiries about horse races. It only goes to show how handy some "sports" find a receiving set for obtaining racing information.

THE Australian stations have not been a prolific source of entertainment during the past week. Unless one sits up till nearly midnight, audibility from across the Tasman is sufficiently good to warrant tuning in the Aussies.

THE cool change on Boxing Day enabled listeners-in to Wellington to indulge in dancing to the music from 2YA, Wellington, in the evening, and to enjoy it. The previous heat-wave had rendered dancing anything but pleasant.

A BIG brewing company in Sydney runs a particularly fine brass band among its employees, and the combination has been heard from time to time from one of the Sydney stations. Is there no concern in or around Wellington that can gather sufficient talent among its employees to establish a band or orchestra? The idea is really worth encouraging.

AN enterprising Wellington enthusiast constructed an exponential loudspeaker horn on exactly the same lines and measurements as those of an imported exponential. He even used a plaster composition similar to the imported article, but was disappointed with the tone of the speaker. Eventually he traced the trouble to the loudspeaker unit, which, although of a high-class make, was not suitable for the home-made exponential.

A TALK on "First Aid" was advocated by a friend the other day, who pointed out the prevalence of motor accidents and the general ignorance of the public as to what to do when anyone has suffered injury in an accident. The simplest treatment is not understood by the man in the street, and needless harm is sometimes done through ignorance.

A WELLINGTON suburban listener displayed a profitable enterprise in visiting a Wellington South rubbish dump in quest of something which would serve as radio masts. He found a number of old iron pipes which he took home and cleverly joined together so that he has now a couple of 50-feet "sky-scrapers," the envy of neighbouring listeners. But it takes a handy man to join the piping firmly together.

A LYALL BAY resident received a shock a few nights ago when informed by his wife that his aerial was sparking near the lead-in end. He rushed out to investigate and found that his glass insulators were intermittently reflecting the light from a near-by street lamp!

A DISCUSSION among a group of Wellington broadcast listeners recently turned to the question as to which instrument in an orchestra or band came through with the most natural timbre. Each one of the five present voted for a different instrument, which were: violin, brass bass, cornet, banjo and flute. They forgot that each one had a different make of loudspeaker, not to mention the question of valves and the question of "matched impedances."

"WE admire the good work done by our radio announcers in New Zealand," remarked a Wellington visitor to "Switch," recently, "and I think they deserve to have their names billed as in Australia, or actually announced when the stations are signing-off, as in the United States. I have heard the announcer of KGO, Oakland, California, give his full name when closing down.

A MAN won a wager, some years ago, by offering passers-by on London Bridge sovereigns for one shilling each. He bet that no one would buy a sovereign at that price, and he won. The Wellington Radio Society offers a cordial invitation to all listeners, whether members of their society or not, to attend the interesting and instructive lectures given by the most expert radiotricians in our midst. No charge of any kind is made for admission to these lectures—in fact, something for nothing! - Yet, although the attendances are large, the number present represents only the minutest fraction of the aggregate of listeners in Wellington. And we can all learn something from these lectures.

THE proprietor of Mack's Radio Store, while endeavouring to tune in 2ME, Sydney, to pick up the description of the Melbourne Cup meeting for relay to 2YA, Wellington, encountered three persistent local short-wave howlers who spoilt "Mack's" attempts to provide an important item for hundreds of New Zealand listeners. On top of all this one of "Mack's" enthusiastic admirers telephoned him from the Hutt, telling him, "I've always contended you were the best short-wave tuner south of Paekakariki, but now I'm satisfied you couldn't tune a wheelbarrow!" The genial "Mack" took the banter good humouredly, and allayed his friend's excitement by explaining that the pig-whistles were coming from local howlers.

A WELLINGTON listener recently purchased a receiving set which was alleged to be as good as one "costing three times as much." The outfit, however, tunes so broadly that the Wellington morse station, VLW splashes all round the dial and utterly spoils reception of even 2YA, Wellington. Various systems of wave-traps have been tried but they failed to prevent VLW getting through on to 2YA. The moral is that one must not expect a first-class set at a third-class price.

NOT infrequently the announcer at 2FC, Sydney, just prior to signing off at night time, gives a brief description of the weather in Sydney on that night. The idea has proved exceedingly popular as many country listeners have relations visiting the metropolis, and they are interested to know what sort of weather is being experienced. A radio acquaintance has suggested to "Switch" that this idea should be taken up by the New Zealand stations.

