Sidey Time and Radio--What of it?--The Selective Crystal Set--The Trend of Radio Abroad

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What Do Country Listeners Think of Sidey Time?

Under the test of experience country opinion seems to be solidifying against summer-time because of involving extra work without compensation. Country listeners situated at a distance from stations enter, in addition to the general complaint, a special objection to "Sidey" time. In the following article we cite, in brief, two main points of view against "Sidey" time—first, that of the dealer who loses trade through reduced effectiveness of summer reception, and, secondly, the country listener who finds himself suffering from weakened reception to such an extent, in some cases, as to almost put his set out of action.

Has radio a real cause of complaint against the aggravation of summer-time evils represented by "Sidey" time. We invite readers, particularly country readers, to express their views. Do you want "Sidey" time again next year?

HOW has "Daylight Saving" affected broadcast listening? From various sources it is becoming increasingly apparent that the Act has not proved an unmixed blessing, particularly to country folk, and some city dealers.

Many hundreds of broadcast listeners have discovered that the putting-on of the clock an hour in New Zealand has deprived them of the pleasure they previously derived from listening-in to the broadcast programmes from Australia, and there are also hundreds of broadcast listeners in the southern areas of the South Island, and others in parts distant from stations, who find that the protracted daylight is adversely affecting reception of the broadcast services from the New Zealand stations for which they are paying. To the lay-mind it may not be apparent how the putting-on of the clock one hour can spoil the enjoyment of broadcasting. Listeners of course know that daylight seriously decreases the effectiveness of radio over distances, and a measure which artificially extends the hours of daylight must have an adverse effect on both local and distant broadcast reception.

AUSTRALIAN RECEPTION WEAKENED.

During our summer, daylight effect has always meant poor reception of Australian broadcast stations till about 10.30 p.m. N.Z. time, which was equivalent to 9 p.m. Australian time. With the advancing of the clock to the extent of one hour under the "Daylight Saving" Act, the Australian stations cannot be heard at their best much before 11.30 p.m. This is far too late an hour for broadcast listeners to commence to enjoy broadcast programmes from Australia. The lure of long-distance reception is present among a large section of broadcast listeners, and even if better concerts are available from a local station in New Zealand, as well as in other countries, the desire of purchasers of multi-valve sets is to occasionally reach out for the long-distance stations. Those who have lately purchased high-priced receiving sets must have been keenly disappointed with their performances under the handicapping effect of the "Daylight Saving" Bill.

Many members of the radio industry in New Zealand state that "Sidey" time has put a damper on business with the higher-priced receiving sets, and as they maintain staffs specially for demonstrating this grade of receiver they will feel no regrets when the period of summer-time expires.

LOCAL RECEPTION AFFECTED.

Apart from the foregoing complaint of accentuated loss of overseas reception, much greater sympathy is due to the New Zealand back block listener who, through his isolation from any New Zealand station, finds that the extra weakness of transmission occasioned by "Sidey" hours robs him of almost all ordinary touch with broadcasting. The farmer listener relies more largely than the city man upon wireless for weather reports (of prime importance), market reports, and news, and entertainment, to relieve his isolation. Wireless is, to him, a necessity, not a luxury, and to be deprived of its use through the alteration of hours is a real hardship. The case of such listeners is put very strongly by a southern writer in the course of a special plea for a better station at Dunedin. This writer, "A.R.," says:—

"Radio Christmas has come and gone, and I trust that everybody who could listen in has done so, and enjoyed the varied programmes as printed in the 'Radio Record.' The Broadcasting Co., under the management of Mr. Harris, has made great progress during the past year, and I wish to congratulate all concerned on that fact.

HAVE HAD A BAD SPIN.

"This summer we in Southland have had a bad spin, radio reception has been vile, indeed, so bad as to make it hardly worth while to attempt tuning in at all, no station coming through at all strong until 9.30 p.m.—even under good conditions. The nearest broadcast station to this place, 4YA, Dunedin, is exactly 100 miles distant, yet is absolutely dead as far as reception is concerned. I hasten to assure you, Mr. Editor, that I do not altogether blame the Broadcasting Company for neglecting this station so long. They have logically, spent the money where most licenses have been taken out, but it is time they got a move on.

"I believe the following is the correct reason why Otago has made such poor progress in radio. Two years ago a great exhibition was produced by that province, and they were very proud of it. They could not partake of it in moderation, but swallowed it whole, chocolate alley, and all the other money-sinking items. Since then they have been in much the same condition as a boa constrictor, which has swallowed a bullock, and lies in a state of lethargy, until the overlarge meal has been digested. Their appetites have been satiated with every form of entertainment, but I believe that this state is gradually wearing off. Did I not read in a newspaper the other day, of a circus which, having run a season in Dunedin at a loss, refused to make a return visit, but advertised one free and only show to be given at the railwaystation; the circus band to play two items: 'Goodbye Forever,' and 'Auld Lang Syne'; this, as a mark of their disapproval. An event or two like this will surely wake the Dunedinites up. I do not want the Broadcasting Co. to follow that example, but suggest that you supply Otago, the patient with a weak digestion, with an appetiser, to take the form of a nice leading article in 'Radio Record,' telling all about the new plant ordered for station 4YA, which will make it equally as good as 3YA; when it will be shipped; and when it will be erected; also that if 4YA's aerial is found to be screened by the tall hills surrounding Dunedin it will be shifted to a suitable locality, in any case, that the station will be boosted up, to give daylight reception all over the province, under favourable conditions. Then get a few thousand additional copies of 'Radio Record' printed, and sent out in the country districts of Otago and Southland, the same as was done in Canterbury a short time ago. Then, when the new plant is in operation you will be reminded of the Scriptural quotation of 'casting thy bread upon the waters, etc.'

MR. SIDEY INTO OUTER DARKNESS.

"To get back to reception conditions this summer; the Dunedinites, as far as radio is concerned, have made two great blunders. The first I have already dealt with, viz., producing the great Exhibition;

the second is in producing Mr. Sidey, who produced 'daylight saving.' May Mr. Sidey and his 'daylight saving' soon be, figuratively speaking, cast into outer darkness.

"In this district at the present time the sun does not set until twenty minutes past 9 p.m., and daylight lasts till after 10 p.m. Just read Dr. Appleton's investigations into fading, as contained in 'Radio Record' of December 30, and we need not wonder why distant reception is poor before 10 p.m. here just now.

THINK OF THE COUNTRY FOLK MORE.

"I think Dunedin listeners-in and radio dealers have been a bit selfish and very short-sighted in not boosting radio a bit more, and seeing that country, listeners-in were getting better reception. Having their tents pitched under 4YA's aerial, they get their goods handed out to them over the counter, and don't realise that there is no delivery system to cater for country customers. As an instance, a religious body in Dunedin, a short time ago, sent out quantities of programmes of a radio-concert to be given by them from 4YA to all parts of Southland and Otago, I suppose, and suggested that the listeners-in invite a few friends for the evening, and leaving a place to enter up donations for that body. If this should chance to catch their eye, I would like to assure them of my sympathy. I would have liked to invite a few friends, get in a bottle of the best that wouldn't disgrace their home town, and make a night of it, with advantage to their funds; but, for obvious reasons, it was no go.

(Continued on page 5.)

With Dealer and Customer

Getting Together To Solve Radio Selling Problems

SOME DISAPPOINTMENTS.

Radio traders, in many instances, report that business did not come quite up to expectation during the Christmas period. Many ascribe the absence of a real rush of business to the depressing effect of the "Summer-time" Bill, which has deducted an hour from the evening darkness.

WINTER BETTER THAN SUMMER.

If dealers are disappointed with the volume of business they did during Christmas, they will gain some satisfaction from the knowledge that, after all, the counter-attractions of the great out-doors militate somewhat against radio during summer-time in other countries. The coming winter, however, is bound to be a record radio season in New Zealand.

RADIO "DOCTOR'S" CHANCE.

With the growing popularity of radio and the large number of listeners in the cities, it is now up to some enterprising young radio dealers to organise a radio "doctor's" service in each of the four New Zealand centres. Many well-to-do broadcast listeners would welcome a chance to be able to call a radio "doctor" by telephone at night time to fix up their sets when they unexpectedly develop some trouble which incapacitates them.

DON'T CLOSE AT MIDDAY.

Some of the smaller radio traders close their shops during the lunch hour, just when folk are able to get out from their shops and offices to make their purchases. This is not only evidence of lack of enterprise upon the part of the trader, but it means a loss of business, and the man who does keep open scores.

USE GOOD WINDOW CARDS.

Window cards should be neat, but not too ornate. Their function is to convey information plainly and directly to the prospective buyer. The cards should not be too small, and the lettering should not require field-glasses to decipher. There is a city radio shop with most elegantly printed cards and almost microscopic lettering upon them. To make matters worse, the cards are placed right away from the front of the window.

NEAT WINDOW DISPYAYS.

No wise radio trader will clutter his window with a confusion of articles carelessly thrown about. A lot of anything looks cheap. Don't confuse the buyer with competing lines. Don't disgust the onlooker by having a dirty window. A layer of dust on displayed goods is the worst thing possible for business. A trader can always display his enterprise and attract business by having his windows frequently rearranged. If, on the other hand, there is a lack of variety in the character of the window display, the impression is soon created that that particular window is always the same, and warrants no attention.

WINDOW DISPLAYS FEATURED.

Good, sound advice is given by the president of a big American radio company on the subject of window displays. He says:—"At present, aside from the publicity given us by people who have purchased sets from us and recommend them to their friends, our most valuable advertising medium is our show window. At the opening of the fall season we have a window featuring the joys of radio; prior to the holidays another; and in the spring we suggest it as a much appreciated present for graduates and brides by means of an interesting display. Four times a year, toward the close of each season, we announce a sale, at which time we fill the window with radio equipment specially priced. In this way we keep both quality and price constantly before the public."

COLOURS ATTRACT BUSINESS.

An American dealer advises fellow radio traders as follows:—

"Taking a tip from the colour advertisements which stand out from those in black and white we make it a point to use colour in all our window displays. To achieve all possible colour effects we take advantage of various lithographed window cards supplied by the manufacturers and use crepe paper liberally. Colour thus obtained is inexpensive, and has a sales punch that moves merchandise from our shelves. We find that it also pays to have all our printing done on coloured paper, the slightly increased cost for the latter being offset by the business it attracts."

DON'T URGE DISTANCE NOW.

Although tone quality is important in the minds of radio fans, the ability of receiving sets to get distance is always a very great sales factor. With the public still interested largely in distant stations, many dealers exhibit a tendency to overplay this particular feature. Clear reception can be obtained within a range of, say, from 500 to 1500 miles, but if this range is exceeded, although the set may be capable of much greater distance, natural noises are bound to result. This in turn will make a dissatisfied customer. Therefore, retain distance in the sales talk, but don't over sell it. The Australian stations are not heard to advantage before 11 p.m. during midsummer. When the autumn sets in, and "daylight saving" goes out, the position will be much improved.

INSTRUCT YOUR CUSTOMERS.

A frequent cause of trouble is the supplying of a special detector valve (like the 200A type) without properly instructing the customer as to its operating characteristics. After hearing a fine demonstration in the store, the purchaser has the receiver installed in his home. He wonders why he did not notice the hissing noise when the set was sold him, and is likely to conclude that the demonstration set is superior to his own. Were customers properly instructed by the dealer as to the warming-up process and correct adjustment of the filament rheostat, after warming up is over, the customer would be thankful for the thoughtfulness of the dealer in supplying him with this superior detector valve. Instead, his first evening of radio entertainment is one of exasperation which ends in a service call, costing the dealer at least 10 shillings in time.

AVOID DISSATISFACTION.

It pays to sell only good-quality radio goods. The receiving set, completely installed, should be considered as a unit. The dealer sells the complete package; a failure of any part of it, however, insignificant, means the failure of the entire equipment. The sale of low-grade valves, accessories or power supply, in order to make a larger profit on the set, is inviting a later series of service calls which will eat up that profit. A little less expensive set, with high-grade valves, adequate current supply, and a speaker of good quality, means a permanently satisfied customer and a profit which will not be constantly in jeopardy because of the customer's kicks.

TO DEMONSTRATE EFFECTIVELY.

A poor quality loudspeaker connected with a poor quality receiving set cannot be expected to give good tone. Using a good loudspeaker with a poor set will fail to give pleasing tone. And a poor loudspeaker operated by a good set will have the same effect. A radio dealer should not attempt to demonstrate without having the best quality in both loudspeakers and set if he sells high-priced equipment.

GOOD SERVICE IMPERATIVE.

New York "Radio Retailing" says: "The day is over when any 'ham' can build as good a set as a factory-made product, and with this comes the realisation that no longer can any young high school boy with a smattering of amateur radio be hired as an efficient service man." It is a plain truth that there are some radio dealers in the Dominion who are quite unable to provide any service for their customers, and as a result there is much dissatisfaction among buyers. Small troubles which should be easily rectified are neglected.

FREE ADVICE AIDS TRADE.

A San Francisco radio trader has built up a big business by inducing listeners to come in and obtain free advice about their equipment. Printed on all signs used, on all advertising, and on every package which goes out of his shop is the slogan, "We specialise in furnishing expert advice in your own language, free from puzzling technical terms, and without having to buy anything." From 8.30 a.m., when his shop opens, until 6 p.m., when it closes, there is almost a continuous procession of questioners, and his salesmen are busy all the while.

A COMMENDABLE PRECAUTION.

An enterprising Indiana (U,S,A.) radio salesman always makes a private preliminary test near the house of a prospective buyer with his portable set to ascertain whether there are any discouraging local noises that may mar reception. Then when the salesman is absent to give a demonstration for the prospective buyer he frankly informs the customer if there are any electrical leakages in the vicinity and endeavours to have the cause corrected before giving the demonstration.

A CONE HINT.

A Connecticut (U.S.A.) radio company suspends large cone loudspeakers horizontally from its shop ceiling fixed up like an electric light fixture. As a result the sound is more evenly distributed throughout the room, and the reproduction is more faithful as there is no gravity side pull of the vibrator pin against the armature.

SALES INTELLIGENCE.

It has been found that 15 per cent. of radio service calls are due to the customer misunderstanding or poor instruction of the customer by the dealer. A service complaint may be to the effect that the set squeals constantly, while the only attention needed is to have the rheostat turned down. Or, after a month or two, the storage battery gives out and the customer is surprised to learn that it requires charging. Just why the radio dealer should not have displayed the ordinary sales intelligence which each such case represents is not clear, but this kind of abuse is so widespread that it is the cause of hundreds of otherwise avoidable service calls.

MELBOURNE TRADERS' GOOD WORK.

A Melbourne writer says:—"This Christmas very attractive window displays were observable in Melbourne at all the dealers, but the most noticeable improvement over previous years was the excellent behaviour and adjustment of the loudspeakers. Most dealers arrange to have a loudspeaker over the doorway of the establishment, and too frequently in past years these have been the most deplorable exponents of wireless incompetency that it was possible to meet. It was only to be expected that when such awful combinations of misplaced sound were hurled at passers by that they should wag their heads disparagingly and remark, 'Oh! it's only the wireless!' and pass by on the other side.

"To-day, however, all this is changed, and the noisiness of a loudspeaker is merely proof of decadence in the dealer. The most reputable firms have learnt to restrain the youthful enthusiasm of inexpert salesmen, who in days of yore could not forbear from tinkering with apparatus that they knew nothing about. The consequence is that wireless has come more thoroughly into its own, even as a street musician. In one much frequented Melbourne street there is a bevy of wireless dealers well within coo-ee of each other, and you cannot get out of hearing of one before the others, too, take up the tale and can be heard quite distinctly. In past years the horrid result used to be an excoriation of the aural diaphragm. This Christmas, however, there was actual pleasure to be derived from taking up a strategic position, where all three loudspeakers were to be heard at once, and with equal volume, and it was quite a revelation in good musical reproduction to notice how accurately in unison and uniform in tone the trio were. It was, in fact, somewhat weird when any speaker or singer was under transmission, and the three identical voices came from different quarters simultaneously."

RADIO AND GRAMOPHONES.

New Zealand radio traders should note that there is a lot of business to be done with the electrical pick-up used in connection with a gramophone, a radio set, and a loudspeaker. The advantages of the electrical gramophone are many. Apart from the question of tone, the volume obtainable is only limited by the power of the amplifier and the ability of the loudspeaker to handle it, yet volume control is quite easily arranged. For dancing and similar purposes this is a great advantage. There is also the advantage that the gramophone and amplifier can be in one room and the loudspeaker in any other. Those already in possession of a radio set with good audio frequency stages can adapt it so that by a simple switching device either gramophone records or broadcasting can be reproduced at will. Finally, any old gramophone will do to operate the electrical portion, providing it has a fairly good motor. Alternatively, if no gramophone is available, it is only necessary to purchase a motor and tone-arm.

The radio dealer will appreciate that the introduction of the electrical gramophone opens up to him the possibility of selling, not only the "pick-up," but amplifiers (or components to build them), valves, batteries, and loudspeakers.

KILOCYCLES AND METRES

A SIMPLE EXPLANATION.

In rearranging the licenses of stations lately, the United States Federal Radio Commission, like all technical men, has laid special emphasis on kilocycles, rather than on wave-lengths (or metres). Yet the public has previously failed to respond to efforts to impose upon it this more scientific method of reckoning. There seems to be a popular feeling that a wave-length is something tangible, while a kilocycle is an abstract idea.

Yet the matter should be simple enough. A cycle is a reversal from positive to negative, and back again from negative to positive, in the electricity in an alternating-current circuit, or in the impulses creating the field of a radio wave. "Cycles," used as a measure of the rapidity of these changes, implies always per second; and "kilocycle" is simply a short expression for thousands of cycles (per second). A thousand kilocycles, therefore, means a million double changes per second in the polarity of the wave, as measured at any point in its progress and, as the wave advances 300,000,000 metres (more accurately, 299,820,000, more or less) per second, the "peaks" will be highest at points 300 metres apart, along the path of a 1000-kc. wave. We have here the idea of a simple wave, corresponding to a wave in water, with approximately equal spaces between its highest crests. However, the water does not move steadily forward—it rises and falls—and the radio wave is not a flow of current; it is a rise and fall of voltage.

ACCURATE MEASUREMENT.

The frequency of currents, alternating from thousands to millions of times a second, has been very accurately measured, the wavelength, with a lesser degree of accuracy, by other complicated devices. From the standpoint of classifying stations in a broadcast list, we might use either kilocycles or metres readily enough. We may also describe a distance as 66 feet, or as 1-80 of a mile, with equal accuracy; it is merely a question of convenience in reckoning.

But, in the technical problem of arranging stations so that they will not interfere with each other, it is necessary to calculate in cycles; because what is impressed on a radio carrier-wave is not a wavelength. It is a frequency.

VIBRATIONS AND CYCLES.

A musical note is a vibration at the rate, for instance, of 300 cycles a second, causing air waves about four feet long. In an electric speech amplifier this would correspond to electric waves about six hundred miles long, because of the great speed of electricity. But we do not add a six-hundred-mile wave to a thousand-foot wave; we impress a frequency of 300 cycles (per second) upon one of a million (per second). The result is a "modulated wave." The function of a radio detector is to iron out, so to speak, the million-per-second wave and leave the 300-per-second wave, which enters the loudspeaker and reproduces a 300-cycle note, of sound in air.

Now, at the upper end of the broadcast band, a 300-cycle change affects the wavelength (measured in metres) about ten times as much as it does at the lower end of the band. At 5200 metres, the wavelength used for trans-Atlantic radiophone work, one kilocycle added to the frequency makes a difference of about 100 metres in the wavelength. At 5.2 metres, down near the very short wavelengths at which amateurs are now working, a kilocycle makes a difference of only about one ten-thousandth part of a metre in the wavelength. As a mathematician might put it, the difference in the length of a wave represented by a kilocycle varies inversely as the square of the frequency (approximately).

CONVERSION TABLE.

The following table, to the nearest tenths of metres, is therefore published for the information of our readers, who may desire to convert kilocycles into metres, or vice versa.

Metres	K.C.	Metres	K.C.	Metres	K.C.
545.1	550	344.6	870	252.0	1190
535.4	560	340.7	880	249.9	1200
526.0	570	336.9	890	247.8	1210
516.9	580	333.1	900	245.8	1220
508.2	590	329.5	910	243.8	1230
499.7	600	325.9	920	241.8	1240
491.5	610	322.4	930	239.9	1250
483.6	620	319.0	940	238.0	1260
475.9	630	315.6	950	236.1	1270
468.5	640	312.3	960	234.2	1280
461.3	650	309.1	970	232.4	1290
454.3	660	305.9	980	230.6	1300
447.5	670	302.8	990	228.9	1310
440.9	680	299.8	1000	227.1	1320
434.5	690	296.9	1010	225.4	1330
428.3	700	293.9	1020	223.7	1340
422.3	710	291.1	1030	222.1	1350
416.4	720	288.3	1040	220.4	1360
410.7	730	285.5	1050	218.8	1370
405.2	740	282.8	1060	217.3	1380
399.8	750	280.2	1070	215.7	1390
394.5	760	277.6	1080	214.2	1400
389.4	770	275.1	1090	212.6	1410
384.4	780	272.6	1100	211.1	1420
379.5	790	270.1	1110	209.7	1430
374.8	800	267.7	1120	208.2	1440
370.2	810	265.3	1130	206.8	1450
365.6	820	263.0	1140	205.4	1460
361.2	830	260.7	1150	204.0	1470
356.9	840	258.5	1160	202.6	1480
352.7	850	256.3	1170	201.2	1490
348.6	860	254.1	1180	199.9	1500

If an outside aerial is used with a superheterodyne receiver it should be designed to work with the receiver. Usually, fifty feet is long enough. The longer the aerial the more it broadens the tuning and decreases selectivity. For the super, the aerial does not need to be as high as for less powerful sets.

It is generally conceded that transformer-coupled amplification provides the simplest and most stable means of obtaining ample loud speaker volume. While the better makes of present-day transformers provide good tone quality in combination with a suitable loud speaker, to those with a critical musical ear, however, somewhat better tone quality, with less volume, may be obtained with impedance and resistance-coupled methods. However, the last two methods, because of their inherent characteristics, have often been abandoned in favour of the more stable transformer-coupling system, with its greater volume for given "B" or plate voltages, though at a slight sacrifice in realistic rendition.

The Correct Reading of Eliminator Voltage

Valuable Explanation and Data on Valves and Socket Powers

By "M.I.R.E."

Radio listeners who appreciate the value of technical efficiency in maintaining the tonal qualities of their sets will value the simplicity and accuracy of the explanation here given by M.I.R.E. of the factors which contribute to the correct handling of their valves, B. battery eliminators, etc. This article is so comprehensive and valuable as to be worthy of clipping and reperusing.

CONTINUING the discussion of "B battery eliminators," or "socket powers," it is proposed to explain a rough and ready method of testing the voltage output of the eliminator, without the use of a voltmeter. As has been explained, a voltmeter is quite unreliable when used in this connection, owing to the fact that the average voltmeter uses more actual current in showing a voltage reading than is taken by several valves, and in the majority of cases the readings given will be entirely misleading. The method of voltage check most easily appied is that of finding at what bias on "C" battery voltage on the grid of the power valve, for instance, the signals become scratchy. Valves are always sold now-a-days with a pamphlet showing their characteristics, and if this is examined it will be found that either a "characteristic curve" is given to show the performance of the valve under various conditions, or else there is a list of plate voltages with the corresponding recommended bias or grid voltages to be used.

CHARACTERISTIC CURVES.

In the case of the characteristic curve a horizontal and a vertical line will be shown, and either one or several curves will be drawn, according to the voltage or voltages on the plate at which the curve or curves have been taken. These will commence on the left-hand side of the vertical line, and mount in a curve, and then, after becoming relatively straight, after crossing the vertical line, either finish or bend over before finishing. The horizontal line represents C battery voltage, the readings along the horizontal line to the left being volts negative on the grid, while readings to the right represent positive grid volts from the C battery. The vertical line shows the amount of current passing through the valve, this current being zero at the point where the vertical line joins the horizontal one.

Examining an actual valve curve, therefore, it will be seen that in the case of a typical general purpose amplifying valve the curve leaves the base line at about 6 to 9 volts negative bias, and slowly bends until at about 4 to 5 volts negative, it assumes a relatively straight line until it cuts the vertical line at the point corresponding to somewhere between 5 and 12 milliamperes current flow and zero volts on the grid. It is noticed, of course, that as the grid becomes less negative the current in milliamperes through the valve increases, and the rate that the latter increases relative to a decrease in grid volts defines the efficiency or performance of the valve.

It should be noted in passing that the amount of current passing through the valve is no indication of performance or amplification because this latter is dependent solely on the amount of variation of current occasioned by the voltage variation on the grid due to incoming signals.

In other words, because one valve passes 5 milliamperes with 3 volts negative bias and another of milliamperes under the same conditions it does not necessarily mean that the latter is twice as good a valve or even a better valve. If, however, a voltage variation of two on the grid causes the plate current to vary one milliampere in the case of one valve and two milliamperes in the case of another, then this latter valve is twice as good as an amplifier. As a matter of fact, the average performance of a good amplifying valve is one milliampere variation for each one volt change on the grid. This is termed a "slope" of one. Valves of somewhat inferior performance are as low as point five, while others are as high as one point five. The latter are invariably power valves, while the former are either obsolete or else definitely designed for such purposes as resistance capacity amplification, and can therefore not be said to be inferior when used as they are intended.

TESTING THE VOLTAGES.

To return to the checking of "socket power" voltages it will be seen at once that providing a curve of the performance of the valve in question is available, sufficient excessive bias may be applied in order to cut off the current passing through the valve to such an extent as to cause easily-detected scratchiness of signals. It is somewhat difficult to give any definite guides as to values owing to the large numbers of valve types available on the market. As a rough guide, however, it may be stated that the purity of signals should be unaffected with a rise of 25 per cent. above the bias recommended for the particular plate voltage in use. Above this value distortion will set in. This check is contingent on only medi-

(Continued below table.)

perhaps grid bias (C) in addition. The term "Battery Eliminator" has so far been applied principally to the outfits which give B power only. This is due to the fact that there are really very few straightout A eliminators as yet available. The majority amount to a "Trickle charger" and A battery combination. In at least one type the change-over from charge to discharge is done automatically when the receiver is switched on and off and to all intents and purposes therefore it is a "Battery Eliminatory" although a better term would be "Battery trouble eliminator." Seeing that the drawback to a battery is the necessity to charge it, the eliminator part of the equation may be audited as correct. The American term of 'socket power" will be seen to be an apt one because the power comes from the power socket via the battery.

So far as A battery eliminators are concerned, using the term in its strict sense, the only really successful ones are those used in power amplification where the use of alternating current in the filament is inconsequent or else those supplying a limited number of dull emitter valves and consuming a small amount of current. (Usually insufficient to run more than 3 or 4 valves). Where the filaments of the valves are wired in series so that the same current passes through several valves in succession, considerable, if not total success is obtainable at an economical cost of eliminator outfit but unfortunately standard radio sets are not wired with their filaments in series. A change-over in wiring from parallel to series is invariably impracticable because of complications caused through the grid returns having been designed by the set manufacturers to go to certain points to cause bias voltages to be picked up and these are dependent on parallel wiring.

Summed up the position at present is that eliminators requiring series filament wiring are highly recommended where the receiver is series-wired to suit. Otherwise best left alone where the receiver is a multi-valve factory built machine.

As has been stressed frequently in this column on previous occasions, there is so much capital invested in radio apparatus that revolutionary improvements which would result in too rapid obsolescence of equipment are out of the question

The introduction of apparatus designed to entirely eliminate batteries is inevitable, but even though new receivers may be introduced having features rendering battery elimination a simpler proposition, there are so many millions of highly-efficient multi-valve receivers of orthodox design in use to-day that there will always be apparatus of "socket power" design available.

THE THREE PRINCIPLES OF SOCKET POWER.

It is of definite interest to discuss the three main divisions of principles involved in the design of socket powers. The basis of operation depends on the conversio of current of an alternating nature so far as direction of flow is concerned into one which flows continuously and smoothly in a single direction. Rectifiers must therefore be employed which reverse the direction of flow of one pulsation, thus causing two pulsations in the same direction. These pulsations are "ironed out" into a smooth flow by passing the current into condensers or electrical reservoirs, from which the receiver draws its power.

Smoothing is carried out by standard methods in all tpyes of apparatus, but rectifying is not. The two main methods are electrical or thermionic, i.e., by means of valves or by chemical means. The latter method may be carried out by solids or liquids, and the liquid is at present more widely in use than the former because the principles of operation of liquid rectifiers have been in use a long time and a good deal is known about them. Dry chemical rectification has only just been applied, and undoubtedly it will eventually supplant the former.

Thermionic rectification by means of gaseous valves has been in use for many years and a very reliable technique has been built up round it. A wonderful, if not incredible, length of life is obtainable from the bulbs.

The prospective purchaser need not hesitate to purchase apparatus employing any of these principles, providing the chemical rectifier is made up and sold under a well-known brand.

Amateur-made chemical rectifiers should be avoided at all costs or a ruined accumulator will be the price to be paid.

Bulb rectifiers are less prone to mishandling and there is little damage likely to be sustained by the battery, but unless the outfit is designed correctly the life the bulbs will be short, and these are not exactly inexpensive items. Any rectifier, whether it be in a charger or socket power, will give complete satisfaction if it falls under the heading of the apparatus described in this article and is made up by a recognised firm.