WELLINGTON radio traders are appreciative of the Broadcasting Company's new extra sessions from noon till 2 p.m. by 2YA, Wellington, and extra business has actually resulted through the dealers having two extra hours during which they have been able to demonstrate their sets. The hours of the extra sessions are particularly convenient as it enables potential buyers who are unable to leave their places of occupation during the ordinary afternoon sessions, but are able to take advantage of the dinner hour. Signs are not wanting that we are about to experience a real "Radio Christmas."

THE members of the executive of the Amateur Radio Society of Wellington are of one mind that the society should have nothing to do with any "institute" no matter how desirable the formation of such a body may be. The Radio Society functions along definite popular lines, furthering the interests of broadcast listeners without delving into the higher science of radio which is above the heads of the multitude. There is ample scope for an "institute," but the Wellington society prefers to concentrate on its own lines of activity, and will conserve all its resources and attentions on its own objects.

A WELLINGTON listener lately obtained a multi-valve receiving set direct from America, without valves. He purchased a set of 201-A type valves, but was unable to reach out any distance with his set despite a splendid aerial and earth system. The services of a radiotrician were obtained, and he found that the set was designed solely for dull-emitter valves. After a set of this type of valves was purchased the set performed passably well, but the owner had a set of 201-A valves left on his hands. This should act as a warning to beginners—find out whether special valves are required for the set you buy.

The Eucharistic Congress

Interesting Angle Taken by "World-Radio"

THE Eucharistic Congress, with its epoch-making broadcast, has taken its place in history, and will henceforth be a matter for students of religious and wireless history. But to many hundreds of thousands its memory will linger and be cherished; for this section of our readers this very fine passage from such an authority as "World-Radio" (the official organ of the B.B.C.), will prove more than interesting reading, and will, it is to be hoped, cast a new light on that great event:

FROM the point of view of quality, the broadcasts from the Eucharistic Congress have been, perhaps, the finest ever transmitted from a Sydney station. This means also that inter-State listeners who tune-in to stations in the other capital cities must also have heard the proceedings excellently, because all the principal stations were linked up to the same picking-up microphone.

The opening services of the Congress transmitted from St. Mary's Cathedral were considered to be worthy of high praise, the massed choirs and a special orchestra being magnificent. The service as heard over the air was considered "wonderful."

The opening of St. Mary's Cathedral was another stirring broadcast. How many persons in Australia had previously heard a Papal Bull officially read with full ceremony? Comparatively few. But radio brought to the ears of as many as chose to tune-in their sets, the full text of the Pope's brief as read by Rev. Dr. Sheehy in Latin and English.

Then followed an address by the papal legate. About 18 years have passed since a Cardinal has been in Australia, and at that time broadcasting was unknown, but it may safely be assumed that hundreds of thousands have now heard the voice of Cardinal Cerretti.

The events of the Congress are now past history, but they have provided listeners with a wealth of music such as few could have heard in person, and descriptive accounts of ceremonies such as the Eucharistic procession which are not likely to be repeated in Sydney in the life of the present generation.

The Future of Radio

The Role of Television

HOW the mind delights to wander into the unfolding future to see the world as the forthcoming generation will see it. The wilder the suggestions the better the mind appreciates them, and why not, for is not the speculation of to-day the realisation of to-morrow, and the impossible, does it not become the accomplished?

Wireless to-day has exceeded the expectations of all but the Jules Verne of yesterday, little wonder then that we in turn, turn bewildered from a maze of possibilities that are almost daily thrust upon us. To say that wireless is going to revolutionise would be, it is felt, making an unjust claim: only very few of man's creations have been subject to such a change. Progress is by steady advancement—evolution—and so the following suggestions from an Australian journal lose nothing in their apparent impossibility.

Television and "Movies."

WHILE our radio brings us only sound to-day, in present-day laboratories sight transmission is an accomplished fact. It only remains now to reduce it to a practical form to make it available to the public.

Talking "movies" in the home is also just around the corner. At the start this device will be actuated through the use of individual film records; later, as a service of the broadcasting station.

Apparatus is now developed in practical form whereby a message or picture can be transmitted in facsimile form—in other words, as a typewritten page or picture. This is an entirely new and revolutionary system of telegraphic communication.

The Televox.

THIS agency opens up other avenues whose development can be far-reaching. The time will come when, combined with the Televox, it will be possible to arrange a device for use as a broadcast receiver that will automatically take the message from the broadcasting station in facsimile form—in other words, as a printed communication. Progress in this direction is inevitable; its future is assured, and it will bring to the home the panorama of life of the great world outside.

Perhaps the greatest benefit that may accrue to light and power companies from radio is the improvement of knowledge of electric phenomena which will bring about a better understanding of the generation, transmission, and control of electric power.

Transmission of Power.

UNDOUBTEDLY many special radio appliances will be developed. These will be for purposes of automatic supervision, automatic control, automatic inspection and sorting, automatic counting, automatic fire protection, automatic synchronisation of machines, and many other automatic operations.

Any forecast of this kind would perhaps be looked upon as incomplete that did not carry some statement concerning the transmission of power without lines—that is, radio power. It would, indeed, be a foolish person who would undertake to say that this feat will never be accomplished, because in this marvellous art the impossible of to-day becomes the commonplace of to-morrow, and things that now appear insurmountable may melt away in the sunlight of new discoveries that are ever being made.

Radio is destined to be marvellously far-reaching in all its effects and influences, and it is extremely difficult to prescribe any limits to the field of its ultimate usefulness.

J.B. Jo/Burg

Is It Short Wave?

(To the Editor.)

IN this week's "Record" I read of a Mr. Thomson receiving J.B. (J.P. in the "R.R.," an error I presume) on 25 metres. It will be of interest to Mr. Thomson (also other S.W. listeners) to know that there is no S.W. station operated by J.B. I have received a letter verifying my statement. This letter is at the disposal of any listener in doubt. The broadcasting station JB, working on 443 metres, operates as under:—

Monday, Tuesday, Wednesday, Thursday, Friday, from noon to 2 p.m. and 5 p.m. to 10.30 p.m.

Saturdays, from noon to 2 p.m., 5 p.m. to 11.45 p.m.

Sundays, from 3.30 p.m. to 5 p.m., and 7.15 p.m. to 10 p.m.

They hope to increase power shortly from ½ k.w. to 10 k.w. Also 3AN, Sourabaya, operates Mondays, Tuesdays, Thursdays, Saturdays from 7 p.m. to 9 p.m., Java time; 40 metres finds him. VPD is much louder here on about 19.6 metres than 375. ABG2 has also been received on one valve clearly, testing with 2ME. My log now totals nearly three hundred telephony stations.—J. Rait (Brooklyn).

Body and Soul

The Broadcast Pulpit

WHEN the horizon doesn't lift above the three-score years and ten, you can see that the struggles of life must be about the conditions of life rather than life itself. To eat, drink, and be merry, since to-morrow we die, seems almost the only policy. Jesus, with His understanding of God, and belief in immortality, saw that the value of life lay not in the pleasure or comfort or gain that a man could get, but in the quality of life itself. To the doctrine that man was a body possessing a soul, He would never have subscribed. To him, man was a soul, and the soul was the thing. The body was only a convenience, a temporary lodging place. He, therefore, believed that if men concentrated their thought on the conditions of life, and permitted human affairs to obscure the vision of spiritual attainment, they were making a great mistake. He believed that if the search for pleasure or comfort, for accomplishment or gain in things material, were allowed to prevent us from progressing in spiritual attainment, we were putting ourselves in positive danger of losing the only wealth that can be ultimately preserved. If we gained them so that we no longer strove for spiritual character, then we were already dead, men who had lost their souls. Men would continue to climb the higher heights, but we should have no part or lot in it.

The Solidarity of Humanity.

THE ideal of God for humanity is that it shall be one; not monotony, but harmony. By the solidarity of humanity, we mean the inter-relationship of man with man; the fact that no nation can, in a world like this, isolate itself and be ultimately independent. We learned it tragically in the days of the war. There were those who attempted to stand out. In some sense, no nation was able to stand out at last, because the agony and suffering of each ran to the uttermost end of the world. All nations are inter-related in a spiritual and fine consciousness that does not admit of separation.—The Rev. G. Campbell Morgan, London.

(Continued from page 32.)

Every few minutes he called "Allo, allo, Ici Paris." This was followed by a few words, but as my French isn't too good I could not catch what he said. However, I could understand scraps of the talk here and there. It appeared to be a news session, but I could not catch his address.

A LETTER received from the Westinghouse Electric and Manufacturing Company, Pittsburg, dated November 14, 1928, contains the following particulars:—

"We are very anxious that the programmes to Commander Byrd are transmitted in such a manner as to be received in good volume aboard the ship, and by our friends in other countries. Station KDKA operates on 980 kilocycles, the standard wave of the station being 305.9 metres, the short waves 62.5 and 25.4. The short waves of KDKA are used every evening from eight o'clock Eastern standard time (1 p.m. New Zealand summer time), up uniil the closing time of our programme. This, of course, includes the special programmes to the Arctic and Sub-Arctic, which will be broadcast on the following dates: December 1, 1928; December 25, 1928; January 12, 1929; February 2, 1929; and February 23, 1929, at 11.0 o'clock, Eastern standard time (4 p.m. the following day our time). The shortwaves transmissions often begin at six o'clock EST, also irregularly at periods earlier in the day."