Radio Valves and Their Varying Characteristics

USEFUL TABLES FOR FILING AND REFERENCE

Name and address of manufeaturer.	Trade name and model number.	Recommended use.	Filament terminal voltage.	Filament current amperes.	Detector plate voltage.	Maximum amplifier plate voltage.	Amplification factor.
Radio Corp. of America	Radiotron—						
	UX-201-A	Det. and Amp.	5	.25	45	135	8
	UV-199	Det. and Amp.	3.3	.063	45	90	6.3
	UX-199	Det. and Amp.	3.3	.063	45	90	6.3
	UX-240	High Mu Det. and Amp.	5	.25	135-800	135-180	30
	WD-11	Det. and Amp.	1.1	.25	45	135	6
	WX-12	Det. and Amp.	1.1	.25	45	135	6
	UX-120	Power Amp.	3.3	.132		135	3.3
	UX-220-A	Det.	5	.25	45		20
	UX-112-A	Power Amp.	5	.25	45	157	8
	UX-171	Power Amp.	5	.5		180	3
	UX-210	Power Amp.	7.5	1.25		425	7.7
	Audion—						
De Forest Radio Co.	D-401-A	Det.Amp.	5	.25	22-45	135	9
	D-400A	Det.	5	.25	22-45		30
	D-412	Power Amp.	5	.5		135	8
	D-471	Power Amp.	5	.5		180	3
	D-410	Power Amp.	7.5	1.25		500	7

OPERATING CHARACTERISTICS OF THE P.M. SERIES.

Type of valve.	Fil. volt.	Fil. current.	Impedance.	Amplication factor.	Slope.	Total emission.	As detector with 3 megohms, grid leak connected to L.T. plus.							As amplifier with "grid return," connected to L.T. minus.							As L.F. amplifier, transformer coupled and using correct grid bias as shown below. All values of grid bias are negative.								As L.F. amplifier, resistance coupled grid bias as shown below is minus			
	Volt.	Amp.	Ohms.		Volt.	mA.	H.T. Volt. 30 mA.	H.T. Volt. 50 mA.	H.T. Volt. 75 mA.	H.T. Volt. 100 mA.	H.T. Volt. 50 mA.	H.T. Volt. 75 mA.	H.T. Volt. 100 mA.	H.T. Volt. 125 mA.	G.B. Volt.	H.T. 50 mA.	G.B. Volt.	H.T. 75 mA.	G.B. Volt.	H.T. 100 mA.	G.B. Volt.	H.T. 125 mA.	G.B. Volt.	H.T. 100 mA.	G.B. Volt.	H.T. 125 mA.	G.B. Volt.	H.T. 100 mA.	G.B. Volt.	H.T. 125 mA.	G.B. Volt.
P.M.1 H.F.	1.8	0.1	28,000	13.5	0.48	8.0	0.37	0.8	1.6	2.5	0.8	1.65	2.6	3.5															2.0	0.4	3.0	0.45
P.M.1 L.F.	1.8	0.1	18,000	8.9	0.5	8.0	0.7	1.7	3.2	5.0						1.5	1.0	2.5	2.0	3.5	2.8								3.5	0.5	4.5	0.6
P.M.2	1.8	0.15	8,750	5.4	0.62	20.0										4.0	2.6	7.0	4.0	10.0	5.0											
P.M.3	3.7	0.1	16,000	13.5	0.86	20.0	0.7	1.7	3.4	5.5	1.2	2.5	4.4			1.0	0.7	2.0	1.3	3.0	1.75								3.0	0.35	4.0	0.45
P.M.4	3.7	0.1	7,000	7.0	1.0	20.0	1.4	3.45	6.9	11.2	3.5	6.5	10.0			2.5	1.75	4.0	3.25	7.0	3.75											
P.M.254	3.7	0.25	3,500	3.15	0.9	50.0										5.0	6.0	9.0	7.0	12.0	14.0	17.0	16.0									
P.M.5X	5.5	0.1	19,000	17.5	0.94	30.0	0.4	0.85	1.8	3.1	0.7	1.7	3.0	4.5		1.0	0.3	1.5	0.7	2.0	1.2	3.0	1.7						2.0	0.35	3.0	0.4
P.M.5B	5.5	0.1	74,000	37.0	0.50	20.0	0.1	0.3	0.65	1.0	0.22	0.45	0.75	1.15															1.0	0.13	1.5	0.20
P.M.6	5.5	0.1	5,700	7.1	1.25	30.0	1.8	4.6	9.4	14.5	3.6	8.0	12.2			2.0	1.8	4.0	3.0	6.0	4.5											
P.M.256	5.5	0.25	3,500	3.15	0.9	50.0										5.0	6.0	9	0	8.0	12.0	14.0	17.0	16.0								

Note.—We have assummed an anode resistance of 100,000 ohms in all cases except the P.M.5B, where we have assumed 200,000 ohms.

RESISTANCE CAPACITY VALVE ADDITIONS TO THE "MULLARD P.M." SERIES.

The Mullard P.M.1a and P.M.3a, recently added to the range of P.M. Receiving valves, are the equivalents of the P.M.5b, described above, but for use with 2.0 volt and 4.0 volt accumulators respectively.

Valve type.	Filament volts.	Fil. current (amps).	Amplification factor.	Impedance (ohms).
P.M.1a	2.0	0.1	36	72,000
P.M.3a	4.0	0.1	35	63,000

PHILIPS VALVES; TYPES AND SERIES.

Characteristics.	1 Volt Series. A109.	A141.	B105.	2 Volt Series. A225	A200	B205	B203
Fil. volts	1.0-1.3 volts				2 volts		
Fil. current	.06	.08	.15		.06	.15	
Plat. volts	20-150	2-20	20-150	20-150	20-150	20-150	20-150
Amplification factor	9	4.5	5	26	9	5	3
Slope	.45	1.0	.8	.6	.6	1.4	1.4
Impedance	20,000	4,500	6,200	41,000	15,000	3,500	2,100
Purpose	1, 2, 3	1, 2, 3	2, 3, 5	1, 2, 4	1, 2, 3	2, 3, 5	5
Fil. supply	1 dry cell			1 accumulator cell.			

Characteristics.	4 Volt Series. A430.	A425.	A410.	A409.	A441.	B406.	B103.
Fil. volts				4 volts			
Fil. current			.06			.1	.15
Plate volts	50-150	15-150	20-150	10-150	2-20	20-150	50-150
Amplification factor	30	25	10	9	4.5	6	3
Slope	.5	1	.5	1	1	1.4	1.4
Impedance	60,000	25,000	20,000	9,000	4,500	4,300	2,100
Purpose	1	1, 2, 4	1, 2, 3	1, 2, 3	1, 2, 3	2, 3, 5	5
Fil. supply			2 accumulator cells				

Characteristics.	6 Volt Series. A609.	B605.	A630.
Fil. volts	6 volts		
Fil. current	.06	.1	.06
Plate volts	20-150	20-150	50-150
Amplification factor	9	5	30
Slope	1.5	1.6	1
Impedance	6,000	3,100	35,000
Purpose	1, 2, 3	2, 3, 5	1, 2, 4
Fil. supply	3 accumulator cells		

Philips "four-fifteen" super-detector and first audio—A415, fil. 4v. .08 amps., ampli. 15, slope 2mA/V. 1—H.F. amplifier, two-detector; 3—audio, 4—resistance coupling, 5—loudspeaker.

"Miniwatt" valves are systematically classified by a character and a number of three figures. The filament current is indicated by one of the following letters:—A for a filament current of from 0.06-0.08 amp: B for a filament current of from 0.1 .0.15 amp.

The first figure of the number following the letter indicates the filament voltage; the two last figures indicate the amplification factor. In this way a reliable method of classification of the valve types is obtained, and, moreover, the type-letter and number give some information regarding the qualities of every particular valve to which they apply. For instance, A609 means: "Miniwatt" valve, with a filament current of about 0.06 amps., a filament voltage of 6 volts, and an amplification factor of 9.

(Continued from above.)

um strength signals being used for the test. It should be realised also that these figures do not apply exactly to batteries, because as the bias is increased and there is less drain from the socket power, the voltage will tend to rise. This will not be the case with batteries unless run-down dry cells are in use.

Before passing to other considerations, it should be noted that the scratchiness of signals with excessive negative bias is due to the current passing through the valve being cut off to such an extent as to not permit the full characteristics of the signal to pass the valve. In other words, instead of passing current of a value equal to that half-way along the straight portion of the curve the valve is working with characteristics represented by that portion of the curve at the bottom bend. In passing it is interesting to note that this latter position of adjustment is where rectification or "detection" takes place best.

SOCKET POWER ELIMINATORS.

Socket powers or battery eliminators are now appearing on the market in numerous forms. The term "Socket Power" is being more generally applied to outfits which supply both filament and plate (A and B) power and

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

P.O. Box 1032.
Dominion Buildings, Mercer Street, Wellington.

WELLINGTON, JANUARY 13, 1928.

BROADCASTING AND DAYLIGHT SAVING.

In a special front page article, we set forth some of the points in which daylight saving has affected broadcasting, and invite our readers to express their views upon the position. Country listeners are particularly affected, although city enthusiasts seeking overseas reception are also concerned. Our special sympathy, however, is commanded, not by the city enthusiast seeking "DX," who finds himself incommoded. He is in the position of a special enthusiast who has a service at command, but for some special reason seeks another source of entertainment. Any complaint from this section against daylight saving would not in itself constitute a legitimate argument against daylight saving provided that measure was otherwise rendering an outstanding social service. But the complaint of the genuine backblock listener, distantly situated from the New Zealand stations, who finds that through the extra hour of daylight he is practically completely cut off from the broadcasting service is in quite a different category. Embodied in our special article is a letter from a southern listener, stating that in his district alone twenty listeners with sets aggregaing an investment of £1000, are completely cut off from broadcasting for the four summer months. His and their case excites sympathy, because anyone familiar with rural conditions realises that under their circumstances broadcasting is a necessity, not an optional luxury. We invite the views of our readers on their actual experiences with summertime and radio. Is it desirable that the experiment should be repeated next year? Does the good outweigh the harm? Or can the good of more daylight for city folk be secured by an adjustment of business hours without the disruption of country time? We can now talk on fact, not theory. What are the facts?

CRYSTAL RECEPTION

AN AUSTRALIAN'S FEAT.

A correspondent of the Melbourne "Listener-In" writes: "I spent a fortnight's holiday at Port Welshpool, South Gippsland (Victoria), a small fishing village situated on Corner Inlet, near Wilson's Promontory. Port Welshpool is 128 miles from Melbourne by rail. The following is a summary of the work done with the despised crystal:—Aerial: Standard, inverted L, supported on 43ft. masts, 60ft. apart. Earth: 8ft. x 1in. galvanised iron pipe, driven in flush with the ground. The circuit was of the single coil condenser tuned variety. A coil of 30 turns of 20 S.W.G., D.C.C., was used, supported on 4 celluloid strips ½in. wide. Turns spaced a distance equal to 1½ times diam. of wire. Diam. of coil was 4½in. Condenser: Sq. law, .0005 mfd., without vernier. Detector: Cat whisker, No. 36 S.W.G. Nicrome wire. Crystal: L.L.5, made by the Brownie Wireless Co., London. Phones: Resistance 2400 ohms. Stations logged: 3LO, 3AR, 2FC, 2BL, 2GB, 4QG, 5CL. The only time we could get Brisbane was during cold weather, but on such a night reception was good, every word being understood. During an hour on a cold night all the above stations were logged many times, and this offsets the theory that we were helped by a neighbouring valve receiver, the nearest set being situated in a house close on a quarter of a mile away. All stations were subject to fading except 3AR. At times 3LO and 2FC were audible 3ft. from the phones. The reception of 2GB was the most difficult of all. To get this station we increased the insulation of the aerial, and waited for cold weather. A buzzer was used frequently. All components were well spaced, the coil being placed on two porcelain insulators, 1ft. 6in. from the panel supporting condenser and detector. Set wired with No. 16 S.W.G. tinned copper, bare wire. How do these results compare with others you have on record?"

The editor of the "Listener-In" adds: The results are excellent, probably a record. Your position evidently helped reception. Such a performance would be an impossibility in and around the suburbs, as interference from the local transmission would occur."

The distance spanned to bring in 4QG, Brisbane, was 890 miles over land all the way. 5CL, Adelaide was 525 miles away, and reception was also over land throughout. Sydney was 425 miles distant.

A CURIOUS PHENOMENON

"Nature" of October 15, 1927, says the experiments being made with short radio waves all over the world are giving most astonishing results. In the October number of "Experimental Wireless," the Radio Research Board refers to results obtained by E. Quack, published in two German technical papers. Oscillographic records have been obtained at Geltow, near Berlin, of signals sent from Rio de Janeiro. Each signal is accompanied by an "echo" signal, caused, most probably, by waves which have travelled round the earth in the opposite direction to the direct signal. This is most curious, because the beam transmitter is not only directional, but also works with a reflector. Further experiments carried out recently show that several signals are received at definite equal intervals after the first signal. As the interval of time between the first direct signal and these additional signals is always a multiple of 0.137 of a second, it looks as if the waves, after causing the first signal, travelled completely round the world several times, recording signals as they passed the receiver. For waves lying between 14 and 34 metres, double signals have been observed. It has also been noticed that double signals occur most commonly when the great circle on which the receiver and transmitter lie is in twilight. On the other hand, the "echo" signals caused by waves travelling round the world in the opposite direction to the direct signal are often noticed in the daytime. The attenuation of the signals after encircling the earth several times is not great, and it is concluded that many more encirclings occur before the waves subside. In practical work, methods have to be devised to eliminate the disturbances caused by these multiple signals, but their systematic study should be a great help in elucidating the phenomena of short-wave propagation.

Maori Pageant to be Featured by 2YA

Arrangements are now in train for the Radio Maori Pageant, which is to be the feature at 2YA on Monday, February 6, the anniversary of the signing of the Treaty of Waitangi.

A large party of Maori artists, well qualified to present the historical and musical side of Native life in New Zealand, will visit Wellington. They will give two performances, the first for the benefit of the people of New Zealand, and the second, on the subsequent evening at a later hour (after the usual evening session) for the entertainment of listeners in the New Zealand Dependencies and other places overseas.

AUSTRALIAN ROYALTIES

GOVERNMENT AND AMALGAMATED WIRELESS

PARLIAMENT RATIFIES AGREEMENT.

News is to hand from Australia that the Bill to ratify the wireless agreement between the Commonwealth Government and Amalgamated Wireless, Ltd., has passed both Houses of Parliament, and is now an historical legal fact. It will be interesting to examine it in its relation to the general public.

The general public are interested in any activity or policy of Amalgamated Wireless, because the people through the Commonwealth Government have invested £500,000 in the company. Consequently the company is in many respects filling the place of a Government Department carrying on a public utility service. Most public utility services of course are conducted as a Government monopoly. The activities of the Wireless Company, however, are in competition with other companies.

What Brought About the Agreement.

People will ask, What is the origin of the agreement? In order to answer that question we must turn our thoughts back to the Australian Royal Commission on Wireless which after months of investigation made certain recommendations to the Australian Government. Included in its report and recommendations were many references to Amalgamated Wireless, Ltd.

The majority of those references were not complimentary—indeed, some were very condemnatory. The methods and policy of the company in certain respects were considered unsatisfactory and certain changes were suggested. It was suggested that the payments made to the company or claimed by the company in respect to broadcasting were too high and should be reduced.

Royalties Charged.

The royalties payable indirectly by listeners to the company amount to 5s. per annum. The payment is made through the medium of the licence of 27s. 6d., of which amount 5s. is paid by the broadcasting company to Amalgamated Wireless, Ltd. The Commission recommended a reduction of this amount to 2s.

The company also demanded royalty payments from wireless traders who sold valve sets. These payments were to be 12s. 6d. or 17s. 6d. per valve socket, according to the country of manufacture—12s. 6d. for British or 17s. 6d. for other countries. Many traders objected to the payments and the Commission recommended a payment of 5s. per valve socket.

Company's Toll Reduced.

The Government apparently went further into the matter than the Commission, and concluded an agreement with the company whereby the traders were relieved of all payments, and the listeners pay an amount of 3s. per year as portion of their licence fee. The Government thereby severely cut down the company's toll taken from broadcasting. But the total amount will be pretty considerable, nevertheless—over £37,500 for the present year.

One effect of this agreement should be a reduction in the price of valve sets—to an amount approximating to the amount of royalty previously claimed by the wireless company. That is about £3 per four or five valve set. It will be interesting to see if the listener gets the benefit.

It has been found that a "C" (or grid-bias) battery will give your "B" battery a longer life by 75 per cent. As there is no drainage whatever on a "C" battery, this will last as long as if you put it on one side. "C" batteries only cost about 3s. 6d. The plus lead should be taken to A-minus, and C-minus should be connected to F-minus of each transformer.

2NM, owned by Mr. Marcuse, of London, is testing on 28 and 32 metres on Tuesdays, Thursdays and Saturdays from 6.0 to 7.0 a.m., and from 9.30 to 10.30 p.m., also on Sundays from 6.0 to 7.0 a.m. and 6.0 to 7.0 p.m. G.M.T. Short-wave receivers should be able to pick up these transmissions with ease.

ONCE MORE

5SW ON THE AIR

HEARD IN WELLINGTON.

A few broadcast listeners in Wellington who were enjoying 2FC, Sydney shortly before 1 a.m. on Thursday of last week, were agreeably surprised when the announcer stated that he had just received a telephone message from Amalgamated Wireless Ltd., informing him that 5SW, England, would be available for re-broadcasting within a few minutes.

Shortly after 1 a.m. the English station was switched on by 2FC, and was loudly received in Wellington. The "London Radio Orchestra" played fox trots and other dance items with rich tone, and this was loud enough to enable one household to enjoy a dance to the accompaniment of music from the heart of the Empire. Vocal items followed and they came through quite clearly and with good strength. Neither static nor variation in volume was conspicuous enough to spoil reception.

One Wellington listener changed from his broadcast receiver to his short-wave equipment and brought in 5SW, England, with crystal clearness, but the volume was decidedly poor. Added to this, static, which was very moderate on the ordinary broadcast wave-length, raged violently on the wave-length of 5SW. But the outstanding feature of the English station was its clearness and steadiness. The Australians appeared to be little troubled by static in receiving 5SW, or else it would have been reproduced in the relay from 2FC, Sydney.

OVER 40,000

The total number of licenses now issued by the Post Office to date exceeds 40,000, but it will not be known for a few days yet whether the figure mentioned was actually reached by the end of last year. Registrations since the opening of the New Year have been continuing at a fair rate, and these have carried the total beyond the 40,000, but a few days time is necessary for registrations in different districts to reach the central office and permit of the compilation of the figures to December 31.

The Seattle, Washington, U.S.A., fire department has been licensed to operate a short wave radio station, called KYF, on 127.6 metres. Other new stations include KWV, of the Pacific Air Transport Company at Bakersfield, Cal., 66.48 metres, and WSV, Electrical Equipment Company, Miami, Fla., 124.9 metres.

According to the New York "Radio News" the average 500-watt broadcast station in the United States costs from £20,000 per year to run if it is operated on any decent basis whereby the public gets fair entertainment.

For average reception of moderately strong signals the grid-leak should vary between 1 and 2 megohms. For weak signals the grid-leak should range from 5 to 7 megohms. If you have an adjustable grid-leak, by tightening it down you reduce its resistance. If the signals are weak loosen the adjustable screw of the grid-leak.

U.S.A. TO N.Z.

A SPECIAL BROADCAST

CONCERT FROM KFWM.

The "Radio Record" has received advice from a New Zealand long-distance fan that there is reason to believe a special programme for New Zealand listeners will be broadcast by KFWM, the Oakland Educational Society's station, Oakland, California, about next March or April.

This station operates on a wavelength of 286.1 metres (1270 kilocycles), with a power of 1000 watts. KFWM has already been heard by a number of New Zealanders. Favoured with an all-dark route by arranging a concert for the early hours of the morning in California, KFWM should have no difficulty in being widely heard in New Zealand.

TO SEE BY RADIO

IMPORTANT PLANS OUTLINED

POSITION IN BRITAIN.

There were one or two really interesting displays at the recent Exhibition of Scientific Apparatus at the Leeds Town Hall, while the activities of Mr. J. L. Baird in demonstrating his television and noctovision apparatus created great interest in all quarters.

One point which has aroused the hopes of many people in Great Britain, and especially those who are really interested in television from the point of view of science and not as a novelty, is that Mr. Baird is shortly expecting to be granted by the Post Office powers equal to those at present enjoyed by the British Broadcasting Corporation. When this glad state of affairs comes about the Baird Television Development Company will increase the power of their present station in London and erect television broadcasting stations in other towns throughout the country.

According to Mr. Baird in the first instance television receivers will be marketed as scientific novelties and will be built on similar lines to the wireless receivers in the very early days of broadcasting. There will no doubt be some imperfections in these early models, but novelty, as ever, will outweigh these small disadvantages and many members of both trade and public will invest in a televisor. Later, when the science develops, the public will desire pure entertainment and quality—or should one say texture?—of reproduction and, being further developed, television will be able to give views of theatrical shows, horse races, "big fights," and similar public events.

Finally, after the meeting of the British Association had been brought to an end it was decided to form a television society for the furtherance of the new science.

The Photo-Electric Cell.

It is the photo-electric cell which has accomplished a miracle in rendering radio-vision possible. Even the latest of text books give no definition of this invention, which shortly will become famous through its relation to television. The photo-electric cell is a vacuum tube which is extremely sensitive to any changes of intensity of light falling upon it, due to the fact that its internal resistance varies with the intensity of the light reaching it.

The property of the cell has been utilised in many ways, such as in transmitting photographs, making talking motion pictures, improvement in the manufacture of gramophone records, and in accurately matching colours.

Except for a small area, the inside of the bulb glistens with metallic potassium. Depending on the amount of light striking it, this metal permits a varying amount of current to pass through the cell.

"Prize-fighting has given me money for the cultural things of life."—Gene Tunney. From the ringside photographs it looks as though it also enabled him to spare something for Dempsey.

"The man who is always counting his calories and sniffing out his vitamines is lost."—Sir James Crichton Browne. This should be tidings of great joy for bad arithmeticians and victims of hay-fever.

In the carborundum detector we have a crystal held against a steel block under several pounds of pressure. In this detector nothing is likely to be burnt out, because this crystal can be subjected to a tremendous amount of heat without changing its efficiency.

WHAT DO COUNTRY LISTENERS THINK OF SIDEY TIME?

(Continued from cover.)

"I have made inquiries in this little district, and find there are about twenty licensed listeners-in, all with good sets, say at an outlay of about £1000, and all the sets lying practically stone cold, for all the good to be got out of them for the four summer months. I suppose it would take an average sixty of Wellington listeners-in to put £1000 into radio.

"I have gone into the case of the South more fully than I intended, as I feel sure the Broadcasting Company do not fully realise what our conditions are.

This is a good reception district under normal conditions. I got 2YA and 3YA very nicely on New Year's eve from 10 p.m. to midnight."

How have country listeners in general fared under daylight saving? We would be glad to receive views of correspondents on this question.

A TABLE OF TIME

A HANDY REFERENCE.

The following table showing the simultaneous time in various parts of the world has been drawn up by a New York journal. When a day is beginning at the Date Line (just east of New Zealand), it is the hour given of the preceding day in the following places: (The numbers of the zones show the hours to be added to or subtracted from local time to give Greenwich civil time.)

Samoa (+ 12)	12:00 midnight
Hawaii	1:30 a.m.
Alaska (+ 10)	2:00 a.m.
Pacific Standard Time Zone (+ 8)	4:00 a.m.
Mountain Time Zone (+ 7)	5:00 a.m.
Mexico	5:24 a.m.
Central Standard Time Zone (+ 6)	6:00 a.m.
Cuba	6:31 a.m.
Ecuador	6:46 a.m.
Eastern Standard (Central Daylight Saving Time) Zone Panama (+ 5)	7:00 a.m.
Colombia	7:04 a.m.
Chile	7:18 a.m.
Bolivia	7:27 a.m.
Haiti	7:20 a.m.
Venezuela	7:30 a.m.
(Eastern Daylight Saving Time), Intercolonial (Canadian) Standard, Porto Rico, British West Indies, Central Brazil, Argentina, Uruguay (+ 4)	8:00 a.m.
Newfoundland	8:21 a.m.
Eastern Brazil, except Pernambuco and Parahyba (+ 3)	9:00 a.m.
Pernambuco, Azores (+ 2)	10:00 a.m.
Canary Islands, West Africa (+ 1)	11:00 a.m.
Greenwich Civil Time, England, France, Belgium, Spain, Algeria (0)	12:00 p.m.
Holland	12:20 p.m.
Scandinavia, Germany, Austria, Italy, Jugo slavia, French Equatorial Africa (— 1)	1:00 p.m.
Roumania, Greece, Turkey, Egypt British Central Africa (— 2)	2:00 p.m.
Russia (European)	2:01 p.m.
British East Africa	2:30 p.m.
Madagascar (— 3)	3:00 p.m.
Mauritius (— 4)	4:00 p.m.
British India (except Calcutta)	5:30 p.m.
Calcutta (— 6, 6:00 p.m.)	5:53 p.m.
Burma	6:30 p.m.
Siam, French Indo-China — 7)	7:00 p.m.
Philippines, West Australia, Eastern China (— 8)	8:00 p.m.
Japan (— 9)	9:00 p.m.
South Australia, Guam	9:30 p.m.
N.S.W., Tasmania, Victoria, Queensland (— 10)	10:00 p.m.
New Hebrides (— 11)	11:00 p.m.
New Zealand (not daylight saving)	11:30 p.m.
Fiji Islands	11:54 p.m.
DATE LINE (— 12) beginning next day	12:00 midnight

Following is a working example of the above: When it is 1 o'clock Wednesday morning in Honolulu, it is 11 o'clock Wednesday night in New Zealand (or midnight Wednesday, daylight saving time). At that same time, it is 3.30 a.m. in San Francisco; 6.30 a.m. in Washington, D. C.; 11.30 a.m. in London; 12.30 p.m. in Berlin; 5 p.m. in Bombay; 7.30 p.m. in Perth, Australia, and in Manila; 8.30 p.m. in Tokio; and 9.30 p.m. in Sydney, Melbourne and Brisbane; all on the same Wednesday.

Another Splendid Quartet Engaged for 3YA

PROGRAMMES TO COMMENCE IN FEBRUARY

A quartet, known as the A. G. Thompson Quartet, was recently formed at 3YA, the personnel being Miss Mary Shaw, A.R.C.M., Miss Nellie Lowe, Mr. A. G. Thompson and Mr. T. G. Rogers. The four make a musical combination of great balance and artistry, and will prove a source of great pleasure to listeners.

The type of entertainment proposed to be given by the quartet, and the manner of its presentation, involving as it will considerable dialogue, will be somewhat out of the ordinary. These programmes will commence in February, when the holiday season is over.

The leader of the quartet is Mr. A. G. Thompson, B.A., late of London, but now a well-established teacher of singing, violin and elocution in Christchurch. His fine baritone voice has been heard recently from 3YA and has been a great delight to all. Mr. Thompson was trained by Mr. Benham Blaxland, London, and he was also a pupil of Sir Charles Santley and of Mr. George S. Aspinal, the composer. He had the distinction of being a soloist at the Royal Military Chapel, London; the Pro-Cathedral, South Kensington; St. James's Church, West Hampstead; and Farm Street Church, Grosvenor Square. He was also vocalist in the City Musical Union of London. In New Zealand Mr. Thompson has been very successful. In 1913 he won the vocal championship at the New Zealand Competitions Society and a vocal scholarship at Christchurch. He was a prize winner at the New Zealand International Exhibition, and has been a gold medallist at several other competitions. Mr. Thompson has sung in many parts of New Zealand, and his cultured voice has received high praise from the Press. A few years ago he organised and conducted the Liedertafel in Napier.

MR. T. G. ROGERS.
(Tenor) —Webb Photo.

Miss Nellie Lowe, one of the most popular contraltos at 3YA, comes from the city of Nottingham, where she was one of the principal singers in St. Andrew's Presbyterian Church choir and well known as a vocalist. She was a pupil of Madame Wilson Mould, whose concert party did such wonderful work at the hospitals during the Great War. No doubt many New Zealand soldiers have pleasant recollections of madame and her good work. Miss Lowe also belonged to the Belgrave Quartet, well known throughout the Midlands. Before coming to New Zealand she did a great deal of singing at Home, including such oratorios as "Elijah," "Messiah," and "Stabat Mater." For some time now Miss Lowe has been a regular singer at 3YA.

MISS NELLIE LOWE.
(Contralto.) —Webb photo.

Miss Mary Shaw, A.R.C.M., is a brilliant soprano singer from the Old Land too. She is very gifted and highly trained, having received her musical education at the Royal College of Music, London. Miss Shaw was known in broadcasting circles in England, and she had many concert engagements. At Bournemouth Winter Gardens she sang under Sir Dan Godfrey. About three years ago she came to New Zealand, and has been a teacher of singing in Wellington, where she also gave recitals and appeared on the public platform. She has now taken up her residence in Christchurch, and is a great acquisition to radio.

The voice of Mr. T. G. Rogers, tenor, has been familiar to listeners at 3YA for some time, and his regular engagement will be a source of satisfaction to all.

A Welsh miner, Mr. Rogers was a pupil of Mr. Evan Williams (father of Mr. T. D. Williams, the well-known 3YA singer and a well-known teacher throughout South Wales), and he has a splendid record in competition work in Wales, England and New Zealand.

Coming to New Zealand in 1920, Mr. Rogers for some time followed his trade on the West Coast, but his ability as a vocalist, as demonstrated at the Wellington competitions, diverted his career to Christchurch, where he joined the tramway service. When at Millerton Mr. Rogers formed and conducted the first male voice choir, which gave concerts in various towns on the coast. Once resident in Christchurch, he speedily entered into the musical life of the city. He is the conductor of the Linwood Congregational Church Choir, and for four years has been a soloist in the Male Voice Choir under Dr. J. C. Bradshaw.

MR. A. G. THOMPSON, B.A.
(Baritone) —Webb Photo.