New Wavelengths. WGY's Shortwave Stations.

IT was announced from Schenectady, that to comply with the new regulations of the Federal Radio Commission, the following new wavelengths would be used as from December 27, 1928: W2XAD, 19.56 metres; W2XAF, 31.48 metres.

2XAD has used this wavelength recently when carrying out duplex telephony tests with 5SW.

Specimen report sheets are to hand for reporting reception of Philips shortwave stations PCJJ and PBF5. These contain provision for reports on signal strength and fading, etc. Report sheets may be obtained on application to Messrs. Philips Lamps (N.Z.), Ltd., P.O. Box 1673, Wellington.

A strange foreign station, on about 26 metres, has been heard about 6.30 p.m. No call was heard.

Saturday, December 15.

PCJJ was R8 at 6 a.m., decreasing to R3-4 by 7.30 a.m.

5SW, starting early; at 6 a.m. strength was R8, with a talk which was not intelligible. At 6.15 a fifteen minute interval was announced, after which the London programme would be continued.

According to the usual schedule, news items are given during this period, which are barred on the shortwave transmissions. 7LO Nairobi was R3.

The Dutch station PCJJ was on again during the afternoon. They were weak until about 5 p.m. At this time greetings were sent to the Byrd Expedition in the Antarctic.

Both KDKA and W2XAD were very weak till after 4 p.m., when they reached R5.

2AO Lower Hutt was quite good at R3.

Sunday, December 16.

2AX Palmerston North, a new station to me, came in at good strength.

W2XAF was very clear and steady at R3 at 3 p.m., increasing to R8-9 at 5 p.m., when signing off. Music was supplied by the Hotel Van —— Orchestra at Schenectady, New York.

KDKA broadcast items from the Fort Wyne Hotel till 4 p.m. Messages to the Byrd Expedition were sent till 4.25 p.m. Strength R8 at best.

Round the World on Short Wave

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

RFM was in good form at R9. Talk only was heard.

Monday, December 17.

7LO Nairobi, although quite weak —R2-3—was very clear at 6.30 a.m.

3LO from 7 a.m. was splendid strength and modulation.

Tuesday, December 18.

7LO was stronger than usual, so was static. Big Ben from 5SW was R3-4; rapid fading spoilt talk that followed.

Wednesday, December 19.

7LO at 6 a.m. R3.

5SW at 7.30 a.m. was R5, but very poor reception. During the evening 2ME Sydney and ANE Java were testing; both stations were excellent at R8.

Thursday, December 20.

A station was picked up on about 46 metres. Static was too strong to be able to get the call. PCLL Kootwijk, 7LO Nairobi, and 5SW were all about R5, but spoilt by strong static. At 6.30 p.m. a station on about 26 metres was heard talking in broken English. Sydney, Australia, and later, Malabar, were called. Talk between could not be understood until 7.45 p.m., when he said "We are closing down now" in quite good, clear English. This was repeated and the carrier went off. Strength was R9. This station has been heard since, but no luck as regards a call.

PCLL on 18.4 metres was picked up at 8.15 p.m. at R7, transmitting records.

Friday, December 21.

Static was again very bad on all stations except on the very low wave lengths.

PCJJ and 5SW in the morning and RFM in the evening were spoilt by it.

PCLL at 10.15 p.m. were transmitting records; some organ music was excellent. Later they called "Hullo, Bandoeng! Here is Kootwigh." ANE was tuned-in; they were playing records, but on being called they responded with talk and carried on with duplex telephony. Both stations were R9 and quite free of static.

Saturday, December 22.

PCJJ commenced at 6.5 a.m. at R6 with the Dutch National Anthem. Static was again very bad. 5SW and 7LO were both weak and spoilt by static. PCJJ was again tuned-in at 3 p.m., when static had almost gone. At 5.5 p.m. our National Anthem was played, followed by "Hullo, Australia; Hullo, New Zealand." They then had a talk to Commander Byrd at the South Pole. A howler came on and spoilt reception. Strength increased to R8 at 5.30 p.m., decreasing slightly by 6 p.m., when they signed off, stating "This concludes our transmission for the Antipodes, wishing listeners the compliments of the season."

No sign was heard of KDKA or W2XAD.

Radio Paris, the Eiffel Tower station, on 24.5 metres, was heard early in the evening calling "Hullo, Ici Paris." Strength R9, very clear and steady. Only talk was heard. At one time they were calling Washington.