RADIO IN RUSSIA

Although it is not, perhaps, generally appreciated, Russians are active in the broadcasting field, and since 1924, when broadcasting started in Russia, they succeeded in building in European Soviet Russia forty broadcasting stations, among which are several which would be classified as high-power stations. The accompanying list shows where these stations are located, their wavelength and their aerial power

There are no call letters assigned to the stations, the announcer merely saying: "Hello, hello, this is Moscow speaking, station Komintern," or "Popoff's Memorial Station," or simply stating the name of the organisation which operates the station. As there are but few localities having more than one station the naming of the locality in most cases is quite sufficient to identify the broadcaster.

SINGLE CONTROL.

According to the latest reports, the Department of Post and Telegraph, which has charge of all broadcasting in Russia, recently concluded an agreement with a semi-official concern, "Radioperedatcha, Ltd.," whereby the latter, assumed the management and operation of all forty stations. Previous to that this concern managed and operated eighteen Russian broadcasting stations, including all the high-powered ones.

Present plans indicate an intention, first of all, to improve existing facilities, for hooking up stations over the land wires and to extend them further, as well as to develop reliable rebroadcasting, combining as far as possible all stations in a single network.

STATIONS IN THREE GROUPS.

In accordance with these plans, all stations will be divided into three groups: Central stations, whose time will be filled with their own programme; regional stations, which will have half of their programme supplied by the central stations, and finally small local stations, which will receive as much as three-quarters of their programme material from the central stations. In this way it is expected to improve programmes of stations in small localities, which now have to depend on their local talent.

In the coming festivities connected with the tenth anniversary of the Revolution, radio is to play an extensive part. Special programmes have been prepared, in which the significance of this anniversary will be explained to the population, and during the holidays all stations will broadcast special meetings and exercises, as well as plays, especially written for this occasion.

	Wavelength Meters.	Power KW.
Moscow*	1450	40
Moscow†	1450	20
Moscow‡	675	20
Charkov	1760	12
Leningrad	1000	10
Charkov	490	4
Rostov	830	4
Tiflis	830	4
Ufa	950	2
Petrosavodsk	700	2
N. Novgorod	840	1.8
V. Ustug	1010	1.2
Minsk	500	1.2
Gomel	925	1.2
Twer	965	1.2
Samara	700	1.2
Voronej	950	1.2
Artemovsk	780	1.2
Odessa	1000	1.2
Stalin	730	1.2
Stavropol	555	1.2
Nalchik	650	1.2
Erivan	950	1.2
Baku	750	1.2
Vologda	700	1.2
Kursk	750	1.0
Orenburg	800	1.0
Poltava	750	1.0
Dniepropetrovsk	525	1.0
Krasnodar	513	1.0
Armavir	850	1.0
Astrachan	700	1.0
Machatch-Kala	650	1.0
Ivanovo-Vosnesensk	800	0.9
Moscow	450	9.8
Kiev	775	0.6
Sverdlovsk	1050	0.5
Leningrad	150	0.35
Saratov	420	0.20
Orechovo-Suevo	850	0.08

*Known as "Large Komintern."
†Known as "Small Komintern."
‡Popoff's Memorial Station.

"HOME, SWEET HOME"

When the Wahine, homeward-bound from Picton on her New Year's Day holiday excursion, poked her graceful nose out of the sheltered Sounds and into the wind-swept Straits, she literally jazzed into a choppy sea. Boreas piped a merry tune, and the Wahine danced in sprightly disregard of the upheaval her antics occasioned in the sensitive region of the majority of her fifteen hundred passengers These poor souls, unaccustomed to the rollicking rolling of the sea, were finding it hard to keep down their feelings, etc.—particularly the etc.—and forgetful of the fact that the Lord loveth a cheerful countenance, they were looking extremely sick and sorry for themselves, and, when not otherwise engaged, casting longing eyes towards the far-distant headland of Wellington Harbour.

And then, above the murmur of the breeze there floated to their ears the dulcet strains of "Home, Sweet Home!" "Ye gods," groaned one, as he glared at the loudspeaker perched at the entrance of the wireless cabin, "Ye gods! Home was never like this!"

"Ah," whispered a fellow sufferer, "I'm feeling better already. Good old 2YA is calling us home, and we'll soon be there."

Light machine oil will remove finger marks from the panel of a receiver and control knobs.

SHORT-WAVE ITEMS

LONDON AND HOLLAND CALL

NOTES FROM MR. SELLENS.

There have been at least two transmissions recently from 5SW, Chelmsford, of which we in New Zealand did not receive any advice. The first, heard here on Tuesday morning last, was included in 2FC's programme, published in the local Press on Saturday last. The other was a complete surprise. Apparently the Australian Press is advised, but not New Zealand.

On Thursday evening, December 29 4NW, Brisbane, was the only station whose call could be understood.

5SW, Chelmsford, was heard very faintly at 7.30 a.m. on Friday morning. First Big Ben was heard. This was followed by a woman talking—too weak to understaud.

During the evening 4AE, Gore, 2HM, New South Wales, and RFN, Russia, were heard. A harmonic of 2BL, Sydney, was heard quite clear, though faint, on about 41.5 metres.

4NW and RFN were the only stations heard on Saturday evening.

On Sunday afternoon 2XAF was heard relaying the watch night service from the First Methodist Episcopal Church, New York. KDKA were also relaying a watch night service. It was quite a novelty to "see the New Year in" again, 17½ hours after listening to the watch night through 2YA. KDKA were again heard on Monday morning at 8.15 o'clock, transmitting musical items on 26 metres.

3LO were heard in their regular weekly test on 32 metres. Gramophone records were played and were heard at good speaker strength. They announced that they test on 32 metres each week from 18.30 till 20.30, G.M.T., Sunday, which is equal to 4.30 to 6.30 a.m. Monday, Melbourne time. They also asked for reports from wherever heard.

5SW, Chelmsford, was tuned in at 1.15 a.m. on Tuesday. Musical items were given till 2 a.m., when they closed down. The volume was the best yet, but reception completely spoilt by a strong Morse station on the same wavelength. 2FC, who were to re-broadcast this programme, were tuned in at 1.38 a.m., just in time to hear them closing down, so apparently the interference was too bad for them to attempt rebroadcasting 5SW. 3YA made a very fine job of it, but of course the Morse spoilt it.

5SW was heard again at 7.30 a.m. on their daily test. Big Ben, followed by a talk, then music, was heard, but too faint to understand.

KDKA were heard soon after this, also again in the afternoon .

2AT, Wellington, was testing on Wednesday evening. The modulation showed an improvement on previous tests.

On Thursday evening 4NW, Queensland, came through at good strength; modulaiton, which was poor at first, improved later. The volume of RFN appears to have gone off a little, but is still quite loud.

PCJJ was heard again on Friday morning, after being off the air for over two months. Gramophone items were given, with only one talk, while I was listening from 7 to 7.30 a.m. This was all in Dutch, calling "Hullo, Radio de Bandoeng (Java)—Philips' Radio Labortorium—experimental," was all I could understand. They have increased their power considerably. Instead of being only just audible at 7.30 a.m., as was the case just before they went off the air for alterations, their music was audible all over the house. The volume must have been wonderful before 7 a.m.

The station calling "Alloa, Alioa, Su Japanese," was also heard from 7 till 7.30 a.m. Talk only was heard in a foreign language. 4AE, Gore, RFN, and a station too rough to get call were heard in evening.

Argentina is the largest South American importer of radio apparatus from the United States. Senor Pueyrredon, Ambassador to the United States, recently said that radio is popular throughout Argentina, and American receiving equipment is used in all sections. "Sessions of our Parliament are sometimes broadcast," he said, "enabling the people to keep in touch with the Government. The latest news also goes on the radio. Classical music predominates in evening programmes." Argentina has 20 broadcasting stations under Government supervision. About 150,000 receiving sets are in use there.

The average radio receiver is used three hours a day, or about 1000 hours a year.

From the Woman's Point of View.

By VERITY.

TO-DAY AND TO-MORROW

Evening Hats.

The dress worn with it is in black crepe marocain, with long gold lame sleeves trimmed with sable cuffs, and a swathed sash of lame round the hips with fur-edged ends. A close-fitting hat to match is made of soft felt in two colours, black and golden beige in alternate rings from the rim to the top of the crown.

A white chiffon evening coat is also lined with quilted satin, and has golden-brown fur round the hem. A white brocaded chiffon dress is worn with it. The skirt has two tiers of petals and a straight bodice. Topaz or amber jewellery trims it, and a Basque beret made in amber or topaz velvet may be worn as a head-dress.

A lame evening cloak has exaggerated revers to form a hood, another in gold lame and white cloth has a big capucin hood. This coat is reversible, white and black from white and gold.

An original and becoming evening hat is made of gold lame, which is black on one side. It is cut into the shape of two large veined leaves, which are shaped to the head to fit quite tightly.

The evening hat is likely to have a place in fashion next winter. It will be worn in restaurants and theatres, where it will be classed as a coiffure, and so avoid the claim of the vestiaire.

Unusual Styles.

Unusual styles which are not entirely divorced from popular fashions are found in the rue de la Paix to-day. Eccentricity is not approved by French designers, but individuality is becoming more popular, since dress is now democratised, and is no longer the luxury of the rich, as formerly.

The first noticeable feature of unusual clothes shown this season is the material. Every ensemble, whether for wearing in the house or out-of-doors, is made of something unusual in colour and design. There is a black chiffon velvet coat trimmed with beige moufflon, which is lined with a brocaded silk of beige, figured with small gold and coloured flowers. A dress of the flowery material is worn under the coat, and a Tam o'Shanter is made of black celophane trimmed with moufflon pom-poms.

Another afternoon ensemble is in black and gold. A black cloth coat is hand-worked in narrow gold stripes running down bodice and sleeves, join a deep band of sable fur. The hand-quilted satin lining is of soft golden-beige satin.

Girl Artist Prodigy.

The work of Miss Jacynth Parsons, aged 16, now on view at the Medici Galleries, Grafton Street, London, is attracting a great deal of attention. There are no less than 153 paintings and drawings, all produced by her between the ages of three and sixteen. Their variety is remarkable, and their merit so extraordinary that prophecy would be futile. What will this power, so potent at sixteen, be at twenty? The things already done could not be improved in their own line of thought, colour and craftsmanship. Sight and insight quicken an apparently inexhaustible inventiveness. Teaching could not improve her technique, and she is fortunately free from the tyranny of art school training. The future must be left to herself and the gods who inspire her. In the meantime, she is just a happy-hearted, level-headed girl, and quite proof against the enervating influence of flattery.

Commercial Candour.

Business people are notoriously truthful, but I did not expect to find a laundry as frank as one whose advertisement I saw yesterday.

"Bring your laundry to us and have it properly finished off" it ran.

The parson's daughter dutifully typed out her father's sermons. She had, after many washouts, become engaged to a very eligible young squire. Next Sunday father read out as his text, "Lay not up to yourselves trousers in Heaven."

A Favourite Colour.

The popularity of green is far from waning. In one or other of its many new shades it is seen in coats, frocks, and hats. Bright green umbrellas, light green necklaces, deeper toned duvetyn handbags, are smart. Decorations are oxydised silver and brown fox fur.

Autumn Woollens.

Newest woolen materials are as soft and luxurious and as light in weight as silk. There will be a vogue for Angora used with tweed for sports suits or with crepe de chine for walking. Kasha is right for hats and scarves, and leather in companionship with tweed will be popular—leather trimmings, and leather coats trimmed with tweed.

More Colour.

"Colour in the Kitchen" is the slogan of all true housewives, and many are the means of its introduction. Floral medallions for pasting on the tea caddy, cereal jars, food containers, and the various accessories pertaining to the kitchen are a simple way of achieving a delightful effect.

MISS HELEN WILSON.

Miss Wilson is one of the younger pianistes of Dunedin, and has received a splendid musical education at the Bath School. She frequently appears at 4YA.

THE HIGH HILL

I went up to a high hill
To seek a spirit leaven;
I went up to a high hill
To set me nearer Heaven,

I went up to a high hill
In blue serener air;
I went up to a high hill
To see if God were there.

But God was not on the high hill,
On the high hill apart;
God was not on the high hill,
Not being in my heart.

I went down to a deep vale,
And there I made my prayer;
I went down to a deep vale,
And lo, my God was there!

One need not go to a high hill
Be he with faith unshod;
One need not go to a high hill
If he would find out God.

Clinton Scollard.

TO-DAY AND TO MORROW

An Antidote.

If, at any time during a home application of henna to the hair, the dose is inadvertently overdone, and the hair dries just rather too red, an application of warm olive oil will put things right. Apply it freely and let it remain on for some time, then wash off with plenty of soap and warm water.

For the Holidays.

A heavy leather writing case becomes a burden when travelling. Make a flat one of bright coloured taffeta and embroider it with wool. Lined with buckram and bound with galen, a large pocket to hold paper and narrow strap for keeping pen and pencil in place, this is a pretty and useful thing to include in the packing.

Beaded Straps.

For evening wear, beaded shoulder straps are an undisguised blessing. They fasten to the undies with a tiny clasp and if they do happen to show, the effect of the "tout ensemble" is enhanced rather than marred.

A Famous Woman.

Go back 150, or even 100, years and what shall we find was the lot of British children? Very different from to-day, and largely for one reason. We now look upon childhood as an end in itself, admiring its charm and sighing when it is over. Our forefathers looked on it as a preparation for manhood and womanhood, and were impatient of childishness; at every moment the little ones were reminded that they must grow up, and what they would be depended on the way they must behave now. A glance at old English school books shows this plainly. The S.P.C.K. in the eighteenth century was responsible for most of the elementary, call charity, schools of England, and published the readers which were generally used.

In 1793 the famous Mrs. Trimmer began to write for the society. She was born in 1741 at Ipswich, and moved in good society. She met **Dr.** Johnson at the house of Sir Joshua Reynolds. Her family consisted of twelve children, and she educated the six boys partly and the six girls entirely herself. The terrible death-roll in the big families of these days is illustrated by the fact that all twelve died before their mother.

Mrs. Trimmer wrote "The Story of the Robins," which is still read by English children to-day, edited the "Family Magazine" (the first of its kind), managed several Sunday schools and industrial schools, and wrote school books. One of the latter, "The Charity School Spelling Book," is entirely in words of one syllable and has many moral tales, with a note: "When you read a fable, take particular notice of the moral." The schooling which our great-grandparents received may make us laugh; but have we not gone to the other extreme and dispensed too much with moral instruction?

BIG BROTHER BILL.

Big Brother Bill, of 4YA, the darling of thousands of kiddies. In private life he is a well-known clergyman in Dunedin. He has been associated with Child Welfare all his life, and is the possessor of the happiest knack of entertaining the young folk. He is one of the few speakers whose personality fairly emanates from the loudspeaker. He has a charming manner, and a wonderfully clear voice.

Children's Music.

It is a wise thing to kep the children interested in music—an art which is certain to be of benefit to them all through their lives. The schools are doing their best. They cannot, however, fight against some of the out-of-school influences. Street music, which the children hear as soon as the school door shuts upon them, is one such influence—foolish comic and blatantly sentimental songs, and the harmful excitements of unending jazz. That influence can be corrected in the home by parents' encouragement of the taste for good music the youngsters cultivate in school. Set them singing—the school-songs or the good songs most parents know. It is worth while.

Rossini's First Master.

Rossini, who died on November 13, 1868, began his musical career under peculiar conditions. At the age of seven he was placed under Prinsetti, of Novarro, for harpsichord lessons. This professor, who combined the selling of intoxicants with his music teaching, had an extraordinary method of scale playing with two fingers only. In addition, he was able, with considerable facility, to fall asleep while standing. Rossini, a quick-witted youngster, played such pranks on his droll maestro, and neglected his studies so completely, that his parents, after three years, placed him with a more capable man, Tesei. Shortly after this change, while yet only ten years of age, Rossini secured a professional post as chorister and was able to contribute to the family exchequer, at that time in very low water.

The Letters of Annabel Lee

My Dear Elisabeth,

In the stilly night I write, through the window I can see the Tararkori hills darkly looming against a white sheet of moonlight, while from a "bach" near by comes the mechanical glide of a dance tune played on one of the best gramophones I have heard. January is a slack social season, people are apt to hurry along with a certain furtiveness, recognising they should be on some sea-girt isle, being soothed or saddened by the swirl of the waves, or else reclining on a bank where the wild thyme grows, with a pipe and a book, or even an Abdullah cigarette and a cup of that particular brand of China tea that never fails to cheer. Meeting me as I hasten along the path of duty, they smile sympathetically, realising that the fell clutch of circumstance compels me to be on the spot, to keep the bridge, like Horatius in the brave days of old.

Speaking of open skies and great spaces, at the kind Christmas-tide a friend of my heart sent to me Hudson's "Green Mansions," that fascinating narrative of crystalline prose and tropical horizons. In recent fiction I have liked immensely Margaret Kennedy's "Red Sky at Morning," with its acute observation, merciless analysis and vivid portrayal of post-war youth, its arrogance, its brilliance and its casual cruelty. Not so original, it may be, nor so entirely arresting as "The Constant Nymph"; but who but the most optimistic could expect another inimitable Sangster family?

For absolutely the last word in gladioli, most thrilling is a flower-filled window in a Wellington by-street. Nothing could be more interesting than the straight thick stems, with their orderly arrangement of thronging blooms of a size and colour unparalleled—new varieties, all of them, it seemed to my untutored eye. One example of deep crimson, with streaking of purple, boasted the biggest blooms that ever I saw, attracting flower-lovers from far and near by size and novelty; another of rose-red, and one of creamy-white, the latter smudged with patches of blood-red, were, perhaps, loveliest of all; while an uncommon one of lavender that merged into violet bore the pretty name of Alwyn. A long line of these would be a miracle of beauty against your thick green hedge which is invariably so remarkably well-groomed and pruned to the needs of the workday world.

Lately I heard news and views from Mrs. N—, on a visit to this Dominion from New York City, which, obviously, to her is but another name for a mundane paradise. Comparing our little social round with its gaudy plutocracy, always to our detriment, she told me of the quite admirable way in which women's clubs combine to bring about reforms of one kind and another. As a domestic example, if the humble potato soars to a high price, these wise women reject and boycott the popular accompaniment to the family dinner, and concentrate upon nutrition less costly at the moment. Result, a desirable decrease in price and everybody happy. This method they apply in other directions; concerted action, and lo! reform apparently follows as surely as night follows day. Also, the tale was told of excessive smartness in clothes and grace in wearing thereof; which is no news, as all the world recognises that la belle Americaine is famous for her frocks. Rather surprising, however, to be told that New Zealand femininity lacks grace of figure and bearing, comparing unfavourably with the New York and Chicago matrons and maids; being addicted to heaviness of hip and clumsiness of movement. I had not obsairved it, as the Scotsman says, and made inquiry as to actual weight, discovering the American sylph to be usually something betwixt eight and nine stone, which I should judge to be about the same as our own average avoirdupois.

A fancy dress party was my happy experience on a recent evening. Very gay and intriguing was this gay gathering of dancing boys and girls of a few years and pleasant ways. The occasion was a birthday party given by Mr. and Mrs. W. H. Field to Miss Lorna Donne, who wore an enchanting frock of larkspur blue, made in the fashion of Lang Syne, very flouncy, very floaty, with a tight, low-cut bodice and lacy pantalettes tied round the ankles. With a blue ribbon twisted in her dark hair, the wearer was most sweet, a fresh and fragrant rose of a girl in her old-time frock. Our host, looking as though he had just stepped from a canvas of Frith, R.A., wore his wedding garb, a quite delicious get-up of a coat of another decade, white reach-me-downs, huge buttonhole and elegant top hat. A bustled and trained gown of silk of sober hue, which, I feel sure, would have stood alone, being of a quality unsurpassed, was entirely charming; as were also two other gowns of the same demure and dignified period, one with a shoulder cape bristling with pleats and beads; all with the bonnets of our grandmothers, and so sweet. No wonder a veteran journalist, himself imposing in most becoming Lord Chancellor-ish robe of state, when conversing to these three delightful Victorians, was transported to other days, other manners, and almost persuaded himself that he was back in the leisurely and courteous era of his youth. Our hostess was in something flowing and picturesque, she being of the fortunate few who impart to their habilaments a quality of their own gracefulness; a pretty youthful maiden wore a lovely sweeping gown of pearl-colour, with wide fichu and plumed cavalier hat. Striking was a stately member of society's younger set in short and shimmering frock of black, thick coating of powder on sleek Eton crop, two beauty patches at the miraculously right spots, all rendered the more intriguing by the wearing of a black mask, of a dash and allure quite remarkable. Monsieur Beaucaire trod a measure of to-day with grace and decorum; a Sydney student of art was dashing and sheik-ish in Spanish garb of the blood and sand variety, the bizzare touch of earrings proving extremely becoming to his dark good looks; the daughter of the house looked slim and boyish in cricketing flannels; whilst the youngest member of the family deceived everyone in voluminous and graceful draperies essential for the incognita of the occasion. That convincing Scot "Mr. Magillicuddy" provided the low comedy, and played his bag-pipish part so successfully that it was difficult to believe a mere slip of a girl hid behind the ample waistcoat and carried off that noisy aggressiveness so cleverly. All this charming party in the setting of a room beautiful with old pictures and china; the guest of the evening including everyone in a gay friendliness and youthful graces that irresistibly reminded me of the unselfish charm of the Duke of York's Elizabeth—Your

ANNABEL LEE.

They Say:

That quite early in the New Year, Mr. and Mrs. Noel Pharazyn are returning to New Zealand, and will make their home in Wellington. This is good news, and society will welcome back these two extremely popular members of the younger set, and hopes to hear more tales from the witty and charming Mrs. Pharazyn of experiences, amusing and hazardous, in Constantinople and elsewhere, gained during the period of Major Pharazyn's service in the Army.

The Latest Lingerie.

Yet another new idea for pyjamas is heavy embroidery in conventional design. A sleeveless tunic of ivory crepe de chine has a deep border in a species of Greek key-pattern, or straight lines, zig-zags, and large dots worked in oriental colourings. The border is repeated at the bottom of the wide trousers.

AT NIGHT

Home, home from the horizon far
and clear,
Hither the soft wings sweep;
Flocks of the memories of the day
draw near,
The dovecote doors of sleep.
Oh, which are they that come
through sweetest light,
Of all these homing birds?
Which with the straightest and the
swiftest flight?
Your words to me, your words!

Alice Maynell.

What the Small-car Owner Gets.

He was a very large man, and he had suffered much chaffing from his friends about his exceedingly small car, but the worst blow came from a street urchin who watched him shake out a rug to cover the radiator.

"Come on, Bill," shouted the urchin to a pal, "'ere's a conjurer what's goin' to make that thing disappear under an 'andkerchief."

In the Fashion.

The jazz orchestra for the big new cabaret was being engaged.

"And what can you play?" they asked the melancholy-looking youth. "The saxophone, eh? Nothing else as well?"

"Ye-es—the goat."

He was engaged.

Some Features of Next Week's Programmes

1YA NOTES

The Waiata Quartet, which will appear at 1YA on Tuesday, will consist of Misses Lola Solomon and P. Gribben and Messrs. F. Sutherland and E. Snell. Two fine quartets will be sung. These will be "Let the Hills Resound" and "Softly Falls the Shades of Evening." A duet will be sung by Miss P. Gribben and Mr. E. Snell. Solos will be sung by each member of the quartet, who are all very popular artists.

Mr. J. F. Montague, elocutionist, will be heard in three items on Tuesday evening—"Thomas Atkins," "A Great Artiste," and "A Yaller Dog."

A further talk on "Physical Culture" will be given on Wednesday by Mr. Norman Kerr, of the Garryowen Institute.

"The Lost Chord" and "Three Fishers" will be the quartets sung by the Premier Quartet on Thursday evening. The members of the quartet—Miss Mina Caldow, Miss Lola Solomon, Mr. Barry Coney, and Mr. Birrell O'Malley—will each sing solos.

One of Mr. Barry Coney's songs on Thursday evening will be "Roll Along Home," a sea chanty from "The Way of a Ship."

The humour of Thursday's programme will be supplied by Mr. W. Russell-Wood. One recital will be "The Adventures of Catherine Parr."

Flute solos will be played by Mr. V. Bedford at 1YA on Thursday evening.

The Auckland Municipal Band will be giving a concert in Albert Park on Wednesday evening, and the whole entertainment from 8 o'clock till 10

MR. ARTHUR LUNGLEY.

For several years past Mr. Lungley has been before the public in Dunedin, and is regarded as one of the front rank baritones. He possesses a fine, masterly style, and arich, colourful voice. He will be heard frequently at 4YA.

will be relayed by 1YA. Mr. Christopher Smith will conduct the band.

Music and humour will be supplied by this well-known combination of artists—The Lyric Four—Messrs. Richards, Ripley, Thomas and McElwain on Saturday evening. The humour will be supplied mainly by Mr. McElwain, who has particular ability in that direction, but in addition to his efforts certain of the quartet's musical contributions will be of a humorous nature.

The Bosworth-Hemus—Towsey Trio, great favourites with 1YA listeners, will provide some more of their exquisite music next week at 1YA.

The number of letters of appreciation which Mr. Culford Bell receives every week indicates the popularity of their literary selections which he broadcasts during the afternoon sessions at 1YA.

2YA FEATURES

On Monday, January 16, the Renshaw Quartet will present a programme comprising gems of opera, some of which have not previously been broadcast from 2YA. Among Mrs. Dunn's selections is the beautiful "Welcome, Happiest Moment," from "The Marriage of Figaro," while Mr. Wilbur Davies will sing the prologue from "I Pagliacci." Miss Nora Greene will render Gounod's "Oma Lyre Immortelle" and the beautiful aria "Lungi dal Caro Bene," while Mr. Renshaw has selected "Questa a Quella" ("Rigoletto") and "O Paradise" ("L'Africana"). This aria tells of the wonder and joy of Vasco da Gama when he views the country he claims as his own land. This fine programme will conclude with "The Soldiers' Chorus" from "Faust," which will furnish a fitting finale to such a delightful selection of operatic arias.

Three melodious quartets are included in the Orpheus programme for Tuesday, January 17. These are "The Country Dance," by Lane Wilson, an adaptation of an old English melody, very bright and tuneful; "Kentucky Babe," a negro lullaby; and "Farewell," a beautiful evening number by May Brahe. Mrs. Harris and Mr. Len. Barnes, by special request, will repeat "The Dancing Honeymoon," from "Battling Butler"; Messrs. Coe nad Barnes will sing a very beautiful duet by Johnson, "If Thou Art Sleeping"; Mr. Coe contributes a rollicking old song, "Go to Sea," inviting young lads to a seafaring career; Miss Lily Mackie sings "The Sweetest Flower that Blows"; and Mrs. Harris will be heard in "Rosebuds." Mr. Barnes has chosen "She Alone Charmeth My Sadness," from "La Reine de Saba," by Gounod. In this dramatic number King Solomon fights against his infatuation for the Queen of Sheba, reproaching himself as being unworthy of the name of King, and declaring that she wears the crown while he is but a slave.

A "Request" Night.—Mr. Len Barnes has expressed his willingness to broadcast a programme of "request" items, i.e., items for which listeners express a desire for repetition. What is your favourite vocal item, concerted or solo? Just write down the title and add "I should like the Orpheus Quartet to include this number in their special request programme." Address "Mr. Len Barnes, Orpheus Quartet, c.o. Broadcasting Co., Ltd., Featherston Street, Wellington." The request programme will be broadcast on February 21, and all requests must reach Mr. Barnes not later than January 21. In the event of the requests sent in comprising a greater number of items than can be presented in one programme, preference will be given to the items for which the largest number of requests are received.

Pleasing variety, inclusive of tuneful and popular melodies, characterises the items, concerted and solo, to be presented by the Apollo Four on the evening of Friday, January 20. The quartets comprise a delightful setting of "Allan Water," one of the songs that never grow old; "Reveries," a number rich in its sweet, melodic appeal; "Evening's Twilight," an exquisite composition; and the crooning Negro lullaby, "Doan Ye Cry, Ma Honey."

Mr. S. E. Rodger's rich bass voice will do full justice to "Mate o' Mine"; Mr. S. Duncan will sing the popular tenor number, "Berceuse de Jocelyn," and his fellow-tenor, Mr. E. W. Robbins, "The Sea Gipsy"; while "A Song of Surrey Hills" will lose nothing of its beauty as interpreted by Mr. Roy Dellow.

A strong supporting instrumental programme will include the solos "Berceuse de Jocelyn" and "Angels Guard Thee," played by that brilliant cornetist Mr. Goodall.

On Saturday, January 21, the Melodie Four will be again heard from the studio of 2YA. As previously announced, they will present four part arrangements of the latest popular songs, and on this occasion a feature of the programme will be "Ukulele Dream Girl." This song has a haunting melody, which is particularly suited for male voice harmony.

In response to a number of requests, "Peter the Cat" will be repeated. This unaccompanied number shows the quartet in humorous vein, and contains many original vocal effects. The breezy duet, "The Two Beggars," will also be sung by Messrs. Williams and Marshall..

In addition to the concerted items the four members of the quartet will be heard in solos both grave and gay. In fact, the whole programme has been compiled with a view to originality.

Two very beautiful quartets will be sung by the Etude Quartet on Sunday evening, January 22. "The Heavens Proclaim Him" is a majestic setting of Beethoven's famous song, and a beautiful evening hymn is Henry Smart's "The Day is Gently Sinking to a Close." Miss Gretta Stark is singing "How Beautiful Are the Feet," from Handel's "Messiah." Miss Rita Arnold's number is the old favourite, "He Wipes the Tear from Every Eye." Mr. Frank Skinner sings "Seek Ye the Lord," the well-known tenor solo by Dr. Varley Roberts: this will be with quartet accompaniment. Dr. Pughe Evans has a splendid setting of Cardinal Newman's great hymn, "Lead, Kindly Light." This will be sung by Mr. Ray Kemp.

NOTES FROM 3YA

A studio concert will follow the broadcast of the service in the Oxford Terrace Baptist Church on Sunday evening, January 15. Miss Myra Edmonds, who is popular on the radio as a singer and as elocutionist, will contribute three mezzo-soprano solos. Mr. P. Angus, an ever-welcome baritone, and Mr. M. E. Withers, clarionet player, are also on the programme.

A well varied assortment of items will compose the programme which Derry's Military Band will submit on Monday. This is a very popular musical combination at 3YA. The miscellaneous items for Monday will include "The Jolly Blacksmiths," a characteristic polka, with vocal accompaniment in chorus.

Some very melodious part-songs and choruses are to be given by the Beckenham Male Quartet at 3YA on Monday. Their items will intersperse the selections by Derry's Band. The soloists will be Mr. K. G. Archer (baritone) and Mr. W. H. Odell (high baritone).

Mrs. S. J. Temple will contribute some more humorous selections at 3YA on Monday. This lady's ability to entertain is well established in popular estimation.

The vocalists for Wednesday evening, when some old-time songs will be sung, will be Miss Mary Shaw, A.R.C.M., Miss Nellie Lowe, Mr. T. G. Rogers, and Mr. W. H. Inkster. These singers are well known. Miss Shaw is a very gifted musician; Miss Lowe is one of the most popular contralto singers at 3YA; and both Mr. T. G. Rogers (tenor) and Mr. W. H. Inkster (bass) are equally fine artists. Mr. Inkster is on this occasion taking the place of Mr. A. G. Thompson (bass) in the regular quartet, Mr. Thompson being away on holiday.

Mr. J. P. Darragh will be heard again on Wednesday evening in some of his humorous work. On this occasion he

MR. A. LEVI.

Mr. A. Levi, flautist, is at the top of the tree in his art in Dunedin. It is doubtful if the southern city possesses an exponent of the flute who can excel Mr. Levi.

The Madame Gower-Burns quartet will be a trio next Thursday, owing to the absence of Miss Jessie King on holiday. The three—Madame Gower-Burns, Mr. Prescott, and Mr. Rennell—will contribute solo, duet, and trio items. Among these will be the celebrated "Barcarolle" from "Tales of Hoffman," and "Ti Prege" (a prayer), the former sung by Madame and Mr. Rennell, and the latter, a lovely old song, by the trio.

Miss Maiona Juriss, A.T.C.L., has chosen a Shakespearean dialogue and a humorous recitation for presentation next Thursday.

Mr. L. E. Vernazoni, of the Philatelic Society, will give another address on stamps at 3YA on Thursday. On this occasion he will refer to "Stamps Worth Fortunes."

Excerpts from a number of well-known operas will form the programme of the Melodious Four on Friday evening. Solos have been selected from "Carmen," "I Pagliacci," "Magic Flute," "Samson and Delilah," "Vespri Siciliani," "Rigoletto," "L'Enfant Prodigue," and "Lily of Killarney." The personnel of this quartet consists of Misses Hamerton and Renaut and Messrs. Sumner and Williams.

By special request the Melodious Four will sing "The Barley Mow" on Friday evening. Another item will be German's "Madrigal."

will tell "The Tale of a Dog," and describe a coster's experience in the hunting field, as perpetuated in "The Huntsman."

Some of the adventures of the "Innocents Abroad," as immortalised by Mark Twain, are to be recounted by Miss Lucy Cowan at 3YA on Friday. The droll type of humour of the great American will be done full justice to by the Christchurch elocutionist. Miss Cowan will also recite a piece entitled "Columbus," and another of her own composition, "A Cutting Occasion."

The first portion of Saturday evening's programme—these week-end programmes from 3YA are particularly enjoyable—will be provided on this occasion by the International Choir. The items will consist of a miscellaneous collection of old-time choruses, recitations, and bagpipe solos. Miss Mabel Thomas and Mr. David McGill, two very popular singers, will also contribute their share of the evening's entertainment.

The evening service at the South Island conference of the Seventh Day Adventists will be broadcast on Sunday, January 22, from the Addington Show Grounds. The speakers will be Mr. A. G. Stewart (of Sydney), vice-president of their Island Fields, and Ratu Sailosi, a Fijian chief. The subject for their discourse will be "The Triumph of the Gospel in Cannibal Islands."

Mozart's "Trio in C Major" has been selected by the Broadcasting Trio for presentation next week.

The C Major Trio is a fine example of this master's work. From the bold opening the composer succeeds in infusing true and sincere human expression, using his resources of colour, thythm, and melody with perfect revelancy.

Other interesting numbers include "Anitra's Dance," which is part of the incidental music written by Greig to Ibsen's drama, "Peer Gynt." It is the dainty dance of Anitra, the Bedouin's slender daughter. "A Doubt" is a sombre little trio by the famous Russian composer Glinka, while another number in Russian mood is "Valse Russe," by England's noted Granville Bantock. Pache's "At Evening" should appeal with its beautiful melodic interest.

Popular numbers will be found in the Second Swedish Folk Song collected and arranged by Svendsen, Godard's "Berceuse de Jocelyn" and the Intermezzo from "Cavalleria Rusticana." Godard's music always appeals by reason of its lightness and beauty of melody.

4YA ATTRACTIONS

The choristers of St. Paul's Cathedral will be assisting Big Brother Bill at the children's service at 5.45 next Sunday evening, January 15.

During the afternoon session on Tuesday, two addresses will be given. At 3.15 p.m. a representative of the D.I.C. will discourse on "Fashions," and at 4 p.m. a talk on "Cooking by Electricity" by a representative of Turnbull and Jones Ltd.

Tuesday evening being band night at 4YA, the programme will be rendered by the Kaikorai Band under the conductorship of Mr. E. Franklin, when a first-class programme will be heard, including the overture from "The Bohemian Girl," and a selection from the musical play "Chu Chin Chow." Soloists contributing to this programme will be Miss Mary Pratt, who will be heard in three old-time Scottish numbers, which she sings so delightfully. Mrs. J. Marshall (mezzo-soprano) will sing two ballad songs, and the popular number "Waize of Love." Mr R. Wilson Brown, comedian, will sing three popular songs at 4YA on Tuesday. Elocutionary items, serious and humorous, will be presented by Miss Roberta Williams. Mr. J. B. McConnell will also contribute elocutionary items, including Chevalier's "Fallen Star."

A really fine programme has been arranged for Thursday night, when several of Dunedin's leading artists will take part. Soprano solos will be rendered by Miss Rita Holmes, contralto numbers by Miss Winnie McPeak, baritone songs by Mr. F. M. Tuohy, and bass solos by Mr. E. G. Bond. The works to be heard are all, with one or two exceptions, from the modern composers. Pianoforte solos of a classical type will be presented by Miss Alice Wilson, F.T.C.L., and Mr. Malcolm Robilliard will be heard in 'cello solos, comprising works by Schubert, Handel, and Schumann.

Pastor W. D More will be heard in another of his humorous addresses on Thursday evening.

At 7.30 p.m. on Friday, at 4YA, a representative of the League of Nations Union will discourse on the work of the League

Friday night's programme is again sure to be very popular. Miss Roma Buss will sing two soprano numbers from the musical play "Florodora." Miss C. M. Law, the possessor of a beautiful broadcasting voice, will render a group of mezzo-soprano solos, including Massenet's "Open Thy Blue Eyes." Mr L. E. Dalley, a tenor of the front rank, will sing, among other numbers, "The Diver." Mr. J. B. Macpherson, bass, has chosen three songs from the "Garden of Cama."

Weber, Chopin, and Rachmaninoff will be represented in the piano solos to be played by Mrs. W. Munro on Friday.

Miss Sheila Neilson will recite humorous and serious elocutionary numbers on Friday evening.

Miss Marguerite Puechegud will be on the air at 7.30 p.m. on Saturday night, continuing her series of addresses on "Interior Decoration."

The concert programme arranged for Saturday evening is a particularly fine one. Miss Irene Hornblow, L.R.A.M., Mr. R. A. Mitchell (tenor), and Mr. Arthur Lungley (baritone) will provide the songs. Flute solos will be rendered by Mr. E. Gibbons, who will also play a very intricate piccolo solo, "The Birds of Spring," which is Mr. Gibbons's own composition. Mr. A. R. Watson will be heard in violin solos, and Mr. George Christie on the cornet.

INTERESTING LECTURETTES

Some very interesting lecturettes are scheduled for next week for 2YA.

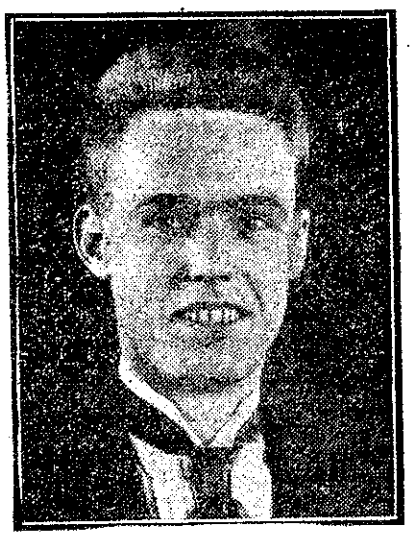
On Monday, January 16, Mr. Archibald Sando, manager of THE DOMINION, will speak on "The Romance of Radio."

On Tuesday, Mr. A. J. Dry, basing his talk on practical experiences, will describe the methods employed in capturing whales.

On Thursday Mr. Byron Brown, whose illustrated lecturettes on the Bard of Avon have been widely appreciated, will again be "on the air."

On Friday, the Editor-Announcer of 2YA will speak on some topic of national moment.

On Saturday evening, January 21, the



MR. L. E. DALLEY.

Mr. L. E. Dalley is the possessor of one of the finest tenor voices in New Zealand, and his popularity is strongly in evidence in Otago, where he is constantly before the public at most of the better class concerts.

Mayor of Wellington, Mr. G. A. Troup, will have something interesting and appropriate to say relative to the anniversary which falls on the morrow—the anniversary of the province of Wellington.

STUDIO PIANISTE AT 3YA

Miss Dorothy Davies, a brilliant young New Zealand pianiste, who is at present on holiday from the Sydney Conservatorium of Music and who has recently been heard from 2YA, has been engaged to act as studio pianiste at 3YA during the absence on holiday, of Miss Warren. Miss Davies will take up this duty on Saturday, January 14, for two weeks.

An interesting innovation which will be introduced in the programmes from 5CL, Adelaide, at an early date will be a children's session in the midday programmes. In future half an hour of this programme will be devoted to children's interests. So far programmes for young people have been confined to the evening transmissions from the Australian stations.

Full Programmes for Next

NOTES AND COMMENTS

(By "Switch.")

Christchurch listeners report good reception of 4YA, Dunedin. They state that the volume and tone is splendid, and there is little or no fading.

A popular station in Dunedin, according to "Plug," is 2YA, Wellington, which comes through with excellent volume and relatively little finding. Thanks for your note, "Plug."

South Island listeners agree that the Australian stations are very "in and out" lately. Generally speaking, good reception of the trans-Tasman stations is not obtainable before 11 p.m., New Zealand time.

Our old favourite 4QG, Brisbane, has slipped a cog, and is suffering from severe spasms of mushiness. Some nights he gives us a few items quite clearly, and with terrific punch, but soon lapses into a profound blurring.

The summer has pushed 3AR, Melbourne, 7ZL, Hobart, and 5CL, Adelaide, almost off the map so far as North Island listeners are concerned.

By the way, has anyone heard the strong shortwave transmission by 5CL, Adelaide? He comes in on somewhere about 90 metres. Is it a harmonic or a short-wave transmitter in action?

Another station heard just about 95 metres is 3UZ, Bourke Street, Melbourne. He is as clear as a bell, and full of vim on the short-wave mark. His musical items are tip-top.

Anyone who has a good four or five-valve set and a respectable aerial-earth system should hear 2UE, Maroubra, Sydney, 293 metres, 250 watts. On Tuesdays, Thursdays, and Sundays he is heard on the loudspeaker after 10.30 p.m.

George Saunders, late announcer at 2BL, Sydney, can be heard with his customary cheeriness announcing at 2GB, Sydney. This reminds me that Jack Cannot is doing well as announcer at 2BL, Sydney.

I am now going to nominate three competitors for the gold medal for the best kiddy entertainers in this quarter of the globe—"Aunt Dot," "Uncle Sandy," and "Uncle Jasper," all of 2YA, Wellington. I've heard all the leading New Zealand and Aussie bedtime session entertainers, and I think the above trio have the wood on the lot of them.

When you sum up the attributes of a perfect kiddy entertainer by radio, it seems that among the requisites are a mellow, well-attuned voice, clear diction, a trick in carryng one's personality across the ether, a ready wit, a breezy cheerfulness, an apt use of words and phrases calculated to be understandable to even the youngest juveniles, and, again, personality.

The number of talented juveniles who appear at 2YA, Wellington, at the bedtime sessions is positively astonishing. Some of them display remarkable gifts, and one often feels prompted to 'phone the station to ascertain the individual age of each little performer. What about announcing each child's age! Only occasionally are the children's ages announced.

Across land the Auckland station, 1YA, is heard very poorly in Wellington during the day-time, but 3YA, Christchurch, which is only half the distance from the capital city, and is received over water, is loudly heard in Wellington.

Static is, as a rule, not troublesome on the ultra-shortwave bands, but during the past week or two, short-wave fans state, it has been more noisy down there than on the normal broadcast wave-band. A bit of a surprise for those who are new at the short-wave game.

Even as far out of the way as the Panama Canal fans may find a radio repair and service station. It has been set up especially for ships passing through the canal.

Crystal receivers are fast going out of style in Great Britain as in America. The British Broadcasting Company now reports that half the fans there are using valve receivers.

If very near a broadcasting station, it is advisable to shield batteries, connections, unshielded portions of the set, and all external wiring, so that all energy pickup will be confined to the aerial. Should the near station still cause interference, a vertical aerial may help.

A wireless set which automatically switches "on" when the stations are broadcasting, and "off" when they have closed down, is being marketed in London, England, at a price about 10 per cent. in excess of the set alone.

An entirely new method of deriving filament heating current is presented in a device which obtains power from the ordinary gas. This device is said to be most efficient, and as three hours' running cost less than 1d., it is also more economical than the usual types of "A" battery.

An African wireless paper estimates that out of thirty thousand wireless sets in operation, fifteen thousand are unlicensed. A British periodical reports that 400 licenses only have been issued in Calcutta, India, whereas one firm only in that city has sold over 1200 sets.

Sunday, January 15th

1YA AUCKLAND (333 METRES)—SUNDAY, JANUARY 15.

6.55 p.m.: Relay of evening church service from Church of Christ. Preacher, Mr. Aldridge; organist, Mr. I. Lambert.
8.30: Relay of Municipal Band concert from Town Hall (conductor, Mr. Christopher Smith).
9.30: A thought.
9.32: God Save the King.

2YA WELLINGTON (420 METRES)—SUNDAY, JANUARY 15.

6 p.m.: Children's session—Uncle Ernest.
6.55: Relay—Evening service from St. Andrew's Presbyterian Church. Preacher, Rev. R. J. Howie; organist and choral director, Mr. Frank Thomas.
8.30 (approx.): Studio concert.
Vocal quartet—Celeste Quartet, "As Torrents in Summer" (Elgar). (Lohr).
Soprano solo—Miss Myra Sawyer, "God's Garden" (Lambert).
Instrumental quartet—Symons-Ellwood String Quartet, "Allegro" from "Trio in F Major" (Beethoven).
Vocal trio—Celeste Trio, "The Wreath" (Mazzinghi).
Contralto solo—Miss Mabel Dyer, "Abide With Me" (Liddle).
Tenor solo—Mr. Edgar Swain, "Ombra mai Fu" (Handel).
Symons-Ellwood String Quartet—"Adagio" from "Trio in F Major" (Beethoven).
Bass solo—Mr. Wm. Boardman, "Though Faithless Men" (Halevy).
Symons-Ellwood-Celeste Quartet, "As Torrents in Summer" (Elgar).
Vocal quartet—Celeste Quartet, "As Torrents in Summer" (Elgar).

3YA CHRISTCHURCH (306 METRES)—SUNDAY, JANUARY 15.

5.45 p.m.: Children's song service, by Uncle Sam.
7.0: Relay of evening service from Oxford Terrace Baptist Church. Preacher, Rev. S. Lawry; organist, Mr. Melville Lawry; conductor, Mr. V. C. Peters.
The following concert will be given from 3YA Studio after service:—
Baritone solo—Mr. P. Angus, "Beloved! It Is Morn" (Aylward).
Clarionet solos—Mr. M. E. Withers, (a) "Alicante," Op. 303 (Le Thiere); (b) "Liebesfreud" (Kreisler).
Mezzo-soprano solo—Miss Myra Edmonds, "Thanks be to God" (Dickson).
Baritone solos—Mr. P. Angus, (a) "Requiem" (Homer); (b) "O Pure and Tender Star of Eve" from "Tannhauser" (Wagner).
Clarionet solo—Mr. M. E. Withers, "Largetto" (Mozart).
Mezzo-soprano solos—Miss Myra Edmonds, (a) "Will He Come" (Sullivan); (b) "Dawn Has a Song" (Phillips).

4YA DUNEDIN (463 METRES)—SUNDAY, JANUARY 15.

5.45 p.m.: Children's song service by Big Brother Bill and Anglican Choristers from St. Paul's Cathedral.
7.0: Relay of evening service from First Church of Otago. Preacher, Rev. D. McCosh, M.A.
8.10: Relay from St. Kilda rotunda (weather permitting) of concert by the St. Kilda Band, conducted by Mr. James Dixon.

Monday, January 16th

1YA AUCKLAND (333 METRES)—MONDAY, JANUARY 16.

SILENT DAY.

2YA WELLINGTON (420 METRES)—MONDAY, JANUARY 16.

3 p.m.: Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
5.0: Close down.
6.0: Children's hour—Aunt Jo. Gramophone selection (orchestral). Songs, Gwenda, "Five Little Picaninnies" (Anthony), "To a Miniature" (Brahe). Aunt Jo, birthday letters. Aunt Barry, "Talk to Little Women." Vocal duet, selected. Songs, Cicely, selected. Recitations, June and Isabel, selected. Story time, Aunt Jo. Gramophone selection.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Pas des Cymbales," Op. 36, No. 2 (Chaminade).
8.5: Baritone solo—Mr.W. Davies, "Prologue" from "I Pagliacci" (Leoncavallo).
8.11: Humorous recital—Mr. C. Gardiner, "The Serial Story."
8.17: Soprano solo—Mrs. Amy Dunn, "Softly Sighing" from "Der Freishutz" (Weber).
8.21: Instrumental trio—Symons-Ellwood-Short Trio, "First Movement, C Major" (Brahms).
8.31: Tenor solo—Mr. Wm. Renshaw, "O Paradiso" from "L'Africana."
8.36: Flute solo—Mr. L. W. Rothwell, "Chasse Aux Papillons" (Fontbourne).
8.42: Contralto solo—Miss Nora Greene, "O, My Harp Immortal" (Gounod).
8.47: Pianoforte solo—Mr. Gordon Short, "Study in E Major" (Chopin).
8.53: Weather forecast.
8.55: Lecture—Mr. A. Sando, "The Romance of Radio."
9.12: Soprano solo—Mrs. Amy Dunn, "Welcome, Happiest Moment" from "Le Nozze Di Figaro" (Mozart).
9.17: Instrumental trio—Symons-Ellwood-Short Trio, "Adante, C Major Trio" (Brahms).
9.27: Humorous recital—Mr. C. Gardiner, "The Explorer" (Kipling).
9.35: Contralto solo—Miss Nora Greene, "Lungi Dal Caro Bene" (Leechi).
9.40: Pianoforte solo—Mr. Gordon Short, "Study in E Flat" (Chopin).
9.46: Baritone solo—Mr. W. Davies, "On Rushy Banks of Silver Nile" (Balfe).
9.51: Flute solo—Mr. L. W. Rothwell, "Rossignolet" (Donjon).
9.55: Vocal quartet—The Wm. Renshaw Quartet, "Soldiers' Chorus" from "Faust" (Gounod).
10.0: God Save the King.

3YA CHRISTCHURCH (306 METRES)— MONDAY, JANUARY 16.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's hour—Chuckle, bed-time stories, songs, birthday greetings, and letters.
7.15: News and reports.
8.0: Chimes Relay of orchestral selections from Strand Picture Theatre, under the direction of Mr. Harry Ellwood.
Studio concert by Derry's Military Band, under the conductorship of Mr. E. C. Derry, assisted by 3YA artists.
8.10: March—Derry's Military Band, "The Great American" (Lincoln).
8.15: Male quartet—Beckenham Male Quartet, (a) "Twilight Shades Descending" (Bank); (b) "Drink to Me Only With Thine Eyes" (Johnson).
8.21: Recital—Mrs. J. S. Temple, (a) "A Lesson With the Fan" (Weatherly); (b) "After the Marriage" (M.S.).
8.27: Intermezzo—Derry's Military Band, "Rosemary" (Ivey).
8.33: Baritone solo—Mr. K. G. Archer, "There's a Song Down Every Roadway" (Wood).
8.36: Waltz—Derry's Military Band, "Ecstacy" (Baynes).
8.42: Male quartet—Beckenham Male Quartet, "A Catastrophe" (Sprague).
8.45: Pot-pourri—Derry's Military Band, "Tangled Tunes" (Kettelby).
9.0: Weather report.
9.1: Relay of orchestral selections from Strand Picture Theatre.
9.10: Male quartet—Beckenham Male Quartet, "Topical Chorus" (M.S.).
9.13: Valse with vocal accompaniment—Derry's Military Band, "Pal of My Cradle Days" (Painter).
9.18: Recital—Mrs. J. S. Temple, "How Paddy Stole the Rope" (M.S.).
9.21: Baritone solo—Mr. W. H. Odell, "A Russian Love Song" (Lardelli).
9.24: Characteristic polka—Derry's Military Band, "The Jolly Blacksmiths" (Suckley).
9.31: Tenor and baritone duet—Beckenham Male Quartet, "Nocturne" (Denza).
9.39: Male quartet—Beckenham Male Quartet, "Lovely Night" (Chwatal).
9.42: Tone poem—Derry's Military Band, "Dawn of Peace" (Hume).
9.47: Male quartet—Beckenham Male Quartet, (a) "Sweet and Low" (Barnby); (b) "The Farmer Took Another Load Away, Hay! Hay!" (Leslie).
9.51: March—Derry's Military Band, "On Manly Shore" (Code).
9.55: God Save the King.

4YA DUNEDIN (463 METRES)—MONDAY, JANUARY 16.

SILENT DAY.

Tuesday, January 17th

1YA AUCKLAND (333 METRES)—TUESDAY, JANUARY 17.

3 p.m.: Afternoon session—Selected Studio items.
4.0: Literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: Children's hour—Uncle Leo.
7.0: Close down.
7.15: Talk on "The Manufacture of Superphosphate," by Mr. H. Edwards.
7.30: News and reports.
7.45: Close down.
8.0: Chimes. Relay of orchestral overture from the Majestic Theatre Orchestra, under the direction of Mr. J. Whiteford-Waugh.
8.11: Vocal quartet—Waiata Quartet, "Let the Hills Resound" (Allan).
8.15: Tenor solo—Mr. Ernest Snell, "Onaway, Awake, Beloved" (Cowen).
8.19: Cornet solo—Mr. Eustace Tregilgas, "'Neath Astral Skies" (Code).
8.24: Contralto solo—Miss Phyllis Gribben, selected.
8.28: Instrumental trio—The Bosworth-Hemus-Towsey Trio, "Trio, Op. 49, First Movement" (Mendelssohn).
8.38: Bass-baritone solo—Mr. Frank Sutherland, "What Am I, Love, Without Thee?" (Adams).
8.42: Recital—Mr. J. F. Montague, "Thomas Atkins" (Davis).
8.47: Violin solo—Miss Ina Bosworth, "Danish Melody" (arr. Percy Grainger).
8.51: Soprano solo—Miss Lola Solomon, "Alleluia" (Le Cid), (Massenet).
8.55: Weather forecast.
8.57: Relay of orchestral selections from Majestic Theatre.
9.7: Vocal duet—Miss P. Gribben and Mr. E. Snell, "Sink, Red Sun" (Del Riego).
9.11: Cornet solo—Mr. E. Tregilgas, (a) "Castles in the Air" (Smith); (b) selected.
9.20: Bass-baritone solo—Mr. F. Sutherland, "The Toilers" (Piccolomini).
9.25: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio, Op. 49, Andante and Scherzo" (Mendelssohn).
9.35: Recitals—Mr. J. F. Montague, (a) "A Great Artist"; (b) "A Yaller Dog."
9.43: Soprano solo—Miss L. Solomon, "Lullaby" (Needham).
9.47: Relay of orchestral selections from Majestic Theatre.
9.52: Tenor solo—Mr. E. Snell, "The Last Hour" (Kramer).
9.56: Vocal quartet—Waiata Quartet, "Softly Fall the Shades of Evening."
10.0: A thought.
10.2: God Save the King.

Week - All Stations - to Jan. 22

2YA WELLINGTON (420 METRES)—TUESDAY, JANUARY 17.

3 p.m.: Chimes of the General Post Office clock, Wellington.
Relay description of French tennis team match v. New Zealand, interspersed with selected gramophone items, and lecturettes by Mrs. Sinclair, of S. Brown, Ltd., "Electric Cooking"; and Dr. L. A. Line, "First Aid."
5.0: Close down.
6.0: Children's hour—Uncle Jasper. Gramophone selection. Recitation, Cousin Bess, "The Elocutionist." Song, Cousin Bess, "The Land of I Dunno Where." Musical medley, Pat and Mike, concertina, accordion, mouth-organ, etc. Uncle Jasper, letters. Songs, Cousin Gladys, (a) "Don't Hurry" (Sanderson); (b) "Miniature" (Brahe). Uncle Jasper, story and general fun. Gramophone selection.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Ruy Blas" (Mendelssohn).
8.5: Vocal quartet—Orpheus Quartet, "Country Dance" (Wilson).
8.9: Recital—Miss V. Wilson, "Llano Estacado" (Miller).
8.15: Contralto solo—Miss Lily Mackie, "The Sweetest Flower that Blows" (Hawley).
8.20: Instrumental trio—Symons-Ellwood-Short Trio, "First Movement Trio, G Major" (Hulstone).
8.30: Tenor solo—Mr. Arthur Coe, "Go to Sea" (Trotere).
8.35: Italian mandolin—Mr. L. Haywood, "Russian Lullaby" (Berlin).
8.41: Vocal duet—Mrs. Alice Harris and Mr. Len. Barnes, "Dancing Honeymoon" (Braham).
8.45: 'Cello solo—Mr. G. Ellwood, "Fond Recollections" (Popper).
8.51: Vocal quartet—Orpheus Quartet, "Kentucky Babe" (Giebel).
8.56: Saxophone solo—Mr. E. J. Askenbeck, "Saxima" (Widoeft).
9.1: Weather forecast.
9.3: Lecturette—Mr. A. J. Dry, "The Capturing of Whales: Methods Employed."
9.15: Baritone solo—Mr. Len. Barnes, "She Alone Charmeth My Sadness" (Gounod).
9.20: Instrumental trio—Symons-Ellwood-Short Trio, "Andante Trio in D Major" (Hulstone).
9.30: Humorous recital—Miss V. Wilson, "The Economist" (Thomas).
9.36: Italian mandolin—Mr. L. Haywood, "The Birth of the Blues" (Henderson).
9.40: Soprano solo—Mrs. A. Harris, "Rosebud" (Drummond).
9.44: 'Cello solo—Mr. G. Ellwood, "Minuetto" (Becker).
9.49: Vocal duet—Messrs. Arthur Coe and L. Barnes, "If Thou Art Sleeping" (Johnson).
9.53: Saxophone solo—Mr. E. J. Askenbeck, "Elegie" (Massenet).
9.57: Vocal quartet—Orpheus Quartet, "Farewell" (Brahe).
10.0: God Save the King.

3YA CHRISTCHURCH (306 METRES)—TUESDAY, JANUARY 17.

SILENT DAY.

4YA DUNEDIN (463 METRES)—TUESDAY, JANUARY 17.

3, p.m.: Afternoon session—Selected Studio items.
3.1: His Master's Voice recital.
3.15: Address on "Fashions," by Mr. E. Barrett, of the D.I.C.
3.30: Studio music.
4.0: Address on "Cooking by Electricity," by a representative of Turnbull and Jones.
4.15: His Master's Voice recital.
4.30: Close down.
6.0: Town Hall chimes.
Children's hour—Big Brother Bill. Everything starts off with the "Happy Ditty" as soon as the chimes have finished, and then an hour's happiness. Sister Phyllis recites, Sister Florence plays the piano, and Sister Thelma sings. All well worth listening to, of course. Big Brother Bill tells some wonderful stories.
7.15: News and reports.
8.0: Chimes. Studio concert by the Kaikorai Band, under the direction of Mr. E. Franklin, and assisting artists.
8.1: Overture—"Bohemian Girl."
8.13: Light vocal solos—Mr. R. Wilson Brown, (a) "Blue Skies" (Berlin); (b) "At Peace With the World" (Berlin).
8.21: Recital—Miss Roberta Williams, "As Her Mother Used to Do."
8.25: Fox-trot—The Band, "When the Red, Red Robin" (Woods).
8.29: Mezzo-soprano solo—Mrs. J. Marshall, "Waltz of Love" (Armstrong).
8.33: Recital—Mr. J. B. McConnell, "The Fallen Star" (Chevalier).
8.37: Humoresque—The Band, "Three Blind Mice" (Douglas).
8.49: Scotch solos—Miss Mary Pratt, (a) "We'd Better Bide a Wee"; (b) "My Ain Wee Hoose."
8.56: Recital—Miss Roberta Williams, "Not Understood" (Bracken).
9.0: Hymn—The Band, "Nearer, My God, to Thee" (arr. Caros).
9.5: Light vocal solo—Mr. R. Wilson Brown, "Colletti" (Baer).
9.9: Recital—Mr. J. B. McCnonell, "Just Plain Dog" (Hazard).
9.14: Selection—The Band, "Hungarian Dances, Nos. 2, 3, 4, and 5" (Brahms).
9.24: Mezzo-soprano solos—Mrs. J. Marshall, (a) "Wayfarer's Night Song"; (Martin); (b) "Come, for it's June" (Foster).
9.30: Recital—Miss Roberta Williams, "Serial Story."
9.34: Selection—The Band, "Chu Chin Chow" (Norton).
9.54: Contralto solo—Miss Mary Pratt, "Annie Laurie."
9.59: Recital—Mr. J. B. McConnell, "My Idea of a Girl."
10.4: March—The Band, "Roll Away, Bett" (Rimmer).
10.7: God Save the King.
10.9: Close down.