Sunday, December 23.

ROSE early with the idea of logging some of the Sunday morning specials, but luck was out, except that on about 22 metres a foreign lady was talking in short sentences with long pauses between; sounded like one side of a conversation. The other station could not be located. Strength R5. Static bad.

KDKA signed off at 4.15 a.m. at R5. Rapid fading spoilt readability.

W2XAF was weak till 4 p.m., when they were R5. This increased to R8 at 5 p.m. Hotel dance music was heard during the last hour.

Monday, December 24.

6.30 a.m., 7LO, R4-5, spoilt by static.

3LO from 7 a.m., at R9, very clear and steady.

RFM with music, at 10 p.m., was R8.

PCLL, with records, was rather unsteady at R7. ANE, at R9, were also playing records. Later these two stations carried out duplex telephony tests. PCLL could be heard through ANE.

Tuesday, December 25.

Tuned in 2XAD at 9 a.m., when a lady was singing. After this the announcer said something about programme by the British Broadcasting Corporation and then closed down. They probably had been re-broadcasting the London station. 5SW could not be heard direct.

The programme heard from KDKA till 3.30 p.m. was supplied by the General Motors, Ltd. The next half an hour the "Old World Trio" entertained. W2XAD and W2XAF were both on the air with a Christmas Eve programme from the Pennsylvania Hotel by the National Broadcasting Co. and associated stations. At 5 p.m. Christmas carols were heard from the "famous old Trinity Church, New York." These were on the bells.

Christmas music and talks were continued till 1.31½ a.m. Eastern standard time (6.31½ p.m. New Zealand time). KDKA also broadcast the same programme from midnight, New York time. Reception was from R8-9 with 2XAD, which was the best most of the time; at times 2XAF was the stronger. They made the announcement re change of wavelength mentioned earlier. Before signing off, the following was broadcast: "To our short-wave audience, wherever you may be, all over the world perhaps. May we wish you a Merry Christmas. Good-night."

This concluded one of the most enjoyable programmes heard from America.

Directly after the above signed off, a station on about 26 metres was heard at R3 transmitting a religious service. Static was rather bad. He signed off at 6.45 p.m. with call not properly heard, but "——? short-wave station of C——? owned by James Richardson and Sons, Ltd." "Good morning." The C located it as Canada, and my call-book shows two stations owned by James Richardson and Sons, Ltd. They are CJRM, Moose Jaw, Sask., and CJRW, Fleming, Sask. I fancy it was the former, but not certain.

Wednesday, December 26.

At 8.45 a.m. on about 22 metres a foreign lady was talking, apparently duplex telephony. 5SW was audible at times only. An unsteady rushing noise spoilt the weak signals. 2XAF was not tuned in till 4.30 p.m., just as they were concluding a hotel relay, which was R9. They followed on with a television test till 5 p.m., again giving particulars of new wavelengths to operate from December 27.

KDKA were poor until 4.30 p.m. Signal strength was not so bad, but they were mushy. They cleared up later and also gained in strength. A special programme for Commander Byrd and his party was given with personal messages. They were still going strong with messages at 8 p.m. (3 a.m. at Pittsburg) when I left them in favour of 2YA. Strength was R9 during the last two hours and perfectly clear and steady, being 100 per cent. readable.

2XAF were on late in the evening. Heard them first at 11.10 p.m. at R9, playing records.

Stations to be Identified

COULD some listener please identify for me, through the "Radio Record," a short-wave station somewhere near 20 metres on 'phone, which I heard about 11.30 on Tuesday night, 18th? A man was speaking for a long time, but in between a woman said a few words now and again. Records were on before the talking.

I have received another which has puzzled me also, on Thursday, the 20th, and closed down at a quarter to eight in the evening. Wavelength about 20 metres. He kept repeating in a foreign voice the numbers 1 to 10 and a sentence containing a word sounding like Argentina in it. Later on he kept calling something like the words "Hullo, Mulaby." Could some listener please enlighten me as to which station this was?—G.F. (Dunedin).

"Ici Paris," Again

MR. J. D. O'LOUGHLIN (Masterton) writes:—

On Sunday, December 23, a Russian was picked up on about 53 metres. I could not catch the complete call, but I believe it was "SOC." He was about R6. At midnight on Boxing Day 2XAF was broadcasting early morning exercises—it being 7 a.m. over there. After stating that it was a special test transmission, they closed down at 12.15. At 1 a.m. on December 27 "Ici Paris," was heard at great strength, being almost as loud as 2ME at times.

(Continued on page 31.)

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