Wednesday, January 18th

1YA AUCKLAND (333 METRES)—WEDNESDAY, JANUARY 18.

3 p.m.: Afternoon session—Selected Studio items.
4.0: Literary session, by Mr. Culford Bell.
4.30: Close down.

6.0: Children's hour—Uncle Tom.
7.0: Close down.
7.15: News and reports.
7.45: Talk on "Physical Culture," by Mr. Norman Kerr.
8.0: Chimes.
8.1: Relay of Municipal Band concert from Albert Park. Bandmaster, Mr. Christopher Smith.
10.0: A thought.
10.2: Close down.

2YA WELLINGTON (420 METRES)— WEDNESDAY, JANUARY 18.

Afternoon session—Relay description of French tennis team match v. New Zealand.

3YA CHRISTCHURCH (306 METRES)—WEDNESDAY, JANUARY 18.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's session—Uncle Sam, bed-time stories, songs, and birthday greetings.
7.15: Addington stock market reports.
7.30: News and reports.
8.0: Chimes Relay of orchestral selections from the Grand Picture Theatre Orchestra, under the direction of Mrs. Black.
8.15: Bass solo—Mr. W. H. Inkster, "Oh, Promise Me" (De Koven).
8.19: Recital—Mr. J. P. Darragh, "A Tale of a Dog" (M.S.).
8.24: Tenor solo—Mr. T. G. Rogers, "Come Into the Garden, Maud" (Balfe).
8.28: Instrumental trio—Christchurch Broadcasting Trio, two movements from "Trio, Op. 29," (a) "Allegro Scherzando"; (b) "Andantino Con Moto" (Gade).
8.38: Soprano solo—Miss Mary Shaw, A.R.C.M., "Deh Veni Non Tardar" ("Figaro"), (Mozart).
8.42: Violin solo—Miss Irene Morris, "Romanza" (Sitt).
8.47: Contralto solos—Miss Nellie Lowe, (a) "A Spirit Flower" (Tipton); (b) "If I Can Live" (Stephenson).
8.55: Weather report and late news.
9.0: Relay of orchestral selections from Strand Picture Theatre.
3.15: Bass solos—Mr. W. H. Inkster, (a) "Dawn Skies" (Drummond); (b) "My Rosary for You" (Ball).
9.22: Recital—Mr. J. P. Darragh, "The Huntsman" (a Coster's experience in the hunting field), (own arrangement).
9.32: Tenor solos—Mr. T. G. Rogers, (a) "Asra" (Newton); (b) "The Silver Moon" (Adams).
9.39: Instrumental trios—Christchurch Broadcasting Trio, (a) "Swedish Folk Song, No. 1" (Svendson); (b) "Traumeri" (Schumann); (c) "Gavotte" (Leclair).
9.40: Soprano solos—Miss Mary Shaw, A.R.C.M., (a) "O, Tell Me, Nightingale" (Lehmann); (b) "Almond, Wild Almond" (Peel).
9.47: Violin solo—Miss Irene Morris, "Liebeslied" (Kreisler).
9.52: Contralto solos—Miss Nellie Lowe, (a) "My Dear Soul" (Sanderson); (b) "My Curly-headed Baby" (Clutsam).
10.0: God Save the King.

4YA DUNEDIN (463 METRES)—WEDNESDAY, JANUARY 18.

SILENT DAY.

Thursday, January 19th

1YA AUCKLAND (333 METRES)—THURSDAY, JANUARY 19.

3 p.m.: Afternoon session—Selected Studio items.
4.0: Literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: Children's hour—Peter Pan.
7.0: Close down.
7.15: News and book review.
7.30: Market reports.
7.45: Close down.
8.0: Chimes.
8.1: Relay of orchestral overture from Rialto Theatre Orchestra, under the direction of Mr. Henry C. Engel.
8.11: Vocal quartet—The Premier Quartet, "The Lost Chord" (Sullivan).
8.15: Baritone solos—Mr. H. Barry Coney, (a) "Sweet Melodies" (Brahms); (b) "A Vain Suit" (Brahms).
8.21: Instrumental trio—The Bosworth-Hemus-Towsey Trio, "Trio No. 2, Op 112, First Movement" (Rheinberger).
8.31: Soprano solo—Miss Lola Solomon, selected.
8.35: Humorous recital—Mr. W. Russell-Wood, "The Adventures of Catherine Parr."
8.40: Tenor solo—Mr. Birrell O'Malley, "La Donna e Mobile" from "Rigoletto" (Verdi).
8.44: Flute solos—Mr. Victor Bedford, (a) "Berceuse" (Kohler); (b) "Sally in Our Alley" (Dallas).
8.53: Contralto solo—Miss Mina Caldow, "The Wanderer" (Schubert).
8.58: Weather forecast.
9.0: Relay of orchestral selections from Rialto Theatre.
9.10: Baritone solo—Mr. Barry Coney, "Roll Along Home"," a sea chanty from "The Way of a Ship" (Easthope-Martin).
9.15: 'Cello solo—Miss Lalla Hemus, "Allegro Ma Non Troppo" (Gotterman).
9.19: Soprano solo—Miss L. Solomon, selected
9.23: Humorous recitals—Mr. W. Russell-Wood, (a) "I Was Angry"; (b) "The Midnight Express."
9.29: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio No. 2, Op. 112, Andantino and Menuetto" (Rheinberger).
9.39: Contralto solo—Miss M. Caldow, "A Memory" (Goring-Thomas).
9.43: Flute solo—Mr. V. Bedford, "Sans Parole, No. 2" (Clinton).
9.47: Relay of orchestral entr'acte from Rialto Theatre.
9.55: Tenor solo—Mr. B. O'Malley, "Serenade" (Toselli).
9.59: Vocal quartet—The Premier Quartet, "Three Fishers" (Hullah).
10.3: A thought.
10.4: God Save the King.

2YA WELLINGTON (420 METRES)—THURSDAY, JANUARY 19.

3 p.m.: Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
3.30: Lecturette—Mrs. M. Thomas, of Kirkcaldie and Stains, Ltd., "Fashions."
3.45: Selected gramophone items.
5.0: Close down.
6.0: Children's hour—Uncle Sandy. Gramophone selection. Violin solo, Cousin Muriel, selected. Uncle Sandy sends birthday greetings. Mouth-organ solo, Cousin Harold, selected. Recitation, Cousin Vernon, selected. Songs, Cousin Gertrude, (a) "Carry Me Back to Old Virginny" (Bland); (b) "The Little Old Garden" (Hewitt). Violin solos, Cousin Veronica, (a) "Intermezzo-Cavalleria Rusticana" (Mascagni); (b) "Bourree" (Handel). Gramophone selections.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—Central Mission Band, "Under the Double Eagle" (Wagner).
8.6: Bass solo—Mr. W. Binet Brown, "Out on the Deep" (Lohr).
8.11: Selection—Central Mission Band, "Nursery Ditties" (Raymond).
8.18: Tenor solo—Mr. C. Williams, "Lorraine" (Sanderson).
8.22: Duet—Bandsmen Gray and McPherson, "Larboard Watch" (Williams).
8.29: Baritone solo—Mr. W. Goudie, "Nita Gitane" (Newton).
8.34: Fantasia—Central Mission Band, "Songs of the Old Days" (Newton).
8.45: Duet—Messrs. C. Williams and W. Goudie, "Under the Desert Stars" (Temple).
8.49: Selection—Central Mission Band, "Old Folks at Home" (Round).
8.56: Weather forecast.
8.58: Lecturette—Mr. Byron Brown, "Shakespeare."
9.14: March—Central Mission Band, "Colonel Bogey" (Alfred).
9.20: Bass solo—Mr. W. Binet Brown, "Lighterman Tom" (Squire).
9.24: Waltz—Central Mission Band, "The Grenadiers" (Rimmer).
9.30: Duet—Messrs. Williams and Goudie, "The Ballad Singers" (Wilson).
9.35: Selection—Central Mission Band, "Adoration" (Linter).
9.44: Tenor solos—Mr. C. Williams, (a) "The Roses' Lament" (Franz); (b) "Marie" (Franz).
9.49: Baritone solo—Mr. W. Goudie, "Father O'Flynn" (Stanford).
9.54: March—Central Mission Band, "Honour Bright" (White).
10.0: God Save the King.

The Radio Corporation of America is charged with infringing patent rights of the Hazeltine Corporation in an action filed on December 1 in the United States Southern District Court. The plaintiff seeks a permanent injunction restraining the further manufacture and sale of Radiolas 16 and 17, and an accounting of profits and assessment of damages resulting from the alleged infringement. The two radio receivers involved in the litigation were introduced by the Radio Corporation of America last year.

If you hear mysterious crackling sounds and your batteries, valves, condensers and all joints in your set are O.K., make sure that your insulators are not cracked or dirty, that your aerial itself is not touching other aerials or trailing on the surface of the roof, that the lead-in wire is electrically connected to it—and by an electrical connection is meant an electrical connection, that neither the aerial nor lead-in wire is being scraped by trees, that neither wire is anchored to telephone or electric light poles

One radio set, four valves, was one of the most prominent items in the list of demands presented by Caid Ali ben Noceur, Moorish chieftain, for the ransom of Yves Steeg, nephew of the French Resident General, and his three companions, kidnapped recently by the Moors and held prisoners in the middle Atlas range The radio set proved to be the hitch in the negotiations between Colonel Duclos, of the French Intelligence Service, and Ali ben Noceur. There were plenty of radio sets in Rabat and Casablanca. But there was nobody willing to go into the mountains and install the set for the Moorish brigands.

Programmes Continued

3YA CHRISTCHURCH (306 METRES)—THURSDAY, JANUARY 19.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's hour—Chuckle and Aunt Pat. Bed-time stories, songs, birthday greetings, and letters.
7.15: News and reports.
7.30: Talk—Mr. L. E. Vernazoni, of Philatelic Society, "Stamps Worth Fortunes."
8.0: Chimes. Relay of orchestral selections from Everybody's Picture Theatre Orchestra, under the direction of Mr. Albert Bidgood.
8.15: Soprano and baritone duet—Madame Gower-Burns and Mr. Bernard Rennell, "Barcarolle" from "Tales of Hoffman" (Offenbach).
8.19: Shakespearian dialogue—Miss Maiona Juriss, A.T.C.L., "Prince Arthur to Hubert" from "King John" (Shakespeare).
8.25: Tenor solos—Mr. Harold Prescott, (a) "Indian Serenade" (Boerzi); (b) "Can This Be Summer?" (Edwards).
8.32: Instrumental trios—Christchurch Broadcasting Trio, three further movements from "Trio, Op. 29, (a) "Moderato, (b) Largetto Con Moto, (c) Allegro" (Gade).
8.42: Soprano solos—Madame Gower-Burns, (a) "Kissing Time" (Needham); (b) "Mia Piccarilla" (Gomez).
8.49: Pianoforte solo—Miss Aileen Warren, "Melodie" (Rachmaninoff).
8.54: Vocal trio (soprano, tenor, and baritone)—Madame Gower-Burns, Messrs. H. Prescott and B. Rennell, "Memory" (Leslie).
8.58: Weather forecast.
9.0: Relay of orchestral selections from Everybody's Theatre.
9.15: Baritone solo—Mr. Bernard Rennell, "Mine Enemy" (Rudd).
9.19: Humorous recital—Miss Maiona Juriss, "A Lady's Impressions of a Play" (Anon.).
9.24: Vocal duet (soprano and tenor)—Madame Gower-Burns and Mr. H. Prescott, "A Night in Vencie" (Lucantoni).
9.27: Tenor solo—Mr. H. Prescott, "Retournelle" (Chaminade).
9.31: Instrumental trios—Christchurch Broadcasting Trio, (a) "Serenade" (Pache); (b) "Ave Maria Stella" (Grieg); (c) "Serenade" (Haydn).
9.41: Vocal duet (tenor and baritone)—Messrs. H. Prescott and B. Rennell, "Come to the Fair" (Sanderson).
9.44: Soprano solo—Madame Gower-Burns, "Sing, Sweet Bird" (Ganz).
9.47: Vocal duet (soprano and baritone)—Madame Gower-Burns and Mr. B. Rennell, "Trot Here, Trot There" (Messager).
9.51: Pianoforte solo—Miss Aileen Warren, "Polonaise in C Sharp Minor" (Chopin).
9.56: Baritone solo—Mr. Bernard Rennell, "Beware of the Maiden" (Craikeday).
9.59: Vocal trio (soprano, tenor, and baritone)—Madame Gower-Burns, Messrs. H. Prescott and B. Rennell, "Ti Prego" (a prayer), (Curschmann).
10.5: God Save the King.

4YA DUNEDIN (463 METRES)—THURSDAY, JANUARY 19.

7 p.m.: Town Hall chimes.
7.30: News session.
8.0: Town Hall chimes. Relay of orchestral music from the Octagon Theatre Orchestra, under the direction of Mr. L. D. Austin.
8.11: Bass solos—Mr. E. G. Bond, (a) "Song of the Bow" (Aylward); (b) "The Gay Highway" (Drummond).
8.18: 'Cello solo—Mr. Malcolm Robilliard, "Ave Maria" (Schubert).
8.23: Soprano solo—Miss Rita Holmes, "Down in the Forest" (Phillips).
8.27: Pianoforte solo—Miss Alice Wilson, "Waltz in C Sharp Minor" (Chopin).
8.32: Baritone solos—Mr. F. M. Tuohy, (a) "My Task" (Ashford); (b) "Requiem" (Homer).
8.39: 'Cello solo—Mr. Malcolm Robilliard, "Bourrie" (Handel).
8.44: Contralto solos—Miss Winnie McPeak, (a) "Bird of Blue" (German); (b) "To a Miniature" (Brahe).
8.50: Orchestral music relayed from Octagon Theatre.
9.0: Bass solo—Mr. E. G. Bond, "You Along o' Me."
9.4: Address—Pastor W. D. More, selected.
9.20: Soprano solos—Miss Rita Holmes, (a) "Villanelle"; (b) "Hark, Hark, the Lark" (Schubert).
9.27: Pianoforte solo—Miss Alice Wilson, "Ballade" (Brahms).
9.32: Baritone solo—Mr. F. M. Tuohy, "Easter Flowers" (Sanderson).
9.36: Orchestral music, relayed from Octagon Theatre.
9.46: Contralto solo—Miss Winnie McPeak, "Morning" (Speaks).
9.50: Pianoforte solo—Miss Alice Wilson, "Wedding Day" (Grieg).
10.0: Close down.

Friday January 20th

1YA AUCKLAND (333 METRES)—FRIDAY, JANUARY 20.

3 p.m.: Afternoon session—Selected Studio items.
4.0: Literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: Children's hour, conducted by Uncle Ned.
7.0: Close down.
7.15: Talk on "Motoring," by Mr. Geo. Campbell.
7.30: News and reports.
7.45: Close down.
8.0: Chimes.
8.1: Relay of orchestral overture from Princess Theatre. Mr. Howard Moody, conductor.
8.11: Quartet—The Waiata Quartet, "Let the Hills Resound" (Allan).
8.15: Tenor solo—Mr. Ernest Snell, "Onaway, Awake, Beloved" (Cowan).
8.19: Humour—Mr. Jim Sharp, a few moments of mirth.
8.24: Contralto solo—Miss Phyllis Gribben, selected.
8.28: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio, First Movement" (Godard).
8.38: Bass-baritone solo—Mr. Frank Sutherland, "What Am I, Love, Without Thee" (Boosey-Adams).
8.42: Sketch—Miss Edna Smeeton, Messrs. Sharp and F. Adeane, "The Stranger" (De Garde-Peach).

A factory organisation the employment department of which devoted to giving first preference to Chicago's ex-soldiers who are seeking steady jobs. A mechanical workshop affording to every ex-service employee expert training, on full pay, in a new and lucrative engineering field. A practical economic haven when constant encouragement towards rehabilitation soon banishes all thought of self-pity and puts even a disabled returned soldier on an equal mental, moral and financial footing with his more fortunate fellow men. This proud employment programme is in force at the Chicago plant of a big radio manufacturing company, builders of high-power radio receivers. Credit for this sincere service to Chicago's ex-soldiers is given to the shop superintendent and personnel director of the plant.

An instrument that indicates a change in current as small as a tenth of a thousandth of a millionth part of an ampere has been developed in America. The usual electric household lamp uses 200,000,000,000 times as much current as the amount represented by one subdivision on the scale of this instrument, which is so sensitive that it has to be mounted on jewel bearings.

MR. ALLAN YOUNG.

Mr. Allan Young, one of Dunedin's leading and certainly most genial entertainers. As a member of the Orphan Club, Mr. Young is well-known by everyone in Dunedin interested in concert work. Of his versatile character studies, perhaps the best known and loved are his Hebrew imitations.

One lead from your speaker should connect to B-plus and the other to plate of the last valve. If these leads are connected vice versa the magnets of your loudspeaker will be weakened. In order to find which is the B-plus lead, disconnect the leads from the speaking unity, plug them in a potato which has been cut in half to show the white, then turn on the rheostats. The plate lead will make no difference to the potato, whereas the B-plus lead will turn it blue.

Sockets occasionally cause noise trouble through corroded loose or bent prongs. Corrosion may be removed with fine sandpaper. In holders of the UX type the prongs may be brought back to contact with a pair of pliers inserted from the bottom, but this is a job that will necessitate the removal of the socket, and should not be undertaken unless there is evidence of bad contact. It seems needless to say that repair of a set should not be undertaken without experience or without the removal of valves and batteries.

Dr. Alfred N. Goldsmith, the eminent American radio scientist, says: "It is clear that the cost of a transmitting station will become excessive of transmitter power beyond a certain limit is used. The first cost of the station, and its maintenance (including the cost of electrical power) all force the broadcaster to consider seriously the use of no greater power than is necessary to justify the expense of the station."

It is not often that anything not intended for the microphone creeps into the transmission from the studio of 4QG, Brisbane. Quite recently, however, during the course of a choral concert, a hurried "You'll have to get further back," in a voice unmistakably like that of the announcer, gave evidence of the fact that, for a moment, that official had forgotten that the studio was still "on the air."

6.47: Pianoforte solo—Mr. Cyril Towsey, "Study, Op. 25, No. 5" (Chopin).
8.52: Soprano solo—Miss Lola Solomon, "Alleluia" ("Le Cid"), (Mass).
8.55: Evening Forecast.
8.57: Relay of orchestral interlude from Princess Theatre.
9.7: Vocal duet—Miss P. Gribben and Mr. E. Snell, "Sink, Red Sun" (Del Riego).
9.11: Humour—Mr. J. Sharp, a few more moments of mirth.
9.20: Bass-baritone solo—Mr. F. Sutherland, "The Toilers" (Piccolomini).
9.25: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Trio, Second Movement" (Godard).
9.35: Sketch—Miss E. Smeeton, Messrs. Sharp and Adeane, "Stung" (De Garde-Peach).
9.43: Soprano solo—Miss L. Solomon, "Lullaby" (Needham).
9.47: Relay from Princess Theatre.
9.52: Tenor solo—Mr. E. Snell, "The Last Hour" (Cramer).
9.56: Quartet—The Waiata Quartet, "Softly Falls the Shades of Evening" (Allan).
10.0: A thought.
10.2: God Save the King.

2YA WELLINGTON (420 METRES)—FRIDAY, JANUARY 20.

3 p.m.: Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
3.30: Lecturette—Miss Marion Christian, of the Wellington Gas Co., "Gas Cooking."
3.45: Selected gramophone items.
5.0: Close down.
6.0: Children's hour.
7.0: News session, market reports, and sports results.
7.40: Lecturette—Mr. D. G. Paris, of Wellington Centre, A.A.A., "Athletics."
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Tancredi Overture" (Rossini).
8.4: Vocal quartet—The Apollo Four, "Allan Water" (Button).
8.9: Humorous recital—Mr. Peter Dorrian, "The Wire" (Thomas).
8.15: Tenor solo—Mr. E. W. Robbins, "Sea Gipsy" (Head).
8.20: Instrumental trio—Symons-Ellwood-Short Trio, "Scherzo and Finale, Trio in G" (Hurlstone).
8.30: Bass solo—Mr. Roy Dellow, "A Song of Surrey" (Lohr).
8.35: Hawaiian guitars—Messrs. Berthold and Bent, (a) "Charmaine" (M.S.); (b) "A Lane in Spain" (M.S.).
8.45: Vocal quartet—The Apollo Four, "Reveries" (Storch).
8.49: Cornet solo—Mr. Thomas Goodall, "Drink to Me Only" (Hartman).
8.56: Weather report.
8.58: Lecturette—Editor-Announcer, "Imperial Affairs."
9.13: Vocal quartet—The Apollo Four, "Doan Ye Cry, Ma Honey" (M.S.).
9.17: Instrumental trio—Symons-Ellwood-Short Trio, "Andante" from "Trio in F Major" (Saint-Saens).
9.27: Humorous recital—Mr. Peter Dorrian, "The Thinning of the Thatch" (Anon.).
9.31: Baritone solo—Mr. S. E. Rodger, "Mate o' Mine" (Elliott).
9.36: Violin solo—Miss Ava Symons, "Nos. 1 and 2, Violin Suite" (Linding).
9.42: Tenor solo—Mr. Sam Duncan, "Berceuse de Jocelyn" ("Angels Guard Thee"), (Godard).
9.46: Cornet solo—Mr. Thomas Goodall, "I Dreamt I Dwelt in Marble Halls" (Round).
9.50: Hawaiian guitars—Messrs. Berthold and Bent, (a) "O Sole Mio" (Di Capua); (b) "Let's Grow Old Together" (M.S.).
9.57: Vocal quartet—The Apollo Four, "Evening's Twilight" (Hatton).
10.0: God Save the King.

3YA CHRISTCHURCH (306 METRES)—FRIDAY, JANUARY 20.

3 p.m.: Afternoon session—Selected Studio items.
4.30: Close down.
6.0: Children's hour—Peterkin, bed-time stories, birthday greetings, and letters.
7.15: News and reports.
8.0: Chimes. Relay of orchestral selections from Crystal Palace Theatre Orchestra, under the direction of Mr. A. J. Bunz.
8.15: Bass solo—Mr. T. D. Williams, "Prologue" from "Il Pagliacci" (Leoncavallo).
8.20: Reading—Miss Lucy Cowan, "Innocents Abroad" (Mark Twain).
8.25: Soprano solo—Miss Frances Hamerton, "Ah! Lo So" from "Magic Flute" (Mozart).
8.29: Instrumental trio—Christchurch Broadcasting Trio, "Allegro Appassionata" from "Trio in A Minor" (Lalo).
8.39: Tenor solo—Mr. Russell Sumner, "Flower Song" from "Carmen" (Bizet).
8.43: 'Cello solo—Mr. Harold Beck, "Adagio Pastorale" (Handel).
8.48: Contralto solo—Miss Belle Renaut, "O, Love from Thy Power" from "Samson and Delilah" (Saint-Saens).
8.52: Vocal quartet—The Melodious Four, "The Madrigal" (German).
8.57: Weather forecast.
9.0: Relay of orchestral selections from Crystal Palace Theatre.
9.15: Bass recitative and aria—Mr. T. D. Williams, "My Country" ("O Mon Palermo") from "Vespri Siciliani" (Verdi).
9.20: Recitals—Miss Lucy Cowan, (a) "Columbus" (Miller); (b) "A Cutting Occasion" (Cowan).
9.26: Contralto solo—Miss Belle Renaut, "Softly Awakes My Heart" from "Samson and Delilah" (Saint-Saens).
9.30: Instrumental trios—Christchurch Broadcasting Trio, (a) "Andante Melodique" (Danela); (b) "Spanish Dance" (Moskowski).
9.40: Tenor solo—Mr. Russell Sumner, "Woman is Changeable" from "Rigoletto" (Verdi).
9.43: Soprano solo—Miss Frances Hamerton, "Recitative and Air, De Lia" from "L'Enfant Prodigue" (Debussy).
9.47: 'Cello solo—Mr. Harold Beck, "Harlequin" (Popper).
9.51: Vocal duet (tenor and bass)—Messrs. Russell Sumner and T. D. Williams, "The Moon Hath Raised Her Lamp Above" from "Lily of Killarney" (Benedict).
9.56: Vocal quartet—The Melodious Four, "The Barley Mow" (German).
10.0: God Save the King.

4YA DUNEDIN (463 METRES)—FRIDAY, JANUARY 20.

3 p.m.: Town Hall Chimes. Afternoon session—Selected Studio items.
3.1: His Master's Voice recital.
3.15: Afternoon tea music from the Savoy.
3.30: Studio music.
4.0: Music from the Savoy.
4.15: His Master's Voice recital.
4.30: Close down.
6.0: Town Hall chimes. Children's hour—Big Brother Bill. Fairy music by Uncle Norman, Sister Joyce on the piano, and Sister Annie will sing. The "Happy Ditty," letters, and birthdays. The Radio Family goes on a trip with Big Brother Bill in the Wonder Car.
7.15: News and reports.
7.30: Address on the "League of Nations."
8.0: Town Hall chimes.
8.1: Tenor solos—Mr. L. E. Dalley, (a) "The Diver" (Macmillan); (b) "To a Rose" (Macfadyen).
8.8: Recital—Miss Sheila Neilson, "The Pedler" (De la Mare).
8.14: Mezzo-soprano solo—Miss C. M. Law, "Open Thy Blue Eyes" (Massenet).
8.18: Bass solo—Mr. J. B. Macpherson, "Till I Wake" (Woodford-Finden).
8.21: Pianoforte solo—Mrs. W. Munro, "Sonata Capriccioso, Second Sonata" (Weber).
8.27: Soprano solos—Miss Roma Buss, (a) "Silver Star of Love" and (b) "Queen of the Philippine Islands" from "Floradora" (Stuart).
8.35: Humorous recital—Miss Sheila Neilson, "Listening In."
8.40: Tenor solo—Mr. L. E. Dalley, "Serenade" from the "Fair Maid of Perth."
8.45: Pianoforte solo—Mrs. W. Munro, "Polonaise in C Sharp Minor" (Chopin).
8.51: Mezzo-soprano solos—Miss C. M. Law, (a) "Big Brother Day" (Tutor); (b) "Night Is Our Sister" (Tutor).
8.57: Humorous recital—Miss Sheila Neilson, "Shopping."
9.2: Bass solos—Mr. J. B. Macpherson, (a) "Less Than the Dust"; (b) "Kashmiri Song" (Woodford-Finden).
9.8: Pianoforte solo—Mrs. W. Munro, "Polichinelle" (Rachmaninoff).
9.13: Soprano solo—Miss Roma Buss, "Oft to the Greenwood" (Brahe).
9.19: Relay of dance music from the Savoy.
10.0: Close down.

Programmes Continued

Saturday, January 21st

1YA AUCKLAND (333 METRES)—SATURDAY, JANUARY 21.

3 p.m.: Afternoon session—Selected Studio items.
4.0: Literary selection, by Mr. Culford Bell.
4.30: Close down.
6.0: Children's hour—Cinderella.
7.0: Close down.
7.15: News and sports results.
7.45: Close down.
8.0: Chimes.
8.1: Relay of orchestral overture from Prince Edward Theatre Orchestra, under the direction of Mr. Howard Moody.
8.11: Vocal quartet—The Lyric Four, "Dance of the Gnomes" (McDowell).
8.15: Tenor solo—Mr. Herbert Richards, "Passin By" (Cadman).
8.19: Instrumental—The Le Pali Duo, popular melodies.
8.24: Humorous recital—Mr. Alan McElwain, some humour.
8.29: Vocal quartet—The Lyric Four, "Afton Water" (Hume).
8.33: Tenor solo—Mr. Arthur Ripley, "A Dream" (Barlett).
8.37: Relay of orchestral selections from Prince Edward Theatre.
8.47: Bass solo—Mr. Ernest Thomas, "The Old Refrain" (arr. Kreisler).
8.52: Humorous quartets—The Lyric Four, (a) "Wimmen"; (b) "Two Flies."
9.0: Weather forecast.
9.2: Instrumental—Le Pali Duo, "Hawaiian Melodies."
9.10: Vocal duet—Messrs. Richards and Thomas, "The Two Beggars" (Lane-Wilson).
9.15: Humorous recital—Mr. A. McElwain, more humour.
9.20: Vocal quartet—The Lyric Four, "Rockin' in the Wind."
9.25: Relay of dance music from Click-Clack Cabaret—Mr. Walter Smith's Click-Clack Radio Orchestra.
11.0: A thought.
11.2: God Save the King.

2YA WELLINGTON (420 METRES)—SATURDAY, JANUARY 21.

3 p.m.: Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
5.0: Close down.
6.0: Children's hour—Auntie Gwen, Auntie Dot, and party.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Coppelia Ballet, Prelude and Mazurka" (Delibes).
8.5: Vocal quartet—Melodie Four, "Peter the Cat" (Eastman).
8.9: Instrumental trio—Symons-Ellwood-Short Trio, "First Movement, Trio in E Flat" (Hummel).
8.19: Bass solo—Mr. W. W. Marshall, "A Bachelor's Love Song" (Slater).
8.24: Tenor solo—Mr. Frank Bryant, "Bird Songs at Eventide" (Coates).
8.29: Piano and 'cello duet—Mr. Gordon Short and Mr. Geo. Ellwood, "Andante" from "Grand Duo" (Gofferman).
8.39: Baritone solo—Mr. R. S. Allwright, "The Ringers" (Lohr).
8.44: Vocal duet—Messrs. Williams and Marshall, "The Two Beggars" (Lane-Wilson).
8.50: Pianoforte solo—Mr. Gordon Short, "Concert Study in D Flat" (Liszt).
8.55: Tenor solo—Mr. C. A. Williams, "In the Wood" (Franz).
8.59: Vocal quartet—Melodie Four, "Ukulele Dream Girl" (Low).
9.3: Weather forecast.
9.5: Lecturette—Mr. G. A. Troup, Mayor of Wellington, "The Anniversary of Wellington Province."
9.21: Jazz and dance items.
11.0: Close down.

3YA CHRISTCHURCH (306 METRES)—SATURDAY, JANUARY 21.

6 p.m.: Children's hour—Uncle Sam, bed-time songs, stories, letters, and birthday greetings.
7.15: News and reports.
7.30: Sports results.
8.0: Chimes. Relay of orchestral selections from Liberty Picture Theatre Orchestra, under the direction of Mr. Ernest Jamieson.
8.15: Concert of miscellaneous items by the International Concert Party.
Choruses—International Choir, (a) "The Mermaid" (Watson); (b) "The Red, White, and Blue" (Arne).
Recital—Mr. David Dickson, "The Problem" (Wingate).
Choruses—International Choir, (a) "Duncan Grey" (traditional); (b) "My Love, She's But a Lassie Yet" (traditional).
Vocal solo—Mr. J. Wilson, "Border Ballad" (Cowan).
Choruses—International Choir, (a) "Cook Robin"; (b) "Jingle Bells" (Pierpont).
Vocal solo—Miss Netta Dickson, "Break o' Day" (Sanderson).
Choruses—International Choir, (a) "Kingdom Coming" (Work); (b) "Camptown Races" (Foster).
Instrumental trios—Christchurch Broadcasting Trio, (a) "Romance" (Bridge); (b) "Rondo Alla Turka" from "Trio, Op. 22" (Hummel).
Vocal solo—Miss Lewis Dickson, "McGregor's Gathering" (Lee).
Pipe solos—Mr. J. McLachlan, "The Road to the Isles" (traditional); (b) "The Marchioness of Tullibardine" (traditional).
9.0: Weather forecast.
9.1: Relay of orchestral selections from Liberty Theatre.
9.15: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, selected.
9.18: Instrumental trios—Christchurch Broadcasting Trio, (a) "Serenade" (Liebe); (b) "Waltz" (Carreno).
9.28: Soprano solo—Miss Mabel Thomas, "Come per Me Sereno" (Bellini).
9.31: Tenor solo—Mr. David McGill, "Land of Long Ago" (Ray).
9.34: Instrumental trios—Christchurch Broadcasting Trio, (a) "The Wood Nymph" (Lind); (b) "Abenlied" (Schumann); (c) "Gavotte" (Sinding).
9.44: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, selected.
9.47: Soprano solo—Miss Mabel Thomas, "Down in the Forest' (Ronald).
9.51: Choruses—International Choir, (a) "Over the Sea to Skye" (Barnett); (b) "The Three Crows."
9.57: Tenor solo—Mr. David McGill, "Macushla" (Macmurrough).
10.0: Final solo and chorus—Miss M. Frost and International Choir, "Mister Baggy Breeches" (Direwski).
10.4: Relay of dance music from Caledonian Hall (by kind permission of Canterbury Caledonian Society and Mr. Reg. Stillwell)—Music by Jackson's Orchestra.
God Save the King.

4YA DUNEDIN (463 METRES)—SATURDAY, JANUARY 21.

7.15 p.m.: News and reports.
7.30: Address on "Interior Decoration," by Miss M. Puechegud.
8.0: Town Hall chimes.
8.1: Relay of orchestral music from the Empire Theatre Orchestra, under the direction of Mr. Chas. Parnell.
8.11: Tenor solos—Mr. R. A. Mitchell, (a) "Dolorosa" (Phillips); (b) "Romance" from "Martha" (Flotow).
8.18: Cornet solo—Mr. George Christie, "Till the Sands of the Desert Grow Cold" (Ball).
8.22: Contralto solo—Miss Irene Horniblow, L.R.A.M., "The Sands of Dee" (Clay).
8.26: Violin solo—Mr. A. Watson, "Melody" (Bartelet).
8.31: Baritone solos—Mr. Arthur Lungley, (a) "Roses of Picardy" (Wood); (b) "Uncle Rome" (Homer).
8.37: Relay of orchestral music from the Empire Theatre.
8.48: Flute solo—Mr. Chas. E. Gibbons, "The Mascot" (Audran).
8.55: Soprano solo—Miss Letty de Clifford, "Rose of My Heart" (Lohr).
9.0: Town Hall chimes. Weather forecast.
9.2: Cornet solo—Mr. George Christie, "Inspiration" (Hume).
9.8: Tenor solo—Mr. R. A. Mitchell, "Land of the Leal" (Nairn).
9.12: Violin solo—Mr. A. Watson, "Valse Triste" (Sibelius).
9.17: Contralto solos—Miss Irene Horniblow, (a) "The Sweetest Flower" (Hawley); (b) "Love Was Once a Little Boy."
9.24: Piccolo solo—Mr. Chas. E. Gibbons, "Birds of Spring" (Gibbons).
9.30: Baritone solo—Mr. Arthur Lungley, "God Have Mercy" from "St. Paul" (Mendelssohn).
9.34: Cornet solos—Mr. George Christie, (a) "Because" (d'Hardelot); (b) "When Song is Sweet" (Sans-Souci).
9.40: Violin solo—Mr. A. Watson, "Tempo di Minuetto" (Kreisler).
9.44: Soprano solos—Miss Letty de Clifford, (a) "Farewell to Summer" (Johnston); (b) "The Second Minuet."
9.50: Flute solo—Mr. Chas. E. Gibbons, "Air Varied on Home, Sweet Home."
10.0: Close down.

Sunday, January 22nd

1YA AUCKLAND (333 METRES)—SUNDAY, JANUARY 22.

3 p.m.: Afternoon session—Selected Studio items.
4.0: Literary selection by Mr. Culford Bell.
4.30: Close down.
6.0: Children's service, conducted by Uncle Leo.
6.45: Close down.
6.55: Relay of church service from Pitt Street Methodist Church. Preacher, Rev. L. Dalby. Musical director, Mr. W. Leather.
8.30: Selected Studio items.
9.30: A thought.
9.32: Close down.

2YA WELLINGTON (420 METRES)—SUNDAY, JANUARY 22.

6 p.m.: Children's song service, conducted by Uncle Ernest.
6.55: Relay of evening service from Church of Christ, Vivian Street, Wellington. Preacher, Pastor W. G. Carpenter. Choirmaster, Mr. Will J. Mason.
8.30 (approx.): Studio concert.
Quartet—Etude Quartet, "The Heavens Proclaim Him" (Beethoven).
Soprano solo—Miss Gretta Stark, "How Beautiful Are the Feet" (Handel).
Quartet—Symons-Ellwood String Quartet, "First Movement, F Major Quartet" (Dvorak).
Tenor and vocal quartet—Mr. Frank Skinner and Etude Quartet, "Seek Ye the Lord" (Roberts).
Contralto solo—Miss Rita Arnold, "He Wipes the Tear" (Lee).
Instrumental quartet—Symons-Ellwood String Quartet, "Canzonetta" (Mendelssohn).
Baritone solo—Mr. Ray Kemp, "Lead, Kindly Light" (Evans).
Instrumental Quartet—Symons-Ellwood String Quartet, "Valse Triste" (Sibelius).
Quartet—Etude Quartet, "The Day is Gently Sinking to a Close" (Smart).

3YA CHRISTCHURCH (306 METRES)—SUNDAY, JANUARY 22.

5.45 p.m.: Children's song service from 3YA Studio, by Uncle Sam, assisted by choir of the New Brighton Presbyterian Sunday School.
7.15: Relay of evening service from Addington Show Grounds—South Island Conference, Seventh Day Adventists. Speakers: Mr. A. G. Stewart (of Sydney), vice-president of their Island Fields; Ratu Sailosi, Fijian Chief. Subject: "The Triumph of the Gospel in Cannibal Islands." Conductor, Mr. Llewellyn Jones. Organist, Mr. Phil Kilroy.

4YA DUNEDIN (463 METRES)—SUNDAY, JANUARY 22.

5.45 p.m.: Children's song service, conducted by Big Brother Bill, assisted by Choristers from St. Paul's Cathedral.
7.0: Relay of evening service from the Methodist Central Mission. Preacher, Rev. W. H. Hocking.
8.10: Relay from St. Kilda (weather permitting) of concert by the St. Kilda Band. Conductor, Mr. James Dixon.
9.10: Close down.

It cannot be over emphasised that the bearings of a variable condenser should be carefully designed. They should be large, capable of adjustment for wear, and so made that the movement of the rotating vanes is perfectly smooth. A fibre or ball thrust aids in accomplishing this, but there is no need for the ball bearings of the usual type, for the simple reason that a properly-adjusted ball bearing is quite free, and a certain amount of friction must be introduced by tightening up the ball-races, or otherwise, in order that the vanes may stay in any given position.

A good conical bearing in a variable condenser fills the bill absolutely, since with it both side and end play can be eliminated. The operating end of the spindle should be plain ¼in. in diameter. If all manufacturers would standardise this, knobs and dials could be made perfectly interchangeable. Finally, we wish to emphasise the fact that the days of the condenser employing a screwed spindle running in plain bearings are definitely over, says an English authority.

The Dutch short-wave station PCJJ at Eindhoven, which had been closed down for six weeks pending removal to Hilversum, has reopened for a few weeks at the request of listeners from all over the world.

A resident in Cobdogla, on the banks of the River Murray, has a cockatoo which screeches out "3LO, Melbourne," after hearing that station for some months.

A "dry" joint is a soldered connection which is not electrically joined owing to the presence of a thin film of resin, for instance, between the two metal surfaces. Such joints often appear perfect as far as can be seen, but generally a pull with a pair of pliers or a jar will expose the weakness. If in trouble look for "dry" joints.

MR. REG. RICHARDS.
Mr. Reg. Richards, one of the younger baritones in Dunedin, has in public concert work reached a very high standard with his fine voice. Mr. Richards has enjoyed many successes in the competitions, both in Dunedin and elsewhere, and is a regular performer at 4YA.

The scratching and scraping noises heard in the loudspeaker are not always due to static or atmospherics. Disconnect the aerial and earth from the set, and if you hear the unpleasant sounds with the same volume, it is probable that the noises emanate from the receiver. Look first at the battery connections; they may be dirty.

Marconi's Wireless Telegraphy Coy. have obtained a British patent covering an invention relative to loudspeakers. The device consists of a plurality of nested sections resembling buckets of various sizes, which are fitted into one another, thereby effecting faithful and uniform amplification of all the audible frequencies without distortion.

It is sometimes hard to locate the screw holes for condensers and other instruments to be mounted on a panel without the aid of a drilling template. Here is a simple way to locate the position for these holes:—Locate and drill the hole for the centre shaft of the condenser. Then place the instrument on the panel with the shaft protruding through the hole and rest it in exactly the position you wish it to occupy. Sprinkle a little white powder or flour around the screw bushings and then carefully lift up the condenser without disturbing the panel. The powder will form little circles, the centres of which may be marked with a sharp centre punch.

Corrosion is a noise producer in two ways. 1—It makes for a defective connection; 2—It is quite likely to eat through the insulation of battery cables and eventually produce a break in the wire. Such matters should be looked into carefully. So in the testing of battery equipment make certain of voltage and charge; see that tops are clean and dry; see that connections are tight and not corroded; remove corrosion if any by wiping with liquid ammonia; inspect wires for corrosion and open circuits; replace leads and clips that prove effective.

CHURCH SERVICES

MEANS OF ASSISTANCE.

In the issue of October 7 last, Mr. B. T. Watkinson, of 205 Lichfield Street, Christchurch, wrote in appreciation of the broadcasting of religious services, dealing particularly with the point of the possible effect of such broadcasting interfering with church funds. As some protection from such an outcome, Mr. Watkinson advised that he had instituted the practice in his own home, where church services were particularly appreciated, of maintaining a collection box inscribed "Church services and voluntary contributions for helping the church to broadcast." The practice was made of passing this box round each Sunday at the same time that the church collections were taken up, so that all those members of the household and friends who were enjoying the broadcast service might contribute.

In his letter of October 7 Mr. Watkinson invited correspondence from others interested in the subject, and now advises that since that time he has received a large number of letters from sympathisers, and has decided to institute a fund so that those who are desirous of helping in this way may do so. Mr. Watkinson has sought and secured the consent of the Mayor of Christchurch, the Rev. J. K. Archer, to act as treasurer of the fund referred to, it being understood that Mr. Watkinson will relieve the Mayor of all possible detail work.

We have every confidence in assuring the bona-fides of Mr. Watkinson, and the fact that the Mayor of Christchurch is associating himself with the fund assures contributors that the expenditure will be wisely and carefully allocated.

The position, therefore, is that those of our readers and listeners in general who have felt the benefit from the broadcast of church services, and desire to give as well as receive, may make contributions direct to Mr. Watkinson at the address given—206 Lichfield Street, Christchurch—in the full assurance that those contributions will be usefully employed.

French Radio Conference.

At the fourth annual Radio Conference held in Paris it was stated that broadcasting in France is in a most unsatisfactory position, largely on account of the reluctance of the French Post Office to allow private enterprise to undertake the formation of a station.

Tuning condensers are more efficient when separately controlled, provided the operator knows how to use them. Some of the better sets have the condensers mounted so that a single knob turns them all, but with individual controls for fine adjustment.

MICROPHONE FRIGHT

STRANGE EXPERIENCES.

It is surprising that people who have spent a lifetime on the stage should suffer with "nerves" when they face the microphone. In fact it is the experience of broadcasters that many prominent artists are utter disappointments for broadcasting, and simply because they get "mike fright."

Rupert Hazell, who made such a remarkable "hit" at 3LO Melbourne, said that when he faced the little "black perforated contraption" he wanted to say "everybody happy," as he always did, but felt so horribly unhappy himself that he could not get the words out. However he made up for it as he gained his "air legs," and wound up by being perhaps the greatest radio comedian 3LO has ever had.

Madam Elsa Stralia, who has sung over and over again to Royalty of all nations, showed decided signs of "nerves" in facing the mike, even after she had been broadcasting for months, and Stephanie Deste, who, in a semi-nude make up as "Wanda" in "Rose Marie" faced huge audiences nightly without a sign of nerves, became "mike stricken" until the ordeal of speaking into the little "patch of black infinity" had become familiar.

The late Lee White, who was loved by hundreds of thousands of listeners to 3LO for her charming personality, was strangely nervous when broadcasting and never really got used to what she always regarded as an ordeal, although it was impossible to detect the slightest sign of nervousness in listening to her remarkable performances.

One speaker at 3LO Melbourne, who was a prominent orator became absolutely tongue tied before the mike, and his talk had to be abandoned, and Mr Lawson, when Premier of Victoria, experienced a spasm of nervousness the first time he broadcast. The Prime Minister (Mr. Bruce), however, is very placid and calm with "mike," and they are now quite old friends. Mr. Bruce, by the way, is regarded as the best political broadcaster in Australia.

CORRECTION

In last week's issue, there appeared a summary of a wireless talk on Balloon and Pigeon Posts given by Mr. W. Peers, of the Christchurch Philatelic Society from 3YA on January 5. Through an oversight, this was wrongly credited to Mr. L. Vernazoni instead of Mr. Peers. Mr. Vernazoni's talk will be given on January 19, and will be entitled "Stamps Worth Fortunes."

If a crystal decreases in sensitivity it is often found that it can be restored by clipping a small piece off it and thus exposing a new surface. Never touch a crystal with the bare fingers. Hold it with a pair of clean tweezers or small pliers.

Mainly about Construction

BY "MEGOHM"

Push-Pull Amplification

THE SYSTEM EXPLAINED

The advent of super-power valves and high-grade audio transformers has for a time rather caused the push-pull amplifier to be neglected, but in the continual search after volume combined with quality, this system is quite likely to once more spring into favour.

The feature of this amplifier is that, following an ordinary transformer-coupled stage, two transformers with centre-tapped secondary windings are suitably coupled to two similar power-valves, so that the whole forms one stage of amplification, giving full-wave rectification of signals, instead of the usual half-wave rectification in ordinary stages. This is a non-technical idea of the general principle.

Now an attempt will be made to set forth the action of the push-pull amplifier in as simple a manner as possible. It may be stated here that the object of the amplifier is, not so much amplification as the elimination of distortion, but as this elimination allows greater volume to be taken advantage of, the greater amplification is thus obtained, even if in an indirect way.

Referring to the diagram, the input transformer, T1, is seen on the left. Both transformers are similar to the usual audio transformer, with the exception that the secondary winding of one and the primary of the other is provided with a centre tap. Needless to say, quality in these transformers is a highly essential feature, otherwise quality might be lost rather than gained. The transformers are retailed in pairs, one alone being of no use. The output of the previous valve is fed into the primary of T1. Each end of the secondary winding is connected to the grid of its respective amplifier valve, and the centre-tap to both valve filaments, a grid-bias battery, D, being inserted in this lead as shown. The output of these two valves is then passed through the centre-tapped primary of T2. The secondary of this transformer is then connected to the loudspeaker, acting in the same way as an ordinary output transformer, so that no direct current passes through the speaker windings.

It is in the output circuit that the so-called "push-pull" action takes place. The special input transformer is required merely for the purpose of dividing the input between the two valves.

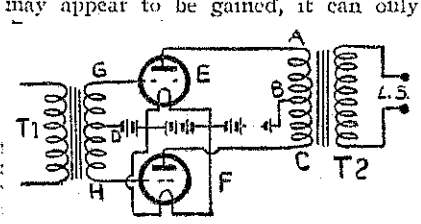
Suppose the current flowing from the tapping-point B to the point A is slightly decreased, this causes a slight decrease in the magnetic field produced by the plate-current flowing into the valve E, so that less opposition will be offered to the flux produced by the current flowing from B to C. In other words, a slight decrease of current from B to A will give a slight increase from B to C, so that a decrease on one side of the primary adds to the effect of the current on the other side.

Put in another way, when the terminal of coil G is positive, its valve grid is positive, but the grid end of coil H and its valve grid are at the same instant negative. So while the grid of valve E is positive, this valve is delivering heavy current through coil A, and while the grid of valve F is negative, it cannot deliver any current through its plate coil C. The current in A then induces a proportional current in the secondary winding.

When there is no voltage induced in coils G and H, the plate currents neutralise each other, and no output current is induced in the secondary of T2. With the opposite direction of the return half of the oscillation, the reverse action takes place, the grid and coil of valve E now become negative, and the grid and coil of valve F positive, inducing by means of coil C a current in the secondary of T2.

GRID SWING DOUBLED.

In the case of connecting two valves in parallel, and a.c. resistance is halved, but the amplification factor remains the same, and although extra amplification may appear to be gained, it can only



be very slight, as the grid swing is not increased.

The effect of push-pull is to double the grid swing which would be obtainable with the use of one valve alone in the ordinary manner.

Take separately, the oscillations in the coils A and C would produce characteristic curves showing distortion, but when the two oscillations are added together as they are in the secondary of the output transformer, the resulting curve is symmetrical and free from distortion, the elements contributing to distortion acting in opposite directions, cancelling one another.

Although ordinary small power valves may be used in the push-pull amplifier, it is now being constructed with two power valves of the 171 type, and with 180 volts on the plates, these will deliver to the speaker as much energy as one 210 type valve with 350 volts on the plate. Whether 120 type dryseil or other tubes are used, the amplifier will always give good and proportional results.

For efficiency, of course, all parts should be as low-loss as possible, and the wiring be well spaced. It is difficult to conceive how any cramped, high-capacity short-wave receiver can compete with one neatly laid out, all parts given the proper spacing, and the amplifier portion kept to itself. Soldered joints well made will help efficiency a lot.

A.C. VALVE OPERATION

A RESUME OF THE POSITION

The principle that allows of alternating current being used for filament heating is that of "thermal inertia." The degree of temperature variation depends upon the heat-storing capacity of the filament in relation to its heat-dissipating ability, so that in operating ordinary valve filaments with unrectified and unsmoothed a.c. the most efficient will be those filaments that have sufficient "thermal inertia" or bulk, which is almost its equivalent, to retain full emission heat between one cycle and the next. It has been shown that the amount of temperature hum is greatest from thin, low heat capacity filaments such as the 199 type, and smallest in the heaviest filaments such as those in the 112 type of tube. For this reason the heating of the filament of the last power valve with raw a.c. is a simple proposition, the chief precaution being to twist the leads together to prevent the hum reaching other parts of the circuit by radiation or induction.

It has also been shown that the amount of temperature variation depends not alone upon the ratio of surface or radiating area to the mass of the filament, but also upon the actual operating temperature of the filament itself. As radiation losses are the chief factor in lowering temperature during the periods of small or no current, it is seen that very low temperatures, that is dull emission valves, greatly facilitate temperature stability. It has also been found that a V-shaped filament conduces to hum more than a straight one.

CONCERNING THE FILAMENTS.

Coming now to actual a.c. operation of a whole set, there are two outstanding types, first those in which the a.c. is rectified and smoothed and then used to heat filaments of ordinary valves, and second those using special valves either of rugged filament or heater element type, either of which operates with raw alternating current. In either type, however, the voltage is usually reduced by a step-down transformer, and this enables the filaments to be wired in parallel in the ordinary way. When ordinary valves are used, some systems necessitate the filaments being wired in series, which is usually a more economical scheme, as the amperage required by the filaments is thereby much reduced, although the voltage required increases for each valve used according to the filament requirement, which must be the same for each.

As ordinary power-valve filaments may be run quite well on raw a.c., one of these may be used in the last stage instead of a special a.c. valve.

A number of firms make filament heating transformers, including Amestran, Dongan, Modern, National, Silver-Marshall, Thordasson, and General Radio. The voltage taps on all these except the last are 1.5, 2.5, and 5.0 volts. The General Radio transformer taps are 2, 3.5, 5.0, and 7.5 volts. In some cases the voltages of two taps are connected in series, so that they add together to suit certain valves.

The filament type of a.c. valve costs less, and has a longer life than, the heater type, but the latter has a lower inter-electrode capacity, which is desirable in a neutralised circuit. Grid bias is essential on the R.F. valves, when the filament type is used, and should be a little more negative than on the A.F. side, but if a slightly lower plate voltage is employed on the R.F., then the same bias can be used as on the A.F. Any type of audio amplification can be employed with excellent results.

THE DETECTOR.

Either heater or filament type may be used as a detector, but the UY227 type of heater has several advantages over the filament type, from which there is a slight but not objectionable hum. The heater tube may be used with either grid-leak condenser arrangement or with C bias, and although the filament type will function quite well with the same arrangement, is better suited for plate rectification. Plate rectification, however, is not as sensitive as grid-leak condenser, and leads to other complications. The Kellogg a.c. tube is an excellent detector for circuits such as the Browning-Drake. A bias up to 10 volts must be available for a heater type detector.

LEADING MAKES OF VALVES.

The following are the leading makes of a.c. valves at the present time:—

HEATER TYPE.

	Filament Volts.	Amps.	Amplification.
C327	2.5	1.75	7.8
UY227	2.5	1.65	8.7
McCullough ..	3.0	1.0	8.6
Sovereign ...	3.0	1.5	8.5
Marathon ..	5.5	1.0	7.3
Arcturus	15.0	0.35	10.5
Magnatron ...	2.5	1.50	9.3
FILAMENT TYPE.			
CX326	1.5	1.05	8.5
UX226	1.5	1.05	8.7
Armor	1.0	2.4	7.8
Van Horne ...	1.0	2.0	9.0
Ce Co	1.5	1.05	9.2
Magnatron ..	1.5	1.05	8.8

The plate voltage on all the above is 90 volts for both types and the grid bias minus 4.5.

In adapting a.c. operation to the Browning-Drake a different method of neutralisation has to be adopted by which the plate voltage is fed to the R.F. valve through a cored choke coil instead of through the primary of the R.F. transformer. For the audio stages is recommended an impedance incorporating an R.F. choke, second stage resistance coupling, and last stage a special arrangement of resistance and impedance to eliminate any tendency to "motor-boat" when used with a B power unit.

The UY227 and CY327 are listed at six dollars in America, and the CX326 at nine dollars.

The above brief particulars have been compiled by "Megohm" with the idea of giving readers an outline of the system employed and the valves used for a.c. operation. The first complete a.c. operated receiver in New Zealand arrived in Wellington a few weeks ago. It is probable that in a short time some of the makes of valves mentioned above will be on the market here.

It is not advisable to attempt to increase output of certain factory-made reflex sets by substituting a power-valve for the last audio. Such a change, with the appropriate grid bias and plate potential may render the radio-frequency amplifier quite unstable.

The Selective Crystal Set

CONSTRUCTING AS A WAVE-TRAP

The R.R. selective crystal set described last week answers quite well as a wave-trap for valve sets, rendering them just as selective as the crystal set itself at the most selective setting, which used as a trap on the four-valve Browning-Drake at two miles from 2YA, cuts out that station with a movement of the dial of two degrees either way.

Many constructors near a main station will prefer to construct the set complete with crystal as shown. This can then be used as a wave-trap, and in case of trouble with the set or during alterations is always available as a stand-by receiver. For use as a wave-trap the 'phones are not required, the aerial is connected to its usual terminal at the right, and the earth terminal is connected to the aerial terminal of the valve receiver. The crystal need not be plugged in, and earth is plugged into socket 6, and aerial usually into socket 5. Then tune in the unwanted station on the valve set, and with the trap condenser tune the unwanted station to minimum strength possible. The trap is then left permanently set if only one interfering station has to be dealt with. Any wanted station can then be tuned in on the valve set without interference, except upon wave-lengths very close to that of the unwanted station.

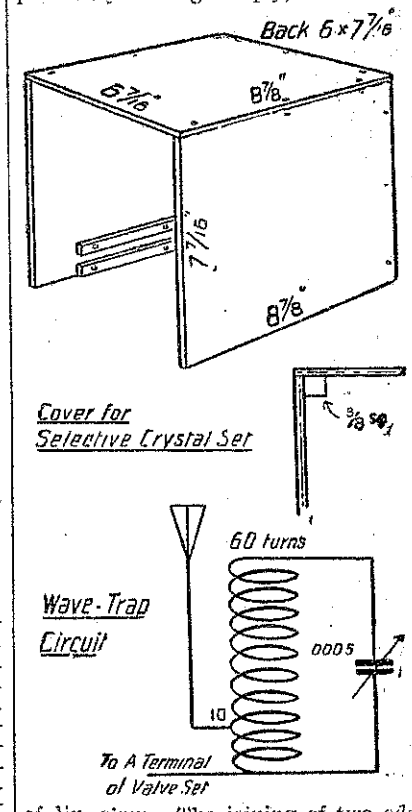
CONSTRUCTING AS A WAVE-TRAP ONLY.

Construction as a wave-trap only dispenses with the telephone and crystal connections, and for most situations a permanent aerial tap at the 10th turn of the coil will be all that is required. It would be a good plan when installing the trap to test the aerial connection to the 18th turn also, as although rather less selective at this setting, it might be more suitable for certain conditions. Once this has been decided, the connection can be permanently soldered to either position. The 10th turn will be the best where the distance from a main station is not great. Tested on a very unselective one-valver that brought in 2YA all over the dial at two miles, this trap gave it selectivity that cut 2YA out at four degrees either way.

Constructors will please themselves in the method of fitting up the wave-trap, but a neat accessory will be the result if it is housed in the cover as shown, with panel minus sockets and 'phone clips. The aerial terminal would then be permanently connected behind the panel to the coil tap and the "earth" terminal to the bottom of coil. This terminal then connects to the aerial terminal of valve set.

MAKING THE COVER.

For the assistance of constructors making the cover, the description of a simple method is given here, with sizes that will serve as a good guide, though care must be taken to allow for any deviation from size in panel or base-board. The cover sizes will fit a 6in. by 7in. panel, and 6in. by 8½in. baseboard. The top and sides are made preferably of Oregon 3-ply, and the back



of ⅜in. rimu. The joining of two edges of 3-ply at the top corners is effected by screwing each piece to a strip of wood ⅜in. square, placed inside the corners and short enough to allow for the thickness of the panel. Two strips ⅜in. by ¼in. shortened to allow the width of the front batten of baseboard, are screwed to the inside of each side as shown, and into these the receiver slides. A coat of shellac gives a suitable finish. If a strut is placed at the side of the panel it is to be set in sufficiently far to clear the running strips inside the cover.

This is quite a useful wave-trap for New Zealand conditions, and will be found a tremendous improvement on an unselective receiver.

Three dozen ⅜in. No. 4 brass screws will be required.

Construction Continued

ANSWERS TO CORRESPONDENTS

"Choke" (Seatoun): For the Reinartz one-valve the R.F. choke should have not less than 150 turns of 40's enamel, but probably more will be required. The best way would be to wind 300 turns and tap at 150, 200, 250. The tapping only means twisting a loop in the wire, scraping clean to make contact for testing.

CRYSTAL JOTTINGS

Recently the idea was mentioned of having several cat's-whiskers bearing on the crystal, each whisker being connected to one stud of a multi-point switch. In order to keep the cat's-whiskers in place once the sensitive spots are found, a small piece of gauze-like material is stretched over a ring, and this is fixed above the crystal. A cat's-whisker is put through one hole after another, and when a sensitive spot is found, is held there by the gauze.

Crystal detectors, especially those employing some form of galena material, are apt to become insensitive and difficult to adjust after a time owing to the surface of the crystal becoming slightly tarnished by exposure to the air. By breaking one or two small fragments off the crystal a fresh and active surface is exposed which, with most crystals, will be found to be as good as the original surface of a new crystal. The same is true of the cat's-whisker when this is made of some base metal such as brass or a poor quality of gold which is likely to tarnish. If the tip of the cat's-whisker is cut off with a clean pair of scissors a clean cross-sectional surface is exposed; this often improves the sensitivity and stability of the detector noticeably. Of course this does not apply when the cat's-whisker is made of some non-tarnishing metal.

It is a well-known chemical fact that native galena, when heated to 950 degrees in vacuo or in a current of inert gas such as nitrogen or argon, melts and sublimes and collects in the form of brilliant cubical crystals. This process is often taken advantage of in the manufacture of synthetic galena crystals, but, of course, it is considerably improved and refined in details.

Another method of "treating" galena consists in rapidly cooling the mineral after it has been melted out of contact with air. Under these conditions very fine crystals are obtained. Galena, it must be noted, is always heated out of contact with air, otherwise it would become oxidised and converted into lead sulphate—a totally different substance.

A good idea which won a prize in a wireless competition some while ago in an American magazine was to have several cat-whiskers bearing on the same crystal, the various cat-whiskers being taken to studs of a switch, so that by moving the switch arm you could choose very rapidly one point or another according to which was the best.

Many of the crystals ordinarily used as wireless detectors are sensitive to the incidence of light waves, and in particular galena and argentite (sulphides of lead and silver respectively) show this effect in a more or less marked degree.

Crystals also will be affected by heat, and both heat and light have the effect of producing a difference of potential between the crystal and the metal contact. It is not known with any certainty what is the exact mechanism of these effects, but it is very probable that they are directly related to the rectifying properties of crystal contacts for alternating electric currents.

The golden scale which is often found on certain specimens of ordinary coal is ofter quite a good rectifier of high-frequency impulses. But only the golden portion is conductive, so the mount as well as the cat's-whisker must contact the metallic surface.

The surfaces of crystals can be cleaned by placing the crystals in a bottle containing a small quantity of coarse but perfectly clean and dry sand. Cork the bottle, and then give the contents a vigorous shaking for a few minutes. Any dirt or tarnish on the crystal surfaces will be completely removed by this simple process.

TIPS AND JOTTINGS

Any type of valve rectifying charger will give better service if the valve is taken out occasionally and the legs cleaned with glass paper.

Accumulator acid spilt on a carpet will cause a red patch that in a few days will burn into holes. Trying to remove the acid with a damp cloth is useless. Finely powdered washing-soda should at once be sprinkled over the patch, rubbed well in and left until all gassing has ceased. Ordinary chalk is another neutraliser. In case of getting strong acid on the hands, wash them at once in a copious flow of water under the tap, and then in a weak ammonia or weak washing-soda solution.

Ordinary three-ply wood makes quite a good panel for a receiver, but it should be thoroughly dry.

Most of the receiving sets now described in the American radio journals operate with A.C. valves, dispensing with the usual A battery. At least one dealer in Wellington is now expecting a shipment of A.C. valves, the UX226 amplifier and UX227 detector.

Where the output of a receiver is fairly heavy, from a super-power valve of the 171 or 256 type, a specially-made choke coil will form a much better output filter than will an old audio transformer.

Care should be taken that a modern high impedence audio transformer is not used in conjunction with a valve taking such a heavy anode current that the transformer core is even partially saturated magnetically. In such a case the quality of reproduction would suffer. If the smoothing inductance in a B eliminator carries a current that saturates the iron core, the inductance value is reduced and the smoothing effect is lost.

Now that the tendency is to speak of "frequencies" rather than "wavelength," a suggestion has been submitted to the Radio Commission in America to do away with both terms so far as the ordinary listener is concerned. The idea is to divide the ordinary broadcast band, which, of course, would also mean the receiver dials, into 96 spaces, to be known as "channels." A station would then announce its transmission as being upon, say, "channel 16," instead of upon so many metres. The suggestion is good in that it gives a clear run of easily remembered two-figure numbers, but to make the system complete, the receiver should be calibrated correctly so that "channel 16" would be found at the number 16 on the dial, and not at 14 or 20.

A COUNTERPOISE TO CUT OUT INTERFERENCE

A counterpoise can in many cases give much better results from the point of view of selectivity than an earth connection, and also the use of a counterpoise does much to eliminate noises due to earth currents which may be set up by a neighbouring tramway or any other electrical power of lighting system.

A good counterpoise may be made by stretching several wires at a distance of a few feet from the earth, underneath the aerial, the wires being parallel to the aerial and stretching, if possible, to a greater length than the aerial wire or wires. Needless to say, these counterpoise wires should be well insulated and connection must be made to the earth terminal of the set. This is a proper counterpoise, though it will be realised that such an arrangement is impossible to some readers; but it should be pointed out that in the case of interference from tramways, etc., such as we have mentioned, which is often due to earth currents, much can be done toward the elimination of the trouble by simply removing the earth connection from the set and attaching about 30ft. or so of rubber-covered wire to the earth terminal of the set, the wire being led away anywhere, such as under the carpet or round the skirting board of a room, the far end being left "free" and not connected to anything. This simple remedy will often cure an obstinate case of interference, and at the same time will often greatly improve selectivity, though it will tend to reduce volume in distance.

NOTES ON THE REFLEX

The beginner is apt to lose sight of the fact that the reflex or dual amplification principle, by means of which a valve is made to amplify at both high and low frequency, was devised purely as an economy measure. The most fervent advocate of this system could hardly affirm that a reflex receiver is better than a "straight" circuit, in which the same operations are carried out by separate valves. Indeed, most of them would be ready to admit that it is not quite as good.

Bearing this fact in mind, it will be realised that the introduction of better, cheaper, and, above all, more economical valves (upkeep is even more important than initial cost) tends to discount the previous advantages of the reflex receiver, and to account for its present decrease in popularity. It must be admitted, however, that these circuits are interesting, and for this reason will probably have a following for some time to come. Furthermore, it cannot be denied that a reflex receiver can give amplification, from the point of view of quality, indistinguishable from that obtainable from a "straight" set under average working conditions. Such results, however, will only be obtained when the "dual" receiver is really well designed, well constructed, and, generally speaking, operated by someone with considerable theoretical knowledge of the subject.

Overloading on a reflex set is not permissible. If the set happens to be of a type with a highly efficient R.F. system, a peculiar croaking noise will be heard on loud notes. This is due to the A.F. causing grid current, which severely damps the R.F. transformer and interferes with the incoming signal. Because of this characteristic, reflex sets are instructive, as one learns to associate a certain volume with a certain grid swing, and can be quite sure that if the set is only just not "croaking" that the grid bias is being used to its full extent. The grid swing will be about twice the value of the bias battery.

CHOOSING VALVES.

In choosing a radio-audio valve for reflex work, the matter must be looked at from the quality or audio point of view. In nearly every case the audio-frequency load following a reflex valve will be an inter-valve transformer or a loudspeaker, so that choice is limited to a valve with an a.c. resistance of 30,000 ohms in the former case, and, say, 3000 to 6000 ohms in the latter. The 3000 ohm class will be the best, and the 6000 ohm the next best. If maximum amplification of weak signals on 'phones is desired, one of the new valves designed for resistance coupling and having an amplification factor of 40 for an a.c. resistance of 70,000 ohms should be used. But with such a valve quality of reproduction on any but weak signals will not be good.

THE SHORT-WAVE CONVERTER

For best results in using the short-wave converter it is necessary to provide two fixed condensers of one microfarad each, to be placed as shown in the diagram of the three-valve circuit. One is placed across the full high-tension battery and the other across the high-tension output to the detector valve.

There is no reason against using an earth connection if it is found to give any improvement in reception.

Sometimes an experimenter finds the necessity for drilling a hole in glass, but the operation appears to present many difficulties. Here is a clipping from an American paper, purporting to give away a trade secret which "makes all the difference" in the successful drilling of glass plates. Here it is: "I have drilled as many as 100 holes per hour in opalite—so hard that an ordinary glass cutter will not touch it. Many holes are only one-quarter of an inch from the edge of the plate, but I never cracked a glass panel while drilling. Nine-tenths of the success depends on the drill, and one-tenth on the way in which it is used. The drill is made by running-down the tip of a three-cornered file so that the point is off-centre, and this seems to be the essence of the secret." But the matter of lubrication is just as important. Turpentine is usually recommended, and it is necessary, to avoid cracking, to ensure continuous lubrication of the file tip used as a drill. This is ensured by building a tiny wall of wax or putty round the position for the hole, and into this a few drops of turpentine are poured. Thus the point of the tool is continuously lubricated, and the danger of an accident is practically eliminated.

For a water-pipe earth connection it is a good plan to put two clamps on the pipe and solder the end of the earth wire to each. Iron pipe, although large in diameter, has a high resistance to radio-frequency currents, and causes losses, so that it is not good for the currents to traverse long lengths of piping before entering the ground. When using a buried plate of any kind, it is important that the copper wire lead should be soldered to the earth-plate, and for protection the joint may be painted or enamelled.

(End of Construction.)

KNOW YOUR AERIAL

CAPACITY AND WAVELENGTH.

It is very interesting, when carrying out experiments with various sets and circuits, to know the capacity of your aerial to ground (writes Sydney P. O'Rouke, in the New York "Radio News"). There are various complicated formulas by which the capacity and inductance may be calculated fairly accurately; but these involve accurate measurements of the length and height of the aerial which are not very practicable for the average experimenter.

A much simpler method, and one which gives very accurate results, if conducted properly, is to tune in your local station, with the aerial and ground connected in the usual way and the aerial tuning condenser in parallel with the coil.

For instance, supposing WGY is tuned in at 30 degrees; now disconnect the aerial and again tune in the same station. It should appear now at about 120 degrees; in the 'phones, of course.

There is, therefore, a difference of 90 degrees between the two readings, which in the case of a .0005-mf. condenser, corresponds to .00025-mf. Thus .00025-mf. is the capacity of the aerial to ground. It is essential, of course, to use an old-type variable condenser with semi-circular plates, as this is the only type which gives a straight-line-capacity reading from 0 degrees to 180 degrees.

Most experimenters, however, will have hidden away in their junk box one of these ancient variables, which may be connected up temporarily for the above calculations. It is a big point in short-wave work to keep the aerial capacity as low as possible, and the above method may serve as a measurement of any aerial-ground improvements that may be effected.

The usual method of determining the natural wavelength of the aerial system is by the well-known formula: Wavelength equals 1885 times the square root of the microfarads multiplied by the microhenries.

Another method is described below which, in the writer's opinion, is very much more practical. It should appeal to the non-mathematical reader, since it involves no algebraical calculations or formulas.

Disconnect the aerial from the set and tune in your local station with the ground connected to its usual terminal. You should receive it at fairly good strength with an ordinarily efficient set. Take note of the aerial-tuning condenser's dial reading. Let us suppose in a particular case that this is 130 degrees. Now connect the aerial lead and tune in any station you can, nearest to 130 degrees on this dial. Supposing in the first instance WGY is received; now, when you have connected up the aerial, WEAF tunes in at 130 degrees or thereabouts. Subtracting WGY's official wavelength from that of WEAF, we have, 491.5 less 379.5 equals 112.0 meters. 112.0 meters then is the natural wavelength of the aerial in question.

Finally, a word about the receiving set. In order to find the wavelength accurately it is absolutely necessary to have a method of regeneration which, when varied, will produce no change in the wave to which the set is tuned; since less regeneration will be required when the aerial is disconnected. A receiver of the Hartley or Reinartz type is most suitable.

NEW TUNING DEVICE

VOLUME AUTOMATICALLY CONTROLLED.

An interesting new radio development was recently described by Harold A. Wheeler, of Johns Hopkins University, in a paper which he read before the Institute of Radio Engineers in New York.

The device he described is a new radio circuit arrangement which permits an automatic control of loudspeaker volume so that neither the detector nor any of the audio amplifier valve stages can become overloaded. In this way not only is distortion eliminated, but what is very important, distant signals, which fade rather badly, are controlled automatically so that the volume level must maintain a definite value.

FADING IS CORRECTED.

Fading signals have heretofore been a drawback to the use of sensitive multi-stage radio frequency receivers because of the constantly changing levels of loudspeaker volume. The device corrects these difficulties.

The name "Audiostat" has been selected for this device by reason of its tendency to maintain the audible intensity at a constant value. However, actual control of intensity level is not accomplished withiin the audio amplifier system, but rather in one or more of the radio frequency stages.

These results are obtained through the action of the receiver detector, or rectifier, which in turn applies a negative biasing voltage in proportion to the strength of the received signals to one or more of the valves within the radio frequency stages

In this way output volume is maintained at a definite standard.

MUST TUNE BY EYE.

Of course for the case of fading signals, such a device can only control that signal element which is above the required volume level. Where signals fade to a low value or entirely disappear, it is apparent that neither the audiostat nor any other available device can correct the deficiency.

In consequence of the automatic control action it becomes difficult to tune by ear a receiving set equipped with the new improvement. The amplification is decreased as the response to the signal is increased by tuning and vice versa, so that the point of resonance is indicated by minimum plate current in the neutralised stages of the radio frequency amplifier.

In other words, tuning is accomplished by eye, instead of ear, through a visual indication of a milliameter connected in the plate circuit of the first valve. This arrangement is employed as a resonance indicator and to give an indication of relative signal intensities.

UNDER A RIVER

Officials of radio station WODA, of Paterson, N.J., went down 80 feet under the surface of the Hudson River recently, according to the United States Associated Press, to see what effect such depth would have on broadcast reception. They found that such a spot is almost totally "blind."

A standard broadcast receiver and a special short wave receiver were set up in the Holland Vehicular Tunnel half-way between New York and New Jersey. At first nothing came in, but after long experiments strains of music filtered through from station WOR in Newark, and then from WHN in New York. So much power had to be used that the reception was almost blotted out by the roaring and crackling of the set.

After this test a receiving set built into an automobile was brought into use. At the New York end of the tunnel WOR was tuned in and was received at full volume. As the car coasted down the incline into the tunnel the music continued to come in strongly, but as the actual mouth of the tunnel was reached the melody was suddenly decreased in volume and within 100 feet it vanished.

Richard E. O'Dea, of WODA, said the results of the experiment would be reported to the Federal Radio Commission and the Radio Division of the Bureau of Standards. He said the tests showed that the tunnel was perfectly shielded from electric interference, and that they proved shielding was a practical method of eliminating interference.

Our Mail Bag

ANSWERS TO CORRESPONDENTS.

"D.T." (Rotorua) reports that he has logged just a dozen Yankee broadcast stations since December 1 last. He remarks: "So summer does not altogether make DX work impossible." The present period is in the depths of winter in the Northern Hemisphere, which may favour reception from North America. Our correspondent complains about power-line interference, which, however, is a most difficult problem to combat for all parties concerned. The locating of the line leakages is none too easy. "D.T." mentions having recently received KFKB, Dr. Brinkley's Hospital broadcast station, Milford, Kansas, 241.8 metres, 1000 watts. Another station he has heard is KGER, Long Beach, California, 215.7 metres, which is listed as using only 100 watts power.

1YA Appreciated.

Captain Bayley (Silverdale): I would like to give greater publicity, through your columns, to the local appreciation of the efforts made by the Radio Broadcasting Company to entertain listeners during this festive season from 1YA. The morning broadcast; the engagement of an instrumental trio (which we trust will be permanent); the high class of the artists to whom we have listened, and the untiring efforts of the station staff, from the director downwards, have all contributed to our pleasure.

An Auckland Appreciation.

J. Reading Carlsen (Auckland): It gives me great pleasure to again compliment the New Zealand Radio Broadcasting Company for the splendid programmes arranged for the benefit of listeners-in. The items are of exceptional merit, and do credit to all concerned. I am sure those people who are not yet in possession of a radio set of some kind, either valve or crystal, are missing some real enjoyment. Being the possessor of a crystal set, I, of course, am only able to get 1YA, but the items from that station are received by me in excellent volume, even when, as is often the case, I have as many as four or five 'phones attached to the radio receiver. The Auckland station, 1YA, notified us that they would attempt to rebroadcast the programme sent out by the station at Chelmsford, England, at 3.45 on Christmas morning, New Zealand time. It was very interesting and instructive to hear voices singing, bands playing, and, lastly, to hear Big Ben striking the hour in dear old England. We are now on the eve of the New Year, and wish the company and all of the artists who have given us so much enjoyment, a happy and prosperous New Year.

Programme Suggestions.

G. R. Jackson (Masterton), as a subscriber, I would like to congratulate you on the publication of the "New Zealand Radio Record." Besides publishing weekly programmes for the New Zealand stations, your paper contains many articles of interest, and is well worth reading by those who have no radio sets. I wish you every success for 1928.

Regarding the programmes, no doubt it is an extremely difficult matter to cater for all tastes, and, I assume, just as difficult to obtain the artists. It is, of course, apparent that some of those contributing to the programmes are anything but finished musicians, still this cannot very well be helped. I have discussed the matter of programmes with many Wairarapa radio set owners, and in practically every instance their opinion is the same—I might state that these opinions apply principally to 2YA, as Christchurch to a large extent and Auckland to a lesser extent do vary their programmes. My own opinion, and as before stated the opinion of many other set owners in this district, is that Wellington should have less vocal and more instrumental items, not forgetting such instruments as the steel guitar, etc. Band music is always acceptable—it is often felt too that during the course of an evening's programme, a little dance music now and again and light catchy tunes help one to digest the heavier music. At radio evenings young people like to have a whirl round the room to some catchy dance tune—this need not be a regular item—still now and again during the week it would be greatly appreciated. Why not go a little further and periodically—principally during the winter months—have a dance evening—parties can then be arranged beforehand as the "Radio Record" would contain all information as to when this class of music would be broadcast.

Now, sir, a large percentage of set owners are business men, and if busy, have little time to spare for listening in. Could it possibly be arranged for the broadcasting of instrumental items including gramophone records (not vocal) during meal hours, say from 1 p.m. to 1.30 p.m. and from 6 p.m. to 6.30 p.m. Not every day but say three times a week. The children would, no doubt, enjoy half an hours' music (6 p.m. to 6.30 p.m.), just as much as their parents. I am certain that a little music during meal hours would more than be appreciated by every set owner. It is quite an easy matter to bore a hole through a wall and place your loud speaker in another or the next room, or if necessary longer cords can be obtained for a few shillings.

Although I notice it has been mentioned several times in the "Radio Record," I would like to emphasise the fact that the Dunedin station is a complete wash-out. I do not know of any Wairarapa Listener-in who has obtained any decent result from this station. With a five-valve set you can only hear a faint whisper. Cannot the station be improved? It is useless as it now is and not worth its upkeep.

[Your suggestions are welcomed. Last winter several special dance programmes were put on from 2YA, and the same course will be followed this winter. The other suggestions will be considered. The Dunedin station has been much improved as will become apparent when summer time and its disadvantages depart.—Ed.]

Dunedin's Problem.

For 4YA (Dunedin) writes: In the past there have been many grumbles throughout New Zealand, but I think that the Dunedin (Otago) listeners have a genuine complaint. During Christmas week, 1, 2 and 3YA had daily sessions from 12 on without a stop—even on the silent days. Such effort on the part of the Broadcasting Company was creditable, but what about 4YA? Is the company deliberately trying to avoid and to let Dunedin slide? The complaint is insufficient licenses. The reply is that our money is going north to 2 and 3YA, the favoured stations. The dealers here had to demonstrate on distant stations, which in many cases proved fatal, as any radio-set owner who knows mid-city daylight distant reception is like will know; I mean interference generally. Thus I take it that 4YA to jog along because the Dunedin service is too limited. Under an ordinary week 3YA broadcasts 27 hours, while 4YA 18 hours. I would like to ask one question, but I very much doubt if it will be answered: (1) Is Dunedin to receive a new station? (2) Is the old one to be done up? or (3) are things to go on as they are? The general manager seems to be disappointing to New Zealand listeners by his secretiveness. Cannot he make a statement, or is it not the method of the company?

In view of the fact that the total Otago and Southland licenses total 2400, our correspondent's suggestion that the money derived therefrom is being diverted from Dunedin to run the northern stations is, to say the least, somewhat humorous. A moment's thought will show that to be impossible. The Dunedin station and service has lately been very much improved, in line with a full statement made by the general manager some three months ago, and in view of that, while sympathising with our correspondent's desires, we think his letter is really a little ungrateful.—Ed.

Hugo Gernsback, editor of the 'New York "Radio News" says:—"Right now, the radio industry has its great chance. I refer to television. Inside of the next two years, broadcast stations will be sending out television impulses, and a number of radio manufacturers will literally coin money by supplying television attachments to be attached to existing radio receiving sets. What has the radio industry done toward developing this tremendous potential demand? Nothing. Yet the field is wide open and, even to-day a workable television apparatus without wheels and moving parts can be secured on the open market."

A 10,000 watt broadcast station is nearing completion in Johannesburg, South Africa. An endeavour will be made to place broadcasting on a higher standard than in the past.

CHINESE LIKE RADIO

SAN FRANCISCO'S ORIENTALS.

Chinese women clad in trousers and men in the centuries' old costume of the Far East listen eagerly to radio programmes in their apartments in San Francisco's Chinatown. For the Chinese have added to the list of household necessities the radio.

There are more radio aerials in one block along Grant Avenue, Chinatown's main street, than in any other block in San Francisco, according to Gon Sam Mue, of the United States Immigration Office.

Their residence restricted to Chinatown, the Chinese necessarily live in crowded fashion. Radio appeals to them not only as a means of bringing in the music and entertainment of the outside world, but also for its value in keeping the children off the streets, Gon declared.

Great Music Lovers.

The Chinese love music, and that is one of the reasons why radio means so much to them, according to the Princess Der Ling of China, who has participated in many radio programmes in her native China, and incidentally spoke over the General Electric station KGO the first day she arrived in the United States from the Orient. It brings them in contact with European and American music, greatly different from their own, she said, and also gives them a better knowledge of what is going on in the "outside" world.

"The American notion that Chinese music consists of a series of cat howls is due largely to the fact that Chinese are fond of the falsetto male voice," the Princess said in her talk over KGO.

"Male altos, however, at one time were used exclusively both in church and the opera. The West has let its women take part in music and drama a little sooner than the East has done."

Chinese Play at KGO.

The Chinese have no desire to take all and give nothing in return. One of the most colourful dramas ever put on the air was recently presented over station KGO by the Chinese of San Francisco. It was a drama of the Yang-tze River. No more enthusiastic group of people ever assembled in a broadcast studio than appeared at KGO for the presentation of this play.

Radio dramatists may learn much from the Chinese drama, according to the Princess, for it is in certain ways peculiarly adapted to radio needs. There is very little action and practically no stage setting whatever. All effects have to be produced by vocal inflection and gesture alone.

Above all, the significant thing about Chinese drama is the part music plays in it. Most of their speech is simply vocal declamation, similar in principle to that which was in fact the very beginning of European opera. Music faithfully reflects the passing emotions on the stage.

In the United States the character of the radio inventor is said to differ widely from the regular inventor, due to the large number of people interested in radio. The Patent Office finds every type of inventor in radio work, from the man who has only one idea to patent to those who follow invention as a vocation and experiment with everything new.

A San Francisco radio authority says:—"Some day we will be able to equip our homes with transmitters as well as with receiving sets and send out messages as we may desire. Mark the prophecy, but do not expect early fulfillment of it. Broadcasting is yet in a crude stage. Great refinements will come."

DEAF HEAR RADIO

BONES TRANSMIT SOUND.

The seat of hearing is in the brain, and connection between this and the middle ear—which in a radio system might represent the pick-up wires or aerial—is made by the nerve of hearing. In the normal person sound is transmitted to the nerve of hearing through air conduction via the ear-drum. But in the deaf, where the passage to the drum membrane has been obstructed or the drum has for other reason been rendered useless, sound is transmitted through bone conduction via the skull bones.

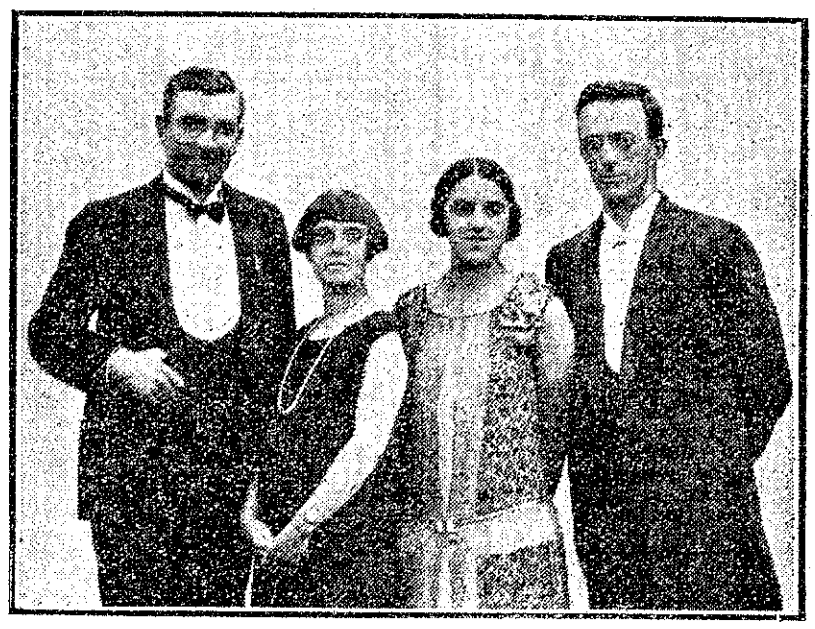
Dr. Curtis H. Muncie, a noted American ear specialist, says that this latter is just what happens when deaf people who cannot hear ordinary spoken sounds can heard quite well through radio headphones. The caps, pressed tightly against the ear structure, transmit the sounds directly to the nerve of hearing through the bones of the head.

WIRE FOR COILS

In winding radio coils, the radio beginner often is puzzled as to how to proceed if he doesn't happen to have wire of exactly the specified size on hand with which to wind the tuning units. There is no magic in wire sizes within rather wide limits. If the specifications for a given coil call for No. 22 double silk covered wire and you haven't that size on hand, use the nearest size to it. Of course, if you use different wire you will have to change the number of turns to get exactly the same results. Suppose No. 22 double silk covered wire is specified. If you use cotton covered wire of the same size, a few more turns will be required to get the same results. If it is single silk covered wire, less wire will be needed because of the closer spacing of the turns. Larger wire requires more turns and smaller wire fewer turns.

The diameter of a coil also can be changed if you find it necessary. Reducing the diameter will require more turns of wire and increasing it will allow you to cut down the number of turns. Bearing these facts in mind will help you to adjust your coils to the required wave-length. The shorter the wave lengths you desire to cover the fewer turns of wire needed.

Headphones may be easily tested by wetting the two cord tips and bringing them forcibly together, while the headphones are over the ears. If a good click is heard, the headphones are in excellent shape and suitable for the purpose for which they are designed. If but a mediocre click is heard, their sensitivity has been greatly destroyed and it is advisable that a new pair be purchased. The test is more sensitive than the common practice of connecting a battery across the terminals of the headphones, since the magnets may have their permeability destroyed by the large voltage which passes through them.



The Melodious Four, a brilliant quartet of singers engaged to appear regularly from 3YA. (From the left the singers are: Mr. Russell Sumner, Miss Frances Hamerton, Miss Belle Renaut, and Mr. T. D. Williams.) Webb Photo.

TENNIS ON THE AIR

VISIT OF THE FRENCHMEN

The first tennis broadcast in New Zealand will be made by 2YA on Wednesday, January 18, on the occasion of the visit of the match between the French tennis team and New Zealand.

A SUNDAY CONCERT

On Sunday evening, the 15th instant, the members of the Celeste Quartet will render a programme of magnificent items, the concerted numbers of which are that stately measure "As Torrents in Summer," by Elgar, and "Where My Caravan Has Rested," by Herman Lohr. Of the solo numbers, duets and trios, a veritable feast of music is promised. Miss Myra Sawyer, soprano, will be heard in Lambert's song "God's Garden," and this artist can be depended on to give an artistic rendering. In association with Mr. William Boardman, Miss Sawyer will be heard in Gotze's duet "Still as the Night," and with the exceptional blend which these two popular singers achieve in their combined numbers this duet will leave little to be desired. Mr. Boardman's resonant bass will be heard to distinct advantage in "Though Faithless Men," a magnificent aria from the opera "La Ebrea," by Halevy. Miss Mabel Dyer, the contralto of this distinctive combination, will present "Abide With Me" (Liddle), while Mr. Edgar Swain, tenor, will no doubt add to his popularity in that stately solo "Ombia mai Fu," by Handel.

Many listeners seem to think that the new power valves give more volume without distortion on all signals, both weak and strong. This is not true for weak signals. In fact, on extremely weak signals from distant stations the ordinary 201A type valve will give a trifle louder result than the 171 power valve. But the minute you begin to bring in signals with any degree of volume, the advantage of the power valve shows up at once. As the strength of the incoming signal is increased, a point is soon reached where the ordinary 201A is overloaded and distorts badly. For maximum results with any type of power valve, always operate it at the highest B and C voltages recommended by the manufacturer. The 171 valve will give you the most volume with the least distortion on loud signals, but the 112 valve will be better on weak signals because it amplifies a bit more, although it will not handle as much volume as the 171 valve.

One of the most important parts in a radio receiver is the grid condenser. Few seem to realise its effect on the quality and sensitivity of the receiver. A poor condenser in the grid leak is worse than no condenser. Leakage in a condenser is one of the chief faults. The importance of this factor is obvious when one recalls the critical nature of the grid leak. This must be just so, or the circuit will not be sensitive and the quality of the output is likely to be mediocre, or worse. If the grid condenser leaks considerably it effectively lowers the leakage resistance, and the circuit may be a dud as far as sensitivity is concerned.

Items of interest to farmers in the programmes from 3LO, Melbourne, were the recent broadcasts by Senator Guthrie of descriptions of the wool sales held at Geelong.

OHM'S LAW

FORMULA EXPLAINED.

The relation between voltage, current strength and resistance of a circuit is expressed by the law which was set forth by Ohm and this law is called Ohm's law in his honour. "The strength of the current in amperes in any given circuit is directly proportional to the resistance of the circuit." This is one of the most important laws for a student of electricity or radio to know. The formula, which can easily be remembered in the following form—amperes equals volts over ohms—should be committed to memory, so that one can recite it backward. With this law it is possible to find either one of the three values if the other two are known, and because the formula is so simple it should be possible for any one to learn and use.

It is learned from this law that to increase the amperage in a circuit containing resistance it is necessary to increase the voltage. The correct increase may be easily figured out by using the above formula. With the aid of this formula it will be found that in a circuit containing three resistances in parallel across the circuit that if each resistance has a different value a different amount of current will flow through each resistance, the smaller the resistance the greater the amount of current.

Units of Electricity.

The practical units of electricity may be defined as follows: The practical unit of electromotive force is the volt . A volt is that pressure of electromotive force that is required to maintain a flow of current one ampere strong through a resistance of one ohm.

The unit of current strength in an electrical circuit is the ampere, which is explained as the strength of current maintained by a pressure of one volt through a resistance of one ohm.

The unit of resistance is the ohm. This is defined as the resistance of a conductor that permits the passage of current of one ampere at a pressure of one volt. The coulomb is the current quantity flowing in a circuit when one ampere passes a given point in one second.

The next unit of electrical measurement is the joule. The explanation of the joule is as follows: When a current of electricity flows through a conductor it encounters a certain amount of frictional resistance and some of the energy is turned into heat. This development of heat is proportional to the time the current flows to the square of the current and to the resistance of the conductor. The unit joule is the amount of energy expended in heat during one second by a current of one ampere at a pressure of one volt through a resistance of one ohm.

746 Watts, one Horsepower.

The joule per second is the practical unit of electrical power which has been named the watt. The unit of power may be expressed in units of current strength and pressure. The power in watts in a given circuit in which a direct current is flowing is equal to the product obtained by multiplying the current (amperes) by the pressure (volts). To rate the power in watts of most motors or other electrical devices would necessitate the use of figures that are too large for everyday use, so the kilowatt is used. A kilowatt is equal to 1000 watts. In mechanics a horsepower is equal to 33,000 foot pounds per minute, or. 550 foot pounds per second . In electrical work the rating of motors may be given in horsepower by finding the watt rating of the motor and dividing it by 746 watts. which is the electrical equivalent of 550 foot pounds, or one horsepower.

TOO MANY STATIONS

AMERICA'S DIFFICULTY.

The crowding of the ether by about 600 broadcast stations in the United States is still worrying the Americans.

Federal Radio Commissioner Caldwell, speaking at a meeting of the American Institute of Electrical Engineers in New York on October 14, said that there was hope for relief in the broadcast congestion through a method of synchronising a number of transmitters on a single channel. He pointed out that there were three systems for station synchronisation, and that they promised excellent possibilities.

"The first method," said Mr. Caldwell, "is wire control for two or more stations from a common source. This plan offers an economic solution of the very serious problem of chain-programme operation where twenty to forty channels are sometimes tied up with the identical programme."

A Way Out.

The second synchronising method suggested by Mr. Caldwell utilises a receiving set installed ten miles from the transmitter to be synchronised. On this set the incoming carrier wave from the distant station on the same channel is picked up and sent by telephone wire to the control room. By the zero beat method the local station is synchronised with the distant station.

The third method is for the broadcasters to use matched piezo crystals, maintained under the standard temperature at the two or more stations to be synchronised.

RADIO FOR SCHOOLS

SYSTEM IN CALIFORNIA.

The radio programme of experimentation has been carried on in the Oakland (California) public schools during the past three years, the department being the first in the United States to use it. It began under the guidance of Dr. Virgil Dickson, with Henrietta Johnson largely responsible for the general management. At first, there were two programmes weekly, but as Miss Johnson's time was limited it became necessary to reduce the number of lessons to one every two weeks.

Miss Johnson is the assistant director of the Oakland Public Schools Bureau of Curriculum Development Research and Guidance Department. In a letter to KGO thanking the General Electric station for its co-operation in the experimentation she said, in part:

INSTRUCTION IS PRACTICAL.

"The experiment has been most worth while and it has been definitely proven that radio instruction is practical and a much desired programme for any school system. We trust that further experimentation may be carried on at a later date."

A series of thirteen health lessons was given over KGO during the fall and spring term of 1926 and 1927 by Elizabeth P. Whitmarsh, assistant director of health education. Six of the Oakland schools, one Berkeley school and one Petaluma school participated in this experiment. The lessons were twenty minutes in length. Miss Whitmarsh says:—

RADIO STIMULATES INTEREST.

"The results would have been greater had more schools participated in the experiment. In my particular field of instruction this experiment has convinced me that radio does much in stimulating an interest in health habits and arouses an interest in a subject which, having no special time allotment, is often neglected in the programme.

"I think it not too ambitious to predict that in the near future instruction by radio will be a standardised department of instruction, guided by a full time director."

Edgar R. Muller, chairman of the radio committee, enumerates the values of radio instruction as follows:—

1—Necessity for thorough preparation on the part of the teacher.

2—Conservation of time. Lessons must begin on time and end on time.

3—Requires concentration on part of pupils. They cannot ask questions, cannot lag, must keep on the alert.

4—Because of the above, it tends to definiteness—one of the necessary factors in life."

THE WEEK FOR THE CHILDREN

BRIGHT HOURS AT 2YA.

Monday—Aunt Joe's night. Quite a varied programme of items—songs, sketches, etc. Aunt Barry will give a splendid talk to little women.

Tuesday—Uncle Jasper provides the the fun. He will be ably assisted by Pat and Mike, the musical comedians, and other artists.

Thursday.—Uncle Sandy and his merry band of followers will keep things lively for an hour.

Friday.—Hullo, it's Uncle Ernest's hour. There will be some merry entertainment provided for the little ones.

Saturday.—A pleasant hour is assured. Aunt Gwen and Aunt Dot will bring their nieces and nephews to liven you

MORE ATTRACTIONS.

Other coming attractions for the children at 3YA will be the appearance of Miss Dorothy Davies (who is acting as studio pianiste), and Mrs. J. W. Bailey (who is on holiday in Christchurch). Miss Davies will entertain the children on January 18 and 26, and Mrs. Bailey on January 19 and 25. Mrs. Bailey, who comes from Wanganui, where she and her husband are teachers of elocution, has several times been on the air at 2YA.

The Children's Corner

By "ARIEL"

"EVENTIDE"

1.

Tho' you're away, and life seems sad and lonely,
Clouds gather round and cover up the blue—
Deep in my heart, dear, is your image only,
To you, alone, for ever I'll be true.
Refrain:
When day is o'er, and stars are softly peeping,
Tho' fate decreed that you and I should part—
I pray that God may have you in his keeping,
Still you will reign for ever in my heart;
After the night will come the glow of dawning,
Sunshine will chase the shadows all away—
Sorrow will fly, no more the sound of mourning,
God hear my prayer, and send you back some day.
God hear my prayer, and send you back some day.

2.

When ev'ning comes, I kneel beside my lattice,
Dreaming of you I bow my head and pray—
Far over the sea, dear, where you are my heart is;
When you come home 'twill be a perfect day

Why is the letter B like fire? Because it makes oil boil.

Why is C like a schoolmistress? Because it makes classes of lasses.

Why is F like Paris? Because it is the capital of France.

The Baiclutha Boys' Brass Band, now touring the North Island, which recently broadcast a fine concert from 4YA. The boys are meeting with a good reception on their tour, and are incidentally improving North Islanders' knowledge of southern geography, as one northern paper reports that some local girls were surprised to find the boys did not speak Indian, but only Scotch with an English accent.

NOT SO FLAT AS THAT.

"Was Anne Boleyn a flat iron?" asked the small girl.

"A flat iron! Why ever do you ask that?"

"Because I read that Henry VIII pressed his suit with Anne Boleyn."

A friend dropped in to fix my set;
I couldn't get a call.
He worked three hours, and now, alas,
I can't tune in at all.

CHILDREN FAVOURED

BY "ROSE MARIE" ARTISTS

The children of New Zealand will have reason to retain pleasant memof "Rose Marie," now touring New Zealand. In Auckland, Mr. Frederick Bentley, who takes the role of "Hard-Boiled Herman," entertained the children from 1YA on Christmas Eve, and in each of the cities that he visits he will do the same. Rose Marie herself will also be heard at 3YA. A treat is in store for the kiddies when this charming young lady, Miss Harriet Bennet, goes on the air.

CRAB FOR TEA

Jenny Jones went a shrimping one day
by the sea,
To catch something nice for her dear
daddy's tea,
And into her net walked a dear little
pet
Of a crab who had set out the world for
to see.

Cried Jenny, "Oh, Joy! Crab for tea
will be scrummy.
If eaten with butter and bread that is
crummy."
But that crab piped his eye and she
gave a big sigh,
Then she emptied him out to run home
to his mummy.

THE BREAKFAST FOOD FAMILY

John Sprat will eat no fat,
Nor will he touch the lean.
He scorns to eat of any meat;
He lives upon Foodine.

But Mrs. Sprat will none of that;
Foodine she cannot eat.
Her special wish is for a dish,
Of Expurgated Wheat.

To William Sprat that food is flat,
On which his mater doles;
His favourite feed—his special need—
Is Eala Heapa Oats.

But Sister Lil can't see how Will
Can touch such tasteless food.
As breakfast fare it can't compare,
She says, with Shredded Wood.

Now none of these Leander please;
He feeds upon Bath Mitts.
While Sister Jane improves her brain
With Cero-Grapo—Grits.

Lycurgus votes for Father's Oats;
Proggine appeals to May;
The junior John subsists upon
Uneeda Bavla Hay.

Corrected Wheat for little Pete;
Flaked Pine for Dot; while "Bub,"
The infant Sprat, is waxing fat
On Biled Bean Patent Grub.

THE POCKET FARMER.

An old farmer and a young man were arguing about scientific methods of farming.

"The time is coming," said the young man, "when I shall be able to carry the fertiliser for a whole field in one of my pockets."

"Yes," said the old farmer disdainfully, "and you will be able to carry the whole of the crop in another pocket."

GERTIE GRUNTER'S RIDDLE

(By Olwen Bower.)

The Farmyard was interested—more, the Farmyard was excited. Gertie Grunter, the prize pig, had found a large and juicy carrot, and, to everyone's surprise, she had very generously offered it as a prize to anybody who could guess a riddle.

"Such a strange thing for Gertie Grunter to do!" said Hepzibah Hen, in a puzzled voice. "Such a beautiful carrot, too! Anybody would be proud to own it."

"Quite unlike Gertie Grunter," commented Dulcima Duck. "I can't understand it at all. It isn't as if there was anything wrong with the carrot!"

"No," said Kathleen Cow, sleepily. "I saw it myself in Gertie Grunter's mouth as she leant over the gate of Sty House, waiting for people to come and guess the answer."

"What is the riddle?" asked Chirabelle Chicken.

"'When does the sun flower?'" murmured Kathleen Cow, mournfully. "I didn't know it did; but that's the riddle, so I suppose it's all right."

"I know the answer," said Cuthbert Cockerel, in a pompous voice. "You others had better come and see me win the carrot!"

They all went across to Sty House. On the way they met Alphonso Ass and Doreas Donkey, both looking very depressed.

"It's no good trying to win that carrot," said Doreas, sadly.

"We've tried every answer we can think of, and they're all wrong!" said Alphonso Ass.

"Dear, dear—what a shame!" said Hepsizbah. "But, never mind, I'm sure Cuthbert will let you have a bite out of the carrot. He says he knows the answer."

Gertie Grunter greeted them very civilly, and counted over the two acorns which each person had to pay as entrance fee for guessing the riddle.

"When does the sun flower?" asked Gertie Grunter.

"Twelve o'clock, midday," said Cuthbert Cockerel, and held out his claw for the carrot.

"Not at all," said Gertie, with a chuckle. "That's shining, not flowering."

"Surely that's not wrong!" cried Hepzibah, quite distressed. Then she turned her back on Gertie Grunter, and thought hard for a few minutes.

Chirabelle Chicken guessed, and Gwendolen Goose guessed, and so did Dulcima Duck, and even Taraxicum Turkey—but they all guessed wrong.

"I know!" cried Hepzibah, turning round at last. "Sure, I know. The answer is 'When it does'!"

But it wasn't, and Gertie Grunter laughed still louder, and asked if they'd all agree to give it up.

"There isn't an answer," she said at last. "How could there be, because the sun doesn't flower?" And as soon as she had done laughing she settled down and ate the carrot herself, and followed it up with the acorns that the Farmyard folk had paid.

"Such a pigeish thing to do!" said Hepzibah, as she hurried back to the Cart Lodge with Chirabelle Chicken. "But I'm sure it wasn't at all a nice carrot really. Only suitable for a pig!"

The Radio Times.

A BIRD'S LOST HOME

A thrush built a nest in a railway wagon which was standing in a siding but was afterwards removed.

With a pathetic homing instinct the bird hovered around, and eventually made for herself a new home on the railway cinder track, where, all unperturbed by the passing of trains, she laid her eggs and sat on them.

SNAKE STORY

This story concerns a little boy named Guy Farmer, on a visit with his mother to a farm in the Zoutpansberg district of the Transvaal. He was playing with his terrier when the dog was heard barking furiously. Guy's mother ran out and saw a black snake, called a mamba, six feet long, swaying from side to side as it approached. The child stood fascinated, and the dog ran up and down between them, evidently anxious that the child should run away while there was time.

Then the terrier sprang at the snake, and a sharp but short struggle began. The mother snatched up her boy and was running to get a revolver when the barking ceased, the dog staggered a few paces and fell, and the snake came on again. Putting the boy down, the mother was fortunately able to pin down the snake with a heavy boulder while she fetched the revolver to shoot it. Then she returned to where the terrier lay helpless. It was still alive, but died in half an hour.

Its small master was inconsolable with grief. A stone has been put over its grave recording how the gallant little creature gave its life.

HOUSES BUILT FROM SUGAR-CANE

A new material called celotex is being made from the refuse of sugar-cane, and is being used in some parts of Australia for building houses.

Some parts of the Federal Parliament House in Canberra have been built of celotex, and model houses have been built at Canberra and other towns to demonstrate its value.

THE BUSY MOUSE

89 JOURNEYS TO A BOOT.

When a certain father of a family went to the hearth at his home the other day to put on his boots, left there overnight to warm, he found one of them half full of peas.

He, of course, concluded that one of his children had put them there, but all denied any knowledge of them. Then the culprit was discovered. In the corner of the room was a wooden box in which the seeds for the garden had been placed, and during the day a mouse was seen to run to the corner. Investigation showed that it had gnawed a hole through the wood and through a paper bag containing peas, and it must have carried the peas one by one to the boots.

There were 89 peas in one boot, so the mouse must have made that number of journeys. But why? We cannot say, but the penalty of its theft was death.

JUST NONSENSE

Housewife (to pedlar): "Get away out of here, now, or I'll whistle for the dog."

Pedlar: "All right, madam; but first allow me to sell you a good whistle."

The old lady went up to the taxi-driver and told him to drive her to a certain place.

"Right-o, madam," said the man. "Jump in."

But the old lady stood there. "Not until you've started the engine," she said.

The driver got down from his seat and started the engine with a half turn of the crank.

Proceeding up a steep hill the engine suddenly slowed and stopped.

The old lady nodded her head, and with a knowing smile, said to the driver:

"Ah, driver, I thought you didn't wind it up enough!"

Young lady (on first visit to Western ranch): "For what purpose do you use that coil of line on your saddle?"

Cowboy: "That line, as you call it, we use for catching horses and cattle."

"Oh, indeed! And may I ask, what do you use for bait?"

"I say, waiter," said a diner, "this pigeon pie hasn't any pigeon in it!"

"Well, sir, if you ordered a dog biscuit, you couldn't expect to find the animal, would you?"

Doctor: "Where did you first notice the pain?"

Patient: "Between the bathroom and the kitchen."

Old Lady: "How long does this train wait here?"

Porter: "Four minutes. From two to two two."

Old Lady: "He! He! He! He! Thinks he's the whistle."

Radio Trends in America and Europe

Interesting contrasts and summaries of the radio trends of different countries are made available by the views of prominent radio engineers who have recently visited America for the World Radio Conference. In one such review, Captain P. P. Eckersley, chief engineer to the British Broadcasting Corporation, gives British readers of the "Radio Times" his view of the tendency of American radio to arrive substantially at the same general standard as British broadcasting, but by a different method. Confirmation of his view is afforded by news of the closing of 300 American stations in 1928! A further interesting view of world radio is afforded by a German review of the differences between German and American standards. By these comprehensive statements opportunity is afforded for assessing the value of the respective systems and the suitability to our conditions of the method adopted in this Dominion.

THE subject I have chosen to discuss should be of real interest to the British listener interested in the constitution of broadcasting services.

My knowledge of American broadcasting does not include detail. But I can, at any rate, give facts from personal observation and deduce from these certain tendencies. I have visited the United States twice—once in 1924, and the second time a few weeks ago.

One traces the history of broadcasting in America and finds its progress basically identical in general direction with that of the history of any public service in the U.S.A., such as the telephone, the railway, or the electricity supply. Government control of any kind is abhorrent to the American; he insists upon development by private enterprise; with at least the appearance of open competition.

THE FIRST MODERN NATION.

Thus in the early 1920's the Westinghouse Manufacturing Company, a large manufacturing electrical concern, started a wireless telephone station with the object partly of seeing what sort of public reaction there might be, partly what sort of results could be achieved, partly, one supposes, what kind of advertisement they themselves might obtain from it. So great was the interest displayed, first by the 'amateurs,' and secondly, through the Press, by the public, that other commercial concerns took up this novel form of publicity getting. Development was very rapid, and, like mushrooms in the night, broadcasting stations sprang up in clusters around the dense centres of population.

Space does not permit, nor does my detailed knowledge extend far enough to detail the way in which the large commercial firms arranged among themselves to share the profits which so obviously accrued to them as patent holders, not only by the sale of receiving, but also of transmitting sets. Suffice it to say that in general one firm was allowed the monopoly of the sale of transmitters, while a few others profited by receiver sales. Naturally, many persons started manufacturing receivers, neglecting the fact that the patents they used were owned by large corporations, and a considerable war developed to restrain any "pirate" who had become wealthy enough to be worth proceeding against. This situation was largely analogous to that which existed in England some years ago.

RAPID FORTUNES MADE.

During this time of growth, considerable fortunes were made and lost in the "Radio" trade—a new trade with an incalculable market and no criterion by which to assess economical production and efficient design. In the early stages the listener's demand was for quantity rather than quality; reaching out sets were the vogue, and the happiest he who could hear furthest.

In 1924, therefore, I found a situation in America profoundly interesting but profoundly different from our own. We had frequently been told that American broadcasting was infinitely superior to our own because they had 700 stations and we had only twenty, because an American listener could hear stations 2,000 miles away, and we had only crystal sets. It was argued mildly that a reliance on quantity was not necessarily a guarantee of superiority—quality of service given was an often neglected, but nevertheless a sounder basis, on which to build. An art gallery might hang 7,000 lithographs round its walls, but in the end its rival, a small room perhaps, in which hung Mona Lisa, would be adjudged the more important place to visit. Certainly, however, the quantity of American broadcasting was remarkable. Seven hundred stations registered millions and millions of dollars' worth of receiving apparatus, listeners hearing over thousands of miles, fortunes made and lost in a season. I think the situation was inevitable.

THE ESSENCE OF ENTERPRISE.

Every broadcasting station erected in America was, as said before, erected by private enterprise. Philanthropy in the newspaper sense of the word is usually associated with those who have been clever enough to amass a private fortune in competition with others, but is seldom practised by those who hope one day to be in a position to be philanthropic. It is not surprising, therefore, that those who erected broadcasting stations expected to make a profit from their venture. The only profit they could see was indirectly by advertising. The artistic side of the programmes was the bait for commercial gain and in some of the less reputable stations lacking revenue, the bait was far from tempting and the catch too poor to justify flogging the public stream any longer. It costs a tremendous amount of money to supply a bait for which the public will rise; if it is insufficiently tempting, they will rather rise against it! Thus gradually during the period 1924 to 1927 the poorer-class station was ousted from the ether not only because relatively it could not appear attractive, but because absolutely the programmes it offered were below public taste. In the race to provide a service worthy of those served, only the largely capitalised concerns held their own. Thus we see how the two systems, British and American, converged from a widely different starting point. In each case the determining factor was public taste and public need. In America the public automatically rejected the cruder programme; in Britain progress towards a better service has come about because with every development the public have more widely supported the central authority, and with wider support the authority has been able to make further improvements.

UNIFICATION FORCED.

Today, therefore, in America, the fewer and better-class stations which remain are mostly controlled by single organisations and give out more costly and better programmes. This is not to say that many single stations do not remain. The above is a generalisation. To make this opinion more convincing, I will quote an interested and interesting American observer who said: "I see the future of broadcasting here as three or four chains of stations stretching from coast to coast, each controlled by rival organisations—the day of the single small station is dead."

300 STATIONS TO GO.

An interesting light upon Captain Eckersley's article is given by the following item:—

Nearly 300 broadcasting stations now on the air will lose their licenses February 1, the United States Federal Radio Commission announced recently.

This drastic use of the "big stick," which will cut the number of stations in operation to about 400, is essential to give the listeners real service, according to Commissioner Sam Pickard.

Small stations, of low power, and those rendering little or no public service, must go, the edict said.

The commission's new policy follows to a degree recommendations of National Radio Engineers, who asserted that not more than 30 stations can be accommodated if radio is to give real service.

CASES FOR THE COURTS.

The drastic action undoubtedly will result in a number of battles in the federal courts and the testing of the law in the U. S. Supreme Court.

For the first time since radio broadcasting has attained national importance, listeners will be able to obtain heterodyne-less reception on most of the channels between 600 and 1,000 kilocycles, provided the wave-clearing operation made effective December 1 proves the "as advertised" panacea.

Chicago, by reason of its location, has been given five cleared waves. From the standpoint of the tremenduos audience which listens to programmes transmitted from Chicago, this city was regarded as entitled to preferential treatment.

Cincinnati, St. Louis, Cleveland and Detroit were given the opportunity to share with Chicago in providing programmes for the Middle West.

Recently at midnight frequency shifts, power changes and time division orders were made effective to setup what the Federal Radio Commission believes will prove national radio highways over which programmes may travel from coast to coast without interference.

GERMANY AND U.S.A. COMPARED.

During a recent visit to the United States, Baron Manfred von Ardenne, the young German radio engineer who is co-inventor of the Loewe multiple tube, thus summarised the difference in broadcast methods in an interview to the Press:

"Organisation of broadcasting in Germany is such that most listeners have not the choice of different programmes offer in the United States. That conditions is to be remedied in near future by the erection of a station at Zeesen, near Berlin, with 100 kilowatts of power in the antenna, using a wave-length of 1250 metres. This station will commence working at the beginning of next year and ought to be picked up across the Atlantic. It will relay every night the best programme running in Germany, from whichever city it is being given, and will thus be the first station of its kind in the world.

"In a country where the same programme is broadcast through the networks by many stations, all on different wavelengths, it may be of interest to hear that in Germany successful experiments have been carried out between Berlin and Stettin with a new arrangement which may be of great importance in the future of European broadcasting. By means of quartz wavemeters two or more broadcasting stations are tuned to exactly the same wavelength and broadcast the same programme without the slightest interference. (This principle has been employed during the past year by two American stations, WBZ and WBZA.—Editor "Radio News.") Thus only the number of programmes, but not that of stations, is limited; a fact of the greatest importance in Germany, where every larger town desires its own station, in order to make strong reception possible with the simplest of receivers. The crystal receiver is still very widely used over there.

"Interference from coastal stations and ships is not serious in Germany because most of them transmit with plain continuous waves on longer wave-lengths.

"As regards the technical quality of broadcast transmission, I have the impression that the microphones in use in Germany, especially the well-known Reisz microphone, are very good in the transmission of the violin, the soprano and the distinctive instruments of large orchestras. The main reason for this is that the German stations transmit the high frequencies faithfully. The American stations, however, seem to me to reproduce the lower notes extremely well.

"Another remarkable fact is that, in spite of the far greater distances here in America, the land-line relays are better than those in Germany. This is probably due to better land-line equalising, which cannot be carried out in Germany to the same extent for lack of sufficient means; although the theory of these equalisers is very well known over there.

LICENSING OF LISTENERS.

"Programmes, on the whole, are on a rather high level in Germany, because, thanks to the licensing of broadcasting listeners, relatively large sums are placed at the disposal of the programme committees of the broadcasting stations. These committees are composed of leading educators, civic workers, and artists.

"The educational value of broadcasting in Germany is very great, since the less prosperous and educated part of the people constitute by far the greatest number of regular listeners; while in the homes of the more wealthy and highly-educated there is a surprising lack of radio equipment. Germany, being the land of Wagner and Beethoven, these people, expect too much of radio in the line of classical music to be much interested. But, with the advent of new devices now being developed, which will make reproduction practically perfect, radio is sure to gain ground in these circles as well.

"The technical development of broadcasting in Germany practically always moves along theoretical lines, and the theory of radio and kindred subjects is very far advanced over there; while in the United States I have found the practical side extremely well developed. A union of the two would be sure to bring about a great advance in the science of broadcasting."

ELECTRICAL PROGRESS

A WONDERFUL STORY.

When we consider what radical changes have taken place in this world of ours in the last few hundred years, is it any wonder that we sometimes try to look ahead and visualise what will have taken place in a few hundred years' time?

The use of electricity for wire communication took many advancing steps during the nineteenth century. Morse produced the telegraph in 1835, but it was bettered the next year by Wheatstone, an Englishman, who developed the electro-magnetic telegraph. Gintl, an Austrian, found out how to send two messages simultaneously over the same wire in 1835, and in 1874 Thomas A. Edison demonstrated quadruplex telegraphy, thus doubling the country's wire's capacity without stringing an additional mile of line. In 1895 Preece in England went still further when he invented telegraphy through the air by the use of low frequency electric waves. Marconi came along next year with high frequency, long distance waves—now known as wireless.

In 1879 Edison made the first incandescent lamp, thus giving electric light to the world. The filament was a delicate thing of burnt thread that broke at the slightest jar, but it grew red-hot and gave off a little light inside its glass globe.

After that all sorts of filaments were used, year by year, until the industry learned how to make sturdy ones of tungsten. The first electric carbon lamp, known as the arc lamp, was invented by Brush in 1879, and soon came into common use for street lighting. In 1876 Alexander Graham Bell invented the telephone. 1927 saw the first Empire broadcast. So the world goes on; inventions revolutionise the world, and are later improved on to such an extent that the original method becomes obsolete, whilst its principles make other men famous.

STATION FOR WALES

B.B.C.'s LATEST PLAN.

The London "Wireless Export Trader" states: "It is interesting to note that under the new British Broadcasting Corporation's regional scheme it has been definitely decided to allocate one station to a Welsh site to serve the whole of Wales and the South-west of England.

"This station, we understand, will offer two alternative programmes to crystal set owners in the whole of the Welsh area, while a considerable part of one of the broadcasts will be devoted to Welsh items.

"In this connection it may interest some of our readers to learn that in Wales (according to census), 929,183 people speak Welsh, and 1,477,741 speak only English. The majority of Welsh speakers use both languages The suggestion is that a Welsh alternative programme would increase and preserve the use of that language by the 'man in the street' of Wales."

REMOTE CONTROL

NEW RADIO INVENTION.

An electrical device contained in a little box which can be carried about the house or placed on the arm of a chair has been invented for the purpose of tuning a radio set no matter whether it be in the living room, attic or cellar (states the New York "Times"). There are no intervening wire or mechanical connections between the receiving set and the control box. The inventors are Bowden Washington and Wilson Aull.

The system comprises three units or methods of application, which, the inventors contend, can be successfully applied to receiving sets, making it possible to completely control the circuit by the manipulation of two knobs on the little box.

The receiver can be controlled from any spot convenient to the operator without manipulation of the tuning dials of the receiver proper. It is pointed out by the inventors that the main set can thus be installed in an out-of-the-way place and forgotten until a tube replacement or a maintenance adjustment must be effected.

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A VALVE CURE

FILAMENT TOUCHES GRID.

It sometimes happens that the grid of a valve touches the filament or, if the valve is mounted horizontally, the filament may sag on the grid.

When this occurs some remedy is necessary, for the set will not operate with the valves in that condition. If the grid has not stuck to the filament it can be jarred away by rapping the tube on the palm of the hand. At times, however, this is not sufficient.

If you are not sure whether the grid and filament are touching, or something else may be wrong, you can find out easily by connecting two volts from one cell of your storage battery across one of the filament contact pins and the grid contact pin If one-half the filament lights, you may know that they are touching. Do not apply the full voltage, for that might burn out the filament with only one-half of it offering resistance in the circuit.

If the grid and filament are stuck together connect both filament terminals together and put two volts across the grid and filament connections. Then, while the filament is dimly lighted strike the tube on the palm of your hand gently. This will cause the grid to become disengaged. Then it can be jarred back into its place.

RADIO FOR ARCTIC

SPECIAL PROGRAMMES.

On Saturday, December 3, from 10 to 11 p.m., Westinghouse Station KYW and The Chicago Evening American inaugurated a series of programmes intended as a special feature for the listeners-in of the far north, and especially for the outposts of fur companies and Canadian police, where radio sets have been installed for wireless reception.

There are four of these programmes—Saturday, December 3, 1927; Sunday, January 1, 1928; Saturday, January 28, and Saturday, February 11. The New Year's Day programme was to be the usual greetings of the day to those whose only association with the outside world is the ether wave.

By this means, KYW and the associated sections of the Westinghouse Company, KDKA, WZ, WBZA, and KFKX have been able to be of a real service to these men. Radio reaches the listener-in within a fraction of a second and permits them to actually attend a church service, theatre, or studio programme.

KYW and The Chicago Evening American will broadcast a musical feature during each of the four programmes mentioned, and will also transmit personal messages of importance from the families of these men.